

Final Paper: Tools for Digital Humanities Research: Image Group Creation and Organization on Artstor

by Sarah Bulger, Sisira Padavala, Jiaqing Pan, Yan Tang, and Yuang Yang.

Executive Summary

This is the final report of ‘Tools for Digital Humanities Research: Image Group Creation and Organization on Artstor’ for INLS 582 System Analysis course

This report consists of 4 main parts:

- I. Description of Current System - this section covers the detailed description of current Artstor website, including its setting, the clients, problem description and the objectives, etc; The investigation which records how the data is gathered and analyzed, what problems and pain points the data reveals.
- II. Recommendations for New System - our proposed solution to current problems and ideas for improvement based on the data analysis result, which includes improvement on Comparison Function between groups; Creation of Tag recommendation in Tagging system as well as adding image management functions inside groups
- III. Implementation Plan for New System - the steps Artstor might take to implement the changes; The potential issues; The possible choices of project management model.
- IV. Team Appendixes

Section 1: Description of Current System

Information Gathering Plan

Setting

Artstor is an entirely digital platform and online-based service. It can be accessed either through an institutional portal or through traditional methods of searching for the site. As an electronic resource, the user can navigate to find resources that will help them understand how to use Artstor, as well as information to contact Artstor for any further questions.

System Description

Artstor is one of the most extensive databases for high-quality images of the arts, architecture, and cultural heritage of the world. Artstor currently contains over 3 million images from leading institutions and individuals including museums, archives, scholars, and artists. The images made available through Artstor are all-rights-cleared for educational use, allowing for the widespread sharing of world cultural heritage and history to researchers and emerging scholarship.

Problem Description

Currently, Artstor offers various tools for their users that assist in collecting and organizing their individual image-based research projects. One of these tools is the “Group” tool, which allows the user to create individual collections of select images based on a research topic. The “Groups” feature is, however, flawed in that it does not transition seamlessly into extremal research projects through its exportation of slideshows, the various types of “Groups” are not well defined and can lead to confusion about privacy, “Groups” do not allow for the same level of image comparison within Artstor’s webpage, and the tagging system has no default or pre-generated tags to search from. Improving the “Group” function in Artstor would allow for students and researchers alike to better prepare their research topics, understand the artifacts of their research, and organize their lectures around that research, allowing them to share their work more seamlessly with wider audiences.

Objectives

1. Refine the definitions and titles of the different “Group” options from Institutional, Personal, and Shared with me, to include more discernible groups, easing any issues over privacy of image collections.
2. Make the “Compare” function more accessible to users when viewing images in “Groups.” The current “Compare” function can only be accessed by first expanding a singular image.
3. Bring in the “image comparison” function that is available through the general catalog search to “Groups” to allow users to compare images between multiple Groups.
4. Create a tags system that utilizes a controlled vocabulary, rather than having the user rely on their own knowledge of an image. This will reduce the number of tags a user may create which mean generally the same thing.
5. Create a bulk image download option within individual Group collections, giving the user the option to save all of that Group’s images without having to have slideshow software.

Metrics of Success

We will measure the success of this project using a follow-up questionnaire which will be sent to the users of Artstor to rate their experience using Artstor functions following our recommended improvements. With a minimum of 15 responses indicating an improvement in user experience, this project will have been successful.

Scope

The scope of this project will entail the Artstor general catalog for research purposes, the Group function through Artstor, and may include the adjoining article database JSTOR for cohesive creation of tags and organizational systems related to research topics.

Information to be Gathered and its Importance

- How the Groups function currently works to understand the ease of use.
- How Artstor is accessed and how users navigate to the Group Function to understand the ease of use.
- User opinions (student and faculty users) on the bulk image download function, whether this would be useful.
- How the different categories of Groups (Personal, Institutional, Shared) work. What each offers to the user to understand the needs of different user groups.
- How users use these different categories of Groups, to see if there are discrepancies in understanding
- Most commonly used tags to improve the tags suggestions, this would be a good reference if a controlled vocabulary is to be built for the tags system.
- Preferred tags by users to improve the tags suggestions.
- Comparable image databases to see its usefulness.
- Other problems users face in Artstor and their suggestions to include in a large-scale project in the future outside of this project's scope.

Information Sources and Retrieval

Information for this project will come primarily from three places: people (in the form of users), the client as a vendor, and primary and secondary source materials (from research conducted on the site by our team members as well as news and journal articles on image-based research). In gathering information from users we plan to use a series of surveys and brief interviews to understand how individual users interact with Artstor and the Group creation function. This will help us understand which aspects of the project are top priority, and which can be adjusted through the Scrum cycle. Artstor staffers will be another source of information as they may have metrical insight into how users interact with the site. Secondary sources such as news or journal articles will provide us with background information on image-based research such as anthropology and art historical research methods, issues with these methods of research, and user opinions broadly. Finally, our information will be gathered through our own individual interactions with Artstor and experimenting with creating image Groups.

We will conduct three independent contextual inquiries throughout this project. First, we will identify the ways that Artstor is currently functioning, to identify as a group the specific tools and site interfaces that require improvement. Then, we will conduct a questionnaire and collect interview information from real Artstor users, where we will meet and ask them to demonstrate how they use Artstor in their research. We will create and compile notes of at least 100 points together in order to prepare for a virtual wall-walk exercise utilizing *Miro*. This will begin to demonstrate which aspects of improvement are similar, which areas are most pressing, and in what order these improvements should be made.

Organizational Methods

The information that will be gathered throughout the project will be recorded in various methods predominantly digital. The team will utilize Google Docs, Google Slides, and Google Sheets to record and track information that each individual gathers in real-time. These documents will be stored in Google Drive in a shared folder so that all team members will have access to the resources already collected and created, as well as have the freedom to add further information as they may need. We will then utilize Miro, a digital sticky-note creator and organization board that syncs real-time with shared users to take notes on our primary research and organize our notes into models. That information will then be transferred by the Project Manager to PDF form for project submission.

Google Docs will be our main source for compiling information in written form based on our research, in order to present our findings and work to the client in a polished, formal manner. Google Docs will allow us to navigate the needs of providing written components of our work processes for this project. Google Slides will be utilized by the team internally to update each other on our progress weekly and to demonstrate how we may then best move forward. Having each member condense their work into a one-two minute presentation over one slide will also help us to prepare for the expedient presentation of our work to the client as needed. Lastly, Google Sheets will be utilized to track our team schedule, including due dates, weekly scrum assignments, and check-ins. Our Scrum Manager will be the primary agent for updating this document, but all team members will have access to view and edit the schedule as needed.

The team will also utilize hand-drawn sketches and notes when conducting primary research with the product or with the client, creating sketch models of the new improved designs to be implemented, and tracking daily progress. The hand-drawn sketches may be uploaded digitally to share with the group, and some notes may become typed, but not all hand-written notes will be expected to be digitized unless valuable to the overall progression of the project.

Models

We will make use of three different models to conduct our research and planning including an Affinity model, Personas from multiple users, and Sequence model. We believe that the combination of these models will help us best develop our recommendations and create a more satisfying user experience for Artstor users.

An Affinity model will be created following our conducting primary research and receiving questionnaire results. This will help us to visualize our own results in conjunction with the thoughts and opinions of Artstor's primary user base. The Affinity model will be developed by our group in approximately three phases: the first phase to identify similarity in points, the second phase will look for proximity, and the third phase to determine dependence. Each phase

will involve all team members as our individual viewpoints will help to develop and interpret the data to its greatest capacity. After conducting our questionnaire with Artstor users, three Personas will be created using feedback from those who indicated they are available for further interviews. Personas will describe the user types; students and faculty, and will help us build the case for improvements in Groups on Artstor based on the ways in which their primary users interact with and find value in the site. The Sequence model will be the last model we will use which will clarify in particular the intents, or actions that Artstor's users work through to access images, Groups, and research production.

Schedule

See Appendix 5

Team Structure

Our team will utilize the Scrum method of project management and will comprise five members. Sarah Bulger will be the Product Owner, representing the needs of the Client and contacting the client as needed. Our Project Manager will be Jiaqing Pan who will be in charge of document organization and management. Yuang Yang is our Scrum Master and will be taking on our daily team communications and the planning and organizing of weekly meetings to maintain our Scrum process. Our Development Team Members will comprise Sisira Padavala and Yan Tang. The Development Team Members will contribute research on the product, its tools, and features as they currently exist, and insights into how we may further improve on them. As well, the Development Team will be able to provide models of our progress throughout the Scrum cycle.

More importantly, the team will work together on efforts in research and materials production. Each member will be able to contribute valuable insights into improving Artstor's current "Group" function capabilities. Project and Team Managers will play as much an important role in the research process as Development Team Members, and Development Team Members will have similar opportunities to lead the group in areas they have expertise in.

Communication Plan

Our main mode of communication will be through Group Me. We will conduct both in-person meetings as well as zoom meetings whenever required. Our meeting is scheduled for every Thursday at 11.00 am. All team members have to be prepared in advance regarding the topic for discussion. All team members are expected to attend and participate in the meetings. Any team member unavailable to join the meeting should inform the team in advance. All team members should complete their individual assigned work well in advance of the deadline. Every assignment should be completed at least 1 day prior to the actual deadline to be able to review and make final changes. All team members should communicate with the team if they are unable to finish the assigned work on time and seek help. Team members should express positive feedback, concerns and criticisms in a respectful manner.

Investigation

Data Gathering

Information from Artstor users was collected through contextual interviews of two exemplary users. One was a primary user who is a faculty and the secondary user of Artstor was a student. Their personas are located in Appendix 1A. We raised a series of questions during the interviews and also gathered information from their demo of Artstor usage. We circulated a questionnaire to the student and faculty users of Artstor to gather information and understand how they interact with Artstor and the Group creation function. Through primary research by our own individual interactions with Artstor and creating image Groups we could collect information on its interface and understand the capabilities of Artstor.

Data Analysis

To analyze the data we collected from our contextual analyses, interviews, and surveys, we utilized various models that had the most relevance to the project type and specific data collected. We were initially engaged by our expectations of what the data would tell us about what we 1. already understood about the breakdowns of Artstor's current functions and 2. what we did not know or did not expect to find. For this reason, we decided upon forming our data analysis stage through the creation of not only personas, but an affinity diagram and a cultural model of Artstor's interaction with their users. This would allow us, as well, to identify for Artstor what areas are of most importance for improvement directly from user feedback. Located in Appendix 1B, the affinity diagram we created virtually so as to demonstrate the virtual environment that is Artstor, we were able to organize our research points into two main groups including three total subgroups and then six unique groups beneath those. This model demonstrated to us and our client that the majority of issues can be described as 'functional' or 'interactive' issues in that they necessarily revolve around the way the user interacts with the features and layout of the website's design. The cultural model, located in Appendix 1C, was conceived of at the same time as the affinity model, though neither developed any overlapping concepts. This was, however, quite valuable to us, as the cultural model helped to narrow in on the most important cultural factors to the user and to Artstor as a company. The cultural model we developed from our data includes the two unique user identities we discovered during our survey process, as well as the unique researcher role we identified from the data collected during interviews. The most interesting development we discovered during the decision making process in identifying the most important roles for the cultural model was that the Artstor staff are the fourth important group and that all cultural groups interact with the Artstor website differently and simultaneously. This inevitably helped us lead our client to look further at the way their website is viewed by their users first, rather than the expectations of their employees.

Data Interpretation

After interviewing two users, our group made two personas. The primary one is a faculty, Dr. Agnieszka Whelan. She is a professor in Art History at Old Dominion University and has been teaching for 20 years. She is an expert in the art of gardens and teaches classes on Garden Art, Asian Arts, and introduction to Art History. Her goals of using Artstor are 1. providing high-quality images of gardens for students to study. 2. Creating contexts for the 2D images used in the classroom. 3. Helping students better acknowledge the prevalence of gardens and artful landscape in daily life. However, when she uses the Artstor, she finds it is more difficult to use than it is worth.

Our secondary persona is Amanda Wells, she is a Master's student working towards a degree online, with a background in Art History. She has been an Artstor user for 6 years and frequently visits the site to gather images and compare images and their information. Her goals of using Artstor are 1. writing thoughtful and innovative historical research papers. 2. Creating enticing PowerPoint presentations to share research. 3. Developing an innovative approach to sharing research outside of academia. Since now, she has felt comfortable using Artstor and recommends it to others.

By our analysis, we found there are few problems the Artstor has. First, and the most important one is there is no compare function in the group page, the only way users want to compare images is to open one image and then add other images. Besides, users can only compare images in one group. If users want to compare pictures in different groups, the step will be very tedious, they should firstly open other groups and select pictures they want, then add those pictures into their group, and finally do the comparison. Second, the whole page is very simple, it is not user friendly. For example, it is hard for users to reorganize the images, delete images, and filter images.

Data Consolidation and Breakdowns

According to the user data collected from Google Form, most of the Artstor users are students and staff. Their purposes using Artstor are for classroom instruction and handouts, presentation, student assignments and general art historical research and exhibition research.

33% of users use the 'Group' function, 44% users download multiple images at a time and 33% download one image at a time. More than half users have encountered some problem while using Artstor in the past. And, here are some examples.

Most of the time the metadata stored with an artwork is incomplete, incorrect, or both

Not enough specific info about what each collection holds

quality of images is pathetic, the information attached poor, the functionality not good

Zoom function not working.

Poor image quality, glitches that prevent access to content, searched not returning relevant content

Based on the data we received from our contextual analysis, interviews, and survey, we were able to make these recommendations for Artstor: 1. Make comparison of images in groups accessible from the main Group page. 2. Include options to organize and delete images from a

Commented [1]: Copy from the questionnaire, but these users problems didn't mention 'Group' function!!!
For my section, I should analyze
1.What does the data tell us about how users use Artstor, and where are its issues?
2.Describe how we might suggest fixes for these issues to our client, Artstor.
However, the problem collected from google form did not include the group function at all. So, I just copied and pasted the user problem here first, we should talk about it in the next meeting.

previously created group, including a quick delete option. 3. Make Groups filterable, and functional. 4. Include suggested tags generated by a tagging system based on the images in a given group

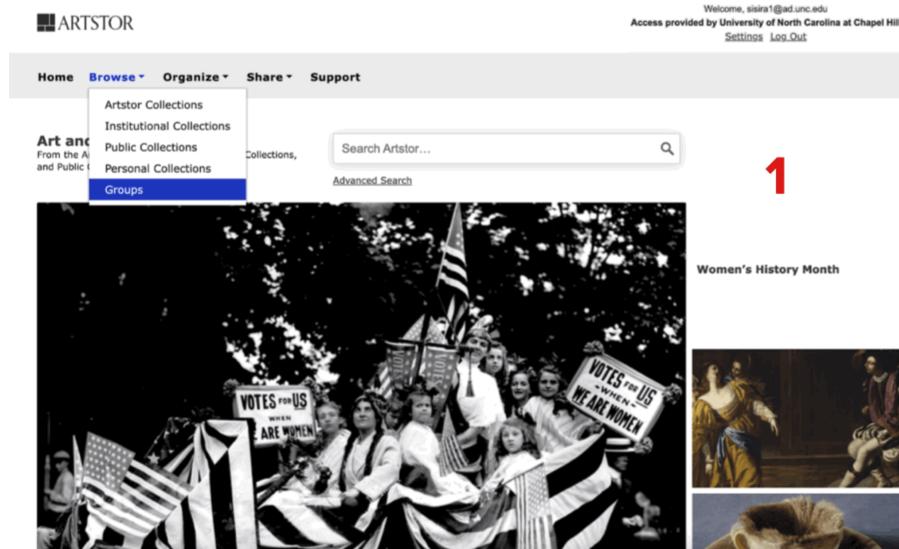
Summary of Pain Points

Understanding users provides essential data for success in business. User pain points reflect the needs of the users, as regards to circumstances, barriers or problems they might be experiencing. Below is the summary of the user pain points, based on analysis of the data and information gathered via questionnaire, contextual interviews, primary research and secondary research.

Cumbersome Navigation steps to the Group Comparison function

Currently users have to go through 5 steps to access the Comparison function inside a group
1. First on the Artstor page users need to select 'Group' to navigate to the 'group' page.

Commented [2]: This section is about current system
What does the data tell us about how users use Artstor,
and where are its issues?
Describe how we might suggest fixes for these issues
to our client, Artstor
but I still have to analyze the feedback from
questionnaire, it conflict with the second
recommendation for new system content



2. On the left handed side, choose 'my group'.

ARTSTOR

Welcome, sisira1@ad.unc.edu
Access provided by University of North Carolina at Chapel Hill
[Settings](#) [Log Out](#)

[Home](#) [Browse](#) [Organize](#) [Share](#) [Support](#)

[Artstor Digital Library](#) [UNC Chapel Hill Collections](#) [Personal Collections](#) [Public Collections](#) **Groups**

Groups  

All **My Groups**

Private
Shared by Me
Institutional
Shared with Me
Artstor Curated

Tags  [Clear All](#)

My Groups

[Filter image groups by My Groups](#)

Mayans

Last Modified: 02-21-2022
Creator: sisira1
Type: Private

Group Tags:
This group does not have any tags.
6 items

Explore Artstor [About Artstor](#)  

3. One of the images in this group shall be picked if the user wants to compare, this image then is enlarged.

3

ARTSTOR

Access provided by University of North Carolina at Chapel Hill
Settings Log Out

Home Browse Organize Share Support

Search Artstor...

Advanced Search

Mayans

6 items • Last updated February 21, 2022

Images/page: 48 • Select Reorder

1 of 1

Group Details

Description + Add description

Tags + Add tags

Warrior Late Classic period

Shell with Incised S... Mexico or Central A... c. 600-900

Figurine with Remov... Mexico, Yucatan, Gu... c. 600-900

Seated woman Late Classic period

Representation of th... Late Classic period

Cylindrical vessel wi... Late Classic period

ARTSTOR ARTSTOR ARTSTOR ARTSTOR ARTSTOR ARTSTOR

1 of 1

4. Users have to click on the 'Present' icon

4

Present

ADD TO GROUP DOWNLOAD

CITE THIS ITEM PRINT PREVIEW

<https://library.artstor.org/#asset/BE...> COPY

Item Details

ARTSTOR

Culture Mayan

Title Cylindrical vessel with war scene

Work Type vessel

Date Late Classic period

Creation/Discovery Site Guatemala

Material fired clay with polychrome painting

Measurements height 18.7 cm; diameter 18.6 cm

Description Photographer: Claudia Obrocki

5. Finally the 'compare' option appears on the screen.



Unable to organize or delete images in groups

Once a group has been created, users are not able to organize the group, i.e. change the order of the images, as well as if users would like to delete certain images, or add images from different groups, there's no such option for users to do so.

*as shown in below screen-shot, there's no delete or edit option

Archaic Greek Sculpture

84 items • Last updated March 30, 2010

[EXPORT](#) • [PRESENT](#) [STUDY](#)

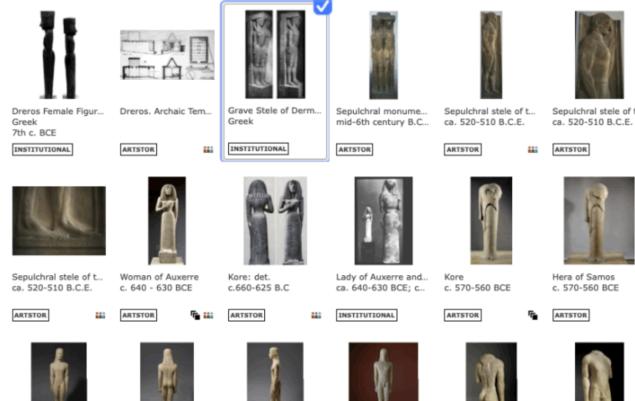
Images/page: 48 • 1 selected item

◀ ▶ 1 of 2

Group Details

Description
This group contains restricted images or images that have been deleted by the creator.

Tags
CLAR 375 Archaeology of Cult



Unable to filter groups

When users want to filter for specific images, the website does not have the functionality that enables users to do so.

No tag suggestion available

There's currently no suggested tags generated by the tagging system based on the images in a given group. Users have to make up tags and type them in, which makes it difficult for users to manage their grouped image as they may come up with different tags each time even for the same or similar image groups.

Section 2: Recommendations For New System

Previous:

New:

Welcome, jasnehe@email.unc.edu
Access provided by University of North Carolina at Chapel Hill
Settings Log Out

Home Browse Organize Share Support

Search Artstor... Advanced Search

Gardens in Art 13 items • Last updated February 07, 2022

Images/page: 48 Select Reorder

Group Details

Description: Images of gardens depicted in medieval art

Tags: medieval, gardens

Export Present Study

Teste unknown c. 1490-1500 Touch unknown c. 1490-1500 Sight unknown c. 1490-1500 Hearing unknown c. 1490-1500 Smell unknown c. 1490-1500 The Unicorn in Captivity 1495-1505 Book of Hours, Use of Paris, fol. 10v, c. 1490-1500 Troy (Quatrefoil), c. 1470 Virgin and Child in a Garden, c. 1470 Hortus Conclusus from a Book of Hours (Heures de la Reine), c. 1460-90 The Virgin and Child with St. John the Baptist, late 14th C. (?) Tacuinum Sanitatis, late 14th C. (?)

EDIT EXPORT PRESENT STUDY

"Quick Delete" button allows user to remove selected images from a group quickly.

"Edit" will allow the user to access advanced reorganization options such as re-order, delete, and add from different groups.

"Compare" would allow users to compare multiple images.

"Quick Filter" will give the user the option to filter for specific images.

"Suggested tag" will suggest new tags based on the "Tags" already searched for by the user.

After analysis, we design a new system which will simplify the operation on the Artstor. First, we suggest adding the Comparison Function that allows users to compare images in different groups. In the period website, users can only compare images in a group. If they wanted to compare pictures in different groups, they should add one group's pictures into another one, and then compare images in a group. So this Comparison Function made the comparison more

convenient than before. Second, we recommend adding the Tags System on Artstor, it will suggest new tags based on the ‘Tags’ already searched for by the users. This system is more like an AI system, it can learn the features of each picture and summarize images’ features in a group, next relate the popular searching words, then provide a few suggested tags based on its analysis. Third, we add a bulk download option for image groups, this function allows users to download a whole group of images without selecting each of them. Otherwise, some small functions can be added on Artstors, like comparison, delete, filter, and edit. For the comparison, when users click this icon, a little circle will pop up on the top right of each picture, and users can select images they want to compare. For the delete icon, it allows users to remove images from a group at one time. In the previous version, if users want to delete multiple images, they should open each one and remove them one by one. The filter function allows users to filter images by their name, added data, or size of each image. The Edit function allows users to access advanced reorganization options such as, reorder, delete, and add form different groups.

Section 3: Implementation Plan for New System

Our recommendations for Artstor in making improvements to their functions are based on the analysis of our surveys, contextual analyses, and research. We recommend that Artstor focus first on their Group image function, offering the most flexibility in organizing their image groups. First, we found that users were in need of the ability to remove images from their created groups, so a quick delete button that will remove singular or multiple selected images should be the first step. Next, Artstor should focus on creating a more intuitive comparison function that will allow the user to compare two or more images without having to first open a singular image in full screen mode. Preferably, during this process Artstor will also implement the ability to compare images between different groups, allowing users to compare multiple types of images they have gathered all at once.

These recommendations would be best handled in small teams or Artstor staff, and based on our project we recommend to them that during this process of revision and testing they utilize the SCRUM method to keep track of their work and each other.

Appendix 1: Models of the Current System

- [Appendix 1A: Personas \(Primary Dr. Whelan, Secondary Student\)](#)

Dr.Agnieszka Whelan



AGE 60
EDUCATION Phd
STATUS Married with a son
OCCUPATION Senior lecturer
LOCATION Norfolk,VA
TECH LITERATE Low

Primary Persona

“ Although I am looking for the best quality of image, I am also looking for the best CONTEXT

Personality
Extravert Thinker

About
Agnieszka has been a professor in Art History at Old Dominion University for over 2 decades. She is an expert in the art of gardens and teaches classes on Garden Art, Asian Arts, and Introduction to Art History. Career: Historian and has been teaching Art History courses at ODU for 20 yrs Education: Masters in Art History PHD in Art History with speciality in Gardens

Artstor experience
She utilizes technology in the classroom to demonstrate the contexts of gardens and artworks through identifying their 3-dimensional situations in the world and the people in and around them. She has used Artstor in the past, but often finds it more difficult to use than it is worth.

Goals

- Provide high-quality images of gardens for students to study
- Create contexts for the 2D images used in the classroom
- Help students better acknowledge the prevalence of gardens and artful landscape in daily life

Skills

Naive	Researching	Expert
Naive	Power Point	Expert
Naive	Artstor	Expert
Naive	Teaching	Expert

Amanda Wells



AGE 27
EDUCATION Master candidate
STATUS Single
OCCUPATION Student
LOCATION Richmond, VA
TECH LITERACY Medium

Secondary Persona

History thinking and history making can only be completed through thorough research, so that's what I'll do!

Personality
Introvert Helper

About
Amanda Wells is a Master's student working towards a degree online. With a background in Art History, image searching and comparing is principle in her research designs and writing.

Artstor experience
She has been an Artstor user for 6 years and frequently visits the site to gather images and compare images and their information. Amanda has stated that she feels very comfortable using Artstor and recommends it to others.

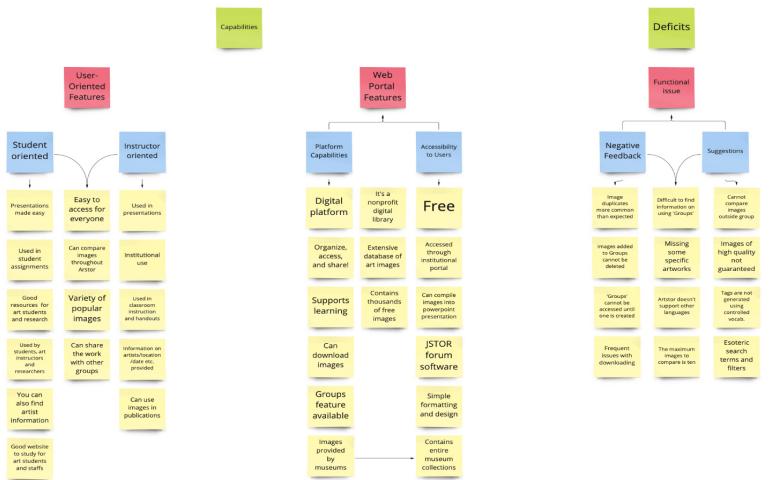
Goals

- Write thoughtful and innovative historical research papers
- Create enticing PowerPoint presentations to share research
- Develop innovative approach to sharing research outside of academia

Skills

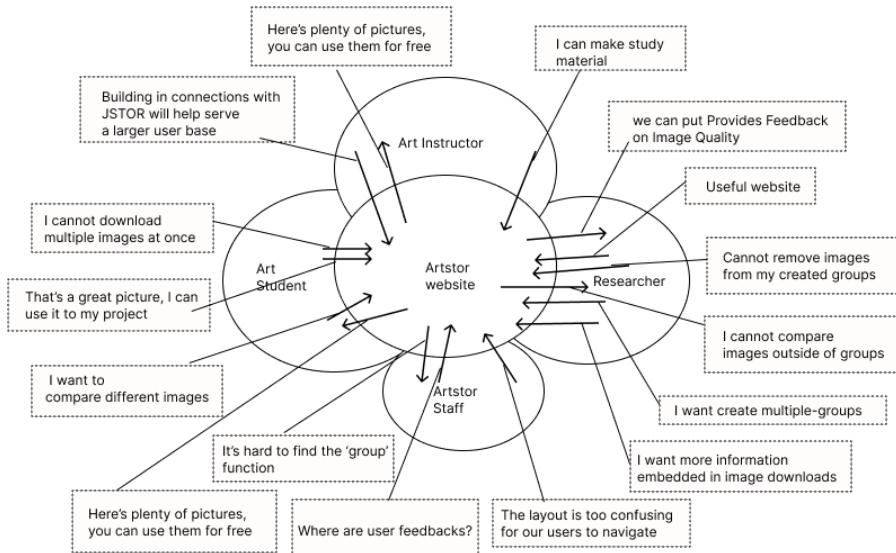
Naive	Researching	Expert
Naive	Power Point	Expert
Naive	Artstor	Expert
Naive	Teaching	Expert

- Appendix 1B: Affinity Diagram



miro

• Appendix 1C: Cultural Model



Appendix 2: Client Interview Questions & Student Survey Questions

Contextual Interviews

In the interviews conducted we also addressed the following questions:

- Briefly describe yourself
- What Major?
- What class or project did he/she use Artstor?
- How well do you like Artstor and what problems did you find when you used it?
- Are there any suggestions you want to provide to Arstor?
- Did you use any tutorial videos to learn to use Artstor, and specifically on the image group creation function? Or was there anyone else who taught you to use this website?
- Demo the use of Artstor

Questionnaire

INLS 582 Questionnaire

This questionnaire will be used in a group project for INLS 582: Systems Analysis to determine the usefulness of the Artstor Image Groups function for students and faculty members in the Art History Department. Please fill this out to the best of your ability, and thank you in advance!

Are you a faculty member or student? *

- Faculty
- Student

1. Which user group/groups do you use most often/belong to? *

- Personal Group
- Institutional Group
- Shared Groups (Shared By Me and/or Shared With Me)
- Other...

2. How easy do you find navigating the groups function page in Artstor? *



3. Have you ever downloaded images from Artstor? If yes, would you prefer to download one image at a time or the entire group of images together at once? *

- Never downloaded before
- One Image at a time
- Multiple Images at a time
- No Opinion

4. Do you think the image along with information on catalogers, curators, institutions, and artists would be useful to have attached to an image download? *

- Yes
- No
- Other...

5. How do you use the images you collect from Artstor? *

- Classroom instruction and handouts
- Presentations
- Student assignments
- Other...

6. How useful are the Artstor created PowerPoint presentations based on curated groups to your research process? *



7. Would you like to compare images between 2 groups or more? If yes, how many groups would you like to compare with? *

- No
- Yes, 2-3
- Yes, 3-4
- Yes, 4-5
- Yes, 6 or more

8. Did you compare images outside one group at same time in Artstor? *

- Yes
 No

9. What art mediums do you search for the most? *

Short-answer text

10. What search tags would you like to see added to the JSTOR Forum software? *

Long-answer text

11. For what purpose(s) do you use the Group function on Artstor? *

Long-answer text

12. Have you encountered ANY problems while using Artstor in the past? *

- Yes
 No
 Not Applicable

If you answered 'yes' above, please describe the problem(s) you encountered.

Long-answer text

13. Do you use any other similar platforms to gather images? If yes, which platforms? *

- No
 YES
 Other...

14. (Faculty Only) Do you find it useful to instruction when students share their images in groups?

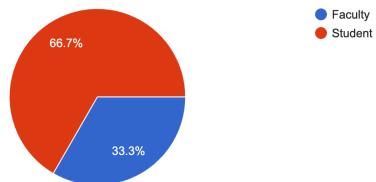
1	2	3	4	5	
Very Useful	<input type="radio"/> Not Useful at all				

15. If you would be available for a brief interview regarding your responses, please leave your email below.

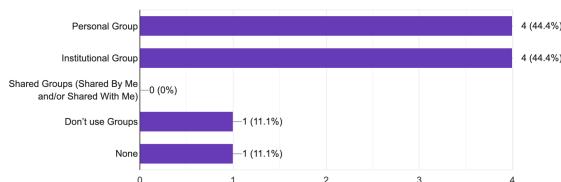
Short-answer text

Results from survey

Are you a faculty member or student?
9 responses

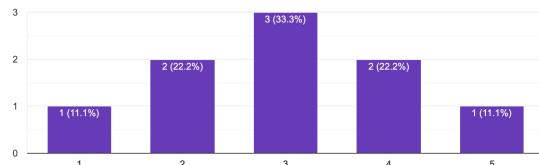


1. Which user group/groups do you use most often/belong to?
9 responses



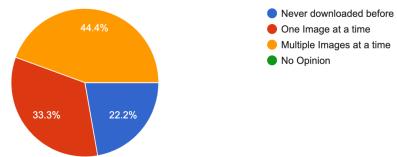
2. How easy do you find navigating the groups function page in Artstor?

9 responses



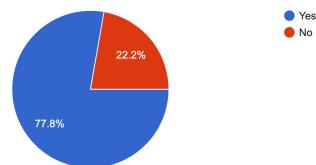
3. Have you ever downloaded images from Artstor? If yes, would you prefer to download one image at a time or the entire group of images together at once?

9 responses



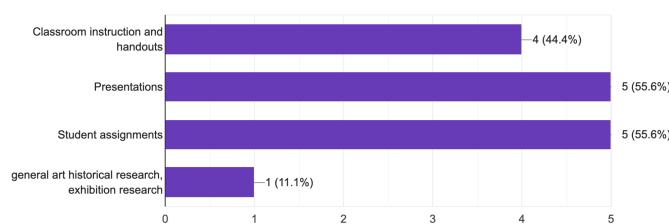
4. Do you think the image along with information on catalogers, curators, institutions, and artists would be useful to have attached to an image download?

9 responses



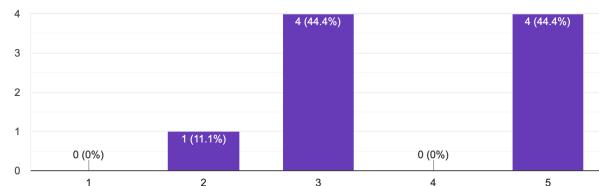
5. How do you use the images you collect from Artstor?

9 responses



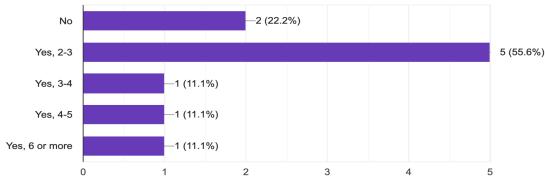
6. How useful are the Artstor created PowerPoint presentations based on curated groups to your research process?

9 responses



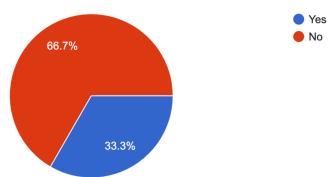
7. Would you like to compare images between 2 groups or more? If yes, how many groups would you like to compare with?

9 responses



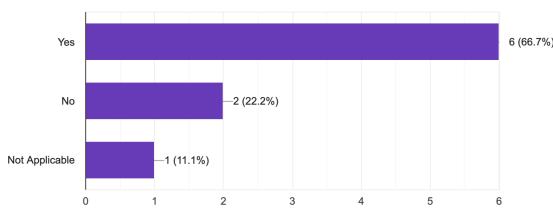
8. Did you compare images outside one group at same time in Artstor?

9 responses



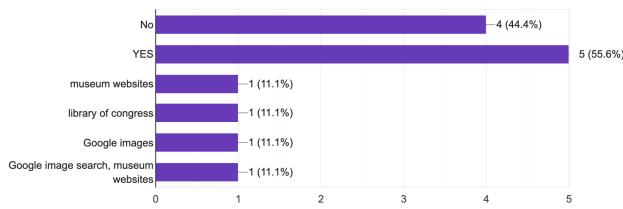
12. Have you encountered ANY problems while using Artstor in the past?

9 responses



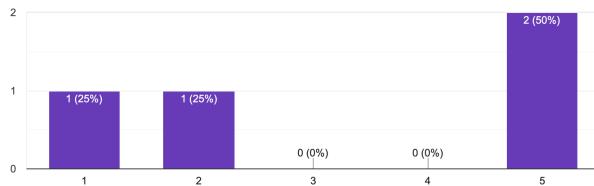
13. Do you use any other similar platforms to gather images? If yes, which platforms?

9 responses



14. (Faculty Only) Do you find it useful to instruct when students share their images in groups?

4 responses



Appendix 3: Key Findings from Data

From our research, we found the main users of the Artstor are students and faculties from Art School. Their purposes are different, less than half of them use the Artstor for classroom instruction and handouts, half of them use it for presentation and assignments, and those users think the Artstor is a good tool to find images they want. Only one user in the questionnaire used the Artstor for general art historical research and exhibition research. And most of them use the Group function in the Artstor to collect and compare images, and most of them are willing to compare images between different groups, which the current version of the Artstor cannot achieve. For those who used the group function, most of them think this function is not distinct, or even hard to find this function in the Artstor. For the question of downloading images, most users prefer downloading all selected images at a time, so it reflects the importance of downloading a group of images. Most users think the image along with information on catalogs, curators, institutions, and artists would be helpful to have attached to an image download. Besides, some users found other questions in the Artstor, like incorrect image storage, not enough specific information about what each collection holds, quality of images is pathetic, zoom function is not working, and poor image quality, etc. Those problems are also factors that many users choose to switch to other platforms, such as Google images, museum websites, and library of congress, etc.

Appendix 4: Lessons Learned/Presentation Reflection

Working through the semester, we've learned all different types of models and how they can be best implemented for different situations. In addition, by creating a variety of models, we've kept learning all softwares and platforms which applied to the certain models. For this project, creating the personas helped us to identify for Artstor who they are serving, and what they most need. By prototyping the models, we got more concerns to consider and combine with the ideas and implementations.

In the future, we can provide recommendations on appropriate approaches to project management that will work best for a particular project.

Appendix 5: Schedule of Work

This chart below is our team project schedule. We have our weekly meetings in person, or via zoom, or hybrid model.

4.1 INFORMATION GATHERING SCHEDULE											
FEBRUARY											
WEEK 0			WEEK 1			WEEK 2			WEEK 3		
7	8	9	10	11	14	15	16	17	18	21	22
PHASE 1											
Assign team member roles	All										
Contact Artstor	Sarah,										
Create Google Forms Questionnaire	Sisira,										
Primary research into Artstor functionalities	Yan										
Submit IGP	Jiaqiang.										
PHASE 2											
Contact Undergraduate AH Department to distribute survey	Sarah,										
Contact Undergraduate AH Department to distribute survey	Jiaqiang.										
Deploy Survey	Sisira.										
Analyze Survey Results	All										
Create models (individual assignment)	All										
Sketch interface designs	Development Team										
PHASE 3											
Draft the Final Report	All										
Prepare slides for presentation	All										
Presentation	All										
Revise Final Paper	All										
Submit Final Paper	Jiaqiang										
SPRING BREAK											
7	8	9	10	11	14	15	16	17	18	21	22
23	24	25	28	1	2	3	4	7	8	9	10
11	14	15	16	17							

