Using Personas in the Design Process of Digital Exhibit Interactives
Creating Museum Media for Everyone (DRL-1114549)

Stephanie Iacovelli (siacovelli@mos.org)
Museum of Science, Boston

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The *Creating Museum Media for Everyone* (CMME) project created personas, or hypothetical archetypes of actual users, to guide the design process of the four prototypes produced during the CMME Prototyping Workshop. The personas are not real people, but they are based on real user data and they represent users that should be considered throughout the design process.

The personas included in this document were created specifically for the *Creating Museum Media for Everyone* (CMME) project using data from numerous Museum of Science research and evaluation studies, including audience segments from the Museum of Science's ongoing Visitor Experience Monitoring project. The personas reflect characteristics of Museum of Science visitors, which are not necessarily the same as audiences at other museums or science centers. This is to say that the CMME personas of people with disabilities should not be used in other museums because they are purposefully based on Museum of Science data. Similarly, personas for one project cannot be successfully recycled for another project because they are created with the specific project objectives in mind.

The following eight personas were developed by the Museum of Science Research and Evaluation department. Each persona is identified by name and includes a list of background attributes relevant to his or her experience as a Museum of Science visitor. Each persona also includes a quote and a narrative describing how he or she typically uses interactives and experiences the Museum.

RON

Age: 32

Disability: Low vision

Experience with technology: Expert with computers; experience with computer programming

Relationship to science: Has always had an interest in science

Museum experience: Visits MOS whenever a new exhibit opens up or a new show comes out

Museum social group: Visits museums with his friend who helps him navigate the space

"I can see if I get up close, but I don't want to get in others' ways."

Ron describes himself as an avid reader. He reads using a variety of methods, including reading small print with a magnifier, using audio, and reading Braille. Reading is easiest when white letters are on a black background. Ron is unable to see details, which becomes more difficult in brightly lit settings.

To use interactives in the museum, Ron generally puts his face up close to the screen so he can read the text and see the images. He also uses any accompanying audio components. Touch screens are easiest to use when they include voice activation and when they are high enough for him to bring his face close to them. He prefers to visit the Museum on days that are less crowded because it can be daunting when there is a rush of people. When many visitors are waiting to use an exhibit, Ron sticks to only using the audio components because he doesn't want to fight his way to the front to read the text. Interactives with small text require Ron to use his magnifier, in addition to getting close to the screen.

CYNTHIA

Age: 56

Disability: Became blind as an adult

Experience with technology: Uses computers for reading and writing; Refers to email as a lifeline for people who are blind

Relationship to science: Knows basic science

Museum experience: Used to visit often when her daughter was younger because it was fun, but she does not visit much anymore

Museum social group: Visits MOS with her husband and daughter

Aid used in museums: Seeing-eye dog

"Directions must be very specific. Not necessarily simplified, but specific."

Cynthia is a retired, high school social studies teacher who is used to adapting things to make them work for her. When using interactives at the Museum, Cynthia is very reliant on the audio information to give her directions. She notes that this information must be very specific in order for her to know what to do. Although she can read Braille if it is embossed clearly, she prefers to receive information through speech, and for that reason she thinks the specificity of audio instructions directly correlates to her success at the interactive. It is easiest for her to use the interactive when the instructions are organized in steps because that allows her to break down the big picture. It is also helpful if long audio segments give her options to go back, repeat the instructions, or stop listening.

Consistency is another factor that helps Cynthia complete an activity. For example, using the same buttons in different ways or placing the menu in different places throughout an activity can be frustrating. Similarly, when describing locations, Cynthia is more confused by the use of cardinal directions than by using "left," "right," "behind," and "in front of." After hearing the instructions, Cynthia relies on the tactile components of the interactive in order to follow those directions and complete the activity. If there are no audio directions at an interactive, she feels around on the kiosk and randomly pushes buttons until she has an idea of what to do.

ADDISON

Age: 13

Disability: Deaf

Experience with technology: Uses the internet mostly to play games and interact with her friends from school

Relationship to science: Has been introduced to science in school, but sometimes struggles with the concepts

Museum experience: Visits MOS often with her family, who values the educational experience at the Museum

Museum social group: Addison visits museums with her family, including her two parents and a little brother. Her mother and father are proficient in ASL, and her brother is beginning to learn it.

"I get overwhelmed if there is too much visual information on the screen."

Addison became deaf before she was three years old, and ASL is her primary language. She relies somewhat on tactile information, but predominantly looks to visual cues for information.

When using an interactive at the Museum, it is most helpful for Addison to receive instructions through an active video (rather than a video of someone giving a speech with captions). Even though she agrees that text can be necessary, Addison notes that images are easier for her to understand than text because ASL, her primary language, is image-based. However, when too much visual information is presented on the screen at one time, it can distract her from following the correct directions. She also notices "visual noise" in her periphery, which is equally distracting. If there is an audio component present at the interactive, Addison will put her hand on the speakers to feel the sound's vibration. She often becomes frustrated when an audio component is part of an exhibit, thinking that she must be missing out on some information that everyone else can hear. Addison sometimes avoids parts of an exhibit that appear to be strongly audio-based. Her parents will generally try the activities in the areas that she skips to let her know if they include captions or visual instructions. In these cases, an icon denoting captioning would let her know if she could take part in the activity. Addison finds it challenging when the interactive's screen times out while she is signing a question to her accompanying family members.

ALLAN

Age: 71

Disability: Hearing loss, but does not consider himself to have a disability

Experience with technology: Finds that he doesn't need computers very much, so he only uses them for the essentials

Relationship to science: Has always loved science and learns a lot of his current science knowledge while volunteering at MOS

Museum experience: Volunteers at MOS, which he and his wife decided to do after retiring. They visited the museum so often that they thought it would be a great place to volunteer.

Museum social group: Allan and his wife often come to the Museum with their two grandchildren who visit occasionally

Aid used in museums: Hearing aids, but the volume is only turned up slightly

"Speech is hard to follow if there is a big tonal range."

Allan is a retired doctor, who volunteers at the Museum. He notices the aesthetics of the exhibits and gets frustrated when someone thinks he knows American Sign Language simply because he is wearing hearing aids. Allan is slow and strategic when using an interactive, being sure of his next move before he makes it. He looks closely at the visual content and occasionally uses the audio components. He says that he is more likely to listen to the audio when there is low background noise, and notes that aural information is most easily accessible when the words are spoken in monotone. Having slow-paced audio labels is another important factor for Allen, especially when he is trying to read lips from a video.

MIMI

Age: 47

Disability: Multiple Sclerosis

Experience with technology: Not an advanced computer user, but she is getting better all the time

Relationship to science: High school science background; Has learned a lot from the Museum over the years

Museum experience: Visits MOS and other museums fairly often and thinks it's a good way to spend time as a family

Museum social group: Visits with her husband and son

Aid used in museums: Power scooter

"My experience with the Museum of Science has changed, but it is still very enjoyable."

Mimi has been living with Multiple Sclerosis for the past 12 years, and has been coming to the Museum for the past 20 years. She's experienced the Museum both as visitor with a disability, and one without. At this point, Mimi has reduced upper and lower body strength, including limited hand mobility. When using an interactive, Mimi drives her scooter close to the component and sits up in her chair so that she can better reach it. She sometimes has trouble properly positioning her scooter, especially if there is a stool that's difficult for her to move without help. When pressing the buttons, Mimi uses her whole hand instead of her fingers so she can put more strength into the intended action. Knobs and cranks are especially difficult for her to use because of her limited upper body strength and hand mobility. When an interactive has a touch screen, Mimi is unable to touch the correct button without help from her husband or son. When using a touch screen, it's common for Mimi to accidently rest her hand on the screen, which tends to interfere with the interaction if the screen is not multi-touch enabled.

MOLLY
Age: 27
Disability: Intellectual disability
Experience with technology: Relatively comfortable with basic computer use, like email and web surfing
Relationship to science: Doesn't particularly like science
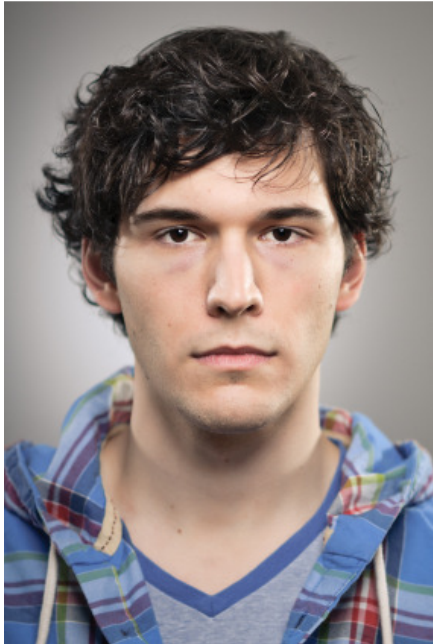**Museum experience:** Visits MOS once a year
Museum social group: Molly visits the Museum with other residents at her assisted living center and accompanying staff members

"It doesn't harm anyone to repeat some things."

Molly lives with two other women at an assisted living center in the greater Boston area. This group visits the Museum of Science when they receive exhibit hall passes from the Museum's community outreach department. Because living at the center often focuses on learning life skills, visiting the Museum is seen as a treat from more everyday outings, such as going to the grocery store.

When using museum interactives, Molly sometimes listens to the audio component multiple times to understand what she is being asked to do. She prefers audio components that have a slower pace and use some repetition. This allows her to access the information on the first listen. When reading text on the screen, she reads the words aloud once or twice, which can lead to the interactive's screen timing out. Additionally, the use of direct, simplified language in text and audio allows her to access the information more effectively. She also finds that simultaneous audio and text input helps her to understand the content more quickly. At times, Molly does the activity again from the beginning.

ALEC

Age: 24

Disability: Autism Spectrum Disorder

Experience with technology: Comfortable with computers

Relationship to science: Likes the idea of science, but has had trouble learning it in the past

Museum experience: Visits MOS frequently, but prefers art museums, and shares that interest with his mother. They have been visiting various museums since he was a child, and their family has learned that visiting the same museums multiple times makes Alec more comfortable.

Museum social group: Accompanied by his mother

"Receiving too much information at once is overwhelming."

Alec prefers quiet environments with lighting that is not overwhelmingly bright. However, spaces that are too dark are also daunting. He and his mother attend museums on days that are sure not to be busy– Tuesday at noon is perfect for them. In terms of receiving information, it is important that Alec's senses aren't overstimulated. When using interactives, he likes to be able to manage the amount of sensory stimulation he receives. For this reason, he is happy when interactives have the option to turn some modes on or off. Alec and his mother tend to do interactives together. When completing an interactive's activity, Alec prefers explicit instructions so he knows what to expect and there are no surprises. The pace needs to be slow for audio instructions, otherwise Alec can get frustrated when he needs to listen to them multiple times. Images or videos showing him what to do are also helpful in guiding Alec through an activity. Sometimes he will do the same activity multiple times, getting more and more independent each time.

CAMERON

Age: 16

Disability: Does not consider himself to have a disability

Experience with technology: Uses his laptop mostly for playing games, watching movies, and social networking

Relationship to science: Enjoys his math and chemistry classes in school

Museum experience: His grandmother brings him and his sister to different museums in the Boston area, but the Museum of Science is his favorite. His grandmother thinks that museums are a great place to learn.

Museum social group: Grandmother and 7-year-old sister.

"I don't always know how to begin, but I can usually figure it out."

Cameron and his younger sister spend every Saturday with their grandmother, who often decides to take them to different museums. He prefers to interact with the exhibits by himself, which is difficult when his little sister is around. She likes to follow him around the exhibit and use whatever interactive he is using. His grandmother usually takes his little sister to another part of the gallery, while staying in the same exhibit area as Cameron.

Cameron is drawn to touch screens and virtual experiences, particularly parts of an exhibit that work like his iPhone. He may have trouble knowing how to start using an interactive, but he is efficient at problem-solving and tends to stay at an exhibit until he figures out what to do. After approaching an interactive, Cameron begins by reading the text and looking at the images. If he still doesn't understand how to start, Cameron will start pushing buttons. Once he figures out what to do, he uses both hands to press buttons and tends to work through an activity fairly rapidly. Cameron will often walk away from an activity not knowing how the concept applies to his life, or why he should care about it.