

# MoPOP

MUSEUM OF  
POP CULTURE

## **P5b. PROJECT REPORT**

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# EXECUTIVE SUMMARY

## OVERVIEW

This report outlines the usability study completed on the MoPOP (Museum of Pop Culture) mobile website. The goal of this study was to assess the usability of the MoPOP.org mobile ticket ordering process. A majority of MoPOP site visitors visit on their mobile phone, but a majority of ticket conversions are completed on desktop. MoPOP's goal for this usability study was finding out why most site users purchase tickets on desktop as opposed to on their mobile phones, and determining if a change to the mobile site could lead to an increase in mobile site conversions.

Our primary research questions were:

1. How successfully do users:
  - a. Navigate through the General Admission ticket process
  - b. Navigate through the Event/Exhibition ticket process
2. What obstacles or frustrations prevent users from making an online ticket conversion?

## PARTICIPANTS AND METHODOLOGY

A heuristic evaluation and usability tests were conducted independently. The heuristic evaluation was completed by each of the four student researchers using the ten usability heuristics created by the Nielsen Norman Group.

The usability test was conducted with six participants (4 male, 2 female) who indicated via a participant screener that they had never been to MoPOP before. Because most attendees of MoPOP are one-time tourist visitors, we wanted to find participants who, although local to Seattle, had never attended the museum. The user testing consisted of two tasks: purchasing a general admission ticket and purchasing an exhibition ticket, both while using their mobile phone to access MoPOP's mobile site.

## FINDINGS AND RECOMMENDATIONS

The heuristic evaluation yielded three unique issues:

1. The system does not highlight field with an error
2. There is no indication of where the user is in the process of completing a purchase
3. There is no visual distinction that the purchase button is a finishing action

The usability testing yielded six major issues, nine minor issues, and two cosmetic issues. The major issues include:

1. Billing information fields are cut off such that user can not see their full entry
2. Users could not find promo code field
3. There is no clear indication of how ticket will be delivered
4. There is no indication of a button being pressed
5. Users experienced considerable unnecessary scrolling
6. Users could not find exhibition tickets

The usability testing results indicate that the mobile website is learnable but not intuitive. Of the six participants, all six indicated they would prefer to complete the ticket purchasing process on a desktop if given the choice.

## OVERVIEW

The Museum of Pop Culture, also known as MoPOP, is looking to improve pages and workflows on their mobile website, MoPop.org. The purpose of this study is to identify usability issues with the MoPOP ticket ordering process on mobile phones. 60% of the users who access MoPOP.org do so on mobile devices, and for that reason we focused our efforts on studying the responsive site. This study looked at 2 different workflows: purchasing a general admission museum ticket and purchasing a ticket to an exhibition. We determined the usability issues in these workflows in order to make the MoPOP site easier to use on a smartphone and increase mobile ticket purchases in the future.

The specific objectives of this study include:

1. Identify issues that might deter MoPOP mobile users from completing an online ticket purchase.
2. Assess the ease of viewing MoPOP museum event details and purchasing an online ticket.
3. Determine user satisfaction with mobile ticket conversion.

The questions we intend to investigate are based on the current interaction flow of MoPOP.org (see appendix page 10). We answered the following research questions as part of this study:

1. What is the path users take when completing an online ticket purchase?
2. What is the path users take when searching for museum events?
3. Are the number of steps taken by the users to fulfill each task given to them based on each planned scenario in line with assumed metrics? And if not, why is that so?
4. How successfully do users:
  - a. Navigate through the General Admission ticket process
  - b. Navigate through the Event/Exhibition ticket process
5. What obstacles or frustrations prevent users from making an online ticket conversion?

## PARTICIPANT PROFILES

The user group defined with this project is fairly broad, as the bulk of museum attendees are tourists within a wide age range. We tested the MoPOP ticket ordering workflows with 6 participants between the ages of 18-35. Four of our participants were male and two were female.

ID#	Gender	Age Group	Works in UX?	Workflow	Phone	Browser Preference
1	F	18-25	No	A	iPhone 5	Safari
2	M	26-35	No	B	Android	Chrome
3	M	26-35	Yes	A	iPhone 10	Chrome
4	M	26-35	No	B	Galaxy s5	Chrome
5	F	18-25	No	A	iPhone 6	Safari
6	M	18-25	No	B	iPhone 5	Safari

The most important criteria in our screener was whether or not the participant had ever been to MoPOP. We only wanted to test first-time visitors in order to more closely mimic MoPOP's main demographic: tourists who are new to Seattle. Every participant we tested indicated in the screener that they had never visited MoPOP, but participant 6 later told us he had been to MoPOP. We decided to keep his data in our data set because he'd never purchased a ticket to MoPOP online. Our participants used a range of cell phones and browsers to access to MoPOP mobile site, ensuring that any findings shared between participants were not a bug or byproduct of a specific phone or browser.

## METHODS

We used two methods to evaluate the MoPOP ticket-ordering process: a heuristic evaluation and a think-aloud usability study. The heuristic evaluation allowed us to do a detailed analysis from a professional perspective, and the think-aloud user study gave us insights on real site use and participant attitudes toward the process.

### Heuristic Evaluation

We performed the heuristic evaluation by each analyzing the site individually, then came together to synthesize the key findings from the results. We compiled violations and successes of the site within these ten heuristics outlined by the Nielsen Norman group:

Heuristic	Description
Visibility of system status	The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
Match between system and the real world	The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
User control and freedom	Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.
Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
Error prevention	Even better than good error messages is a careful design which prevents a problem from occurring in the first place.
Recognition rather than recall	Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use	Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
Aesthetic and minimalist design	Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
Help users recognize, diagnose, and recover from errors	Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.
Help and documentation	Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

### Usability Study

Testing took place between February 26th and March 6th. Prior to beginning the test, each participant signed a video release consent form and completed a pre-test questionnaire to determine their familiarity and previous experience with buying tickets on their mobile phones. The usability test began with the moderator providing general information regarding the purpose of the study, then the participant completed the workflows. We encouraged participants to think aloud as they completed their tasks. Each participant was given a promo code specific to the study that allowed them to complete one ticket conversion at no cost.

Half of the participants began with task A, and the other half began with task B.

**Task A.** Purchase a general admission ticket for MoPOP

**Task B.** Purchase a ticket for a special exhibition

Following the completion (or incompleteness) of the initial task, the participant was instructed to complete the secondary path, but to stop at the point of entering personal information and not attempt to complete a second purchase. Therefore, half of our participants completed workflow A and the other half completed workflow B.

**Workflow A.** Purchase a general admission ticket -> then attempt to purchase a ticket for special exhibition but stop at the point of entering personal information

**Workflow B.** Purchase a ticket for special exhibition -> then attempt to purchase a general admission ticket but stop at the point of entering personal information

After each workflow, the moderator asked a few post-task questions. After the user completed both tasks they completed a short survey and debrief.

## FINDINGS AND RECOMMENDATIONS

### SUCCESSSES

Overall, participants were satisfied with their experience using the MoPOP mobile site. When asked if the participants felt this process was similar to online purchases on other websites, most replied with "yes, for the most part." There was considerable overlap between the findings of the heuristic evaluation and the usability testing. The table below presents notable successes from the usability testing as well as the unique findings from the heuristic evaluation.

Method	Success	Description
Heuristic Evaluation	Visibility of system status	<p><b>Some buttons give user feedback</b> The "Tickets" button within the hamburger dropdown on the homepage as well as the "Plan your visit" page are both visually responsive when clicked.</p> <p><b>Processing action gives user feedback</b> "Continue" buttons during the purchase process change to say "Processing" when clicked, showing that the information is being parsed, and will take some time.</p>
Heuristic Evaluation	Match between system and the real world	<p><b>Site uses real world language</b> Verbiage like "Add to cart" make the process intuitive and similar to other online shopping experiences.</p>
Heuristic Evaluation	User control and freedom	<p><b>Flexible purchasing options</b> Users are able to purchase multiples tickets of several types at one time.</p> <p><b>Data is saved</b> The data is saved - even when users click out of the process, their ticket is still in the cart.</p>
Heuristic Evaluation	Consistency and standards	<p><b>Ticket types are clearly distinguished</b> The distinction between a regular ticket and an event ticket is made clear.</p> <p><b>Consistent colors</b> The same color scheme is used across the entire website.</p>
Heuristic Evaluation	Error prevention	<p><b>Option to review</b> There is a step where users can review their inputted information prior to confirming the ticket purchase.</p> <p><b>User friendly calendar format</b> The date selected is presented on the following screen after selection as a reminder for users that is their correct date.</p>

Heuristic Evaluation	Recognition rather than recall	<b>Consistent with industry standards</b> The sight mimics what is industry standard for a normal flow through online ticket purchasing.
Heuristic Evaluation	Flexibility and efficiency of use	<b>Option to create account</b> The user is given the option to log in to their account so they can bypass the process of entering their personal information upon repeated interaction with the site.
Heuristic Evaluation	Aesthetic and minimalist design	<b>Aesthetically pleasing</b> The site is on brand with a consistent color scheme, intentional use of white space, and good use of typography, hierarchy and margins.
Heuristic Evaluation	Help users recognize, diagnose, and recover from errors	<b>Clear language surrounding errors</b> If there is an error on the page, the system lets the user know what the error is in an understandable language.
Usability Testing	"Buy Tickets" button is big and noticeable	The button to purchase tickets is bright pink, large, and easy for users to find.
Usability Testing	Users can make a purchase without creating an account	Most of our participants were new to the site and opted to check out as a guest. The site allows for this capability and does not require ticket purchasers to create a login.
Usability Testing	Quick link to Tickets page from search engine	By selecting the "Tickets" link directly from a search engine, users are directed to the page to purchase a ticket. This streamlines the purchase process and reduces the number of clicks users make when completing a conversion.
Usability Testing	Phone number input field takes multiple formats	The input field where users enter their phone number does not require a specific format, making it easier for users to enter information without error.
Usability Testing	System recognizes an existing user	One of our participants did have an existing login and the site recognized the return user.



### OPPORTUNITIES

As mentioned previously, we led our participants through two flows. Flow A = General Admission ticket purchase -> Exhibition ticket, and Flow B = Exhibition ticket -> General Admission ticket. Upon making a conversion, the task was marked as successfully completed. The data below represents the completion rate for each task described above in the methods section.



Three out of three Flow A participants failed their first task, but all succeeded at the second task. Flow B had similar results as two out of three participants failed their first task, but successfully completed their second. Therefore, we found that the mobile website is **learnable**. All of our participants successfully completed their second task even if they failed the first.

Many of our findings from both the methods overlapped, but there were opportunities revealed through the heuristic evaluation that did not arise in the usability test. The table below presents these findings.

Method	Opportunity	Description
Heuristic Evaluation	Visibility of system status	<p><b>No visual indication of where you are in the process of purchases</b></p> <p>There is no indication of how far along the user is in the purchasing process until the user gets to the billing information screen. At that point there are three steps listed at the top of the screen, but the highlighted section is incorrect.</p> <p><b>Inconsistency of how buttons change after being pressed</b></p> <p>A couple of buttons provide some visual feedback when they are pressed, but there is no consistency. Some change color to a shade darker, and others underline the words on the button.</p>

Heuristic Evaluation	User control and freedom	<p><b>No clear back option in some places</b> There is no back button (other than the browser default back button) for the user to take a step back and change their visit date if they wish to once they are in the personal information section.</p> <p><b>No clear exhibition end date</b> There are notes above the visit date calendar that show when special exhibitions open, but not when they end. In order to determine when an exhibition ends the user must abandon the ticket buying process and go to another page.</p> <p><b>Checkout as guest option is scrolled off screen</b> Users have the option to login, register, or check out as a guest, but the guest option is only visible when one scrolls to the bottom of the page.</p>
Heuristic Evaluation	Consistency and standards	<p><b>User is unnecessarily prompted to log out</b> Once the order process is complete, the user is prompted to log out even if they never created a log in.</p> <p><b>Inconsistent button styling</b> Buttons are not all one color on the site; some are white with pink outline and some are pink inside.</p>
Heuristic Evaluation	Error prevention	<p><b>No information validation</b> When entering personal information the user is able to enter junk data without an error. For example, entering letters in the zip code field</p>
Heuristic Evaluation	Recognition rather than recall	<p><b>Ticket prices not obvious at every step</b> The ticket prices are not carried through the process so a user must remember the price of each ticket from the initial pricing chart.</p>
Heuristic Evaluation	Aesthetic and minimalist design	<p><b>Finishing action is not distinguished from other actions</b> The final "buy ticket" button has no weight associated with it (no differentiated style from other buttons)</p> <p><b>Format is not always optimized for mobile</b> In some places there is a bulk of information that is not completely legible on mobile. For example, the big grid of prices is above the buy tickets button and users have to scroll down to find the buy ticket option.</p> <p><b>No padding between certain elements</b> There are some elements that do not have padding between them. For example, the 'Continue shopping' and 'Proceed to checkout' buttons.</p>

		<p><b>Confusing menu layout</b> The user can get themselves deep in the hamburger menu. It becomes difficult to discern open from closed sections and the hierarchy becomes fairly confusing on mobile devices.</p> <p><b>Unstyled elements</b> Many of the inputs and dropdowns throughout the purchase process are unstyled HTML</p> <p><b>Unnecessary information on General Admission tickets</b> On a General Admission admission ticket purchase flow there is information about exhibitions but no context for it.</p>
Heuristic Evaluation	Help users recognize, diagnose, and recover from errors	<p><b>No error highlighting</b> When a user fails to enter required information into the form the system alerts them to this fact, but does not take the user to the error and highlight exactly where.</p>

We organized our usability test findings on a three tier rating scale. From the testing, our participants revealed **6** Major issues, **7** Minor issues, and **2** cosmetic issues with the mobile site.

**Major** - Causes significant frustration, delay, sometimes inability to complete a task; high priority fix

**Minor** - Small effect on usability but is an issue to keep an eye on; low priority fix

**Cosmetic** - Issue that should be fixed if time allows, but does not impair the users ability to use the site

The following tables rank our usability test findings by severity (Major, Minor, Cosmetic), along with recommendations for how to approach the Major enhancement opportunities.

## MAJOR FINDINGS

MAJOR Finding #1 **Billing information fields are cut off**

Issue found in **6/6** studies

The billing information fields do not fit on the screen and the first 5 characters are cut off. This makes it very difficult for users to enter their personal information. In some cases, like the state field, the user can not see any of their entry.

**“Would rather use my desktop to alleviate any confusion.”**

-Participant 5

2:57 store.mopop.org

PRODUCT SELECTION + PAYMENT + CONFIRMATION

Your cart items will expire in 10 minute(s)

ENTER YOUR BILLING INFORMATION

Please enter your billing information below:

First Name\* Address\*

Last Name\* \*

Email Address: City\*

State/Prov\* ntion

Phone Number: Postal Code\*

Country\* \*

**RECOMMENDATION:** Change the organizational structure to a single-column layout (for mobile) so that all the text fields and labels are clearly visible. This should help improve usability as the users will be able to see what they're typing, and they would not have to scroll and zoom as much as they do now.

MAJOR Finding #2 **Promo code field is not in standard location**

Issue found in **5/6** studies

Most users expected the promo code field to be on the same page as the billing information. Several of the users tried to enter the promo code into the gift certificate field without success. None of the participants who struggled to find the field went back to the first page and found it, suggesting this first page is not an intuitive place for the promo code field. Additionally, almost every user expressed verbally that they expected the promo code to be entered on the same page as the billing information.

Verizon 2:47 PM 94%

store.mopop.org

Log In Promo submit

SELECT VISIT DATE

Prince From Minneapolis opens April 6, 2019.

Special exhibition, A Queen Within: Adorned Archetypes opens May 11, 2019.

Members get FREE museum admission and discounts to events. LEARN MORE ▶

March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9

**RECOMMENDATION:** Changing the position of the “Promo Code” field from where it is currently positioned to be next to the “Gift Certificate” field should alleviate this issue. Best practices followed across popular e-commerce websites (e.g. Amazon.com) have often combined the Promo Code and Gift Certificate fields as one, and these fields have labels such as “Promo Code or Gift Certificate” and usually function to accept both types of codes, even though the structure of the codes is generally different.

## MAJOR Finding #3 Ticket delivery method is not clear

Issue found in **2/6** studies

Several participants expressed that they did not know how the ticket would be delivered, or were frustrated that they were not given an option of how the ticket would be delivered. There is no indication that the ticket will be delivered to the email the user enters during check-out.

The screenshot shows the checkout page for store.mpop.org. It includes an 'ORDER DETAILS' section with a table of items, a 'CONTRIBUTE TO MoPOP' section with a text input and 'Add to Cart' button, and a 'PAYMENT INFORMATION' section with dropdowns for card type, name, and expiration, and a text input for the security code. A note at the bottom indicates that asterisks denote required fields.

Description	Type	Qty	Price	Total
MoPOP Tickets	MoPOP Admission Only	1	\$26.00	\$26.00
				<b>\$26.00</b>
				Total: \$26.00
				Amount Due: \$26.00

**RECOMMENDATION:** There should be a clear indication before the user clicks the submit/purchase button that the ticket will be delivered to the email ID that they have provided. Ideally, this information is best dispensed out when the user is filling out their email address to make sure the user enters a valid email address. Additionally, it can also be displayed on the checkout page.

## MAJOR Finding #4 No indication of a button being clicked

Issue found in **5/6** studies

Most of the buttons in these workflows do not give any visual indication that they are being clicked. Users expressed confusion multiple times because they were not sure if they should wait for the system to respond or click the button again. This issue was perpetuated by the slightly longer time it takes for the 'add to cart' button to refresh the system. This led to users ending up with multiple of the same tickets in their shopping cart.

**RECOMMENDATION:** Every button click needs a visual confirmation so that the user understands that their response was submitted. This can be in the form of an animation around the button itself, to signify that the button is being pressed. Another form would be to instantly show any form of a "loading" animation, until the next screen is loaded, or the next action is performed.



MAJOR Finding #5 **Unnecessary scrolling**

Issue found  
in **3/6** studies

Most screens in these workflows do not resize to fit a phone screen. This caused users to do a lot of scrolling up and down and side to side to see everything on the screen. Several users commented on this being a frustrating part of the process.

**“Not easy for a first time user.”** - Participant 2

**RECOMMENDATION:** Everything on the page should be displayed within the width of the mobile screen. A single-column layout, as mentioned earlier, will solve a part of this problem. While pieces like the ticket prices table are an important source of information, having to use scroll/zoom causes unnecessary burden on the user. This can be easily addressed by making sure that the width of the table adjusts according to the mobile screen and that everything fits. Aside from that, you should consider taking out any unnecessary piece of information that is taking too much real estate, from the mobile site.

MAJOR Finding #6 **Confusing workflow to purchase exhibition ticket**

Issue found  
in **3/6** studies

Many of the participants initially tried to purchase an exhibition ticket through the large “buy tickets” button. From there the users could not find a clear distinction between general admission and exhibition tickets. The users were not inclined to click on the list of exhibitions from the menu at first and expected to find exhibition tickets through the ‘buy tickets’ option.

**“Finding where things were was a little cumbersome.”** - Participant 6

**RECOMMENDATION:** Although the banner images lead straight to purchase some of the special exhibition tickets, the users who come directly to the Tickets page, should also be given a clear option to choose between Museum Admission ticket and a ticket for a special exhibition on the ticket page. This can include separate buttons for each type of ticket to clearly display the difference. You can also use a separate theme (to coincide the theme of the banner) to make this ticketing route distinct from the general admission ticketing route.

## MINOR FINDINGS

MINOR Finding #1 **List of exhibitions and details is difficult to find**

Issue found  
in **2/6** studies

Users struggled to find a list of exhibitions all on one page. Most users expanded the current exhibition section in the menu to see the name of each exhibition, but did not navigate to the main exhibition page where they could see the exhibitions and details about each on one screen.

**MINOR Finding #2 Users tried to click on the prices in the grid**

Issue found in <b>2/6</b> studies	Several users attempted to click on the pink price in the pricing grid to purchase a ticket. Pink text in other places is clickable, which contributed to the confusion.
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**MINOR Finding #3 Billing information required even without something to bill**

Issue found in <b>4/6</b> studies	Users were frustrated when they had to enter their billing information even though there was nothing to bill because they were using a promo code. It was not clear to users if this information was necessary for the ticket or not.
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**MINOR Finding #4 Unnecessary clicks in purchasing process**

Issue found in <b>1/6</b> studies	User clicks "buy tickets" 3 different times before actually getting to the purchasing screen. This caused frustration with users who wanted to move through this process quickly.
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**MINOR Finding #5 Deleting an item from the cart requires a lot of scrolling**

Issue found in <b>1/6</b> studies	In order to delete tickets that were accidentally added to the cart, users had to do a lot of scrolling around. Additionally, each ticket had to be removed individually and the user had to wait for the screen to refresh before deleting the next. This was a time consuming process.
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**MINOR Finding #6 Reviewing cart requires repositioning screen**

Issue found in <b>2/6</b> studies	At the end of the purchase process, the user is brought to a review cart screen. In order to see any of the useful information the user has to zoom out as the screen is not automatically sized to fit a mobile device.
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**MINOR Finding #7 Shopping cart status is not indicated**

Issue found in <b>3/6</b> studies	There is no indication that something has been added to the shopping cart. This makes it easy for the user to add multiple tickets to their cart unintentionally. This is not in line with online shopping standards, where the item number is generally shown with the cart icon.
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## COSMETIC FINDINGS

COSMETIC Finding #1 **Users expected the add to cart option to be in the price grid**

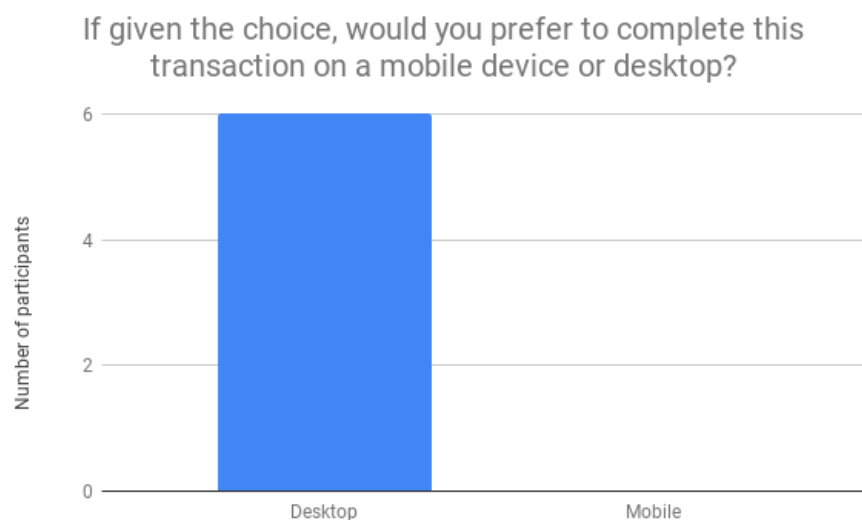
Issue found in <b>2/6</b> studies	Several users attempted to scroll to the right in the price grid to find an add to cart option directly in the grid.
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COSMETIC Finding #2 **Users expressed confusion as to where the ticket button was on the ticketing page**

Issue found in <b>1/6</b> studies	Once the user navigates to the initial tickets page, the buy tickets button is below the price grid. Several users had some initial confusion in finding this button.
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After the participants completed both tasks, they were asked to complete a short survey through Google Forms that asked them questions about their general experience using the site. We decided to separate this survey from the post-study debrief that was performed verbally in order to reduce the chance that users were answering more kindly in order to preserve our feelings. The most interesting insights we found from the post-test survey was that most participants would rather buy their tickets online than at the ticket counter, even after the majority of participants failed at least one of the ticket ordering tasks. Half of the participants also agreed they were able to use the system with ease.

At the end of the study users were asked if they would prefer to complete this purchase on a desktop or mobile device if given the choice. All users responded with desktop computer. Most users explained that this was because of the billing information being difficult to enter. Many also explained that the information on the screen would probably be easier to see on a desktop with less scrolling.





## FUTURE STUDIES

Although most of our interviews went smoothly and according to plan, there were a few things we would consider doing differently if we were to conduct a similar study again.

### 1. Fewer facilitator questions between tasks

Some of the questions we asked between tasks were repetitive, and the answers we got from them had diminishing returns. This could be because the users mostly followed a very similar flow during both the tasks, so they did not have anything different to say. Had we anticipated this, we would have made a unique set of questions for each task and try to get different pieces of information. We could also cut down the total number of questions to make the study shorter.

### 2. Testing with older adults

Although we began recruitment with the age range of 18-48 in mind, we only ended up getting participants between the ages 18-35, and thus we missed out on a major piece of the demographic. If we were to do this again, we would plan accordingly and have at least 1-2 people from the age ranges of 36-48, to ensure wider demographic coverage.

### 3. Invite stakeholders to observe and participants in tests

Even after doing the heuristic evaluations, our users managed to surprise us with more usability issues. Having stakeholders from the MoPOP design and development teams join us for heuristic evaluations and/or user tests would help us communicate our findings more effectively.

### 4. Explore different study locations and setup

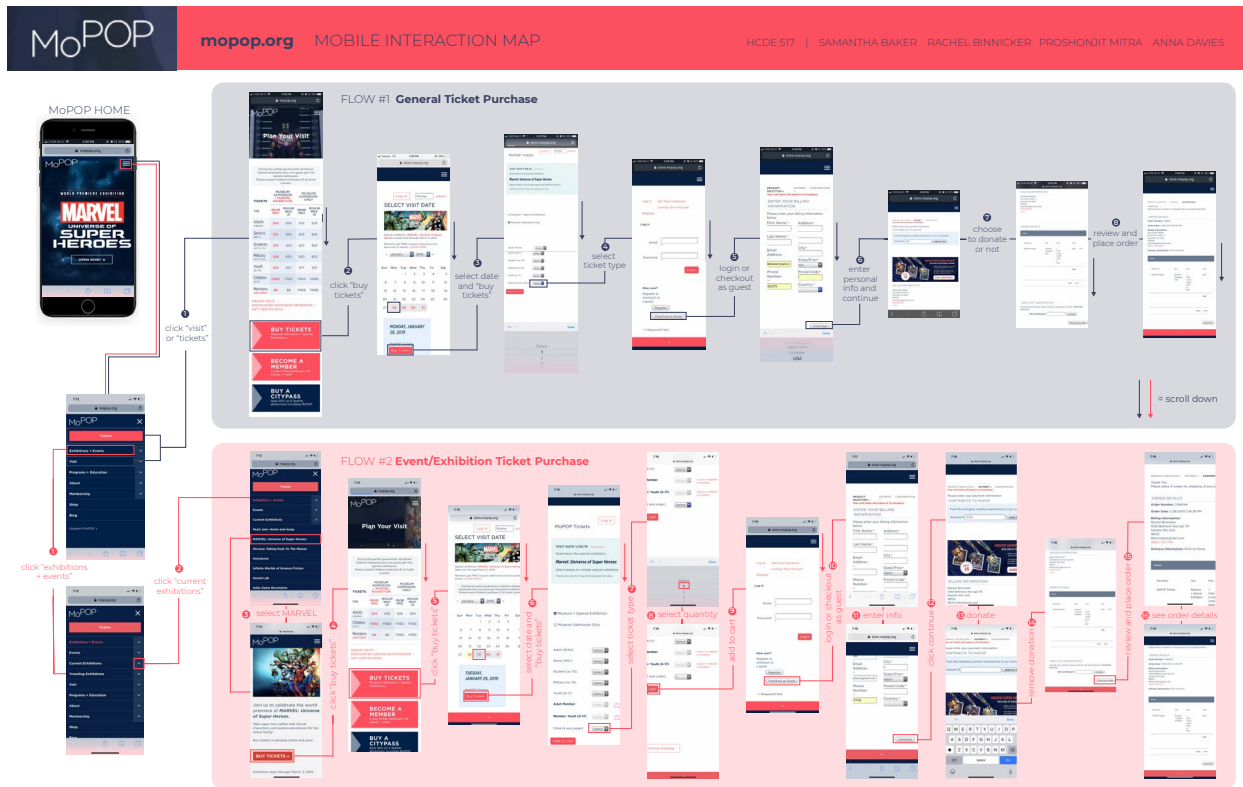
Because we wanted to make our participants more comfortable and be mindful of their schedules, we allowed them to suggest a spot to conduct their study. As a result, most of our studies were conducted in coffee shops. Although coffee shops are a public and relaxed setting, it was not as quiet as a secluded lab. It would be interesting to explore new environments to conduct future studies.

Aside from these, we might consider recording the entire test if we had a smaller team and only one person was conducting an interview. Fortunately, we did not need to do that because we always went in teams of two or three, and took plenty of notes during each session.

# APPENDIX

1 Heuristic Evaluation source <https://tfa.stanford.edu/download/TenUsabilityHeuristics.pdf>

## 2 Interaction Map



### 3 Participant Screener

## Museum of Pop Culture (MoPOP) Study Sign-up

Are you interested in taking part in a research study for the Museum of Pop Culture?  
Answer this short questionnaire and enter your email. We will reach out to schedule your session.

\* Required

1. **Email address \***

\_\_\_\_\_

2. **Will you be in the Seattle area any time between 2/20 and 3/10? \***

*Mark only one oval.*

- Yes
- No *After the last question in this section, stop filling out this form.*
- I don't know *After the last question in this section, stop filling out this form.*

3. **Have you ever visited the Museum of Pop Culture? \***

*Mark only one oval.*

- Yes *After the last question in this section, stop filling out this form.*
- No
- I don't know

4. **What is your gender? \***

*Mark only one oval.*

- Female
- Male
- Prefer not to say
- Other: \_\_\_\_\_

5. **What is your age? \***

*Mark only one oval.*

- Under 18
- 18-25
- 26-35
- 36-49
- Over 49

6. **Do you own a smartphone with internet access? \***

*Mark only one oval.*

- Yes
- No *After the last question in this section, stop filling out this form.*
- I don't know *After the last question in this section, stop filling out this form.*

7. **Are you interested in visiting the Museum of Pop Culture? \***

*Mark only one oval.*

- Yes
- No
- I don't know

#### 4 Participant Consent Form

## MoPOP Mobile Site Usability Test Consent Form

### STUDY GOALS

We're investigating the usability of the MoPOP website, specifically the ticket buying process. We hope to learn more about issues users have with the ticket purchase process and how we might correct those issues.

### WHAT WE WILL ASK YOU TO DO

#### *Phase 1: Pre-survey*

We will start by asking a few questions about the phone you normally use and the one you brought to the study today.

#### *Phase 2: Usability test*

We will ask you to order a ticket on the MoPOP website.

#### *Phase 3: Post-survey*

We will ask about your experience and your perceptions of the MoPOP website.

### RISKS

There is no known risk to participating in this study.

### BENEFITS

There is no direct benefit to you for your participation in this study.

### OUR COMMITMENT TO YOU

#### *Confidentiality*

Your identity will be kept private. We will not link your name or other personally identifiable details to the content of this session in anyway way—your participation will remain anonymous. We store our research information on Google Drive, which has been identified by UW as privacy-compliant.

#### *Compensation*

We are so grateful for your participation. We have provided you with a free ticket to visit MoPOP on the date of your choosing.

#### *Voluntary*

Your participation in this study is voluntary. At any time, you may revoke consent to any or all of the activities.

## YOUR OPTIONS

You may ask any questions of the researchers now. If you have any questions later or if you have something to add, you may contact us directly at [skbaker1@uw.edu](mailto:skbaker1@uw.edu) or [ptmitra@uw.edu](mailto:ptmitra@uw.edu).

## CONSENT TO PARTICIPATE

We ask that you permit us to make an audio recording of this interview. You are not required to consent to a recording in order to participate in the study.

If you understand everything we just covered and are willing to be a participant in this study, please sign below.

*This study has been explained to me. I volunteer to take part in this research. I have had a chance to ask questions. If I have questions later about the research, or if I have been harmed by participating in this study, I can contact one of the researchers listed on this consent form. I will receive a copy of this consent form.*

Name of participant

Signature of participant

Date

## 5 Participant Gratuity Release

# Gratuity Release

**Research Study** MoPOP Mobile Website Usability Study

**Researcher/Emergency Contact**

**Name:** Samantha Baker, Master of Human Computer Interaction student, University of Washington

**Email:** skbaker1@uw.edu

**Phone:** (925) 337-0362

I, the undersigned, acknowledge that I have received a MoPOP ticket valued at \$26.

Name of participant

Signature of participant

Date

## 6 Moderator Guide Flow A


Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

# Moderator Guide

## Museum Admission → Exhibition Admission

### Intro

 Say: Hi, my name is [name]. Thank you for helping us out with a project for school. We are masters students in the Human Centered Design and Engineering program. We're working to improve the usability of the mobile Museum of Pop Culture (MoPOP) website, and focusing on ticket ordering. MoPOP is a museum dedicated to contemporary popular culture here in Seattle. Can you start by telling me about the last time you visited a museum? [wait for answer]

Today I am going to watch as you complete some tasks on the MoPOP website using a mobile device. At the end of the session, you'll have a ticket to visit MoPOP as a thanks for helping us out! The way this will work is I'll ask you a couple of pre-study questions and have you sign a consent form. Then, we'll get started with the task portion which should take about 20 minutes. After that, I'll ask you some questions about your experience and then you'll be on your way! Do you have any questions before we get started?

During the task portion I will ask you to navigate to a couple of web pages.

**We will start with this short consent form.** This just says that you agree to be part of our study today and to have us record the screen you are using. **You will be de-identified** and your name will not be associated with the results of this study. Let me know if you have any questions. [hand participant the consent form]

Ok, we are ready to get started. **As a reminder we are not testing you** . We are testing the website, so there are no wrong answers. It really helps us when you can tell us what you are thinking. **It is helpful if you can think out loud as you work through the tasks.** I'm going to read a task aloud, and you can follow along on your handout if you'd like. Once I'm done reading, please go ahead and complete the task on your phone, holding it under the camera. Any questions?



Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

## Pre-Test Questions

💬 Say: We will start with a few pre-test questions

💬 Do you work in the user experience field?

💬 Which city do you live in?

○ If they say Seattle, Say: How long have you been living in Seattle?

💬 What phone have you brought in today and is that the phone that you use regularly?

💬 What internet browser do you prefer to use on your phone? Please use this browser for the study today.

💬 On a scale of 1 to 5, where 1 is nothing at all, and 5 is very much, how would you rate your confidence/comfort using your mobile phone for purchasing tickets online?

(Not comfortable at all) 1    2    3    4    5 (very comfortable)

💬 Have you ever used your mobile phone to purchase a ticket for an attraction or event?


## Important Notes

★ Remember to never tell the user how to complete a task, even if they were not able to complete it or completed it incorrectly.

★ **Start the video**

## Task 1 - Purchase GA Ticket

Facilitator Name: \_\_\_\_\_ Participant ID: \_\_\_\_\_

 Say: I am on page 1 of your packet if you would like to follow along. Imagine you are visiting Seattle and have heard great things about MoPOP. You decide to visit the museum and purchase a ticket online beforehand. Use your mobile device to purchase a **museum admission ticket** to MoPOP through **MoPOP.org**. Please use the promo code listed on your handout when purchasing to get this ticket at no cost. You may choose any date you wish to visit and note that the ticket you receive will be valid for one week from the date you select.

## Facilitator Questions

1. What did the participant do first?
2. How many times did the participant express confusion? [cross off a number each time]
 

1    2    3    4    5    6    7    8    9    10
3. How many times does the participant click the back button? [cross off a number each time]
 

1    2    3    4    5    6    7    8    9    10
4. List any roadblocks the participant runs into while purchasing the ticket:

### Task Completion

The task is complete if the participant successfully **purchases a ticket and receives a confirmation email.**

**Did the participant complete the task?**

**Yes**

**No**

Notes on completion:

★ **Stop the video**

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

🗨️ Say: That is the end of the first task. I would now like to ask you a couple of questions about your experience.

## Task 1 Debrief Questions

1. Rate your experience completing these purchases using the ease of task completion scale printed on page 2 of your packet. Please verbally state your rating.

1	2	3	4	5
Easy		Average		Difficult


2. Is there anything you like about this process?
3. Anything you would change about this process?
4. Did you feel this ticket-buying process was similar to the process you follow on other sites where you purchase things?

★ **Start the video**

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

## Task 2 - Purchase Exhibition Ticket

 Say: I am now on page 3 of your packet. Please navigate back to MoPOP.org again. Now, I would like you to purchase a **ticket to an exhibition of your choice**. Please stop at the point of entering your personal information, and do not purchase this ticket.

### Facilitator Questions

1. What did the participant do first?
2. How many times did the participant express confusion? [cross off a number each time]  
1    2    3    4    5    6    7    8    9    10
3. How many times does the participant click the back button? [cross off a number each time]  
1    2    3    4    5    6    7    8    9    10
4. List any roadblocks the participant runs into while purchasing the ticket:

### Task Completion

The task is complete if the participant successfully **reaches the point of entering personal payment information**.

**Did the participant complete the task?**

**Yes**

**No**

Notes on completion:

★ **Stop the video**

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

🗨️ Say: That completes the second task. I would now like to ask you a couple of questions about your experience.

## Task 2 Debrief Questions

1. Rate your experience completing these purchases using the ease of task completion scale printed on page 4 of your packet. Please verbally state your rating.

1	2	3	4	5
Easy		Average		Difficult

2. Is there anything you like about this process?

3. Anything you would change about this process?

4. Did you feel this ticket-buying process was similar to the process you follow on other sites where you purchase things?

Facilitator Name: \_\_\_\_\_ Participant ID: \_\_\_\_\_

☞ Say: That completes the task portion of this study. I would now like to ask you a couple of questions about your experience.

## Post-Test Debrief Questions

1. How would you describe your overall experience with the MoPOP website's ticketing process now that you used it to complete a few tasks?
  
  
  
  
  
  
  
  
  
  
2. If given the choice, would you prefer to complete this purchase on a mobile device or desktop computer?
  
  
  
  
  
  
  
  
  
  
3. As you performed the tasks, did you notice that some of the special exhibitions were ending soon in any of the screens that you saw?
  
  
  
  
  
  
  
  
  
  
4. As you performed the tasks, did you notice that pricing levels were different for different categories, such as there was special student pricing, etc?
  - a. Did it help you make a better decision about which kind of ticket to purchase?

☞ Say: Now, I'll have you fill out this post-test survey intended to sum up your experience. Please feel free to let me know if you have any other feedback as you complete this survey. [Hand participant the post-test survey]

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

## After the study

### Post Study Facilitator Debrief

1. Did the participant follow the flow from the interaction map for the GA ticket purchase?

YES

NO

- a. If no, where did they deviate?

2. Did the participant follow the flow from the interaction map for the exhibition ticket purchase?

YES

NO

- a. If no, where did they deviate?

3. Any other notable findings from this study?

## 7 Moderator Guide Flow B


Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

# Moderator Guide

## Exhibition Admission → Museum Admission

### Intro

 Say: Hi, my name is [name]. Thank you for helping us out with a project for school. We are masters students in the Human Centered Design and Engineering program. We're working to improve the usability of the mobile Museum of Pop Culture (MoPOP) website, and focusing on ticket ordering. MoPOP is a museum dedicated to contemporary popular culture here in Seattle. Can you start by telling me about the last time you visited a museum? [wait for answer]

Today I am going to watch as you complete some tasks on the MoPOP website using a mobile device. At the end of the session, you'll have a ticket to visit MoPOP as a thanks for helping us out! The way this will work is I'll ask you a couple of pre-study questions and have you sign a consent form. Then, we'll get started with the task portion which should take about 20 minutes. After that, I'll ask you some questions about your experience and then you'll be on your way! Do you have any questions before we get started?

During the task portion I will ask you to navigate to a couple of web pages.

**We will start with this short consent form.** This just says that you agree to be part of our study today and to have us record the screen you are using. **You will be de-identified** and your name will not be associated with the results of this study. Let me know if you have any questions. [hand participant the consent form]

Ok, we are ready to get started. **As a reminder we are not testing you**. We are testing the website, so there are no wrong answers. It really helps us when you can tell us what you are thinking. **It is helpful if you can think out loud as you work through the tasks.** I'm going to read a task aloud, and you can follow along on your handout if you'd like. Once I'm done reading, please go ahead and complete the task on your phone, holding it under the camera. Any questions?



Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

## Pre-Test Questions

☰ Say: We will start with a few pre-test questions

☰ Do you work in the user experience field?

☰ Which city do you live in?

○ If they say Seattle, Say: How long have you been living in Seattle?

☰ What phone have you brought in today and is that the phone that you use regularly?

☰ What internet browser do you prefer to use on your phone? Please use this browser for the study today.

☰ On a scale of 1 to 5, where 1 is nothing at all, and 5 is very much, how would you rate your confidence/comfort using your mobile phone for purchasing tickets online?

(Not comfortable at all) 1    2    3    4    5 (very comfortable)

☰ Have you ever used your mobile phone to purchase a ticket for an attraction or event?

## Important Notes


★ Remember to never tell the user how to complete a task, even if they were not able to complete it or completed it incorrectly.

★ **Start the video**

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

## Task 1 - Purchase Exhibition Ticket

 Say: I am on page 1 of your packet if you would like to follow along. Imagine you are visiting Seattle and have heard great things about MoPOP. You decide to visit the museum and purchase a ticket online beforehand. Use your mobile device to purchase a **ticket to an exhibition of your choice** through **MoPOP.org**. Please use the promo code listed on your handout when purchasing to get this ticket at no cost. You may choose any date you wish to visit, and note that the ticket you receive will be valid for one week from the date you select.

### Facilitator Questions

1. What did the participant do first?
2. How many times did the participant express confusion? [cross off number each time]
 

1    2    3    4    5    6    7    8    9    10
3. How many times does the participant click the back button? [cross off number each time]
 

1    2    3    4    5    6    7    8    9    10
4. List any roadblocks the participant runs into while purchasing ticket:

### Task Completion

The task is complete if the participant successfully **purchases a ticket and receives a confirmation email.**

**Did the participant complete the task?**

**Yes**

**No**

Notes on completion:

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

**★ Stop the video**

🗨️ Say: That is the end of the first task. I would now like to ask you a couple of questions about your experience.

## Task 1 Debrief Questions

1. Rate your experience completing these purchases using the ease of task completion scale printed on page 2 of your packet. Please verbally state your rating.


1	2	3	4	5
Easy		Average		Difficult

2. Is there anything you like about this process?
3. Anything you would change about this process?
4. Did you feel this ticket-buying process was similar to the process you follow on other sites where you purchase things?

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

**★ Start the video****Task 2 - Purchase GA Ticket**

 Say: I am now on page 3 of your packet. Please navigate back to MoPOP.org again. Now, I would like you to purchase a **museum admission ticket**. Please stop at the point of entering your personal information, and do not purchase this ticket.

**Facilitator Questions**

1. What did the participant do first?
2. How many times did the participant express confusion? [cross off number each time]  
1    2    3    4    5    6    7    8    9    10
3. How many times does the participant click the back button? [cross off number each time]  
1    2    3    4    5    6    7    8    9    10
4. List any roadblocks the participant runs into while purchasing ticket:

 **Task Completion**

The task is complete if the participant successfully **reaches the point of entering personal payment information**.

**Did the participant complete the task?****Yes****No**

Notes on completion:

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

**★ Stop the video**

Say: That completes the second task. I would now like to ask you a couple of questions about your experience.

## Task 2 Debrief Questions


1. Rate your experience completing these purchases using the ease of task completion scale printed on page 4 of your packet. Please verbally state your rating.

1	2	3	4	5
Easy		Average		Difficult

2. Is there anything you like about this process?
3. Anything you would change about this process?
4. Did you feel this ticket-buying process was similar to the process you follow on other sites where you purchase things?


Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

 Say: That completes the task portion of this study. I would now like to ask you a couple of questions about your experience.

## Debrief Questions

1. How would you describe your overall experience with the MoPOP website's ticketing process now that you used it to complete a few tasks?
  
  
  
  
  
  
  
  
  
  
2. If given the choice, would you prefer to complete this purchase on a mobile device or desktop computer?
  
  
  
  
  
  
  
  
  
  
3. As you performed the tasks, did you notice that some of the special exhibitions were ending soon in any of the screens that you saw?
  
  
  
  
  
  
  
  
  
  
4. As you performed the tasks, did you notice that pricing levels were different for different categories, such as there was special student pricing, etc?
  - a. Did it help you make a better decision about which kind of ticket to purchase?

 Say: Now, I'll have you fill out this post-test survey intended to sum up your experience. Please feel free to let me know if you have any other feedback as you complete this survey. [Hand participant the post-test survey]

Facilitator Name: \_\_\_\_\_

Participant ID: \_\_\_\_\_

## After the study

### Post Study Facilitator Debrief

1. Did the participant follow the flow from the interaction map for the Exhibition ticket purchase?

YES

NO

- a. If no, where did they deviate?

2. Did the participant follow the flow from the interaction map for the GA ticket purchase?

YES

NO

- a. If no, where did they deviate?

3. Any other notable findings from this study?

## 8 Participant Handout Flow A

### Task 1

Imagine you are visiting Seattle and have heard great things about MoPOP. You decide to visit the museum and purchase a ticket online beforehand. Use your mobile device to purchase a **museum admission ticket** to MoPOP through **MoPOP.org**. Please use the promo code listed on your handout when purchasing to get this ticket at no cost.

*You may choose any date you wish to visit and note that the ticket you receive will be valid for one week from the date you select.*

### PROMO CODE: UWTESTER

### Task 1 Post Question

Rate your experience completing these purchases using the ease of task completion scale printed below:

1	2	3	4	5
Easy		Average		Difficult



## Task 2

Please navigate back to MoPOP.org again. Now, I would like you to purchase a ***ticket to an exhibition of your choice***. Please stop at the point of entering your personal information, and do not purchase this ticket.

## Task 2 Post Question

Rate your experience completing these purchases using the ease of task completion scale below:

1	2	3	4	5
Easy		Average		Difficult

## 9 Participant Handout Flow B

### Task 1

Imagine you are visiting Seattle and have heard great things about MoPOP. You decide to visit the museum and purchase a ticket online beforehand. Use your mobile device to purchase a **ticket to an exhibition of your choice** through **MoPOP.org**. Please use the promo code listed on your handout when purchasing to get this ticket at no cost.

*You may choose any date you wish to visit and note that the ticket you receive will be valid for one week from the date you select.*

### PROMO CODE: UWTESTER

### Task 1 Post Question

Rate your experience completing these purchases using the ease of task completion scale printed below.

1	2	3	4	5
Easy		Average		Difficult

## Task 2

Please navigate back to MoPOP.org again. Now, I would like you to purchase a ***museum admission ticket***. Please stop at the point of entering your personal information, and do not purchase this ticket.

## Task 2 Post Question

Rate your experience completing these purchases using the ease of task completion scale printed below.

1	2	3	4	5
Easy		Average		Difficult

## 10 Note Taking Form

**TEST (Circle)      A      B****DATE:** \_\_\_\_\_**PARTICIPANT #:** \_\_\_\_\_*Moderator prompts pre-test discussion.***Pre-test questionnaire**

Geographic/Demographic information:	
What type of phone did you bring with you today?	
Is this the phone you normally use?	
Have you ever used your mobile phone to make a purchase on the internet?	
If so, have you ever used your mobile phone to purchase a ticket for an attraction or an event?	

Additional notes:

*Moderator instructs participant to complete Task 1.*

Questions	Observations
What did the participant do first?	
How many times did the participant express confusion?	1    2    3    4    5    6    7    8    9    10
List any roadblocks the participant runs into while purchasing ticket:	
Additional observations:	

**Completion (circle one):**    Success    Fail

Notes on completion:

### Post Task 1 questionnaire

Rate your experience completing these purchases	1    2    3    4    5	1 = Difficult    5 = Easy
Is there anything you like about this process?		
Anything you would change about this process?		
Did you feel this ticket-buying process was similar to the process you follow on other sites where you purchase things?		

Moderator instructs participant to complete Task 2.

Questions	Observations
What did the participant do first?	
How many times did the participant express confusion?	1    2    3    4    5    6    7    8    9    10
List any roadblocks the participant runs into while purchasing ticket:	
Additional observations:	

**Completion (circle one):**    Success    Fail

Notes on completion:

### Post Task 2 questionnaire

Rate your experience completing these purchases	1    2    3    4    5	1 = Difficult    5 = Easy
Is there anything you like about this process?		
Anything you would change about this process?		
Did you feel this ticket-buying process was similar to the process you follow on other sites where you purchase things?		

*Moderator prompts post-test discussion.*

### Post-test questionnaire

How would you describe your overall experience with the MoOP website's ticket process now that you used it to complete a few tasks?	
If given the choice, would you prefer to complete this purchase on a mobile device or desktop computer?	
As you performed the tasks, did you notice that some of the special exhibitions were ending soon?	
As you performed the tasks, did you notice that pricing levels were different for different categories, such as special student pricing, etc.?	

*Facilitators debrief test session.*

### Post-study facilitator debrief

Did the participant follow the flow from the interaction map for the Exhibition ticket purchase?	YES	NO
	a.	If no, where did they deviate?
Did the participant follow the flow from the interaction map for the GA ticket purchase?	YES	NO
	a.	If no, where did they deviate?
Any other notable findings from this study?		

# 11 Heuristic Evaluation Results Synthesis

## Heuristic Evaluation

MoPOP.org ticket ordering

Reviewer: Master  
Date: 3/10

Workflow: General Admission and Exhibition

Heuristic	DETAILS	Violations	Successes
1	<b>Visibility of System Status</b>  Always keep users informed about what is going on. Provide appropriate feedback within reasonable time.	No indication that a button has been pressed	The "Tickets" button within the hamburger dropdown and the one on the "Plan your visit" page are both responsive to clicks.
		No visual indication of where you are in the process of purchases	"Continue" buttons during the purchase process change to say "Processing" when clicked, showing that the information is being parsed, and will take some time.
2	<b>Match Between System and the Real World</b>  Speak the users language with words, phrases and concepts familiar to the user, rather than system oriented terms. Follow real-world conventions, making information appear in a natural and logical order.	No standard of how buttons change after being pressed	
		Confusion between "promo code" and "gift certificate"	Buttons like "add to cart" make the process intuitive and similar to online shopping experiences. Steps like "Product selection", "payment", and "confirmation" are commonly used in this context.
3	<b>User Control and Freedom</b>  Users often choose system functions by mistake. Provide a clearly marked "out" to leave an unwanted state without having to go through an extended dialogue. Support undo and redo.	Once the user is in the personal information section there is no clear way to back out	Users are able to purchase multiples tickets of several types at one time.
		Not a "Next" or "Previous" button clearly visible on each screen	The data is saved - even when users click out of the process, their ticket is still in the cart
4	<b>Consistency and Standards</b>  Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.	There are notes above the visit date calendar that show when special exhibitions open, but not when they end. In order to determine when an exhibition ends the user must abandon the ticket buying process and go to another page.	
		Users have the option to login, register, or check out as a guest, but the guest option is only visible when one scrolls to the bottom of the page.	
5	<b>Error Prevention</b>  Even better than good error messages is a careful design which prevents a problem from occurring in the first place.	It is not clear if a ticket is already in the users cart when they exit the process (no shopping cart alert)	
		The path for Museum Admission and Special Exhibition look confusingly similar	The distinction between a regular ticket and an event ticket is made clear.
6	<b>Recognition Rather Than Recall</b>  Make objects, actions, and options visible. User should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.	The language is confusing around discounts, promo codes, and gift certificates	Same color scheme across the app
		Once the order process is complete, the user is prompted to log out even if they never logged in.	
7	<b>Flexibility and Efficiency of Use</b>  Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user so that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.	The option to enter a promo code is not at the end with billing information, as one would assume	
		Buttons are not all one color; some are white with pink outline and some are pink inside	
8	<b>Aesthetic and Minimalistic Design</b>  Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.	No clear indication of what is clickable and what is not (pink type)	
		There is no validation on the personal info entered (I entered letters for zip code and it let me)	There is a review step where users can review their inputted information prior to confirming ticket
9	<b>Help Users Recognize, Diagnose and Recover From Errors</b>  Expressed in plain language (no codes). Precisely indicate the problem. Constructively suggest a solution.	The input fields on the text boxes make it difficult to see if the content is correct	The date selected is presented on the following screen after selection as a reminder for users that is their correct date
		There are no error prevention methods	
10	<b>Help and Documentation</b>  Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Help information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.	The login or continue as a guest is not a step that is intuitive to users	The sight mimics what is industry standard for a normal flow through online ticket purchasing
		System does not tell you how you will receive your tickets. And it does not give you an option to choose your ticket type (electronic, will call, etc.)	Different types of ticketing options



## 12 Usability Study Results

Issue	P1	P2	P3	P4	P5	P6	Category	Severity
user thought they could scroll over on ticket price grid and could not				X		X	Usability Issue	Cosmetic
user expressed confusion as to where the ticket button was on the ticketing page						X	Usability Issue	Cosmetic
Billing info fields are cut off - user cannot see the first part of their entry	X	X	X	X	X	X	Usability Issue	Major
Users could not find the promo code field	X		X	X	X	X	Usability Issue	Major
user is not clear on how the ticket will be delivered		X	X				Usability Issue	Major
there is no indication of a button being clicked	X	X	X	X	X		Usability Issue	Major
there is a lot of scrolling back and forth and up and down to complete the purchase (not responsive)		X		X		X	Usability Issue	Major
user could not find a way to select a ticket to an exhibition vs general admission			X	X		X	Usability Issue	Major
there is no easy way to see a list of all exhibitions	X		X				Usability Issue	Minor
the pink prices in the grid look clickable but are not	X	X					Usability Issue	Minor
User expanded and collapsed several sections in the menu before finding tickets button	X						Usability Issue	Minor
Register as user is first option and users accidentally clicked that before checkout as guest	X						Usability Issue	Minor
there are many pages to go through to purchase a ticket		X					Usability Issue	Minor
billing info is required even if there is nothing to bill		X	X		X	X	Usability Issue	Minor
deleting an item from the cart requires a lot of scrolling and clicking each item individually				X			Usability Issue	Minor
had to zoom out to review cart before final purchase	X				X		Usability Issue	Minor
the system does not indicate that there is already a ticket in their cart, thereby making the user add multiple tickets without knowing		X				X	Usability Issue	Minor
clicking the continue button at the end exited the purchase process	X						Bug	
Blank page when clicking on tickets from google search		X					Bug	
user is unsure if date should be selected before clicking submit		X					Usability Issue	
site has a logout option when the user has not logged in		X	X				Bug	
user clicked add to cart multiple times because the website was slow and there was no indication the button had been pressed - then there were multiple tickets in the cart				X			Usability Issue	
promo code is not cleared out once it is used				X			Bug	
sometimes there is a confirmation screen and sometimes there is not			X	X			Bug	
user received an error and had to re-enter phone number					X		Bug	

## 13 Task Competition Results

Participant	Study	Task 1	Task 2
1	A	Fail	Success
2	B	Success	Success
3	A	Fail	Success
4	B	Fail	Success
5	A	Fail	Success
6	B	Fail	Success

## 14 Post-Test Questionnaire Results

Participant	I was able to use the system with ease	I found the system unnecessarily complex	I understood all the exhibitions and events offered by MoPOP	I would prefer to order my ticket online rather than at the ticket counter	I feel that there was inconsistency in the system	I felt confident using the system
1	Agree	Strongly Disagree	Agree	Strongly Agree	Strongly Disagree	Agree
2	Disagree	Disagree	Agree	Strongly Disagree	Agree	Strongly Disagree
3	Disagree	Agree	Disagree	Strongly Agree	Agree	Disagree
4	Agree	Disagree	Disagree	Agree	Agree	Disagree
5	Disagree	Agree	Agree	Strongly Disagree	Strongly Agree	Strongly Disagree
6	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Agree
<b>Average</b>	2.5	2.16	2.33	2.83	2.83	2