



Viewing as Experience

Enhancing Information
Interactions in Exhibit Spaces

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Master of Design Graduate Thesis
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Viewing as Experience

Enhancing Information Interactions in Exhibit Spaces

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Date

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Abstract



How can traditional exhibit spaces, such as art museums or botanical gardens, leverage various media to enhance the viewing experiences? Visitors always wish they could take something away from visiting art museums, which is also the goal of curators. Yet current exhibit space does not fully support the needs from both sides. On one hand, the pre-canned information and uniform information artifacts are not able to satisfy diverse needs of visitors in the age of information and globalization. On the other hand, interpretive texts are written carefully to engage the viewers, but the way it is displayed does not effectively reveal the inner structure of the narrative.

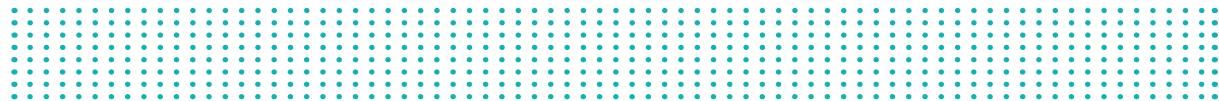
This thesis is to innovate the viewing experience to create satisfying interactions and increase

knowledge gain within and outside of the exhibit space, with a focus on art museums. Zero Information Space is thus proposed as an alternative solution. It's an experimental exhibit design that creates new viewing experiences. It pulls visitors into the space and encourages them to start personalized inquiry about the artworks and themselves. It is also a platform for curators to keep the balance between curated content and the diverse visitors.

The design aims to bridge the gaps between the visitors, the artworks, the information and the space with various information services. These information services are designed around the six guidelines to create accessible and engaging information interactions.



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1 Introduction

Recent years have seen news articles on the declined visitor numbers in art museums (Olson, 2013), which comes hand in hand with complaints from visitors, such as “I cannot find information I am interested in on the placards.” “I feel tired looking at the artworks after short period of time.” (Carliner, 2001). These pose challenges to art museums, because they question the museums’ existence in economic terms, while at the same time, it also indicates radical social and paradigmatic changes that require active responses from art museums (Hooper-Greenhill, 2000). The challenges can be summarized into two areas: issues of narrative and voice, and issues of interpretation (Hooper-Greenhill, 2000).

The first challenge concerns “what is said and who says it” (Hooper-Greenhill, 2000). Since the first public art museum was created after the French Revolution, modern art museums have been considered as educational institution to preserve and display the cultural treasures for the public (Pearce, 1994). Curators assume the responsibility through laying out knowledge for the visitors in ways that the information may be absorbed (Hooper-Greenhill, 2000). But social changes, especially the change in demographics—increasing immigrant population and the Millennials (Farrell, 2010)—raise new questions to the way curators select the collections and information, and the social values they choose to present.

The second change is about the audiences. The influence of post-modernism as well as social and technological changes revolutionize the paradigms of the communication in art museums (Silverman, 1995). A shift in art-museum communication model has been observed, from a one-way curatorial voice addressing a mass of passive visitors to the co-creation and constructivist theories (Silverman, 1995). This new model requires curators and designers to go beyond the marketing strategy and to think holistically about the experience for each visitor (Hooper-Greenhill, 2000), because the decision to visit a museum or not, or whether the experience is satisfactory or not, is decided by “the meaning constructed from the experience”; and the meaning varies greatly among visitors due to their cultural and social backgrounds (Hooper-Greenhill, 2000).

Huge efforts from art museums have been made to respond to these challenges by rethinking the values, and reshaping the communication models, such as tinkering the membership program to retain repeated visitors (Olson, 2013), and introducing new digital devices to create interactive experience (Alexander, Barton, & Goesser, 2013). These approaches have achieved certain effects, but according to observation and researches in the

field, there are more can be done to engage visitors with the curated information.

This thesis aims to explore the alternatives of information interactions in art museums, with a strong focus on creating a coherent and engaging experience. After nine months of research, ideation and prototyping, the proposed solution is Zero Information Space.

It's an experimental space where easy-to-access information artifacts, such as labels, are taken away from the space, leaving the visitors only paintings to focus on. It creates a new viewing experience that encourages visitors to reflect on their own understanding of art, and to build close connections through viewing. In the meanwhile, the visitors have access to various information services to explore the exhibits, such as browsing museum website to explore information based on their own interests, or flipping through a museum booklet to see the connections among the exhibits. These information services are designed around six design guidelines to provide accessible and engaging information interactions in the space.

This project has been approved by Institutional Review Board at Carnegie Mellon University, HS13-350 Engaging Interactions in Exhibit Spaces.



2 Final Design

What is Zero Information Space

The Experience Journey

Six Design Guidelines

Information Services

What is Zero Information Space?

In Zero Information Space: visitors see a room with artworks in a curated order, but there is no label on the wall. The goal is to encourage visitors to have their own interpretations, to reflect on their understanding of art, and to build close connections through viewing. If they wish to know more about the artworks, the space offers personalized information services to help them explore.

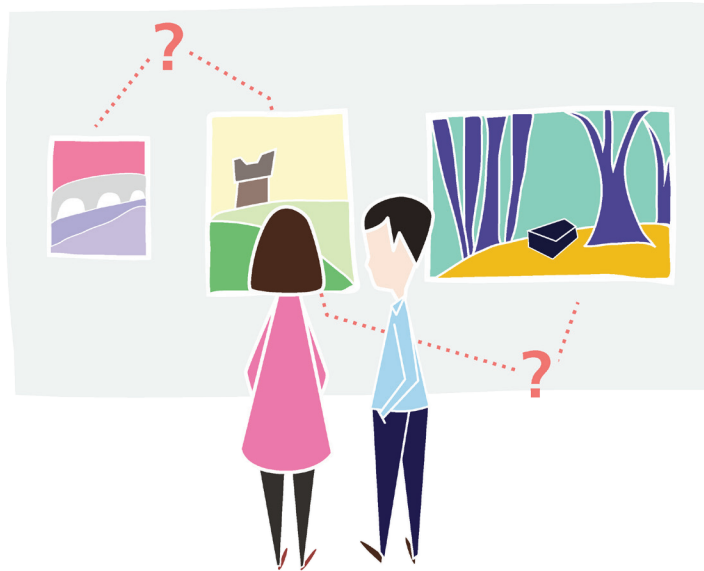
The space itself is an experiment that creates a new viewing experience. It pulls visitors into the space and encourages them to start personalized inquiry about the artworks and themselves. It is also a platform for curators to keep the balance between curated content and the diverse needs from visitors.

At individual level, it engages visitors by inviting them to actively look, to think and to ask questions. With easy-to-access information artifacts being removed from the space, visitors

are freed to navigate the space based on their own interests, or to ask questions that they are curious about. In order to understand the space and the artworks, visitors have to make connections with their previous experiences and knowledge of art, which ties visitors to the piece they are looking at.

At a macro level, it provides a reflective perspective to look at the curation process and the overall exhibit space. Instead of adding new display technology to the space, removing all the information artifacts from the space makes the curators ask: how to pull the viewers into the information instead of constantly pushing the information to them? Does the information have to come from experts? How about information from common people or other visitors? The space opens up the conversation of new possibilities in exhibit design and information interactions.

Experience Journey in Zero Information Space



Visualization of Structure: It helps visitors to see and to understand the structure of curated narrative.

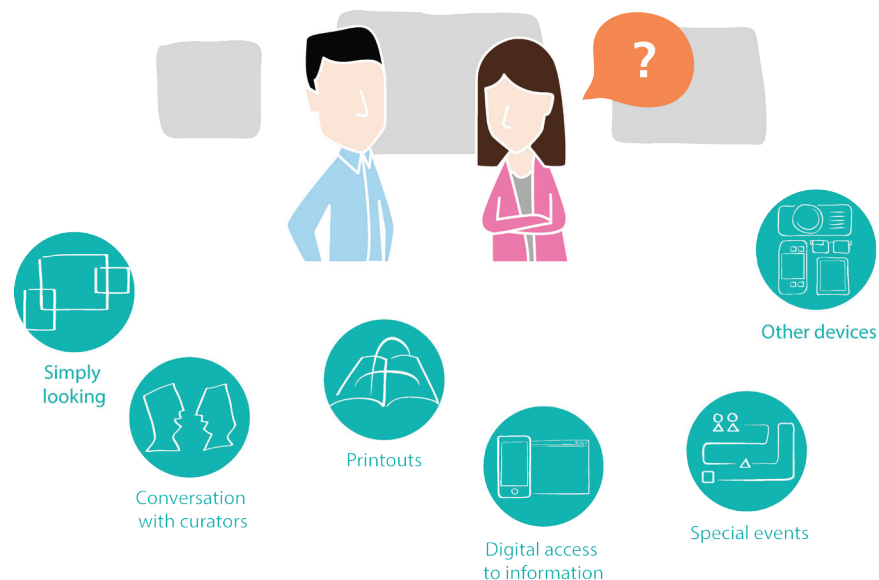


Active Inquiry: Visitors make connections with their previous experiences or knowledge.

The Experience Journey

When visitors first come in the space, they look around the whole gallery, and start to guess or discuss how the artworks are organized. This helps visitors to see the curated theme and hierarchy of the information, which sets the foundation for further exploration.

In current art-museum visit, most people tend to look at paintings by renowned painters due to time limits, but that makes the viewing



Various Information Services: Museum offers various information services when visitors need guidance.

experience shallow browsing. In the Zero Information Space, because there's no placard on the wall, visitors navigate the space based on their interests. They go straight to the piece that attracts them, instead of being biased by the information. They start to make connections between what they see with their previous experiences, such as "I've seen something similar before"; or they question their prior knowledge, such as, "Is this by Monet?"; "Do I know enough about Monet?" This leads to further inquiry of the artworks and themselves.



Coherent Journey: Visitors are constantly motivated to look, to ask and to share.

If they really want to know more about these pieces, the museum offers various information services, such as curators in the space, easy-to-access digital content, printouts, or social events. These information services are designed with six guidelines.

The space and the information services together create a coherent experience in which visitors are motivated to look, to ask and to share.

Six Design Guidelines

The goal of these guidelines is to make sure the information services are accessible to all visitors, and to provide a coherent viewing experience in Zero Information Space. For example, once visitors have questions about a piece of work, they can reach out to any form of information interaction, such as reading texts, or listening to audio guides. These services are able to provide personalized information.

1 Less Information, More Exploration

The essence of Zero Information Space is to open up the space to visitors for any interpretation; to support their concentrated viewing without being biased by information; and to build connections with the artworks, the space and the people.

2 Visualization of the Structure of Narrative

The structure of the curated narrative is essential in the curation process, and communicates the key information of the artworks to visitors. It should be more evident by means of exhibit design, booklet design or infographs.

3 Personalized Information Curation

Visitors are more engaged when the information resonates with them. Digital devices, if well designed, are able to support personalized information interactions, such as searching information of interest based on tags.

4 Multiple Perspectives & Visitor Participation

Various perspectives from common people (instead of curators) create the conversational feeling between the visitor and the artworks. When museums offer more perspectives of interpretation, on one hand, it gives visitors more options of information; on the other hand, it encourages visitors to voice their opinions and actively participate in the visit.

5 Intuitive Access to Digital Content

Digital content provides multiple perspectives and multiple modalities of information and interactions. It should be accessible to all visitors by means of improved interaction design of the museum website and other supporting devices, such as audio guides and tablets.



Searching information of interests based on tags



Visualization of the Structure of Narrative by using timelines.

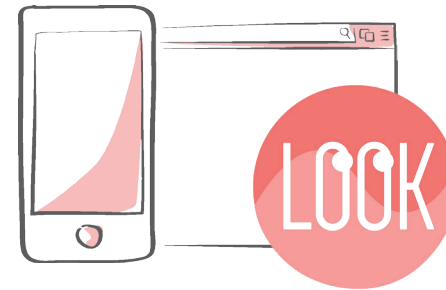
6 Multiple Modalities of Information

Providing multiple modalities of information gives visitors more control over the information they want to read and encourages them to explore the unknown.

Information Services

The museum offers various information services, such as curators in the space, easy-to-access digital content, printouts, social events, new technologies or an open space to support focused viewing. Among the various information services, this project focuses on designing the museum website and the museum booklets, because of their universality and accessibility. Both of them are examples of how the six design guidelines can be incorporated into real design. The main features of each service are further described in the following paragraphs.

LOOK It's a museum website that supports easy-to-access digital information, personalized information interactions with various options. Visitors can get access with their mobile phones or loan the digital devices from museum.



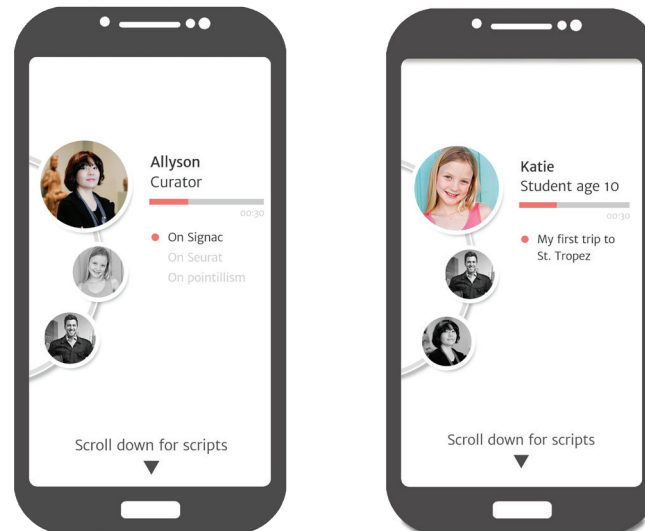
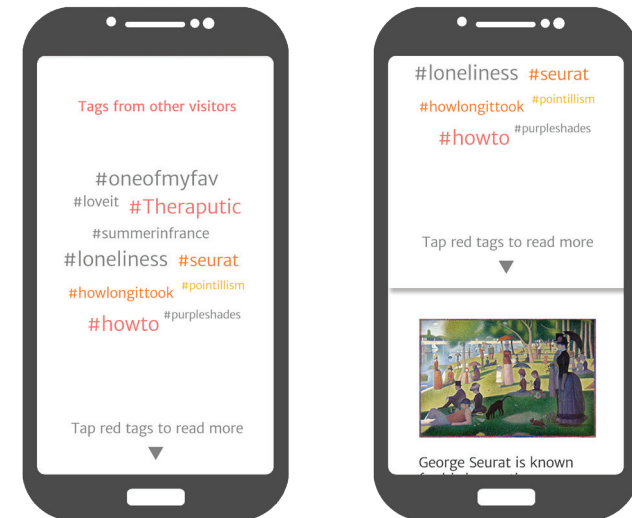
LINK It's a museum booklet that visualizes the structure of narrative, and offers various layers of information, such as historical perspectives, artists' stories, anecdotes behind the painting, etc. The booklets are available throughout the museum.



MAIN FEATURES OF THE WEBSITE

Personalized Information Inquiry

Visitors can search information that they are interested in based on tags created by themselves or by other visitors.

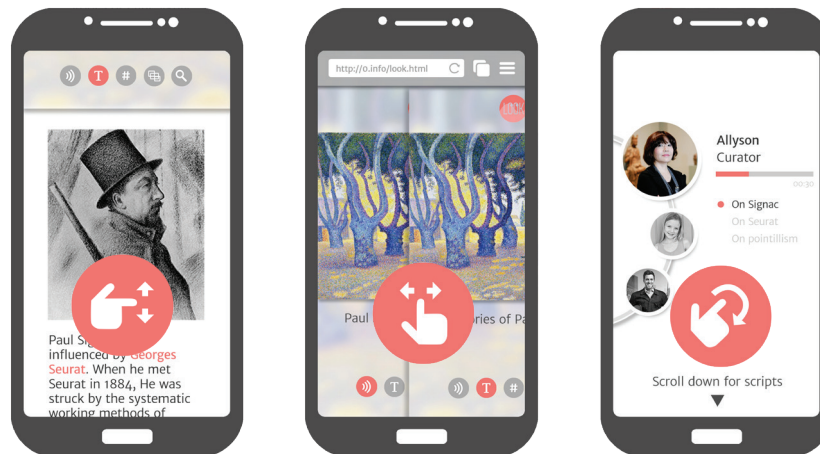
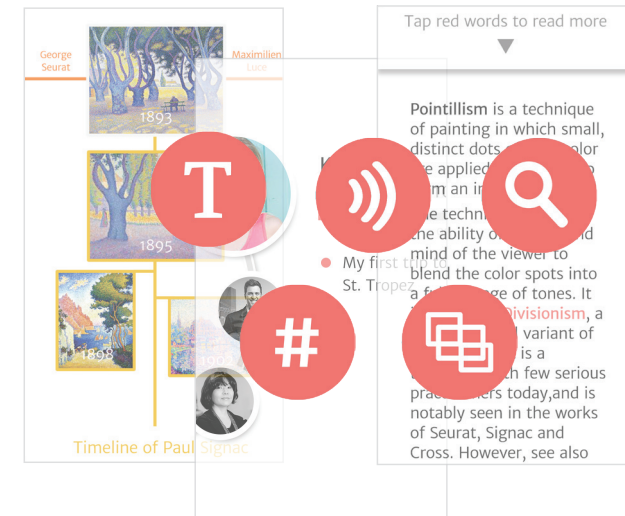


Multiple Perspectives of Information

Visitors are able to listen to different perspectives of the same piece, such as the curator, engineer, students, etc.

Multiple Modalities

There are four information options: text, audio, tag, and infoviz. Visitors can choose either way to get more information. If they want to know more, they can always use the search function.



Intuitive Access

To navigate the website, visitors only need three gestures: scroll up and down for more information; swipe left and right to switch information options; dial to switch audios.

MAIN FEATURES OF THE BOOKLET

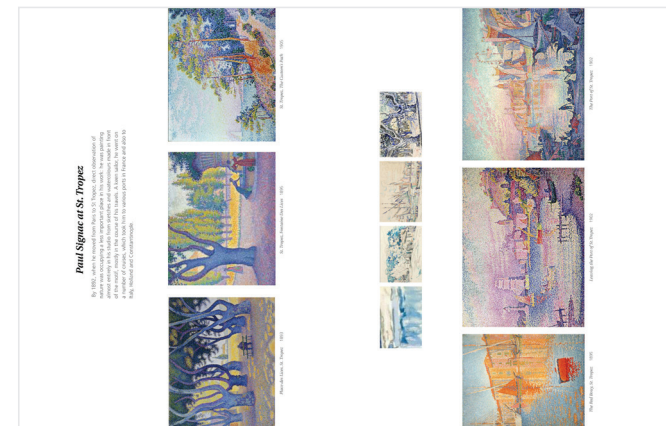
Visualization of the Structure

The booklet starts from the middle, where there will always be an infograph to show the structure of the narrative. For example, in the "Impressionism in Progress", the infograph is a timeline of the development of Impressionism.



Various Layers of Information

Reading the information for each painting is just like reading a magazine, with texts, images and diverse layouts. It highlights connections between the paintings and gives visitors suggestions of what to look at next.





3 Literature Review



Art Museums as Educational Institutions

Structures of Learning

Supporting Information Artifacts

New Approaches

Insights for Design

Art Museums as Educational Institutions

Along with print and broadcast media, community-based organizations, and the Internet, the museums have been considered as important supplement to the formal education system and play a significant role in facilitating public learning (Falk, 2014).

The first art museum was created in the late 19th century, after French Revolution. From the beginning, it was a symbol to demonstrate the democratic government provides right thing for its people, not only preserving the cultural and historical treasure for the nation, but also educating the citizens (Pearce, 1994).

Till today, most visitors consider visiting art museums as “educative leisure” (Hanquinet

and Savage, 2012), in which they learn by choice. From a survey of 1,900 visitors of six main galleries, Hanquinet and Savage found out visitors’ perception of an art museum have not changed greatly despite their efforts in increasing the entertainment element in the space, such as interaction devices, and hands-on activities (Hanquinet and Savage, 2012).

The informal learning in art museums is achieved through the information design in the space. By curating the information and the exhibit space, the museums provide “enjoyable, public, free-choice learning opportunities” through various programs and media (Falk and Dierking, 2000).



Structures of Learning

How do people learn from the experiences in art museums? In the past, the exhibition was designed based on a one-way model that the curatorial voice addresses a mass of passive visitors (Silverman, 1995). The once prevailing model of exhibit design to support visitors' learning is like this: curators put a lot of time and thoughts into the curation of exhibits and information; the visitors come and look at exhibitions, and then they are expected to have learnt what the curators intended (Falk and Dierking, 2000).

The influences of post-modernism come hand in hand with social and technological changes, changing the paradigms of the communication in art museums (Silverman, 1995). One of the mainstream theories is the constructivism theory. It requires curators and designers to go beyond the marketing strategy and to think holistically about the experience for each visitor (Hooper-Greenhill, 2000), because the decision to visit a museum or not, or whether the experience is satisfactory or not, is decided by "the meaning constructed from the experience"; and the meaning varies greatly among visitors due to their cultural and social backgrounds (Hooper-Greenhill, 2000).

There are different frameworks to look at the knowledge construction in museums, which will be further discussed as below.

Framing the Contexts of Learning

Falk and Dierking propose the Contextual Model of Learning to look at the contexts where learning takes place. The model suggests that learning is constructed within three contexts: the personal, the sociocultural and the physical (Falk and Dierking, 2000).

The personal context is about visitors' prior knowledge, experiences, attitudes, motivation and interests. When talking about the personal context, they emphasize the emotion aspect. People are highly motivated to learn when (Falk and Dierking, 2000):

- the activities are engaging and meaningful
- they are freed from anxiety, fear and other negative mental states;
- have better control over the learning process
- the challenges of the task meet their skills.

People often visit the museums with groups, and visitors are from myriad types of cultural background. The sociocultural components affect what attracts visitors, how they interpret the information as well as how they approach the media. But in general, people from different cultures are more likely to be engaged with information in the form of a story or narrative (Falk and Dierking, 2000).

The physical context includes the exhibit space, the exhibits as well as the ambiance of the architecture (Falk and Dierking, 1992). Visitors' learning situates within and is affected by the physical context, because making sense of the environment is an instinct rooted in our brain.

Main Insights

1 Each visitor is unique in the way they learn, as well as the way they perceive and interpret the information. The information interactions should be flexible and diverse to engage each individual in the situated contexts.

2 The physical context has direct influence on the way people experience the exhibition. It is also where curators and designers dance. By curating the exhibits, the additional information, and the information artifacts, curators and designers can increase or decrease visitors' learning interests.

Connecting the Components

Activity theory has been used in museum research, because the framework "foregrounds the social context of meaning making without neglecting the role of the individual" (Walker, 2010). In this framework, activities are analyzed "in a rich social matrix of people, artifacts and other resources" (Walker, 2010). It focuses on the interaction among the human, the objects and the context; as well as "the interaction of human activity and consciousness within its relevant environmental context" (Jonassen & Rohrer-Murphy, 1999).

Kaptelinin, et al (1999; Walker, 2010) summarized five basic principles of activity theory and the following three are relevant to this thesis.

- **Object-Orientedness**

Activity theory views the object of activity as an analytical tool revealing meaning, such as motives (Walker, 2010). In the context of visitor analysis, visitors use certain types of information artifacts under certain motives, which are decided by the situated contexts.

- **Internalization/Externalization**

Activity theory looks at the physical world not “as an external reality that is simply internalized via sensory inputs by an individual” (Kaptelinin, et al, 1999; Walker, 2010), which relates to the traditional one-way communication. Rather, it regards meaning making as an inherently social process by looking at the processes of internalization and externalization. (Kaptelinin, et al, 1999; Walker, 2010). Visitors perceive and internalize the exhibits and curated information, which are externalized when a breakdown occurs or they share the knowledge with their companions. The process of internalization and externalization thus can be seen in visitors’ interactions with the information artifacts, such as reaching out to labels, or discussing the information on the booklets.

- **The Concept of Mediation**

Activity theory emphasizes tools as mediation between human actions and actions in the world, “differentiating physical from cognitive tools (Walker,2010). Another notion is about “double mediation” in the context of technology devices applied in museums (Pierroux, et al, 2007; Walker, 2010).It means that visitors are influenced by two or more types of activity systems, such as the activity systems of the exhibits and the information services. Pierroux, et al discuss that visitors’ meaning making is mediated by the exhibits as well as technological tools. This leads to the three contexts in the contextual meaning model – the information artifacts provided by museums can be used to bridge visitors’ personal contexts with the physical context.

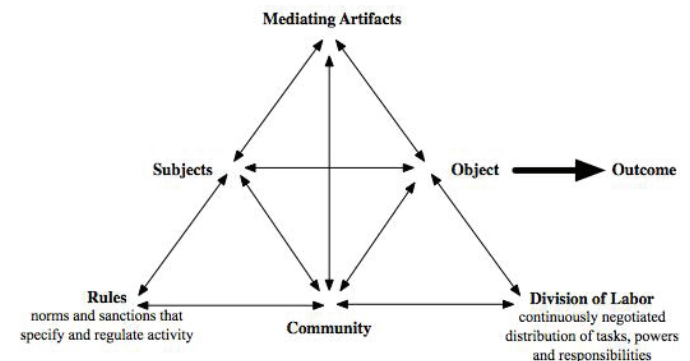


Figure 1 Activity System (Jonassen & Rohrer-Murphy, 1999)

Main Insights

1 The meaning making process in art museums should be viewed as a continuous development, which is mediated by information artifacts provided by the museums or owned by the visitors.

2 While it's common to see analysis on visitors' activity systems, it's also worth noticing the activity system of the curators. Curators employ information artifacts with certain goals or intended information to achieve education goals, which is also essential in the space.

Learning Experience with Art

How art should be experienced? According to John Dewey, the experience should not be about the objects, but about the making or encountering the object itself (Dewey, 2000), quote, "A true work of art is a refined and intensified form of experience." He criticizes that the model of modern art museums has removed art from people's daily life. He suggests the communication in art museums should "formulate exhibitions that lead to inquiry and that guide visitors to apply the results of such inquiry to life situation", (Figure 2; Hein, 2004).

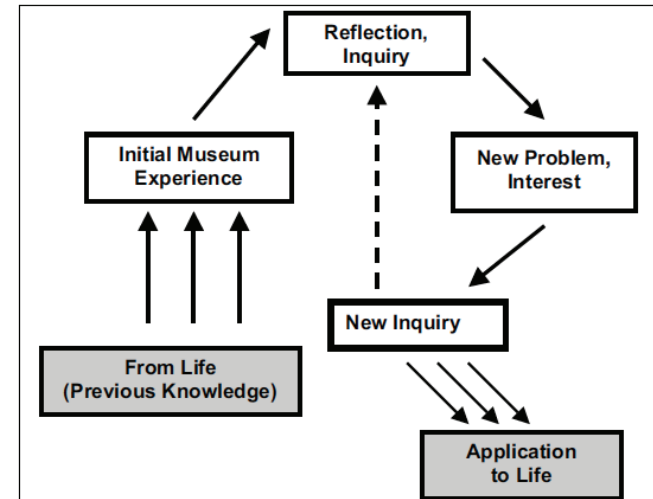


Figure 2 Art Educational Cycle (Hein, 2004)

Main Insight

1 The information design should be able to help visitors build connections between the artworks and their personal life.

Supporting Information Artifacts

From the above frameworks, one of the main insights can be drawn from the discussion is that the meaning making process in art museums is mediated by information artifacts provided by the museums or owned by the visitors. The information artifacts are used to convey the content as well as intentions from the curators, and at the same time, help visitors make meanings from the viewing experience.

Thus, it's important to have an overview of what's currently available. In art museums, the most common information artifacts are interpretive labels and digital devices.

Interpretive Labels

The most common artifacts to convey the information in the art museums are interpretive labels. They are used to provide visitors with curated information and instructions (Screven, 1992). Massive amount of visitor studies by museums have gained knowledge of how to design good labels, such as the style, the syntactic complexity and semantic complexity (Screven, 1992); and how visitors interact with the labels, including the time they spend reading the labels, the amount of words that visitors can tolerate, etc. (Gregg, 2010) At the same time, museums are also making every effort to make the labels more fun to read, such as involving the visitors to write the interpretive labels, using questions as triggers, innovating the forms of labels, etc.

Still, the visitors are not fully satisfied. For one thing, the way labels are displayed makes the art experience "a kind of one-liner—the viewer looks a little, reads a label, says 'I get it' and shuffles on" (Smith, 2007). For the other, the design and content of the labels often "reflect

the values and needs of the preparers—not the values and needs of users" (Screven, 1992). For example, the effort to "dump down" the interpretive texts for a larger audience in some museums leads to debate between a wider social inclusion and an oversimplification of complex content (Barr, 2005).

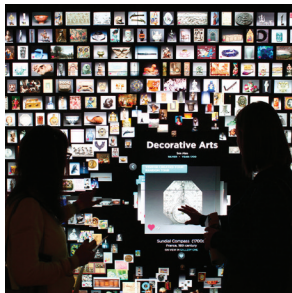
Digital Devices

From the traditional audio guides, which have been in art museums for more than 40 years (Proctor and Tellies, 2003), to the personal digital assistants, the art museums have been slowly transforming into digital environments that involve different types of information technologies.

What these digital components bring to the space is to support multi-user interactions, and various social interactions (Milekic, 2000). To support better learning in the space, Milekic suggests there are three areas that need improvement (Milekic, 1997; Milekic, 2000):

- location and shape of digital devices
- input/interaction devices, and
- content structure

There's still heated discussion over the efficiency of digital devices in helping visitors learn in the space, but it's no doubt that technologies have changed the relationships between the visitors, the curators and the space, including the authority of curators, the possibility of personalized information. (Cameron, 2003)



Gallery One in
Cleveland Museum of Art



One of the meSch projects:
different booklets for different
age groups

New Approaches

Recent years have seen news articles on the declined visitor numbers in art museums (Olson, 2013), which comes hand in hand with complaints from visitors, such as "I cannot find information I am interested in on the placards." "I feel tired looking at the artworks after short period of time." (Carliner, 2001). These pose challenges to art museums, because they question the museums' existence in economic terms, while at the same time, it also indicates radical social and paradigmatic changes that require active responses from art museums (Hooper-Greenhill, 2000). The following paragraphs look into three types of approaches in response to the challenges that are related to information interactions.

Interactive Art Museums

Some museums have introduced new technologies, such as touch screens and projectors to the space to create interactive viewing experience. One of the well-known examples is Gallery One in Cleveland Museum of Art. Gallery One rethinks technology application in the museum, creating a new multimedia visiting experience for the visitors. It includes one 40-foot multi-touch MicroTile Collection Wall, several multi-touch screens in the whole gallery and a new iPad app, ArtLens (Alexander, Barton, & Goesser, 2013).

On the other side of the coin, according to reviews from visitors (Rodley, 2013), the new technology provides the visitors with new viewing experiences, but the experience does not connect them closer with the information behind the artifacts .

Tangible Interactions

Some museums are making progress on personalized information by leveraging different types of medium tailored to different visitor groups. The EU funded project, meSch, aims to co-create novel visiting experiences at heritage sites by providing curators smart objects (Petrelli et al, 2013). For example, in an attempt to

explore personalization information, the researchers created three sets of information artifacts for three age groups: treasure-hunt bags for elementary school students, digital devices for teenage visitors and interactive walking canes for the elderly (Petrelli et al, 2013). The research looks at the information artifacts in the space as a coherent system, and offers insights in leveraging the characteristics of different medium.

Participatory Museums

Another approach rethinks the relationship between the visitors and the space and propose new models of interaction. In the book “The Participatory Museum”, Simon suggests a participatory model of information curation to support multi-directional content experiences (Simon, 2010). The museum serves as a “platform, while visitors are no longer viewers only, but are able to act as content creators, distributors, consumers, critics, and collaborators” (Simon, 2010). Especially with the growth of social media and digital devices, Simon suggests visitor participation could be more open and be scaled to involve more groups of visitors.



Visitors are involved in the curation process. From Participatory Museum by Nina Simon (2010).

Insights for Design

Personalized Learning Experience

The personal and sociocultural contexts that come along with each visitor make each meaning making process in art museums unique. Curators and designers are able to mediate the learning process and to communicate the information by designing the information artifacts. The most common tools that museums use today serve their purpose of providing information to the visitors, but they are incapable of supporting more delicate interactions for each unique visit. New technologies, such as touchscreens, sensors and projectors, are not the only solutions. It's more powerful as well as practical to discuss how different tools support various motives or meaning-making processes, and leverage the power of these media.

A Coherent Visit Journey

For museums to go beyond marketing strategy, it's important to view the meaning making process as a continuous journey, where internalization and externalization of

information occur simultaneously. Meaning is constructed from experience, and experience with art comes from connections with personal life and daily activities. It requires a thorough view of different contexts as well as leveraging the power of different artifacts.

Reflection on the Curator-Visitor Relationship

While art museums are gradually shifting the paradigm from a one-way communication model to a visitor-experience-centered model, it's also important to strike the balance between what the visitor want and what the curators want to convey. It's essential to rethink the curator-visitor relationship in the age of information, when over-loaded information competes to occupy people's limited attention. The main challenge for educators in informal learning environments like art museums is how to engage people with the curated content and to invite them into active inquiry not by pushing, but pulling.



4 Exploration



Visitor Interviews

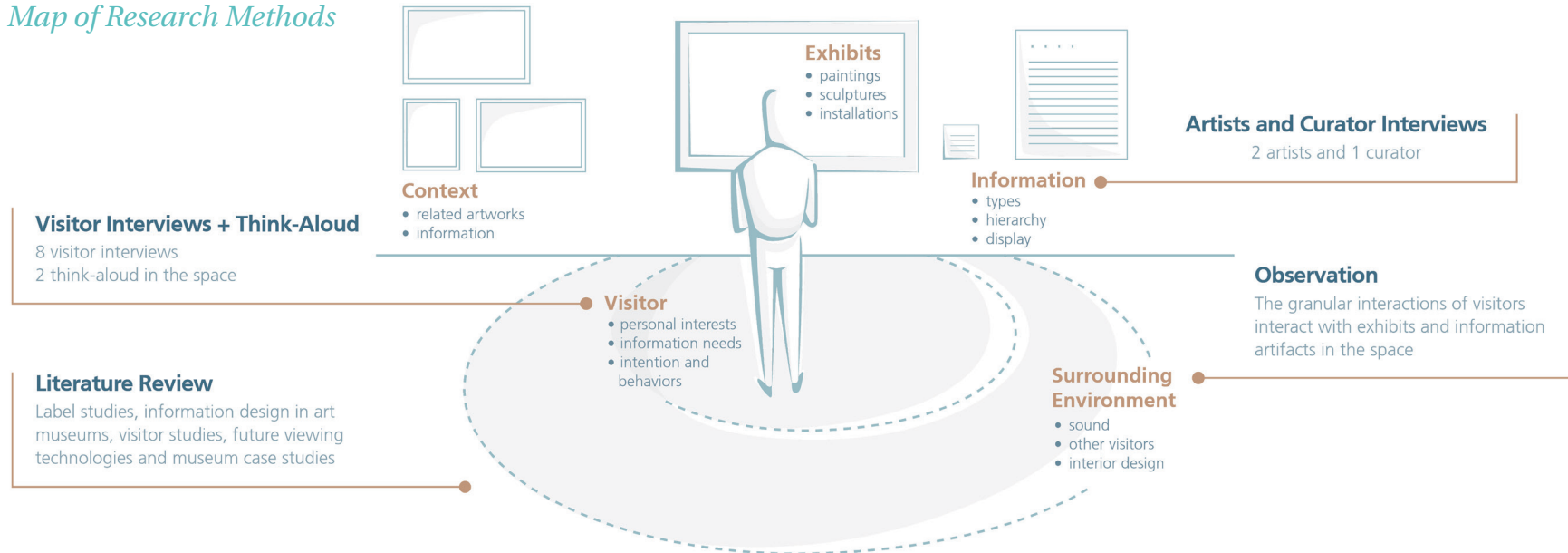
Ranking Activities

Artist and Curator Interviews

Observation

Research Findings

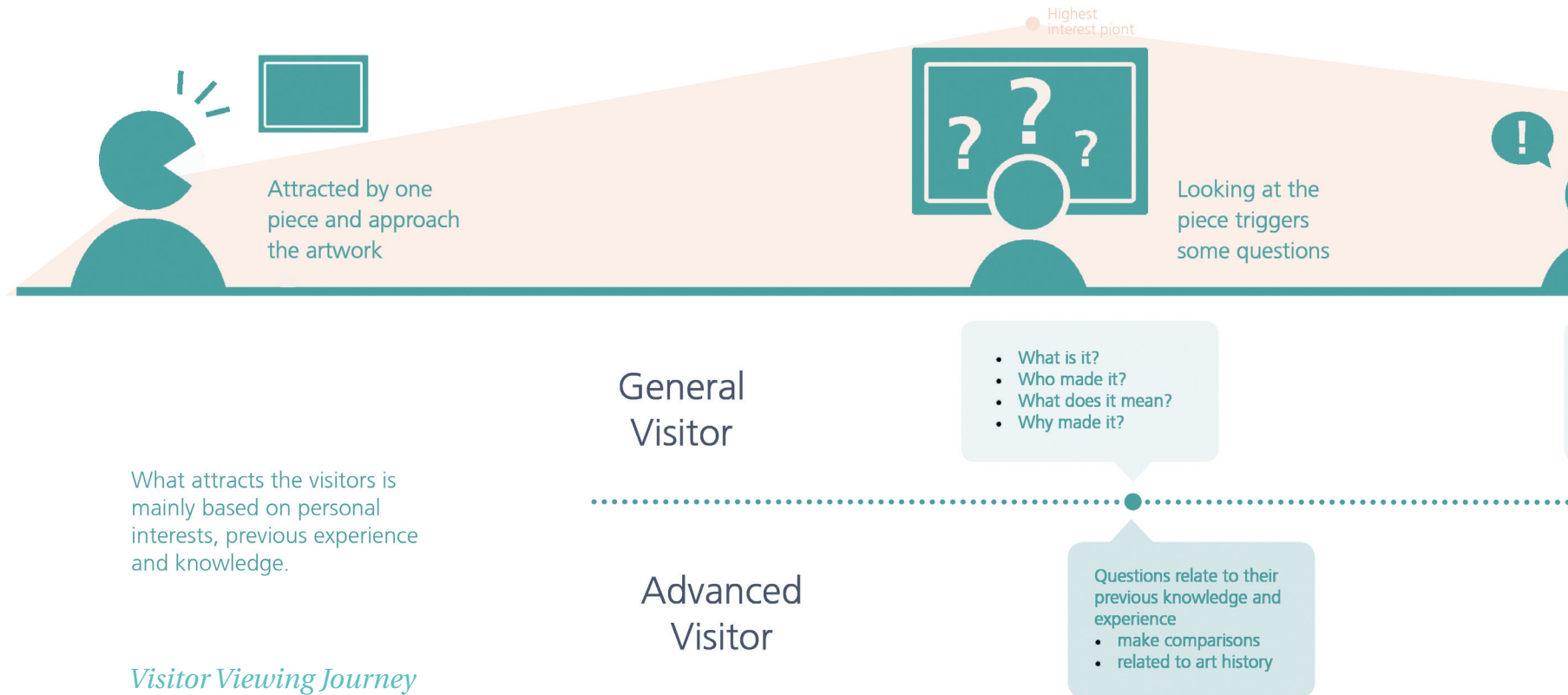
Map of Research Methods



In order to understand the different scenarios of museum visits, types of information that visitors would like to know, and the curation process, three types of field research methods have been used to explore different components in this topic area. They are visitor and expert interviews, ranking activities, and observation.

Visitor Interviews

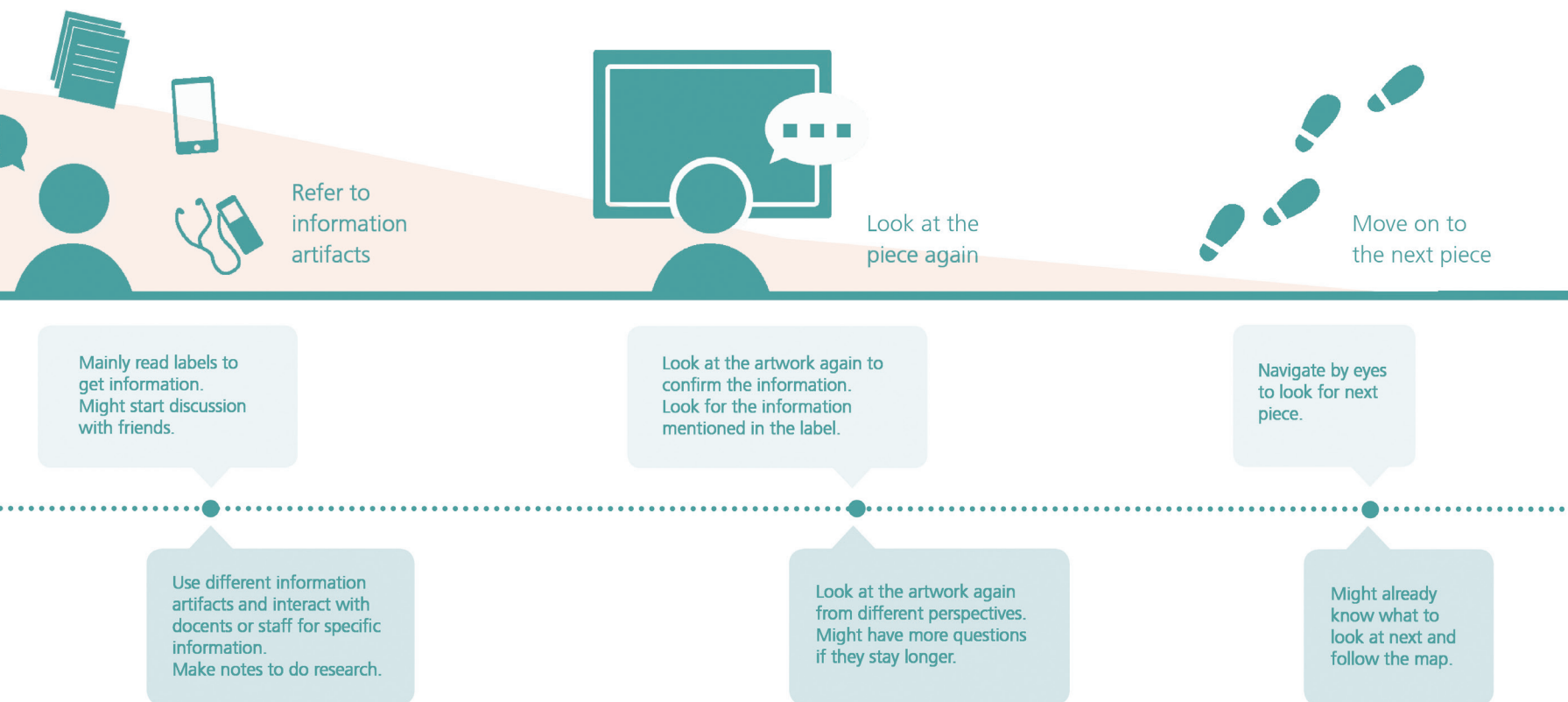
Visitor interviews are used to explore different ways and scenarios in which visitors interact with the information artifacts in museum (such as labels, audio guides and apps). Eight participants were recruited, most of whom were young museum-goers from different backgrounds, including artists, engineers, designers, etc. Each interview took 30 minutes



or less. The conversations with different people generated in-depth understanding of visitor behaviors. Most replies were not surprising, as have been presented in large-scale surveys done by museums, but making connections among all the questions generated certain patterns of information interaction, such as visitor behaviors and visitor viewing journey.

Visitor Behaviors

From the interviews, one of the main findings is that people might have various motivations to go to the art museums, to relax, to learn something, to do a study, but once they are in the space, they could be playing different roles during one visit. For example, they might start as an experience seeker, such as going with



friends on a weekend. Every now and then when they come across some exhibits that attract them, they start asking questions and discuss with their companions, which makes them explorers. In the end, they become rechargers – walking around the exhibit space, relaxed and pleasant.

The second finding is that although people have different levels of appreciation and

knowledge of art, they tend to behave similarly because of the design of the space. For example, people who are familiar with art history and those who don't will stop in front of the painting that attracts them and read the labels. Then they move on to the next one. They also discuss with their companions when they find something interesting. The main difference is the level of

engagement with the information. While some people are more likely to ask questions and make notes, others just skim the texts and walk away if nothing catches their eyes.

Based on the level of engagement with information, a rough distinction of two types of visitors can be observed: general visitors and advanced visitors. The distinction is not solid categories, but more like the two ends of a spectrum. Most people behave in-between the two ends.

Viewing Journey

The second finding from the interview is visitor viewing journey. The viewing journey describes the process when a visitor interacts with one piece of work. It starts when the visitor is attracted by one piece in the space, and it ends when the visitor moves on.

In the gallery, when visitor is attracted by one piece of work, he/she looks at the piece and starts to have questions. For general visitors, the questions they have are mainly about what they see, such as what is it, who made it. For advanced visitors, the questions they have relate to their previous knowledge and experience. For example, instead of asking who made the piece, they ask how this painting relates to the other

one from the same artist. Their meaning-making process relates more to comparisons and reference to the art history.

Once the visitor has questions, he/she reaches out to information artifacts to know more. General visitors mainly read labels or discuss with friends. They look at the piece again to confirm or to find the information. Then they move on to look for another interesting piece. Advanced visitors are self-motivating. They read labels, listen to audio guide or even talk to the museum staff for more specific information. If they get answers from these information artifacts, they might look at the piece again; if not, they would take notes and do research when they get home. The longer time they stay in front of the piece, the more questions they have. Then they move on to the next piece. They might already know what to look at next.

The viewing journey is a tool to visualize the interactions between visitors and the information artifacts. It is also used to identify the design opportunities.

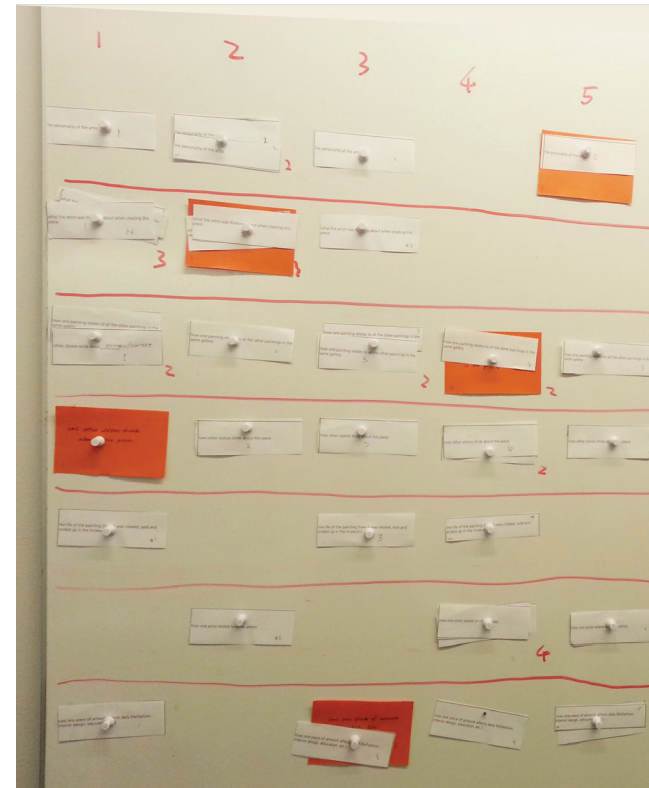
Ranking Activities

The ranking activity is incorporated in the interview process. Participants are asked to rank seven types of information that they wish the museum could provide. Here is the list of information for them to rank:

- The life of the painting (how it was created, sold and ended up in the museum);
- How one painting relates to all the other paintings in the same gallery;
- How one artist relates to other artists;
- The personality of the artist;
- What the artist was thinking about when creating this piece;
- How other visitors think about this piece;
- How one piece of artwork affects daily life (fashion, interior design, etc.)
- Other, please write down_____

The image on the right shows the results. The results from the ranking activity used to reveal popular topics that visitors are interested in. Several categories could be observed. Relatively speaking, more people are interested in “what the artist was thinking about when creating

this piece”(row 2), and “how one painting relates to all the other paintings in the same gallery”(row 3). People are less excited about “the life of the painting (how it was created, sold and ended up in the museum)”(row 5). Comparison between general visitors and advanced visitors indicates little difference. Each person has a different ranking. Even people in the same category had polarized opinion on the same type of information.



Artist and Curator Interviews

Two artists and a curator have been interviewed to unveil the curation process. The main insight from the art professionals is that they are conscious of curating engaging information to help visitors understand the intention and concepts behind the artworks. For curator, they not only put a lot of thoughts and hierarchy into the written texts, but also carefully consider the overall environment, including the summary label, the placement of different artworks, and small details like the color of the wall. Museum staff are also constantly experimenting different information artifacts to provide different experiences to the visitors, such as listening stations, slideshows, new ways to organize paintings, etc.

The interviews also reveals that the museum has the potential to fulfill the information needs from various visitors. There are three types of databases in the art museum:

- Collection database: for public and internal use. The public can get access to from the museum website;
- Master database: accessible to the museum staff only, containing confidential information, such as prices and insurances.

- Paper documentation: the museum staff collect photocopies of everything that relates to the piece, including essays, exhibitions and news reports.

The public can get access to the master database and paper documents by email or phone call, yet this way of communication is considered as not efficient to either the curators or the visitors.

Observation

Several sessions of observation in local art museum have been done to understand visitors' behaviors. The observed behaviors and micro-interactions include: the distance between visitors and artworks, the time visitors spend in each piece, the point when they read labels, the frequency of conversations, etc. The findings have been included in the visitor viewing journey in the discussion above.

Research Findings

When people see things that relate to their own experience, immediately they have stories to tell, which motivates the visitors to think and the share (Simon, 2012). Yet, the findings from the field research suggest that visitor gets highest interest at the point when they start to have questions, but then their interest decreases. The decreasing interests, according to research data, are due to the following four gaps in the viewing journey.

The first gap is that the information is pre-canned and the same for everyone, which could not fulfill the needs of each visitor. For general visitors, they are not sure what to look for from the label; while for expert visitors, they find the information too general to provide any new insights.

The second gap is that current information artifacts could not sustain their interest. The viewing in art museums is passive and linear. People read the labels, listen to audios, and then move on, which makes the viewing experience “one-liner”. One of the participant said, “I just look at the label and then move on to the next one. I got tired after reading several

of them, then I stop reading and just browse the gallery.”

The third one is mainly about the information needs of advanced visitors. They are the most engaging group in the space. They are self-motivated to ask questions and to seek for more stories behind the pieces, yet current museums do not support this further inquiry, though according to the curators, the museum has some backstage databases that could answer all their questions.

The last one appears when the visitor moves from one painting to the other one. Most visitors look at the paintings by walking along the walls in the space. They are more likely to look at the exhibits individually without knowing the main structure of narrative. This makes them tired after seeing several galleries, “because all of them look the same”, according to one interviewee. And thus, for the future design, it’s essential to weave the curation into the whole viewing experience, to give them appropriate guidance when they are navigating the space.



5 Ideation

Research Process

Findings

Design Ideas

The field research findings indicates several design opportunities. At the stage of ideation, a series of generative research have been performed to explore different design ideas.

One theme that keeps occurring is how visitors' behaviors are affected by the physical context. Curators spend a whole year or more to organize the exhibits, curate the information and design the information artifacts. They try every effort to satisfy the needs of different visitors by trying new technologies and using more story-telling elements. In this curation model, visitors are viewed as the recipients of information, passively receive what the curators offer. To some extent, it seems visitors are "spoiled", because the information is so easy-to-access that they don't know what to look at. This leads to the following question: What if an engaging viewing experience cannot be provided by the curators, but have to be co-created with the visitors?

This is where the Zero Information Space idea came up – a space where the easy-to-access information artifacts, such as labels are removed, leaving the visitors only artworks to look at. Four sets of experience prototypes

were designed to explore this idea and other possibilities. Five pairs of participants were invited to the generative research.

Research Process

The interview starts with a warm-up survey to open up the conversation and sets the stage. The four questions on the survey prompt the participants to reflect on their previous visit experience and their interactions with the information in general, such as "How much do you believe the information in art museums", "What kind of interactions have you experienced at an art museum", etc.

Then the concept of Zero Information Space is introduced. The participants explore the space by playing the roles of two visitors. They walk around the card-board prototype and talk aloud their feelings and behaviors.

In the second part, participants go through three scenarios. Each scenario represents a new type of information interaction. They are described as below:

Scenario 1: Learn by Yourself

The scenario is to explore how visitors think about passively receiving information versus actively searching for information by themselves. The participants stand in front of a painting by Pierre Bonnard, with two books on the artist, an iPad, and some pens and paper. The participants are asked to look at the painting and look for information about the piece. In the end, they are asked to leave some words for other visitors.

Scenario 2: Colloquial Audio Guide

The second scenario is to explore how visitors feel about information from experts versus information told by common people. The participants stand in front of a painting from Vincent van Gogh (or Monet. I alternate between two paintings). They will be listening to two pieces of audios recorded by two persons—a ten-year-old girl and an engineer. They are asked to share what they have listened and how they feel about the audios.

Scenario 3: Social Label

The third scenario is to make museum into a social space, where visitors have to talk to strangers to get more information. The researcher plays the role of museum staff and introduces two types of social labels to participants. Participants are asked about their feelings of the scenarios and the system. The two types of social labels are paper labels and an app. This is how they work.

Each paper label carries the information about one painting in the museum and is randomly assigned to visitors. In order to get more information about the artworks, visitors need to talk to each other to exchange information.

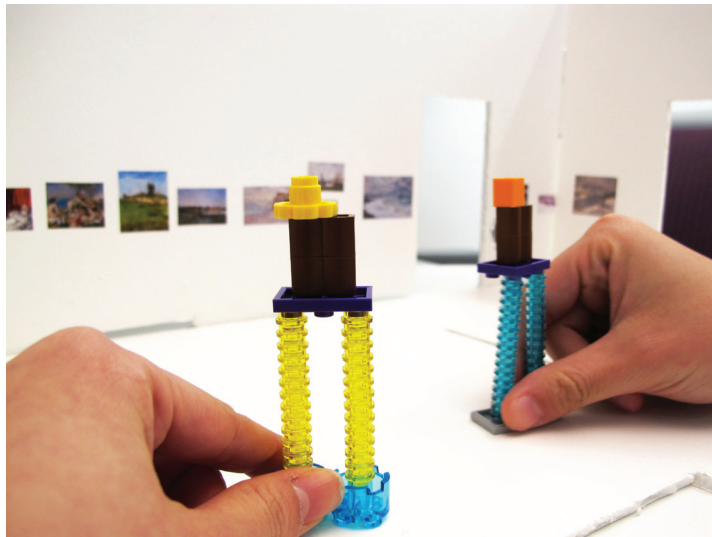
The app assigns the participants their painting, “Wheat Field in the Rain” by Vincent van Gogh. In each app downloaded by visitors, there’s only information about one piece of artwork. The visitors can read all kinds of information about the piece, and they can also keep track of other paintings from a map in the app. If they want to know a piece, such as “Water Lilies” by Monet, they have to track the person who has been assigned the piece, and start the conversation to learn more.



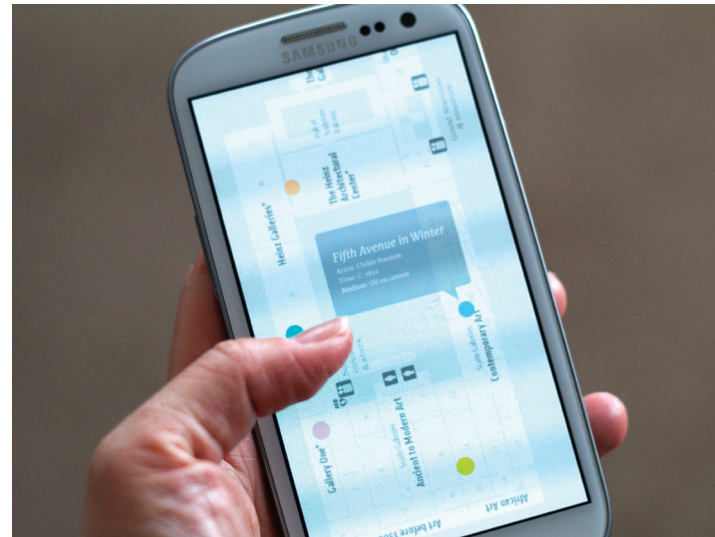
The research setting: four sets of experience prototypes



Participants are writing notes after reading the books.



Participants experience the space with two characters.



The mock-up app to simulate the social label experience.

Research Findings

Zero Information Space triggers active viewing and inquiry.

The research results suggest that the Zero Information Space encourages the visitors to visually navigate the space based on their own interests instead of given information. When asked what they would do in the space, six out of ten participants said they would look around the space and walk to the piece that they feel familiar or curious. Two of them mentioned they would like to sit down and look at the paintings at a distance to enjoy the overall space first.

Some visitors mentioned the space made them question their prior knowledge about art or some artists. For example, the questions arose as they walked closer the paintings, including “Is this by Monet? It looks familiar but I am not sure”, “Why these paintings? What is the connection among the paintings?”

At the same time, the fact that there’s no labels in the museum also prompted the participants to reflect on the relationship between the museum and themselves. The first reaction to the Zero Information Space from most participants was that “it’s an experiment”, because of its unusual setting—no labels. They

started to look at the space and ask questions like, “why is it empty”, “I am curious whether the curator care about providing further insights for the visitors”.

Basic identification and proper guidance are still need.

The main concern towards the space is the lack of identification and guidance. One participant mentioned if there was no label, she would not be able to find the piece she would like to see, or to share the experience with friends who haven’t come to the exhibits. Four participants mentioned they felt confused as to what to do next given the fact that there was no label in the space. They were reluctant to do any information search unless the paintings were really intriguing. “I will just walk away and skip all the paintings if I am not interested in them.”

People are willing to see more perspectives of narrative.

In the first scenario, there were some bookmarks in the art books, and the participants were told that the bookmarks were left by other visitors. Almost all the participants turned to the marked pages first.

“ I guess I would just focus on taking in the experience and less analyzing or reading.

“ *It's fun to learn opinions from other visitors, ... because everyone kind of secretly hopes others would talk to them.*

In the second scenario, most participants said it was a different experience to listen to audios from common people. Two participants said they would actually step forward to look at the painting carefully after listening to the audio. One participant mentioned she felt the experience conversational. She felt like responding to the audio after listening, because she had different opinions on the piece. Seven participants mentioned they would like to have options to choose among different audios.

Visitors are concerned about time and other visitors when reading in the space.

In the first scenario, most visitors found the books and digital devices offered additional information, but they suggested this idea might not work well in real setting. The main concern is time. “If in the museum, I might not spend time flipping through books on this particular painting because there are so many things to see.” They also mentioned the social pressure in the space made them conscious about doing deep reading in art museums. “I might flip the book, only looking the graphics and pass it on to other visitors.”; “ I don't want to take too much time when others are waiting in line to play the device or read the book.”

People are not comfortable with talking to other visitors in the art museums.

Contrary to their interests in other visitors' perspectives, people were not comfortable having face-to-face conversations with other visitors. Most of the responses to the third scenario were shock and uncomfortable. Some of the participants owed it to their own personality. “I think it's a personality thing.” Others mentioned they think they were not knowledgeable enough to have good conversation with strangers.

Four participants did see the potential of developing the social label idea into special events, such as for school trip, company gatherings, Happy hours or dating events in the museum. They found the tracking element interesting and were curious to try out, but might not actually start the conversation.

The existing information artifacts do work for different groups of visitors.

Visitors were satisfied with the current audio and text format, though each visitor has his/her preference. Some might read labels only and never borrow the audio guide, because,

according to one participant, “it does not pace my visit properly”; or sometimes the audio guides “don’t worth the price”. Some prefer audios, because “I can walk, and look, and listen to the information at the same time.”, and “they are quite informational”.

Two of the participants mentioned they always liked something physical, such as booklets or flyers, to flip through, to drop down some notes and to take away as souvenirs.

Design Ideas

From the research, at least three pairs of paradoxes can be observed:

- while people enjoy the freedom to navigate the Zero Information Space, they also would like to have some guidance about what to look at and what to expect;
- people are curious to learn more perspectives of information, but they are uncomfortable to start conversation with other visitors;
- the love and hate of the information artifacts: some people love the convenient labels, but they might not know what to look for from those

small trunks of texts; they enjoy the audio guides for the personal experience, yet at the same time, they complain that plugging the earbuds block them from conversation with their companions.

Insights from the three paradoxes lead to the following design ideas. First, Zero Information Space has the potential to be the solution to create engaging information interactions in the art museums. It encourages active inquiry and focused viewing. More importantly, its openness makes it a platform for visitors and curators to explore new possibilities.

Second, the information artifacts not only provide guidance, but also should be open for exploration, and flexible enough to cater to diverse audiences.

Based on the above insights, I propose Zero Information as the design idea for the project. To create a coherent experience, additional information services are provided to enhance this experimental viewing experience. They are curators in the space, easy-to-access digital information, more visualized printouts, special events, and new technologies.

Because of the universality and accessibility of

website and printouts, the final design focuses on the redesign of the museum booklets, LINK, and the museum website, LOOK.

The LINK booklet provides basic information of the paintings and visualizes the context of the overall gallery space to help visitors understand the connections among the paintings.

LOOK is a web platform that provides multi-modalities and multi-perspectives of information. Users can also browse information based on their own interests.

The two information services are complements to the Zero Information Space experience. Visitors have the options to choose the purest form of viewing—looking at the artworks without any additional information or bias. If they are curious about the piece and wish to know more, they have different medium to get access to information, which requires their active participation or creation.

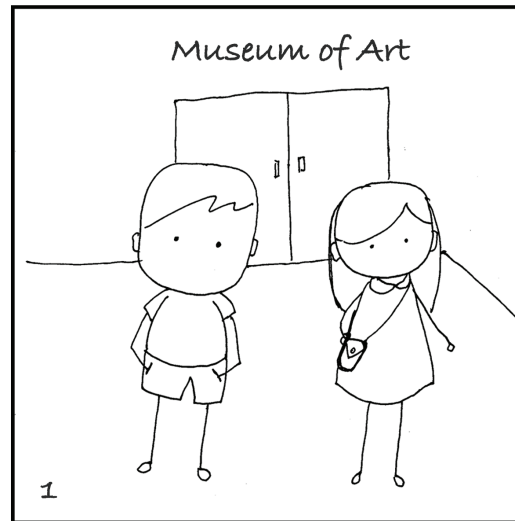


6 Prototypes

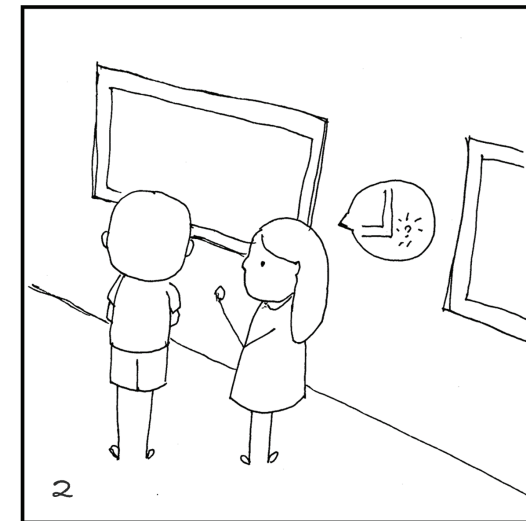
Zero Information Space

Website

Booklet



Aaron and Beth go to the Museum of Art on a Saturday afternoon. They had a busy week, and would like to have a relaxing afternoon in the museum together.



They enter a new gallery. To their surprise, there are paintings in the room, but no placards on the wall, nor audio guides. It's called a Zero Information Space.

The design concept of Zero Information Space was tested as an overall experience and has been through two to three rounds of user testing. The three components include the Zero Information Space as the context, and the two information services that are designed to enrich the viewing experiences.

Zero Information Space

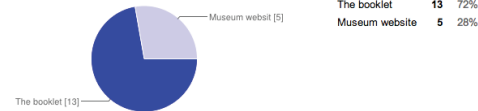
In the generative research, testing the concept of a Zero Information Space with a physical

cardboard prototype has received positive feedback from participants. To further evaluate the idea, a storyboard has been created to describe how it is experienced. Three participants were asked to walk through the scenario. The scenario has also been posted in a Mechanical Turk survey with 18 responses.

Most responses confirmed the fact that a space with no labels lead to more questions as well as more focused viewing.

Booklet or Mobile Phone?

What tool will you use to view information about the paintings in the 0 Information Space?



Booklet

Good choice! Can you tell me why you prefer the booklet?

Because I wouldn't want to carry my phone into the museum if I am wanting to relax. I don't have a smart phone and I would prefer to be able to read the information and take it with me when I was done. Because you can have it right at your fingertips while viewing. I don't own a smart phone. I don't like to read on smartphone and I think it would distract too much. I don't have a smart phone. Because information is hard to read from phones. Plus I can make notes in a booklet, and give it to others to read if I want to. Because I don't use the internet on my phone - I have a basic phone. Also, it is easier. A booklet specific to where I am would be easier to navigate than an entire website. I'd rather have it in my hand. I just think it would be faster with no learning curve. I prefer the booklet because most likely the download of the app on the computer would be complicated. I like to view things on paper as opposed to a screen. Gives my eyes a rest.

Beth chooses the booklet to learn more about the paintings.

Beth chooses the booklet to learn more about the paintings.

Based on the above scenario, how do you like the new design of museum booklet (on a scale of 1 to 5)?



What do you like about the new booklet?

The way it connects to other paintings and has a lot of information. It's easy to access. I like the size and not having to deal with the typing or the small screen of a phone. Also I don't have to wait on pages to load. The detail with the ribbon that connects the painting with another page in the booklet and also the suggestion regarding another painting. that it's so informative. nothing has accurate information. How it draws connections between different artists. How it connects you to other masters who had similar techniques. I like the information it gives and if I like one type of painting it is nice to know that there are other types like this to compare. It seems interesting and as though it would offer a variety of facts on the paintings available at the museum. I like that it is not only instructional but is educational. Every thing. It is brilliant. The ribbons are, of course, just like hyperlinks on web page, to other web pages.

How will you improve the booklet?

I would have to study the booklet to be able to answer that more fully. We will hope that it is FREE. Nothing comes to mind. I might not go for the ribbons. It could get messy and annoying. how about an e-booklet (the size of a booklet, but it does only the booklet, not other things). You could carry it around with you kind of like the audio things, but in e-reader format. then you can just touch the ribbon and it would take you elsewhere. I would enlarge it for people who are visually impaired. No ideas. To improve the book, I would devise another method of connecting the pages. The ribbon is a great touch and would be very memorable, but may confuse older

Screenshots or survey summary

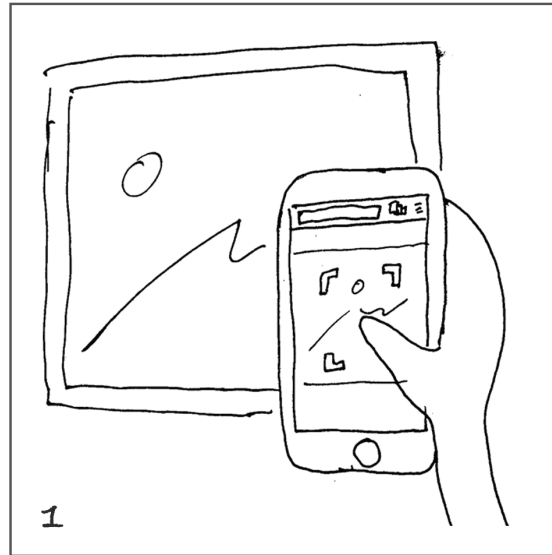
Summary of Survey

Most responses to the idea of Zero Information Space were positive. Some of them echoed with the essence of the design: "It will allow me to use my imagination and mind." "... that you were supposed to perceive the art as it is, without knowing the origin or styles." Some found it confusing and others said they were a bit disappointed about the space as it is. In the space, most of them decided to "look around and speculate with my friend about what's going on"; "I would enjoy what I saw without trying to attach my reactions to painting names, artist name, or historical facts".

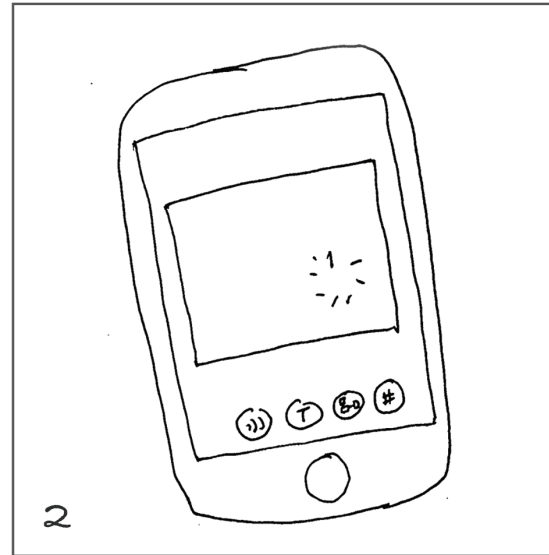
72% of the respondents chose the booklet. The main reasons include its convenience—"right at your fingertips" and their dislike of using smartphones in art museums. They liked the "connection" and "suggestion" components of the booklet, "I like how it draws connections between different artists."

For people who chose website to explore the information, they found it straightforward, more up-to-date and they could have more control. Most of them spoke highly of the multiple modalities and multiple perspectives of information, "it gives you different options to learn more."

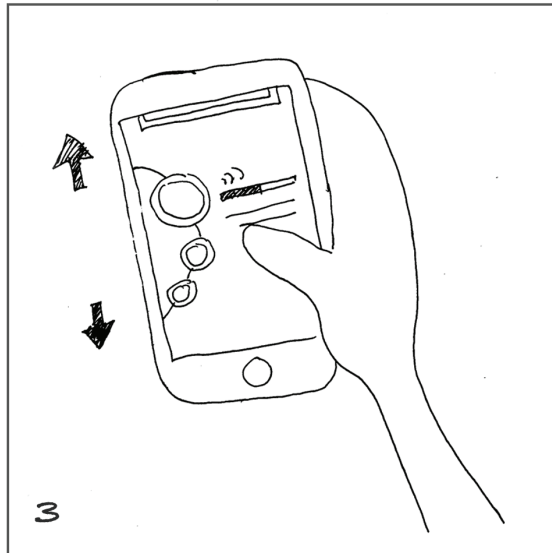
Aaron chooses to use the museum website. When first launch, he sees a camera view to identify the image.



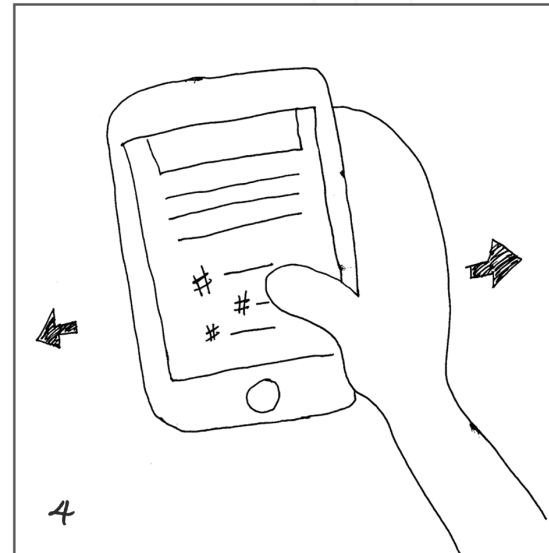
He sees a blinking dot on the painting to indicate something interesting to read. He has four options to choose.



He scrolls down and finds three audios recorded by a curator, a 10-year-old, and an engineer.



When swipes left and right, he switches between different options, such as see tags created by other visitors, reading information from an infographic, etc.



Scenario of how visitors use the website.



Paper prototype to test the usability of the website.



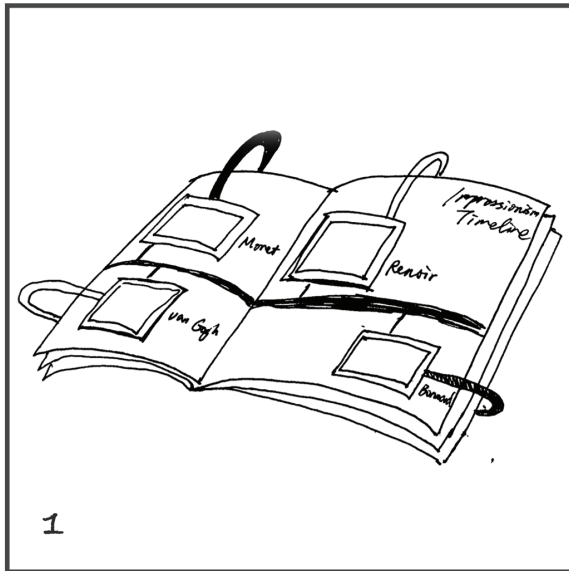
Interactive prototype to test detailed interactions.

User Testing

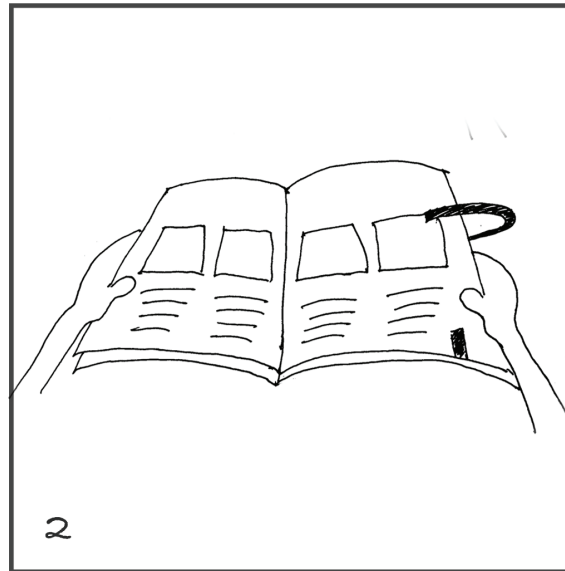
To test the usability of the prototypes, an online survey on Mechanical Turk and three walk-throughs have been performed.

The feedback from the users suggests that the two information services can support the viewing experiences in Zero Information Space, but further development is needed. For example, it's important to think about

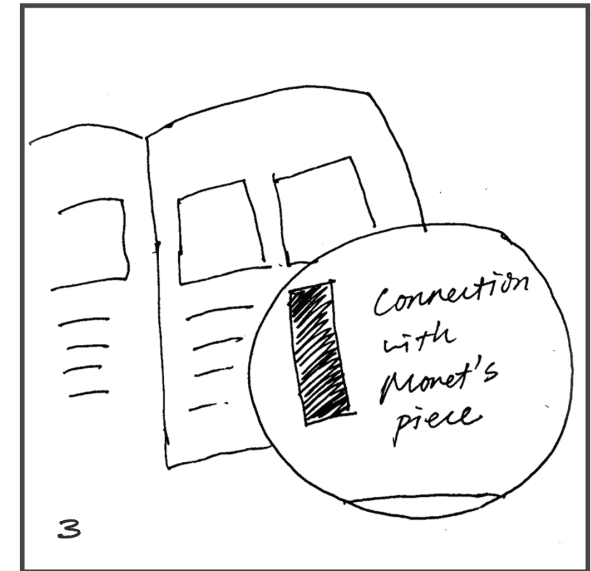
how the users can keep track of their viewing journey, and how to scale up the websites to incorporate more artworks. The idea of "multiple perspective audio guide" enhances the viewing, but the options of audios could be more personalized, such as users will be able to set preferences. All these issues will be further incorporated into the new version of the website in the next step.



Beth chooses the booklet. When she opens the booklet, she sees a timeline of all the paintings in the gallery. There is brief introduction (name, artist and year) with each painting. Each image has a ribbon attached, which connects the painting with another page in the booklet.



Beth follows the red ribbon and turns to the page it connects. She finds several early sketches by van Gogh, and reads information about how his drawing techniques evolved over time.



At the bottom of the page, she finds a bookmark that suggests her to look at a painting by Monet in the same gallery. The two paintings share similar drawing techniques.

Scenario of how visitors read the booklet.



Paper prototype to test the main idea of the booklet.



Printed version of the booklet

Booklet

The design of the booklet has gone through two rounds of prototypes and user testing. The first round is a lo-fi booklet mock-up to demonstrate the idea of visualization the structure of curated narrative. Followed by one round of hi-fi prototype to test the interaction with the details.

Feedback from the participants leads to questions as how to scale up the visualization to include more exhibits; how the information from the booklets relates to the information on the website, etc.



7 Conclusion

Designing information interactions for art museums is an interesting challenge, because it's designed for diverse public, which makes it impossible to satisfy the needs of each visitor; while at the same time, the undergoing social and technological change revolutionize the way these spaces are experienced.

For example, new technology has shown the potential to provide new experiences, such as providing the users with more information options and the possibility of personalization. But it doesn't guarantee an engaging and personal connection between the people and the works: although they have audio guides or mobile apps in hand, some people are still afraid of talking about art in an art museum.

Research findings from this project suggest that the physical context affects how people behave. The current exhibit space serves the purpose of providing easy-to-access information, yet it leaves little room for individual inquiry and exploration.

This thesis looks into this problem from an information interaction perspective, and in the

end, it proposes Zero Information Space as a solution. On one hand, it is an experiment to create new viewing experiences. It pulls visitors into the space by letting the artworks speak to their eyes. It encourages them to interpret art based on their own experiences and knowledge. The idea is not about what an art museum should be, but what the experience with art should be.

On the other hand, the space offers a reflective perspective by questioning the current curation model, and the current viewing experience. By taking visitors out of the "comfort zone", it helps visitors to look at the space, the artworks, as well as to look back into their prior knowledge and experience with art. For curators, it can be used as a tool to generate new ways of interactions by opening the space to the public for more diverse interpretation, and more formats of display.

For the next step, if only I could have the chance, I would be looking forward to taking the idea into the real setting and see how people react to the space, what they will do, and what new conversation will be generated.



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Appendices

Appendix 1

Interview Questions for Visitors

1. Can you think of the last time you went to an art museum, what triggered you go to the museum?
2. What's your favorite piece or what is the most impressive piece to you?
3. Can you think of any artworks that made you step closer to look at? When did you get closer? Why did you step closer?
4. When looking at the piece that attracts you, what did you do?
5. What type of label do you pay attention to, individual labels or the summary labels?
6. Do you remember anything you read from the label? What did you pay attention to when reading the label?
7. [Ranking Activity] Think about your favorite piece in the museum, can you rank the following information that you wish the museum could provide
 - The life of the painting (how it was created, sold and ended up in the museum);
 - How one painting relates to all the other paintings in the same gallery;
 - How one artist relates to other artists;
 - The personality of the artist;
 - What the artist was thinking about when creating this piece;
 - How other visitors think about the piece;
 - How one piece of artwork affects daily life (fashion, interior design, etc.)
 - Other, please write down_____
8. Think about your previous museum visit experiences, what else do you want to know? What do you feel missing when reading the labels, listening to the audio guides or using the apps?
9. Did you find anything interesting during your visit, such as artworks or labels?
10. Would you like to get information about art in your daily life? What are the other resources for you to get information about artworks or artists (books, magazines, friends, social network, Internet, etc.)?
11. Can you think of any examples that you feel art is connected to you?

Appendix 2

Interview Questions for Curators

1. How do you select the information for an exhibition/for a piece of artwork?
2. Do you think these guidelines or the process are going to be changed? How?
3. What is the new trend in curation?
4. How did you select the media to present the information? What's the advantage of digital devices in displaying information in the exhibit space?
5. Based on a recent exhibit, what do you expect the visitors to take away after visits?
6. Based on a specific exhibit, what do you think the museum could do more?
7. What do you think about different information needs from the visitors? What did you do to fulfill these different needs?
8. How to balance the information needs from the various public, and a curated storyline?
9. How to coordinate multiple paintings into one theme?
10. What are the most frequent questions do you receive from the visitors? How do you respond to them?
11. Do you know any other museums that are using innovating ways to exhibit?

Appendix 3

Generative Research Protocol

Part 1 Reflection

Hi, thank you for participating in this research. Today we are going to explore new possibilities in information interactions in art museums. It's going to be a combination of interviews and hands-on activities. I hope we can both learn something from it.

First thing first, I would like you to reflect on your previous experiences in art museums. Can you think of the last time you visited an art museum and fill in this survey for me? We will have a small discussion afterwards.

1. How much do you believe the information in art museums? (Note: 1 as I don't believe anything; 5 as I believe anything given in the museum)

1 2 3 4 5

2. How satisfied are you with the information provided in the art museum?

- A. Too little. I wish to know more.
- B. Too much. I don't remember anything.
- C. About right. I always learn something after the visit.

3. What kind of interactions have you experienced at an art museum?

- A. Mainly personal interaction (self-reflection, note-taking, photo-taking, meditation, etc.)
- B. Mainly social interaction (conversation with friends, family or museum staff, walking around the gift shop, etc.)
- C. A mix of both.

4. How do you learn in the art museum?

- A. I learn by following a tutor (friends/family/docent/curator/ audio guide)
- B. I learn by exploring on my own.
- C. I just let art hit me without actively seek for information.
- D. I learn nothing from it at all.

Thesis Research III
Part 1 Reflection (A)
Date _____

Part 2 Zero Information Museum

The second part is a role-play game. You are going to be the visitors in the Zero Information Museum today. Can you pick a character for yourself? Let's begin.

Hello, welcome to this Zero Information Museum. As you can see, it's an art museum with no information artifacts (no labels, no audio guides, no mobile apps). All you can see is amazing artworks created by artists who you might like or not. Feel free to walk around the space and look at the paintings.

1. As you are walking around in the space, what's going through your head? How do you feel about this space?
2. As you move forward, what will you do in this space?

Next, I am going to visit the space with you and go through three scenarios. Each will be a new way of information interaction. I will guide you through the process and ask you some questions in between.

Scenario 1 Learn by Yourself

In the first scenario, we stand in front of this painting (Nude in Bathtub by Pierre Bonnard). Do you by any chance know what this piece is?

Here's what you are going to do. Here are two books, an iPad, and a mobile phone that you can use to search for information of this piece. Then you can fill in this blank label and leave it for other visitors. As you will notice, some visitors have left some hints for you. Think about what you wish other visitors to know, and what information you find interesting to share. You have 8 minutes to work on this.

1. What information did you choose to present? Why?
2. How do you feel about being a curator for other visitors?
3. How do you feel about seeking for information from different media? How do you feel about reading information from books?
4. How do you feel about using tablet and phone? What do you enjoy best?
5. What do you expect to see next?
6. Here's an official label provided by the museum. What do you prefer to read, the museum label or the hand-written labels from other visitors?

Scenario 2 Colloquial Audio Guide

The second scenario relates to audio guide. Have you ever used audio guide? Do you enjoy it?

Your figures are going to stand in front of the piece, and you are going to listen to different audios on the same piece. About these audios, one is from a 10-year-old girl and the other is an engineer in Pittsburgh. After listening, you will share with each other what you have heard.

1. What did you learn from the audio? What did you learn from each other?
2. Do you enjoy this kind of interaction, listening to different audios and sharing the information with each other?
3. What will be your reaction if the museum only provides this audio guide, with no labels or apps?
4. Is there anything you will change in this scenario?

Scenario 3 Social Labels

The third scenario is about the labels. There are two formats, one is paper labels, and the other is digital. What do you choose? Why? I will walk through the two systems with you as a museum staff. We'll have a small discussion afterwards.

(Paper) When you first arrive the museum, you will get your ticket as well as your assigned painting for the visit. Here's your painting. Because there is no other information artifacts in the space, if you want to know more about a piece, you have to talk to other visitors. I am a visitor now, and I will come up to you. Hey, what's your painting? Can you tell me more about it?

(Digital) In this scenario, you get assigned a painting once you launch the app. You can go through the pages and read the information. In the end, you will see a map of paintings of the day. It's a map of the visitors in the museum. Each dot represents one painting.

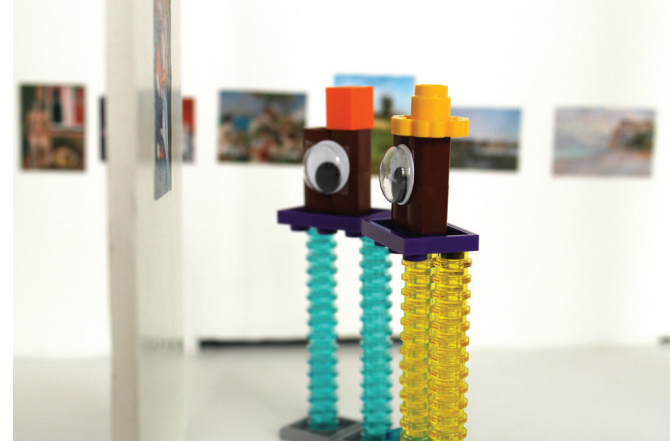
Some paintings are assigned, but some are absent. You can look for the painting that you are interested, follow the person by using the app and talk to him/her about the piece.

1. Do you like using phones in the museum?
2. How do you feel about talking to strangers in the museum?
3. What do you like about the two systems?
4. Is there anything you will change in this scenario?

Final Thoughts

1. What do you wish the art museum could be?
2. Do you have other questions for me? Do you have anything else you want to talk about?

Appendix 4 Experience Prototypes



Zero Information Space

It is a card board prototype to create an exhibit space where easy-to-access labels are removed, leaving visitors only the paintings to focus on.

Colloquial Audio Guide

Here are the scripts for four pieces of colloquial audios. I wrote the scripts for two paintings from a local art museum. Then I asked two colleagues to be the voice of an engineer from Pittsburgh and a ten-year-old girl.



The Sea at Le Havre
Claude Oscar Monet

Engineer: The Sea at Le Havre, was created by Monet when he was young and was living in Saint-Adresse. This is one of my favourites in the museum. What attracts me most is how he depicted the movement of the sea. If you come closer and look, you can see he used different strokes in the water to suggest its various states, the rippling surface of the bay, the rise and fall of the wave, and the sheet of rivulets on the beach. Oh, man, I can spend so much time in front of it and I never get bored. But this painting is not just about the nature, it's about humanity. You see that little boat in the painting tossing by the sea? It makes the whole work come to life, as if with breathe and sound.

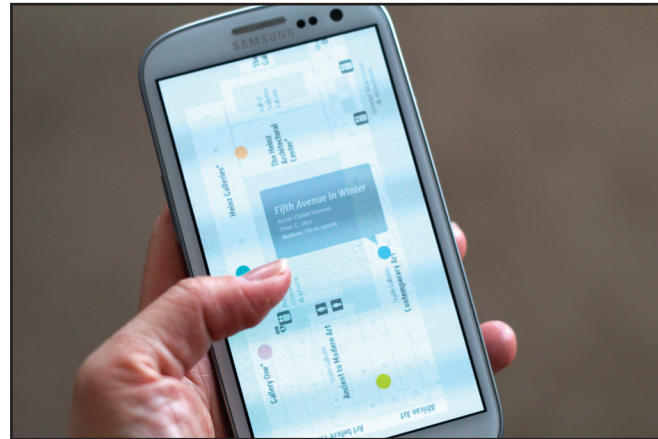
Girl: The painting is about the sea at Le Havre. The painter was Monet. He lived near the sea and he spent a lot time drawing it when he was young. I don't like the painting because the color is so pale, such as the blue, the green, and the white. I feel sad for the people on the boat. They must feel very cold out there because it's cloudy and it looks windy that day.



Le Moulin de la Galette
Vincent van Gogh

Engineer: This painting was painted by Vincent van Gogh. For me, he was a great painter as well as a great human being. During his 39 years of life, he struggled to earn a living, but he did not stop his love for painting. He did a lot of great paintings but no one appreciated them at his time. The painting is called *Le Moulin de la Galette*. It was near the place where he lived with his brother, Theo. This painting was painted when he was 33 years old, at the time when he was still exploring his style. The color palette he used here was bright, but not as those he did when he was in Arles, where he was influenced by the strong sunlight there. You can also compare this piece with the one in the same gallery, it's called *Wheat Fields after the Rain*. The latter has a brighter color and the brushstrokes are more vivid than this one.

Girl: This painting was painted by Vincent van Gogh. He was a great painter and my art teacher told us about his life. It was a sad story. The painting has a long name, *Le Moulin de la Galette*. There are two windmills, many houses and some people walking in the painting. The grass is green and there are some dots in between. My mother said, those are the flowers, but I think they don't look like flowers. It seems the grass are sick. I like the painting, because I've never seen windmills like these.



Social Labels

To simulate the social label experience, I made a mock-up app with FluidUI. It mainly demonstrates (1) the visitor get assigned a painting in each visit; (2) one can keep track of other visitors to get information of paintings.

Hi, there,
welcome to the
o-Information
Museum :P

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Today you are assigned

Wheat Fields After the Rain.

People are curious about this work because of the time it was created. Read more about it, as you are going to introduce this piece to other visitors.

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Wheat Fields After the Rain

Artist: Vincent van Gogh
Time: 1890
Medium: Oil on canvas

In 1890 van Gogh settled in Auvers-sur-Oise, a small village northwest of Paris, whose outlying fields are the setting for this landscape. They stretch out from a grassy knoll in a zig-zag, patchwork pattern, their bold yellows, blues, and greens, their rapid rise up the canvas, and their impassioned furrows uniquely van Gogh's. Van Gogh wrote, in a letter to his brother, Théo, just a few days before he began this painting,

"I am far from having found any kind of tranquility...The prospect grows darker...I see no happy future at all."

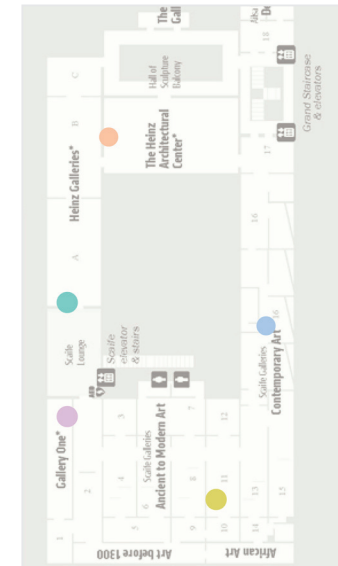
Five days later he felt that

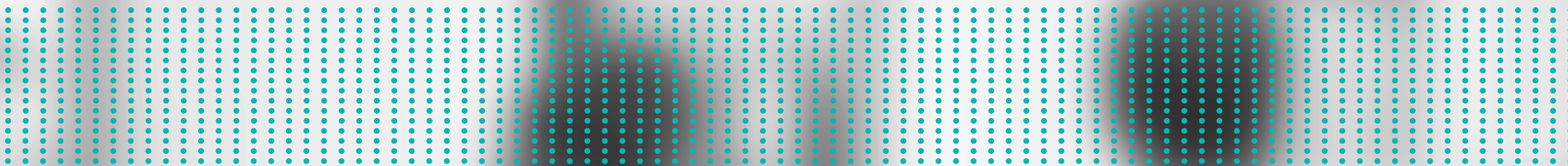
"...the trouble I had in my head has considerably calmed...I am completely absorbed in that immense plain covered with fields of wheat against the hills boundless as the sea in delicate colors of yellow and green, the pale violet of the plowed and weeded earth checkered at regular intervals with the green of the flowering potato plants, everything under a sky of delicate blue, white, pink, and violet. I am almost too calm, a state that is necessary to paint all that."

On July 27 1890, four days after finishing The Plain of Auvers, van Gogh shot himself near the very fields where he had temporarily found peace. He died on July 29.

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