

Fig. 1. The Dreamhouse-inspired entrance to *Barbie Gets With the Program* at Living Computer Museum + Labs in Seattle, Washington.

Barbie

gets with
the program

When Barbie was introduced in 1959, she represented a dynamic shift in the type of doll available to girls. Baby dolls inspired girls to play parent and homemaker, but the grown-up Barbie inspired a new kind of aspirational play with many more possibilities.

Over the years Barbie has had more than 150 careers, many of which involve computing. While it may seem radical to imagine Barbie computing in the '70s, the computer science field was actually far more gender balanced four decades ago than it is today. Programming was considered a feminine skill set until the '80s.

As a controversial cultural icon, Barbie has both affirmed and challenged gender stereotypes for as long as she has existed.

Barbie was created by businesswoman and inventor Ruth Handler. Handler once said, "If I had to stay home, I would be the most dreadful, mixed-up, unhappy woman in the world."



Photo: Richard D. White, author of *Barbie: The Computer Girl*, *Computer* magazine, April 1987. Image courtesy: Nathan Chagnac.

Now have come the big, dazzling computers—and a whole new kind of work for women: programming. Telling the miracle machines what to do and how to do it.

LOIS MANDEL

"The Computer Girl"
Cosmopolitan magazine, 1967

This exhibit explores Barbie's relationship with computers and reflects on the societal expectations of women and their careers in computing. From mainframes to tablets, these displays show computer playsets built for Barbie next to the real computers on which they were based.



Feminine Exhibition Design

Margaret Middleton



“Ask a hundred people what inclusion means and you’ll get a hundred different answers. Ask them what it means to be excluded and their answer will be uniformly clear: It’s when you’re left out.”¹
– Kat Holmes, Director of Inclusive Design at Google

A few years ago, I was invited to design an exhibition about Barbie dolls for the Living Computer Museum + Labs (LCM) in Seattle, Washington. The exhibition *Barbie Gets With the Program* tells the story of 50 years of Barbie’s toy computers and the real computers on which they were based (fig. 1).² As I developed the mood boards, I realized how infrequently I use the color pink or round typefaces with curly serifs. Maybe I was even avoiding feminine aesthetics. Why did I wait for a project about the literal icon of white American femininity before I made a pink exhibition?

Reflecting on my experience designing this exhibition, I began to question what I was unintentionally communicating when I chose more masculine approaches. Who was I leaving out when I avoided feminine design choices? What is the effect on visitors when museum spaces are coded masculine? Does it reinforce the hierarchy between masculine and feminine? Are feminine visitors affected negatively? I wondered what it would feel like to experience a museum space that valued femininity.

In this article I examine how implicit bias in museum design discriminates against feminine aspects of design and I challenge the myth of gender neutrality. To more deeply explore femininity in museum design, I propose six principles of feminine design informed by those who value femininity in their design practice.

1 Kat Holmes, *Mismatch: How Inclusion Shapes Design* (Cambridge: The MIT Press, 2018), 4.

2 “From Apple to Barbie: It’s CRAY at Living Computers,” *Seattle Refined* (May 25, 2017), seattlerefined.com/lifestyle/from-apple-to-barbie-its-cray-at-living-computers.

What is Femininity?

The premise of the exhibition *Barbie Gets With the Program* was proposed to LCM by Rachel Simone Weil, an artist and video game historian. Through my conversations with her during the exhibition development process, I gained some insight into how femmephobia manifests in museums and archives. Weil runs a project called FEMICOM museum, a collection of feminine computers and video games. She founded the project when she realized the cute, girly games she loved as a child were left out of tech archives and dismissed by other historians. “I had a realization that this entire swath of video game history might eventually disappear from record, and it might disappear without a thoughtful analysis,” said Weil, “I didn’t want to see these old girly games tossed aside and never cataloged because they were thought to be socially regressive or anti-intellectual in some way.”³ Weil was adamant that I take these Barbie computers seriously.

Femininity is a socially constructed set of attributes associated with women, but not specific to any gender. It varies by culture and changes over time. Most people, regardless of gender identity, express a combination of both feminine and masculine traits. Femininity and masculinity are not binaries existing on a single continuum – more femininity does not necessarily imply less masculinity. Femininity is neither singular nor exclusive.

Because femininity is associated with women, ingrained sexism has aligned the American cultural understanding of femininity with negative characteristics like superficiality and frivolity.⁴ Masculine design however, is

3 Becky Chambers, “Girly Games, Games for Girls, and Girls Who Game: A Conversation with FEMICOM’s Rachel Weil,” *The Mary Sue* (2012), www.themarysue.com/girly-games-games-for-girls-and-girls-who-game-a-conversation-with-femicoms-rachel-weil.

4 Julia Serano, “Chapter 6: Reclaiming Femininity” in *Excluded: Making Feminist and Queer Movements More Inclusive* (Berkeley: Seal Press, 2013), 48–69.

perceived to be more serious and respectable. This systematic devaluation of femininity is known as femmephobia.⁵ By eschewing feminine design characteristics in museums, we not only suggest that feminine people are less valued in the spaces we create, but that masculine people and masculinity is more valued.

Gender Neutral Is Not Neutral

It can be tempting to respond to gender inequity by targeting gender itself and attempting to neutralize it. But in a patriarchal society, men and masculinity are regarded as the norm and women and femininity are considered deviations from that norm,⁶ so attempts at gender neutrality usually skew toward a masculine default. This bias is known as androcentrism and it has been observed across many fields including medicine, language, and design.⁷

As an attempt to bridge the gender divide, the concept of “gender neutrality” has gained traction. One example of this is the way the Western fashion industry has over the years periodically introduced clothing lines described as “unisex” or “gender-neutral.” Overwhelmingly these lines feature traditionally masculine wear, such as T-shirts, loose-fitting pants, and coveralls, and very rarely incorporate traditionally feminine wear like dresses and high heels. In the same way that there are unisex T-shirts and then women’s T-shirts, there is the World Cup and then the Women’s World Cup, literature and then “chick lit,” mankind and then womankind.

5 Rhea Ashley Hoskin, “Femmephobia: The Role of Anti-Femininity and Gender Policing in LGBTQ+ People’s Experiences of Discrimination,” *Sex Roles* (2019), <https://doi.org/10.1007/s11199-019-01021-3>.

6 Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity*, (New York: Routledge, 2006).

7 April H. Bailey, Marianne LaFrance, and John F. Dovidio, “Is Man the Measure of All Things? A Social Cognitive Account of Androcentrism,” *Personality and Social Psychology Review* (July 2018).

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Even in a women-majority sphere like the museum field,⁸ androcentrism persists. “Walk through a museum. Look around a city,” writes engineering professor Debbie Chachra.⁹ “Almost all the artifacts that we value as a society were made by or at the order of men.” A recent study found that 87 percent of the work in major U.S. art museums is by men.¹⁰

Though people of all genders inadvertently perpetuate androcentrism, men are substantially more likely to exhibit androcentrism than women.¹¹ Since men employed as exhibit designers in museums outnumber their women counterparts,¹² it is especially crucial for museum exhibit designers to be aware of this bias.

8 American Alliance of Museums, *2017 National Museum Salary Survey* (Crystal City: American Alliance of Museums, 2017), 19.

9 Debbie Chachra, “Why I am Not a Maker,” *The Atlantic* (2015), www.theatlantic.com/technology/archive/2015/01/why-i-am-not-a-maker/384767/.

10 Chad M. Topaz, Bernhard Klingenberg, Daniel Turek, Brianna Heggeseth, Pamela E. Harris, Julie C. Blackwood, C. Ondine Chavoya, Steven Nelson, Kevin M. Murphy, “Diversity of Artists in Major U.S. Museums,” *PLOS ONE* 14, no. 3 (2019), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0212852>.

11 April H. Bailey and Marianne LaFrance, “Anonymously Male: Social Media Avatar Icons are Implicitly Male and Resistant to Change,” *Cyberpsychology: Journal of Psychosocial Research on Cyberspace* 10, no. 4 (2016).

12 American Alliance of Museums, *2017 National Museum Salary Survey*, 21.

Principles of Feminine Design

Feminine qualities like beauty, comfort, and approachability make for highly effective user-based design, so when these are missing from our work, our bias is showing. Instead of aspiring to an unattainable neutral, some designers choose to express femininity deliberately. While studying architecture, Seattle architect S. Surface received negative critiques from professors who deemed their work “too feminine.” In response Surface intentionally incorporated cuteness and voluptuousness into their building designs.¹³ “Gender distinction, cultivation and determination are deeply and fiercely important to so many people – perhaps nearly everyone,” Surface says, “I enjoy this and don’t want it to go away.”¹⁴

By intentionally embracing femininity in design, we can create spaces that for feminine people exude “ambient belonging” – the sense of being in an environment that is intended for you.¹⁵ Sapna Cheryan, professor of social psychology at the University of Washington, coined the term when she and a team of researchers studied the potential for learning environments to unintentionally reify gender disparity. They found that “the degree to which people (both men and women) felt they belonged in the environment strongly predicted whether they chose to join that group, underscoring the importance of

13 “Femininity in Museums,” panel discussion facilitated by Aletheia Wittman and Margaret Middleton with panelists Jackie Peterson, S. Surface, and Rachel Simone Weil at the Living Computer Museum + Labs, Seattle, Washington, 2016.

14 Mimi Zeiger, “Despite the pulls of gender there is still the work – the ideas, designs, and buildings that transcend any single notion of identity,” *The Architectural Review* (March 2016), www.architectural-review.com/essays/viewpoints/despite-the-pulls-of-gender-there-is-still-the-work-the-ideas-designs-and-buildings-that-transcend-any-single-notion-of-identity/10003382.article.

15 Sapna Cheryan, Victoria C. Plaut, Paul G. Davies, and Claude M. Steele, “Ambient Belonging: How Stereotypical Cues Impact Gender Participation in Computer Science,” *Journal of Personality and Social Psychology* 97 (December 2009): 1045–1060.

belonging in determining choices of members of underrepresented and overrepresented groups.” When women were considered in a learning environment, they felt more welcome.

To determine the kinds of science exhibits that felt welcoming to girls, the Exhibit Design for Girls’ Engagement (EDGE) project, conducted by the Exploratorium in San Francisco, observed visitors interacting with over 300 exhibits in three science museums. The research team identified nine design attributes that positively related to girls’ engagement. One of their findings showed that girls felt more welcome when exhibits felt more light-hearted. As one of their student advisors noted on the topic of whimsical exhibits, “There’s a lot of moments in my life that are serious, where you have to take things seriously, like school and stuff. It’s fun to just relax, play a little, so life’s not so serious.”¹⁶ An exhibition in which visitors can relax and let their guard down may be especially appealing to girls because of the societal expectations of feminine perfectionism they often face.¹⁷

In order to more consciously consider femininity in my work, I developed the following six principles of feminine design. These principles are based on qualities that are generally accepted as feminine in contemporary American culture. Each of these principles is illustrated by a visual example of museum architecture or exhibition design. Though not exhaustive, this list of principles is meant to be a way for exhibit designers to begin to name and notice femininity so we can examine the implicit biases that might prevent us from expressing it in our work – even when it serves visitors best. The following design features offer ways to embrace a

16 Toni Danstep and Lisa Sindorf, “Exhibit Designs for Girls’ Engagement (EDGE),” *Curator* 61, vol. 3 (2018): 485–506.

17 Rebecca Hains, “The Problem with the Pretty Princess Mandate,” *The Princess Problem: Guiding Our Girls Through the Princess-Obsessed Years* (Chicago: Sourcebooks, 2014), 149.

Fig. 2. Curve: the sweeping curves of the limestone exterior of the Smithsonian Museum of the American Indian, Washington DC.

powerful, expansive version of femininity in design practice:

Curvilinear form. The curves of organic shapes invoke nature and the body; they are familiar and comfortable to interact with. Though curves are associated with the bodies of people assigned female at birth, all bodies have curves, regardless of gender. Ergonomic design almost always incorporates curves. The architect Gaston Bachelard considers the curve feminine – in contrast with the masculine line – and describes its hospitality: “The grace of a curve is an invitation to remain. We cannot break away from it without hoping to return. For the beloved curve has nest-like powers; it incites us to possession, it is a curved ‘corner,’ inhabited geometry.”¹⁸ At the National Museum of the American Indian, the sweeping curves of the limestone exterior (fig. 2) evoke the landscape of the Southwest, sacred land to many indigenous nations. Settler colonists described their subjugation of indigenous people and land in feminized and sexualized terms, a concept known as patriarchal colonialism which introduced sexism and homophobia to what would become the Americas.¹⁹ Indigenous feminism aims to reclaim a traditional, positive view of femininity.²⁰

18 Gaston Bachelard, “Corners,” *The Poetics of Space* (Paris: Presses Universitaires de France, 1958).
19 M.A. Jaimes Guerrero, “Patriarchal Colonialism’ and Indigenism: Implications for Native Feminist Spirituality and Native Womanism,” *Hypatia* (Spring, 2003) 58–59.
20 Paula Gunn Allen, *The Sacred Hoop: Recovering the Feminine in American Indian Traditions* (Boston: Beacon Press, 1986).

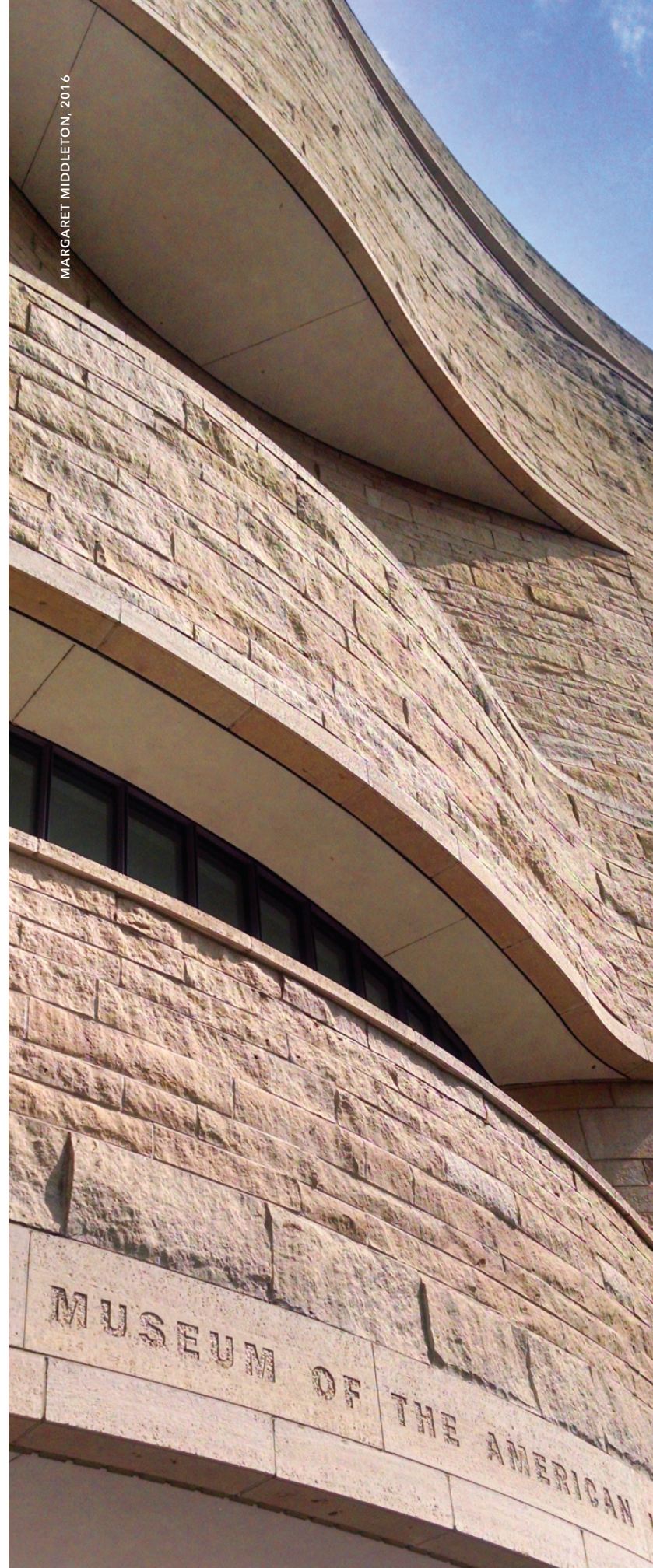


Fig. 3. Softness: visitors lounge on soft carpet and beanbag chairs to gaze up at the undulating installation *1.8 Renwick* by Janet Echelman at the Renwick Gallery, Washington DC.



RON COGSWELL, 2015

Softness. Softness is forgiving and accommodating. A soft environment is conducive to comfort and conversation. Texture, form, and even light and sound quality together contribute to an overall sense of softness through the addition of upholstery, acoustic paneling, and curtains. These components often incorporate textiles, longtime symbols of domesticity and women’s work.²¹ As part of the 2015 exhibition *Wonder*, artist Janet Echelman’s installation transformed the Renwick Gallery’s Grand Salon with textiles. In addition to her hammock-like, nylon-fiber artwork hanging from the ceiling, she also used diffused light, a soft, quiet carpet made from repurposed fishing nets, and squishy beanbag chairs from which to observe the entire effect (fig. 3).



MARGARET MIDDLETON, 2019

Fig. 4. Nurturance: shades of green and natural woodgrain communicate warmth and growth in *The Very Hungry Caterpillar Turns 50* exhibition at the Eric Carle Museum of Picture Book Art in Amherst, Massachusetts.

Nurturance. Because of its association with motherhood, nurturance is commonly referred to as a feminine trait. Poet and community organizer Cynthia Dewi Oka describes motherhood as a social practice. “The ethos of mothering,” she writes, “involves valuing in and of itself a commitment to the survival and thriving of other bodies.”²² A nurturing environment fosters comfort and growth. Natural materials like wood and fiber exude warmth. Conveying warmth does not necessarily require the use of warm colors like red or orange. The 2019 exhibition *The Very Hungry Caterpillar Turns 50* at the Eric Carle Museum of Picture Book Art conveyed a sense of calm and welcome with a palette of greens and natural materials (fig. 4).

21 Judith Brown, “Note on the Division of Labor by Sex,” *American Anthropologist* 72 (1970), 1075–76.

22 Cynthia Dewi Oka, “Mothering as Revolutionary Praxis,” *Revolutionary Mothering: Love on the Front Lines* (Oakland: PM Press, 2016), 52.

A thick green carpet cut into playful curves invited visitors to curl up in one of the cozy book nooks and read picture books from nearby maple veneer bins.

Sparkle. Sparkle brings to mind glitter and fairy dust, hallmarks of toys marketed to girls. Feminist photographer Marilyn Minter is famous for using sparkle in her work exploring feminine sexuality, contrasting girlish glitter with intentionally disturbing or disruptive imagery. Sparkle is a verb as well as a noun and it can occur through glow, refraction, and reflection. In the 2019 exhibition *Gender Bending Fashion* at the Museum of Fine Arts, Boston, senior designer Chelsea Garunay achieved a glamorous effect with sparkle by utilizing triangular walls of dichroic acrylic to reflect the glow of exhibit lighting and scatter colorful reflections across the ceiling (fig. 5).

Color. The go-to color for femininity may be pink, but bright colors in general are associated with femininity. Whether you are in the mall, the deodorant aisle, or on the red carpet, you will notice items for women tend to be lighter, brighter, and more colorful and items for men are more likely to be darker and confined to a smaller range of color. In contrast with those darker, more muted colors which are considered serious, bright colors are perceived as playful. Bright color can inject beauty, levity, and playfulness into an environment. One of the exhibits that ranked well in the EDGE research project was an Exploratorium exhibit in which visitors play with their brightly colored shadows (fig. 6).

Fig. 5. Sparkle: exhibit lighting ricochets off dichroic acrylic panels, creating a sparkling effect in the *Gender Bending Fashion* exhibition at the Museum of Fine Arts in Boston, Massachusetts.



Fig. 6. Color: visitors play with their colorful shadows at the Exploratorium in San Francisco, California.

Fig. 7. Humility: visitors respond to a talk-back board in *Mimi's Family: Photography by Matthew Clowney* at the Boston Children's Museum in Boston, Massachusetts.



MATTHEW CLOWNEY, 2016

Humility. Essential to any human-centered endeavor, be it leadership or design, is humility. Kaywin Feldman, director of the National Gallery of Art in Washington, DC, explains that although competitive, assertive leadership is more highly respected, the communal style typical of women leaders is more effective. “A reason that women are perceived to lack gravitas,” Feldman writes, “is because they often demonstrate more of a human-centered leadership style.” Museums express humility by sharing authority and inviting visitors to add their voices and perspectives. In *Mimi’s Family: Photography by Matthew Clowney*, a 2016 exhibition at the Boston Children’s Museum about a family with a transgender grandparent, visitors were invited to contribute their stories. Instead of defining the meaning of family for visitors, a talk-back board invited them to “tell us about your family” in their own words (fig. 7).

A More Feminine Future

Over the years I have had the privilege of being invited into museum spaces to discuss matters of inclusion. When I realized how my own internalized femmephobia was affecting my design work, I recognized feminine design was another aspect of inclusion work. The resistance that I am met with when I introduce these ideas in inclusion workshops are indicative to me of the potency of femininity and how deep femmephobia runs. Gender nonconforming writer and performance artist Alok asks, “What feminine part of yourself did you have to destroy in order to survive in this world?”²³ What of me has been missing in my work? What part of my design practice has suffered as a result of my self-censorship?

23 Alok Vaid-Menon, *Femme in Public* (Alok Vaid-Menon, 2017).

When we dismiss femininity in our work, we designers are sending signals, overt and subtle, to feminine people that they are not valued in the spaces we create.

Exhibition designers may not always be brought into institutional discourse about inclusion, and as a result they may not see themselves as part of the larger movement to make museums more welcoming. Yet as evidenced by the examples of feminine design in practice, the choices designers make can have powerful effects. By gaining awareness of femininity in design, exhibit designers can more intentionally create museum spaces that are welcoming for people of all gender expressions. By simply naming and noticing these design principles, I am better equipped to challenge my biases and design more inclusive museum exhibitions.

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