

ARTBASE USERS: RESEARCH RESULTS & INSIGHTS

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About this report series

This report is part #2 in a series documenting the research process and practice of Lozana Rossenova, a PhD researcher embedded at Rhizome between 2016–2020. These reports trace the development of a practice-based interaction design research project, starting with a Discovery and User Research Phase. This phase includes the study of the organizational context and history, documented in Report #1; gathering information about past and current use-cases and user expectations, documented in Report #2 , as well as a review of the current landscape of digital design for cultural heritage archives and collections, documented in Report #3. The next phase—Design Exploration, including low-fidelity sketches and prototypes and continuing the conversations with users, is documented in Report #4. This report also includes a summary of the Evaluation Phase, since it is an iterative process throughout the other phases, rather than one final step. The final outcomes of the Design Specification Phase, wherein the initial design proposals are transformed into interactive prototypes and specific recommendations for a data model schema, can be found under the [Prototypes](#) and [Data Models](#) sections of the PhD portfolio website, respectively.

About the researcher

Lozana Rossenova is a digital designer and researcher, and a PhD candidate at London South Bank University's Centre for the Study of the Network Image. Her PhD is a practice-based collaboration with Rhizome. Lozana is particularly interested in working with open source and community-driven approaches to infrastructure, which organizes, stores and makes cultural heritage data accessible. Her current research focuses on born-digital archives and born-digital art. Her PhD project develops design methods which build understanding across diverse communities of practice and facilitate informed interaction, favoring nuance and complexity over reductive simplification.

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The ArtBase is Rhizome's archive of digital art, freely accessible to the public online.

The Rhizome ArtBase was founded in 1999 to preserve works of net art that were deemed to be "of potential historical significance". Encompassing a vast range of projects from artists all over the world, the ArtBase provides a home for works that employ software, code, websites, moving images, games, and browsers.

Until 2008, the ArtBase accepted open submissions for consideration, but currently works are added to the collection by invitation and through Rhizome's commissioning and exhibition programs.

Modern computers are unable to perform many of the artworks as they were originally experienced. This inability demonstrates a significant crisis in digital social memory that Rhizome is responding to with its Digital Preservation program, led by Drag. The works in the ArtBase, vibrant and technically diverse, provide a laboratory for the development of forward-thinking technologies so that these works may be reperformed in legacy environments, giving contemporary users a sense of their initial form.

Are you an ArtBase user?

We are working on updates to the archive and would like to get your feedback. Fill out this 5 min survey to help us learn more about our users so we can improve the ArtBase for everyone!

[Go to survey](#)

Are you an ArtBase user?

We are working on updates to the archive and would like to get your feedback. Fill out this 5 min survey to help us learn more about our users so we can improve the ArtBase for everyone!

[Go to survey](#)

Mockups for the design of the survey pop-up box that was visible on the Rhizome website in March–April 2018. The link went directly to a Google Form questionnaire. For details, see 1. General user survey on the ArtBase website.

Executive summary

Introduction

This report presents findings from and recommendations based on the user research studies carried out between autumn 2017 and summer 2018 as part of the initial Discovery Phase of the Rhizome ArtBase redesign project.

Due to the lack of any recorded user research data regarding the ArtBase prior to this project's start, these user studies aimed to gather broad contextual information on the following issues:

- *Who are the current ArtBase users?*
- *How they are using online archives in general and the ArtBase specifically?*
- *What roles are online digital archives expected to fulfil according to different user groups? And why?*

Methods

The questionnaires, surveys and research activities designed as part of these user studies used ethnographic and usability testing methods to engage with a range of different user communities—artists, researchers, casual browsers, etc. The contours of these communities emerged organically out of the studies' findings, rather than being imposed as 'personas' to be researched.

Prior to the redesign project, there was already a body of anecdotal evidence within Rhizome, with regards to the failings of the existing archival interface. However, there were no agreed models or established standards as to what an archive of net art should facilitate, how it should look or perform. Therefore, in the initial phase of research, the focus of the surveys and interviews was on macro-HCI (human-centered design) questions (i.e. overall archive organization, policies, general goals and motivations for archive use), rather than micro-HCI (i.e. individual buttons and interactions).

In this report, the data gathered from users is interpreted in the form of 'user stories'. User stories typically record a single objective a user might have, without focusing too much on how that will be achieved. They are useful in highlighting aspects of the design that need addressing, without being prescriptive.

Structure of the report

Following an introduction, the main section of the report provides a brief overview of the setup, before presenting the key findings from four user studies conducted with external archive users. The report concludes with a discussion of lessons learned and overall recommendations, alongside a thematically organized collection of user stories. The appendix includes additional design notes on each of the studies, as well as an interpretative discussion of the gathered responses and results alongside the original task sheets and questionnaires.

Key findings and recommendations

The user studies presented in this report draw a complex and, at times, contradictory picture of the users and user stories associated with the ArtBase. Users can be broadly split into communities according to their background or expertise. However, they often identify with more than one occupation, e.g. researchers may be artists or archivists, and are sometimes both. Few access the archive for the sole purpose of ‘research’ or ‘inspiration’, and user stories rarely translate into linear scenarios that move users from interaction A to interaction B.

Audience

During the ArtBase’s early years, when the archive was open to submissions, the net artists whose work populated its pages were active archive users. More recently, the audience has diversified to include a new generation of researchers, students and archivists for whom it has become an important research source for artworks no longer accessible anywhere else. These users share different concerns to those of the artists actively participating in the archive. In their feedback, new user communities emphasize the need for more historical context around the artworks, and for additional mechanisms for search and discovery that do not depend on prior knowledge of the archive or its internal structure.

Infrastructure and internal policies

User opinions oscillated between whether the archive should take a more authoritative stance or a more open and collaborative one in relation to the accession of works and data about the works. Instead of perceiving these positions as opposing, the redesign process must establish a degree of authority, while maintaining a capacity for openness. For example, facilitating a clear system for presenting provenance of metadata in the archival records, i.e. the source of the metadata, would improve the claim to authority, while leaving space for individual interpretation. Developing a more granular system of access permissions for data contribution would also be a productive change, enabling the archival team at Rhizome to foster partnerships with committed artists and researchers whose specialist knowledge could help enrich the archive.

Entry to the archive and discovery

For many users—particularly those who have only started using the archive in recent years and are less familiar with its background story and its founding community, there is a strong need for different forms of searching, browsing and discovering records in the archive. The ability to sort by keywords or categories, search filters, curated lists and timeline visualizations are all common interaction paradigms which were mentioned in the user stories. The appropriateness of implementing each of these features will need to be considered in relation to the specificity of the ArtBase collection and the data currently available in the archive. In some cases, the need for large-scale resource investments in new data-capture or data-entry could outweigh the benefit of implementation.

Individual records and metadata

With regards to the artwork record pages, research-oriented users reported being primarily interested in additional metadata related to preservation history, artwork provenance and exhibition history. Other users made general observations regarding the inclusion of more detailed contextual information, a greater range of technical metadata, as well as a facility for discovering related artworks. Varying levels of familiarity with, and expertise in accessing collections databases online clearly affected users' comments and ability to articulate feedback about the metadata supplied or lacking, and how they perceived its importance. Key action points that emerged from these findings include: redeveloping the metadata framework of the records with a greater focus on provenance and preservation; introducing a system of citations for data sources; finding new ways to present complex data, since not all users need—or want to—access the same metadata in the same way.

Art presentation

In terms of how artworks can be (re)performed via the archive, most user stories comment positively on the presentation strategies already developed by Rhizome through the Net Art Anthology exhibition and the Webrecorder project. An interaction pattern deemed to be highly successful by most users is the presentation of artworks in their native environments made possible using cloud-based emulators, which are programmed to run automatically in users' own web browsers. However, some users raised the need for specific preservation-related information, as well as temporal and versioning metadata to contextualize the emulated artwork reperformance.



RHIZOME

Blog Program Software Community About Store Login Search

We Believe in (ArtBase) Users

Take our ArtBase survey, and get free stuff!

By Lozana Rossoenova Mar 29, 2018

The screenshot shows a web browser window with the Rhizome website. The main content area has a pink background and features the text "Do you want love or lust?" in red and blue. Below this is a link to "Introduction". At the bottom of the page, there is an image of a white t-shirt with various colorful "RHIZOME" and "ZOMBIE" logos printed on it.

Over the last few decades, cultural and media studies have helped deconstruct the artificial barriers between design and use. "Users" and technologies are now widely understood not as separate entities, but as continuously co-constructed in the processes of design, development and user interaction [1].

As part of the ongoing development of its digital preservation program, Rhizome is re-considering the relationship between users and our archive of net art—the ArtBase, established in 1999. While often described as an archive or a collection dedicated to preservation [2], the Artbase was notable for its collaborative curatorial model, which focused on community-building and interaction among users [3].

This early model continued to inform the presentation of artworks throughout various iterations of the archival interface design. More recently, however, the current interface has struggled to accommodate meaningful access to the ArtBase for users whose goals and needs remain largely unstudied. A better understanding of the archive's users would allow not only to improve interactions for existing use cases, but also to further develop how artworks could be presented and contextualised within an interface that expands upon existing interaction design paradigms in digital archives.

To that end, a number of qualitative user research sessions are planned over the next months as part of an ongoing joint research project between Rhizome and London South Bank University. A first step in that process is a short online survey which can be accessed through the [ArtBase homepage](http://archive.rhizome.org/artbase/). Five respondents, selected at random, will receive a free "bad logo" T-shirt; include your email address in your response to be entered into the drawing.

If you are interested in participating in a longer more in-depth research session, please provide your contact information in the survey, so that we can contact you with further details. The longer sessions involve a short practical task and an interview with further questions; the first ten US-based participants will receive a free T-shirt. These can be conducted in-person or online, depending on the user's location. The primary research questions that the study aims to answer are: What groups of users interact with the online archive? What are their needs and goals? How do users perceive an artwork's context? How can the users' understanding of context be expanded through presentation strategies in the interface of the archive?

The lead researcher on this project is Lozana Rossoenova, a designer and PhD candidate at London South Bank University. Feel free to contact Lozana at lozana.rossenova@rhizome.org with any questions or concerns regarding user studies in the archive.

**Note: The rationale for choosing the term "users" here follows the line of thought expressed by artist Olfa Lailina in her 2012 essay *Turing Complete User*.*

[1] Source: Oudshoorn, N. and Pinch, T. (2003) *How Users Matter: The Co-Construction of Users and Technology*. Cambridge, Mass.: MIT Press.

[2] Source: Corcoran, H. and Graham, B. (2014) *Self-collection, Self-exhibitions? Rhizome and the New Museum*, in Graham, B. (ed.) *New Collecting: Exhibiting and Audiences after New Media Art*. Farnham, Surrey, England: Burlington, Vermont: Ashgate, pp. 97–110.

[3] Source: Blome, G. and Wijers, G. (2010) *Visibility, Distribution and Memory through Networks and Collaboration*, in Dekker, A. (ed.) *Archive2020: Sustainable Archiving of Born-Digital Cultural Content*. Amsterdam: Virtueel Platform, pp. 50–60.

Image: Claude Closky, *Do You Want Love or Lust?* (1997).

Snapshot of the blogpost advertising the user survey and wider user study programme, Rhizome's website, March 2018. Available from: <http://rhizome.org/editorial/2018/mar/29/how-users-matter-in-the-artbase/>

For details, see 1. General user survey on the ArtBase website.

Introduction

Problem statement

Gathering a mix of qualitative and quantitative data from and about a system's user base at various stages is considered a standard part of interface design practice—from the initial requirements-gathering to the final evaluation stage (Shneiderman, et al, 2018; Blandford, et al, 2016; Cooper, 2014). Due to the lack of any recorded user research data regarding the ArtBase prior to this project's start, the initial user studies conducted and described in this report aimed to gather broad contextual information. In a traditional HCI (human-computer interaction) methodology, these studies would be considered part of the requirements-gathering stage and they have indeed helped build a broad picture of what features the ArtBase redesign might require. Gathering new data aimed to avoid relying on assumptions around user communities and user needs based on historical data or institutional anecdotes. The user studies were carried out as part of the Discovery Phase of the ArtBase redesign. This phase represents the investigative stage of the redesign process and comprises: a study of the ArtBase's history and institutional policies (report #1), as well as a review of the landscape of online collection interfaces (report #3). Considering the findings from these different research activities in parallel, helps to position the requirements-gathering discourse beyond 'giving users what they want'. Instead, it foregrounds the complex, indeterminate entanglements across user communities, institutional policies, and interface design patterns, which require further study and unpacking.

Methodology

The overall paradigm used to structure the user studies was an HCD (human-centered design) framework commonly applied in HCI projects both within academic and design industry contexts (Shneiderman, et al, 2018). In industry contexts in particular, this framework is also often referred to simply as UX, standing in for user experience research and design, and this term is used as a shorthand in this report to refer to specific methods or tools, particularly if they arise from industry practice.¹

¹ The lines between HCD, HCI and UX are contentious. For more, see Vermeeren, et al, 2018, whose definition of UX is the one adopted in this project.

In the early stages of the redesign project, it became clear that there was already a substantial body of anecdotal evidence within Rhizome, to indicate that the existing archival interface was failing. But there were no models or established standards to guide what an archive of net art should facilitate, how it should look or perform. Therefore, in the initial phase of research, it was decided that the focus should be on macro-HCI questions (i.e. overall archive organization and policies and general goals and motivations for archive use), rather than micro-HCI questions (i.e. individual buttons and interactions). The questionnaires, surveys and workshop activities designed for the user studies aimed to engage with a mix of different user communities. Unlike the standard scales used in typical usability testing surveys (e.g. to measure user satisfaction from 1 to 10 across a few different parameters), these studies moved away from a focus on metrics towards questions on a more contextual level. Again, attending to macro-rather than micro-HCI issues, the studies aimed to discuss challenges associated with an archival interface which cannot rely on many well-researched and well-established theoretical paradigms for interaction.

When conceptualizing ‘users’, the studies documented here loosely divide users into a few communities—casual visitors with a general interest, researchers with a clear intention, or artists with a digital practice. Rather than being imposed as ‘personas’, these communities emerged organically from the studies’ findings. Personas are the more typical UX approach of constructing highly specific user profiles with detailed demographics and goals/ needs.² Personas tend to be highly speculative, and are generally more useful to marketing teams than design teams.³

In this report, the studies’ findings are interpreted in the form of ‘user stories’. User stories typically record a single objective a user might have and one or two reasons behind it, without focusing too much on details of the user’s persona or how the objective will be achieved. User stories are a popular user research tool related to, but distinct from user scenarios. Scenarios describe the stories and context behind why a specific user or user group needs to use the interface, what are their goals and (sometimes) define the possibilities of how the user(s) can achieve these goals (Usability.gov, 2019b). In other words, scenarios are much more detailed user stories and may prescribe design solutions. Ultimately without extensive research, these can become too speculative and may preclude an iterative and agile approach to the design, if specific design solutions are decided from an early requirements-gathering or discovery stage. User stories are also speculative, but they are more open-ended and can be useful in giving the designer of the interface points in the design that need addressing, without

2 Personas are one of the most often-used tools in UX research, they aim to be “reliable and realistic representations of key audience segments” (Usability.gov, 2019a). They typically include information, such as: “fictional name”, “job title”, “demographics”, “physical, social, and technological environment” (*ibid.*)

3 See Boag, 2018, and Cade, 2018.

giving prescription how to do the design. Hence, this research project takes the user stories approach at this stage and develops propositions for specific design features iteratively.

The user stories presented in this report are based on direct quotes from users given in surveys and interviews, but are rewritten in the standard format of a story card—“As a... [who is the user?], I need/ want/ expect to... [what does the user want to do?], so that... [why does the user want to do this?] (Government Digital Service, 2016) (see examples on [p.18](#)). Some of the story cards present high-level user needs, others feature very specific interaction patterns described by users. The stories were gathered with the aim of better understanding user needs and expectations, rather than using them as recipes for the interface redesign. To that extent, stories that relate to higher-level comments or observations are possibly even more useful than stories that focus on specific features. The higher-level stories provide insights which could potentially be met by a number of different features and design decisions in the final redesign. The specific features stories, on the other hand, could be driven by personal bias or influences from looking at other archives. While these user stories are important to keep in mind, it is equally important to ask *why* users might require specific features and how that might be balanced against practical concerns within the institutional organization of the archive (e.g. resourcing). A further question to consider is what alternative features might better meet both user needs and institutional constraints.

Structure of the report

Following this introduction, the main section of the report presents findings from four studies conducted with external archival users. The studies are presented in the form of a brief outline of the set up, questionnaire and/ or task list, alongside a summary of the results and corresponding user story cards. Full transcripts of questionnaires and interviews are beyond the scope of this report, however an appendix at the end of the report provides additional details related to each study.

The report includes a section with key insights and recommendations based on the studies' findings. All story cards produced in the course of the studies are collected in this section. They are organized according to themes, which reflect five discrete steps implemented throughout the user research process: 1) understanding the motivations users have in visiting the archive; 2) understanding concerns regarding infrastructure or organizational policies; 3) understanding the requirements for entry and discovery in the archive; 4) deciding on the structure of an individual record in the archive; and 5) zooming into the presentation of an artwork within an individual record.

Finally, the appendix provides complete design notes for each study: the rationale behind its methods; the mode of selecting participants; as well as an

interpretative discussion of the gathered responses alongside each question.⁴ Occasionally, direct (but anonymized) quotes are included where they illustrate a particular point. The appendix also features illustrations and story cards relevant to each study.

Limitations of the research and reporting on it

Drawing on both everyday UX practice and popular UX literature (Usability.gov 2019a,b; Government Digital Service, 2017), as well as academic HCI and design education literature (Shneiderman, et al, 2018; Blandford, et al, 2016; Vermeeren, et al, 2016), this report posits that there is value in conducting user research, despite some inherent limitations.

First, the methods and analysis presented here rely on a specific understanding of the concept of a ‘user’ (which can be a contentious term).⁵ Following theories from STS (Science and Technology Studies) and the social sciences, rather than the general HCI field, users are understood to be subjects “co-constructed with technology” (and the designers of technology)—neither just independent individuals unaffected by technology, nor just complete constructs of the designer’s imagination (see Oudshoorn and Pinch, 2003).

Next, the specific tasks and the set up of the studies reflects a general movement in the field of UX practice away from purely quantitative, usability-driven research towards conducting qualitative, design-oriented research (Shneiderman, et al, 2018, Vermeeren, et al, 2016). The case study concerns a niche research subject as opposed to a popular consumer product, and so qualitative data is particularly valuable. At the same time, the limited resources of the study—the lack of commercial-grade usability lab equipment, recruitment resources, or assisting research staff—precluded the development of large scale studies gathering statistically-significant data from hundreds of users. With the exception of the initial online survey, the remaining studies take a qualitative approach, based primarily on popular/ pragmatic industry practice, rather than traditional academic HCI empirical studies’ approaches. This pragmatic approach has some limitations, too. The small sample size of the groups may lessen the broader validity of the results, particularly as the diversity of the participants was limited (only including people within the researcher’s network and/ or within Rhizome’s community, as well as people who have the time and availability for participation

4 Researchers’ notes are generally considered more useful than transcripts, which are rarely a deliverable of the user research process (Shneiderman, 2018).

5 Some critics from the fields of anthropology and social sciences comment on the inherent problems in considering “users”, rather than “people” when designing software, as they argue “users” are constructed by designers (see Roberts, 2017). The co-option of the term “people” by Silicon Valley companies, on the other hand, is also critiqued by others from the fields of art and critical theory, as neglecting to acknowledge the (constitutive) impact their products have on “people’s” behaviours (see Lialina, 2012).

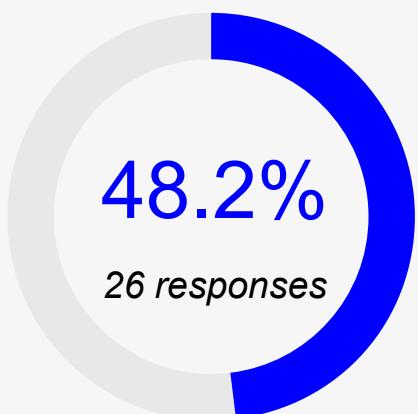
without being compensated for that time). At the same time, the relative low-cost and flexibility for conducting qualitative studies with small groups meant that multiple sessions could be conducted over a relatively short period of time, while methods and questionnaires could be iteratively refined after each session. A further legitimate concern, remains the fact that while it was possible to achieve a balanced gender ratio, it was more difficult to attain equal representation in terms of other parameters of diversity. Unfortunately, few people of color and nationalities other than North American and Western European are represented in this sample. This reflects both the limited resources of the research, but also the homogeneity of the audience that appears interested in the online archive.

Another limitation of the qualitative, small-sample-size approach is the influence of the researcher's own subjectivity in interpreting the data from the user studies. This is a well-recognised issue in human-centered design methodology, but the results of such analysis, despite its inherent bias, are still generally considered valuable for the design process as opposed to conducting no user studies at all (Shneiderman, et al, 2018). This report aims to interpret the data in a way that opens up that subjective process to scrutiny. Instead of presenting a finished and opaque interface design at the end, each part of the design process is documented in a series of reports, so that other researchers, as well as the archive's users, can critique the process and make their own interpretations of the appropriateness of the design choices. A more critical approach to the methods of UX practice and data analysis is pursued in the thesis accompanying this research project.

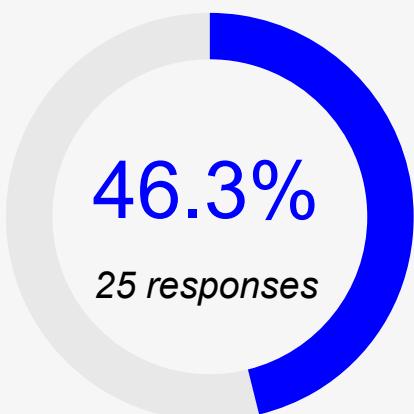
Finally, the user studies reported on here represent only an initial engagement with users. Applying a full user-centered design framework to the research practice would mean continuous conversations with users throughout the decision-making stages of design, prototyping and evaluation, not just during the initial requirements-gathering. Iterative testing (with the users engaged in previous studies, as well as freshly recruited participants) and refinement of design decisions is documented in report #5.

Study 1. Core user groups

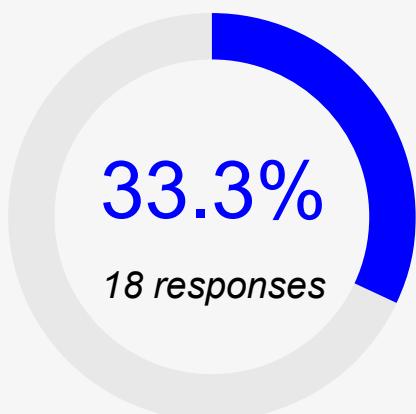
ART LOVER



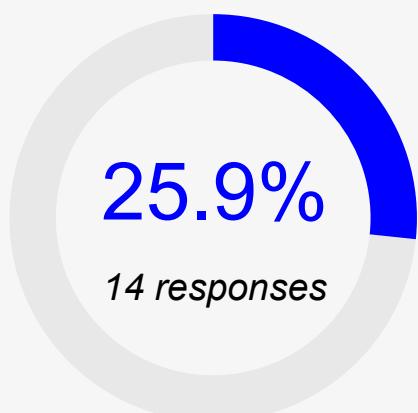
ARTIST



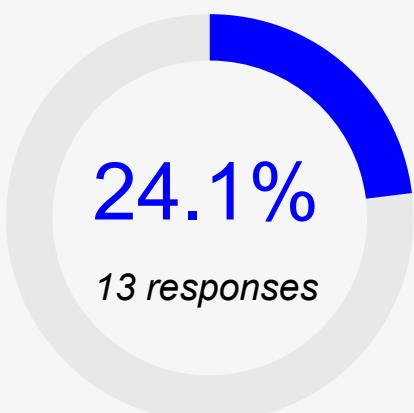
ACADEMIC



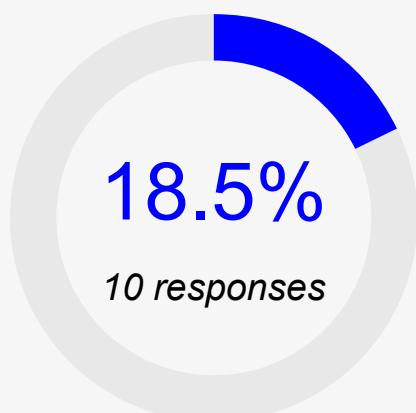
STUDENT



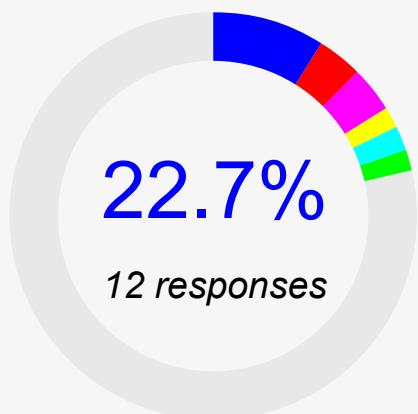
TECHNOLOGIST



CURATOR



OTHER



- Archivist / Librarian (9.5%)
- Researcher (3.7%)
- Designer (3.7%)
- Educator (1.9%)
- Academic practitioner (1.9%)
- Musician (1.9%)

User studies

1. General user survey on the ArtBase website

Study set up

Who: Visitors to the ArtBase website

When: March–April 2018

Where: Remotely

How: Google Forms

How long: 5–10 min per user session

Objectives:

- Collect quantitative data on who is currently using the ArtBase
 - Collect quantitative data on why they want to use the ArtBase
 - Collect qualitative data on preferences for interactions with the archive
 - Recruit volunteers for further sessions
-

A general survey of ArtBase users was conducted between March 14th and April 15th 2018 with the primary aim of gathering a representative sample of data on the core user groups who continue to use the archive, despite its current limited functionality.

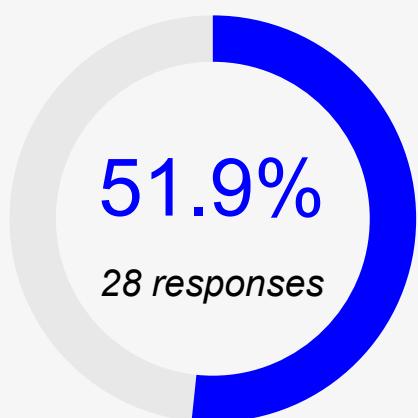
The survey was kept short—only 4 questions in total—and was conducted via Google Forms. The survey was promoted via Rhizome’s website and social media channels. The total number of participants was 54.

Survey questionnaire

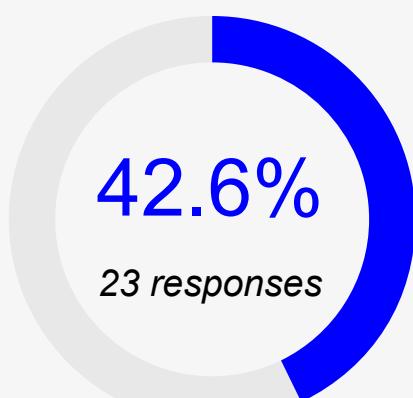
The first question in the survey: “**How would you describe your field of work?**” aimed to gain quantitative data on the professional backgrounds of ArtBase users. The question featured multiple-choice checkboxes where users could tick as many answers as they wanted and also enter additional free text. While this makes analysis of the results less clean-cut—i.e. we can’t just say half the users are artists, the other half technologists, for example—the multiple choice format gives a more nuanced representation of how users identify themselves and their professional activities, which often overlap and cross over different categories. The graphic on [p.12](#) visualizes the response data.

Study 1. Reasons for visiting the ArtBase

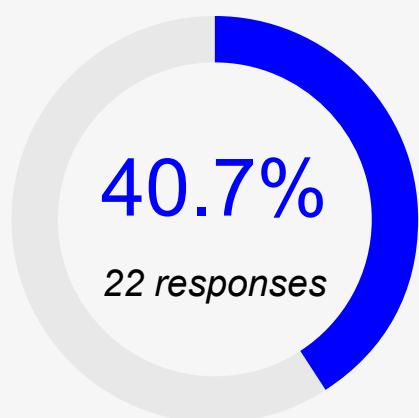
RESEARCH



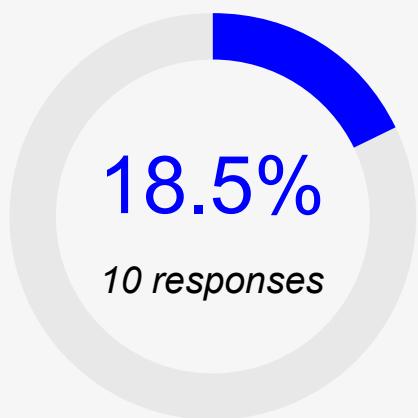
BROWSING FOR INSPIRATION



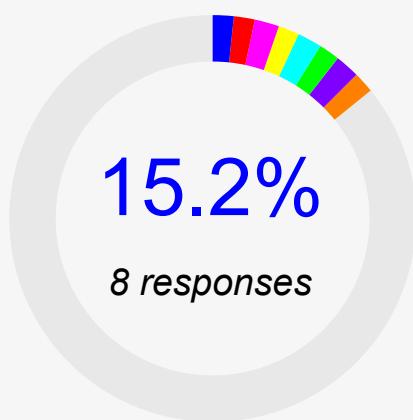
LOOKING TO FIND OUT MORE ABOUT NET ART



LOOKING FOR A SPECIFIC REFERENCE



OTHER

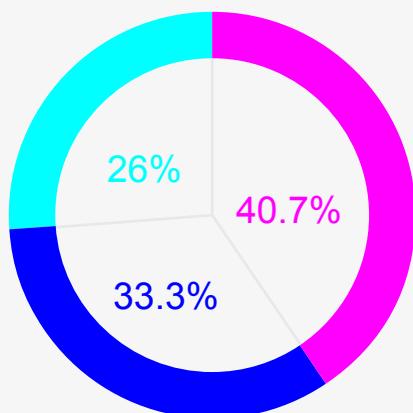


Highlights:

- Research on digital preservation
- Expanding on material presented in art history class
- Looking for example work to use in teaching

Study 1. Overall experience

- Room for improvement
- Positive
- Neutral



The second question in the survey asked users: “**What was the purpose for your visit to the ArtBase today?**”, aiming to identify what kind of activities ArtBase users engage in, and how the archive can better support these. The question featured multiple-choice checkboxes and users could, again, choose several options or add additional text. The graphic on [p.14](#) visualizes the response data. Unsurprisingly, the most frequently selected purpose for the visit to the archive was “research”. Second most popular choice was “browsing for inspiration”—indicating the importance of considering the archive as a space which needs to serve both its academic and research-driven user base, as well as others who may just want to “browse”. Another popular response was “looking to find out more about internet art”, which can be interpreted as a testimony to Rhizome’s continuing leading role in the fields of net art and new media art, as the go-to-place for authoritative information. The least selected multiple-choice option was “looking for a specific reference” which accounted for only about a fifth of the responses, and represents users who visited the ArtBase already knowing what they were looking for. This is a significant result which proves that what the archive, arguably, does reasonably well at the moment is actually not what the greatest proportion of its users want. To best serve its users, the archive needs to be able to facilitate more exploratory user journeys..

The final question of the survey aimed to assess the overall interaction experience users have with the archive and asked: “**In a few words describe your interaction with the archive today—were you able to locate what you were looking for? Was there anything missing that you wish was there?**” In order to draw a quantitative analysis from the responses here, the answers were coded into three groups: “positive”, “neutral” and “room for improvement”. Tagging the answers with these codes resulted in roughly 40% of all answers suggesting “room for improvement”, “positive” answers amounted to roughly 33% of all answers, and the remaining 26% were “neutral” (see [p.14](#)). So on the whole, the majority of people (60%) didn’t have a negative experience with the archive, but the 40% that did, represent a significant proportion of users whose feedback could be valuable to the preservation team, and whose ideas could influence the redesign on the archive.

At the end of the survey, users were asked to provide an email address if they were willing to be contacted to participate in further user feedback sessions.

Summary

The results confirmed some previously untested assumptions about who the users of the ArtBase archive are, and have helped to identify which user communities could be most useful in further consultations when it comes to more in-depth targeted, qualitative studies. The survey results also highlighted the need to design an archive that can support the ArtBase’s broad range of users, whose goals vary from browsing for pleasure to conducting academic research.

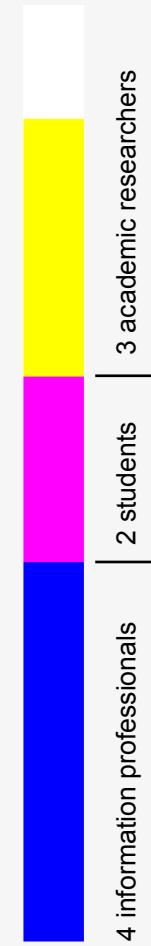
Study 2. Questionnaire

1. Tell us a bit more about your work and your background?
2. Have you been following Rhizome's programme for a long time?
3. How do digital and online archives figure in your life/work? How important are they for your daily activities?
4. What type of devices do you currently use, or would you like to be able to use, in order to interact with an archive or encounter art (desktop, laptop, mobile, etc)?
5. Are there any particular online archives that you reference often? Do you usually find the information that you are looking for there?

6. How often do you use Rhizome's ArtBase for research? When was the first time you used it?
7. How would you qualify your experience browsing and navigating the current version of the ArtBase? What points in your journey work alright or are frustrating?
8. How would you compare your experience of browsing the current version of the ArtBase to previous versions? (Contextual question / only if relevant)
9. Do you think the metadata provided in older versions of the archive was useful? (Contextual question / only if relevant)
10. What other types of metadata (contextual information) do you wish the ArtBase (in its current version) provided?

11. Have you been following the development of the ongoing Net Art Anthology online exhibition? If yes, what do you think of the way artworks are contextualised and presented in the exhibition? Was there anything confusing or unclear to you when you were navigating artworks in emulated environments?
12. Have you done research with other archives of net art, for example ADA (Archive of Digital Art) or Turbulence? Do you recall if these archives have features you wish were available in the ArtBase?
13. Are there any other archives you consult in your work which have features you think would be useful in the ArtBase as well?
14. Would you use sharing and citation features if they were available in the ArtBase?
15. Are you familiar with wiki interfaces (wikipedia, wikidata, etc)? Would you be interested in exploring the archive in the form of a wiki?
16. Do you have any final comments on archival interfaces in general or the Rhizome archive in particular?

PARTICIPANTS BREAKDOWN



2. Follow-up feedback sessions with users from the general survey

Study set up

Who: A selection of ~10 users from the general survey participants

When: April-May 2018

Where: Remotely

How: Semi-structured interviews conducted via Zoom or Skype; email correspondence; Google Forms

How long: 40-45 min per user session

Objectives:

- Gain better understanding of current use-cases for users interacting with the ArtBase;
- Gather feedback on the current interface & functionality of the ArtBase;
- Gather feedback on previous versions of the interface & past functionality of the ArtBase;
- Gather feedback on other interaction patterns used in online archives across other institutions;
- Gather feedback on preferences for specific patterns of navigation and discovery in the archives;
- Gather feedback on preferences for contextual information alongside records in the archive;
- Gather feedback on preferences for sharing and citation.

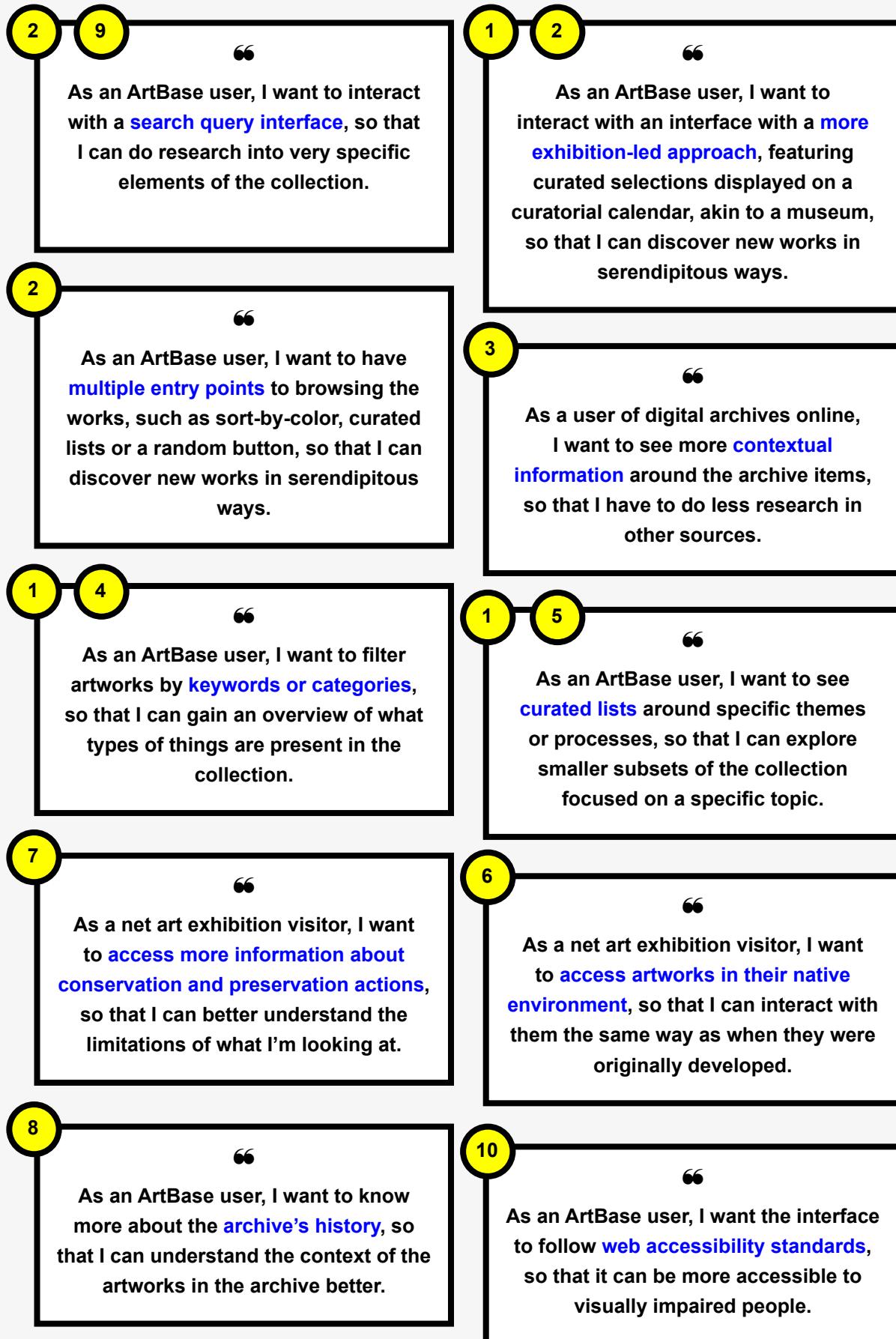
The form of this study was planned in March–April 2018 and put into action after the general open survey on the ArtBase website was closed on April 15th. The initial step was to sort through the answers from that first short survey and contact a small sample of users representing a variety of backgrounds. A total of nine participants were able to take part within the timeframe of the study (mid-April to end of May). The make up of the final group of participants (see [p.16](#)) was not as diverse as it could have been, however, to some extent this reflects the current profile of the most active users of the archive.

The participants were given a choice of completing a questionnaire via an online Google Form or connecting with the researcher (via Skype) and giving a verbal interview. Half of the participants opted for the written survey, the other half—the verbal one. Some subtle differences between the results are discussed in the Appendix.

The questions (listed on [p.16](#)) expanded on those used in the short open survey. Questions in Study 2 sought further insight into how users engage with digital archives in general, what other archives (if any) they reference (via what devices), how they use the ArtBase, as well as what they might like to see



Study 2. User stories mapped to key insights



changed or updated in the ArtBase. Parallels were drawn between previous versions of the ArtBase, the Net Art Anthology, and other net art archives beyond Rhizome. The aim was to gather qualitative feedback from users that would complement the analysis of archival interface examples and interaction paradigms reviewed in report #3.

Summary: Key insights

The results from this particular set of user interviews and feedback questionnaires showcase the importance of considering user communities who have strong institutional connections or are currently in the education system. Some of the most poignant issues raised by these users are illustrated via the user story cards on [p.16](#) and listed below. Their insights are not entirely different from previous UX-related assumptions recognized internally at Rhizome (see report #1), or indeed the findings of user study sessions 1 and 3, but they are useful in providing further evidence of the most important assumptions to be taken forward into the redesign process.

1. Browsing for **serendipitous discoveries** and inspiration should be better facilitated by the archive.
2. **Multiple entry points** into the archive and possibly **multiple interfaces** can be an effective way to meet the needs of a user base that is diverse in its level of knowledge (e.g. a custom curated frontend presenting only selected features in addition to a fully indexed wiki interface). **Time** can also become a more active element for engagement.
3. The archive doesn't have to show all possible information about an artwork (users don't expect to find everything they are looking for in just one archive), but **more context** would be welcome. The NAA was cited as a model in this regard.
4. Any **additional form of categorisation** (keywords, tags, subjects, themes, technical specifications) would be welcome. Bringing back some of the information from the 'classic' version would be relevant in this regard.
5. Viewing **artworks in groupings**, not just as individual decontextualised records, is beneficial to users (these could take various forms, e.g. curated or random feature lists, related artworks available on each artwork's page, groups bounded by time periods, temporary online exhibitions, etc).
6. **Access to functional restaged environments**, similar to the NAA, e.g. via emulators, containers, etc., is desirable whenever possible.
7. More **narration around conservation and preservation actions** is needed.
8. **The archive should tell its own history** in a more open/ visible way.
9. The **wiki interface** could be feasible, but will need some further (and more specific) user testing.
10. Paying attention to **web accessibility** is important for users.



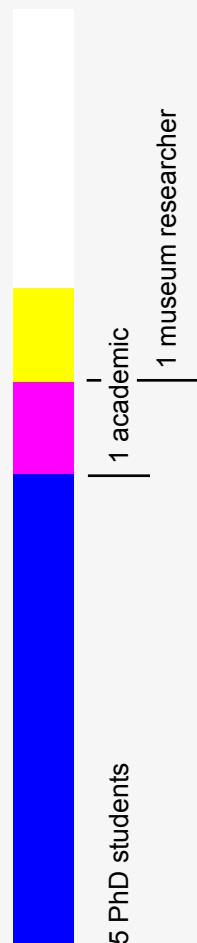
Study 3. Task outline

1. Go on <http://rhizome.org/art/>
2. Look up the work of artists Eva and Franco Mattes, also known as 0100101110101101. Explore at least 2 of their works from different time periods.
3. Go back to the main ArtBase page, locate the work of artist Mouchette and explore the works in the ArtBase.
4. Now go to <http://classic.rhizome.org/artbase/>
5. Locate the work Form Art by artist Alexei Shulgin.
6. Explore at least one more formalist artwork in the ArtBase.
7. Now go to <https://anthology.rhizome.org/> and find the entries for artists Alexei Shulgin and Mouchette and explore those.
8. Next, check out Rhizome's account on <https://www.google.com/culturalinstitute/beta/>
9. Explore the Rhizome page there for a few minutes.
10. Next, switch over to <https://collection.cooperhewitt.org/>
11. Explore the collection for a few minutes.
12. Find an object that you like. See if you can open up the timeline feature for that object.
13. Find out how you can cite and share this object.
14. Next, go to this archive: <https://www.digitalartarchive.at/database/database-info/archive.html>
15. Use the Artist index, the Genre categories, and the date ranges to find at least 3 net artworks from the late '90s. Go to their individual records and review the metadata available for these artworks.
16. Finally, go to <http://turbulence.org/> and explore the navigation interface for their archive.
17. Try to locate a project related to some of the artists you already looked at through Rhizome's archives.

Make sure to capture a video of your screen activity via Quicktime Player or another screen-capture app.

Duration: 45-60 mins

PARTICIPANTS BREAKDOWN



3. Targeted feedback sessions with academics and researchers

Study set up

Who: A small sample of users from the research community

When: August–September 2017

Where: In person (London) or remotely

How: Semi-structured interviews; email correspondence; Google Forms; screen capture

How long: 1.5 hrs per user session

Objectives:

- Gain better understanding of the researcher use-case;
- Gather feedback on the current interface & functionality of the ArtBase;
- Gather feedback on the ‘classic’ interface & functionality of the ArtBase;
- Gather feedback on other interaction patterns used in online archives across other institutions;
- Collect and analyze video data capturing user interactions across the selected online archives;
- Collect data on preferences for specific patterns of navigation and discovery in the archives;
- Collect data on preferences for contextual information alongside records in the archive;
- Collect data on preferences for sharing and citation.

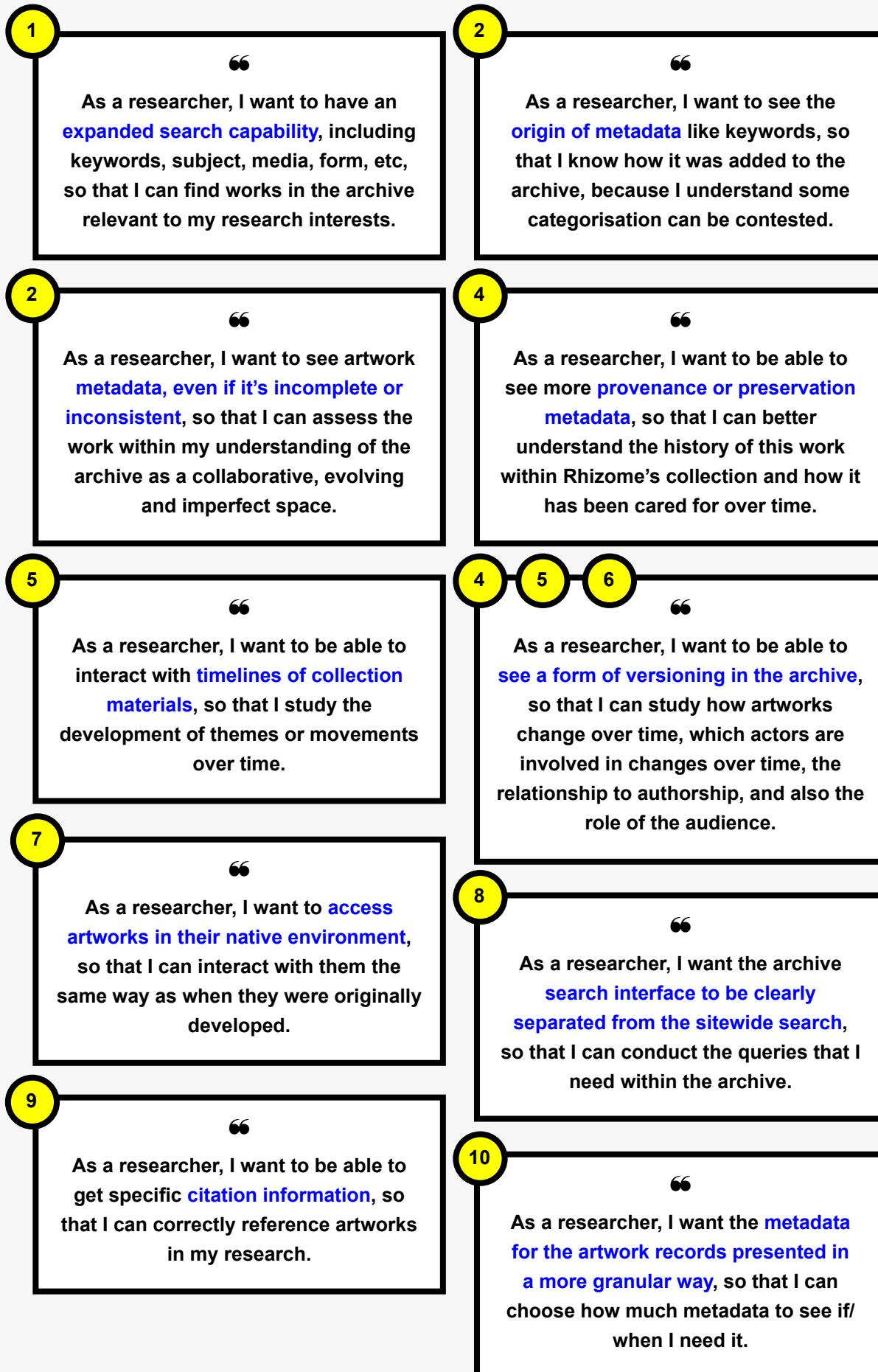
This user study was completed before studies 1 and 2, but as it represents a narrower context of use, these sessions are written-up here, following the discussion of the general user context. In total, seven researchers participated in this study—three took part remotely and the other four were interviewed in person.

The first element of the study was a practical task designed to prompt various (fairly specific) interactions with the archival interfaces. The task was followed up by a questionnaire. The task outline (see [p.20](#)) references a number of web interfaces which are developed and maintained by Rhizome, as well as a selection of other benchmark online collection spaces and net art archives. Setting very specific tasks was important for directing users towards areas of the interfaces known to be problematic. The set tasks also encouraged users to try different modes of accessing artworks, many of which are unavailable in traditional archives.

The follow-up questions were devised to gather impressions about the interactions performed in the practical task, and to gain insights about how users expect to—or would like to be able to—interact with these various archival interfaces. The questions bore similarities with the questionnaires used in studies 1 and 3 (e.g. see [p.16](#)). However, this questionnaire invited more detailed and



Study 2. User stories mapped to key insights



specific responses. The participants in this particular session were able to give more specific answers, as they had the preparatory experience of browsing the archives I was asking questions about—via the practical task. The users were also asked to record videos of their interactions with archival interfaces while they were following the steps in the practical task. The videos were later used to provide further insight into the way the researchers engaged with the online interfaces, not necessarily articulated in their responses.

Summary: Key insights

This set of user feedback sessions and the completion of a practical task exposed some weak points in user journeys through the ArtBase, and across the other archival interfaces explored during the practical task. The findings confirmed some known issues in the ArtBase, as did studies 1 and 2. But they also highlighted a few further areas of concern which hadn't necessarily surfaced in sessions with other user communities. The story cards on [p.22](#) map to the key issues listed below:

1. **More sophisticated search mechanisms** are needed for researchers looking for specific information.
2. Researchers welcome **additional metadata**, e.g. some of the data available in the ‘classic’ ArtBase interface, but are also critical about the opaqueness of that data. Keywords and tags would be useful if their ontology is also made explicit—i.e. who’s adding them—the artists or Rhizome, and when.
3. **Metadata incompleteness** is not necessarily a problem (some records can be more “complete” than others; this just needs to be more explicitly stated via the interface).
4. Researchers are interested in additional **provenance metadata** (even as basic as a clear distinction between “linked” and “cloned” artworks in the ArtBase) and documentation of **preservation actions** and technical dependencies when available.
5. **Timeline tools** as additional ways of browsing the interface are considered beneficial.
6. Researchers are interested in more ways of **contextualising artworks in a temporal dimension**, both on the level of the archival record, as well as artwork presentation.
7. **Emulation** is considered an excellent way of engaging with historic artworks.
8. More clear **differentiation between interfaces**—the archival interface; the general Rhizome website interface; as well as other Rhizome web projects, such as the Anthology—is needed, particularly when there are links between these.
9. **Citations** are considered a useful feature for archival interfaces.
10. A **granular approach** to providing more or less metadata via the archival interface can serve different audiences better (i.e. specialist researcher users vs general users).



Study 4. Task outline

1. Go on <http://rhizome.org/art/artbase/>
2. Look up an artwork from the 90s and one from the 00s.
3. Now go to <http://classic.rhizome.org/artbase/>
4. Locate the same works or other works by the same artists.
5. Now go to <https://anthology.rhizome.org/> and explore at least 2 artworks in emulated environments from the 90s and the 00s as well.
6. Next, check out Rhizome's account on <https://www.google.com/culturalinstitute/beta/>
7. Explore the Rhizome page there for a few minutes.
8. Next, go to this archive: <https://www.digitalartarchive.at/database/database-info/archive.html>
9. Use the Artist index, the Genre categories, and/ or the date ranges to find 2-3 net artworks from the late '90s. Go to their individual records and review the information available for these artworks.
10. Finally, go to <http://turbulence.org/> and explore the navigation interface for their archive.
11. Try to locate a project related to some of the artists you have already looked at through Rhizome's archives.

Duration: 20-30 mins

4. Targeted feedback sessions with artists

Study set up

Who: A group of artists who are involved with Rhizome already

When: April–July 2018

Where: In person (London) or remotely

How: Semi-structured interviews; email correspondence; Google Forms;

How long: 1 hr per user session

Objectives:

- Gain better understanding of the artist use-case;
- Gather feedback on the current interface & functionality of the ArtBase;
- Gather feedback on the ‘classic’ interface & functionality of the ArtBase;
- Gather feedback on other interaction patterns used in online archives across other institutions;
- Collect and analyze video data capturing user interactions across the selected online archives;
- Collect data on preferences for specific patterns of navigation and discovery in the archives;
- Collect data on preferences for contextual information alongside records in the archive.

Artists have traditionally been the core user group of the ArtBase archive.

Historically, they have submitted their artworks for archiving and have used the ArtBase as a reference tool. They represent an important stakeholder group, and as such this study was conceived with particular care and in close consultation with Rhizome staff. It consisted of an optional short practical task (outlined on p.24) and a feedback questionnaire. The feedback requested was similar to the questions used in study 2 and 3 (see p.16). There was, however, an additional question asking artists to imagine how they would like their own work to be presented in the archive.

Nearly 30 artists (and some artist collectives) were selected and invited to participate. The selection aimed to be as diverse as possible, while still remaining within the boundary of the Rhizome community, and included a mix of more established and younger artists. One requirement for selection was that all the artists must maintain active studio practices, so that their responses and objectives would be distinct from the students and academics who were surveyed in previous studies. The final selection included artists who have been involved with the archive from its inception, as well as artists who may not have artworks in the archive, but have been profiled on the Rhizome blog and/ or have been commissioned for special events or exhibitions organized by Rhizome.



Study 4. Selected user stories

“

As an artist, I want to look at digital archives, so that I can compare strategies with my own digital archiving practices.

“

As an artist, I want to refer other people to digital archives, so that they can better understand net art.

“

As an artist, I want to look at digital archives, so that I can do my artistic research.

“

As an artist, I don't want to see the archive become a wiki which is used as a self-promotional device, edited by everyone, instead of being a source of authoritative information.

“

As an artist, I want to see the archive become a wiki that is open rather than closed and where people can have accounts, so that they may contribute data that they might not normally disclose.

“

As an artist, I don't want to be looking at keywords or categories, because it can be pretty random and I'm not a theoretician, so that's not so interesting to me.

“

As an artist, I don't want to filter based on themes, because it's very seldom that I want to see only art dealing with a particular topic.

“

As an artist, I want to see metadata related to the technology, so that I can track what kind of code or open source software the artists had used.

Despite initial interest in participation, after several rounds of emails and recruitment efforts, only six artists participated in the study. Two artists completed the task and responded to the full feedback questionnaire online, while only one artist participated via an online interview, three further artists responded to a shorter version of the questionnaire via email.

Summary: Key insights

The small number of total respondents in this particular user study highlights the limitations of this research project, and perhaps reduces its overall success; it also suggests some speculative, but valuable insights. It shows that a researcher without a research lab, or dedicated financial and human resources, necessarily has a limited reach when it comes to recruiting participants and retaining their interest. Furthermore, the time constraints of the research project, required that responses be gathered by a certain deadline, in order for the project to proceed forward to its next stages of design and prototyping. The busy schedules of some participants meant that they were not able to be included in the study at a later point, either.

This study shows that although artists may have been the primary user group of the archive in the past, this is no longer the case. The general survey suggested that while roughly 50% of current ArtBase users identify as artists, respondents frequently identified with multiple user categories (students, researchers, academics). It can be extrapolated that the overall number of users who are artists maintaining active studio practices is likely to be far lower than 50%. Those users identified in the general survey who also participated in the second more in-depth study were predominantly from educational or institutional backgrounds. Based on these results, it is possible to speculate that since the archive closed to new submissions, many of the contemporary artists who are otherwise active in the Rhizome community—regularly being profiled in articles, or commissioned for exhibitions—have less interest in the current instantiation of the ArtBase. This closed instantiation holds more value to researchers and archivists as a historical artifact. This is a highly speculative explanation, but if Rhizome would like to rebuild their primary user community of practicing artists, access to the ArtBase archive will need to be reconsidered: in terms of how it can be searched and navigated, but also in terms of how it relates to the larger cultural programme at Rhizome. In other words, how can the ArtBase be reactivated as a communal space? Alternatively, if Rhizome accept that they have a new core user group—consisting largely of students and academic researchers; their needs related to discovery, exploration, and the building of historicized narratives, will have to be prioritized.



Summary and recommendations

The studies documented in this report present a complex and sometimes contradictory picture of the user base and user stories associated with the ArtBase. Having conducted different sessions, gathering quantitative and qualitative data, no clean-cut user personas or scenarios of use emerge. While users can be broadly split into communities defined by their background or expertise, their self-selected community memberships (e.g. via the online survey's multiple-choice checkboxes) often span multiple categories of what would normally be considered the 'job title' sections of user personas. Some users may identify as artists, but may also hold curation, writing and technology jobs, or have academic training in art history, for example. There are also art students and art archivists, who may have multiple occupations or specializations. Few access the archive for the sole purpose of 'research' or 'inspiration', and user stories rarely translate into linear scenarios that move users from interaction A to interaction B. User stories can be messy and often show personal biases. User objectives may change over time from one type of activity (learning about net art) to another (researching preservation standards), due to changes in career and/or expertise level of the users. Working outside the parameters of strictly-defined personas and objective scenarios, allows for some nuanced observations and recommendations to be drawn and extended into the next phase of the redesign process.

Audience

Previous assumptions about users and modes of use are now largely inaccurate. Artists with studio practices are no longer the primary users of the archive, moreover browsing for 'inspiration' or to contribute to an active community discussion do not represent the most common reasons for visiting the archive today. A new audience of researchers, students and archivists has stepped in. While artists were more active during the period of open submission, today these new groups, who may only have learned about the ArtBase in recent years, are its core users. They are using the archive to research artworks which can no longer be found anywhere else. Concerns about preservation actions and provenance are frequently raised in their comments around potential uses and utility of the archive. Questions about logins, access and social features belie an audience unaware of the vibrant community that once submitted all the data currently populating the archive. Engaging with this new audience will involve not only responding to their requests for features, but also providing them with detailed information about the history of the archive and the reasons that certain organizational policies are in place. At the same time, if there is an interest



in maintaining engagement with the archive's original core audience, further research may be needed to identify what types of uses and roles for the archive this audience envisages, and whether their aspirations are aligned with the current institutional mission and vision at Rhizome.

User stories

In order to find actionable threads throughout the large volume of qualitative data collected via the studies, the user story cards from all studies were organized and divided into areas of specific concern to the design process. The following pages present these card groupings, which relate to: 1) general user motivations; 2) archival infrastructure and organizational policies; 3) discovery and entry into the collections; 4) artwork record pages and metadata; and 5) presentation of net art. These areas can be mapped to areas discussed in the design landscape overview report (report #3) and the design prototype description report (report #4).

The discussion about audiences (above) covers the majority of the points raised by the story cards from the first group (motivations). The potential of the archive to serve research needs in areas such as archival practice, art history and art education, should be considered alongside the more aspirational use-cases of browsing for leisure or inspiration. The cards from the second group (infrastructure and policies) relate to research use-cases. Comments in these stories point to a need to historicize the archive and define a clearer role for it within the larger Rhizome organizational infrastructure.

Some of the stories position the archive as a source of institutional authority, while others view it as a potentially more social space, open (once again) for collaboration. These tend to represent opposing views. But using a linked data model, the archive could facilitate both propositions. The design of the archive could accommodate a space where the 'authority' of specific statements leaves space for individual interpretation—through appropriate citation of sources and data provenance transparency. At the same time, instead of full public access to edits and changes, 'openness' in the archive may mean strategic partnerships with committed artists or researchers whose work can help enrich the archive.

In the selection of user stories connected to discovery in the archive, the primary concerns are connected to the need for multiple forms of searching, browsing and finding records in the archive. Stories on the user cards collated on pp.34-35 relate to specific interaction patterns which are commonly encountered in other archive interfaces. (as observed in the design landscape review in report #3). Features such as sorting by keywords or categories, search filters, curated lists and timeline visualizations are all popular interaction paradigms. The appropriateness of implementing each of these features will need to be considered in relation to the specificity of the ArtBase collection and the data currently available in the archive. In some cases, the need for large-scale resource investments in new data-capture or data-entry could outweigh the benefit of implementation. The challenge for the design phase will be to acknowledge the users' expressed needs for multiple forms of discovery and

entry into the archive, without being bound by existing paradigms present in other archives, as the context of the ArtBase is very different from other archives.

Among the user stories related to the record-level presentation of artworks in the archive, the emphasis in most user stories is on additional types of metadata users might want to see represented in the archive. The researchers interviewed in study 3, in particular, expressed interest in additional metadata related to preservation history, artwork provenance and exhibition history. Other users made more general observations regarding inclusion of more context around the works, more technical metadata, and the ability to browse other, related artworks. The specifics of the data statements that could facilitate such contextual presentation, build relationships with other artworks, or indeed provide multiple entry points into the archive were rarely discussed by users of any group participating in the studies. It is possible users were basing their observations on common interaction patterns they had seen and used in other archives, without fully realising the mechanisms that bind these patterns. Multi-faceted discovery is possible only when all elements of metadata are carefully selected and accurately input. However, it is also possible that the questions included in the surveys and interviews in these studies did not succeed in eliciting sufficiently detailed and explicit responses from users. Still, the purpose of the user studies was *not* to develop recipes to dictate the designs, but simply gather impressions and action points. Redeveloping the metadata framework of the records, focusing more on provenance and preservation, as well as source and data provenance transparency, are clear action points that emerged from the user studies. Concrete design propositions around these issues are developed and tested further during the design and prototyping stages.

Finally, alongside the metadata record for each artwork, the last selection of user stories focuses on the presentation of the artworks themselves. Most user stories point to existing presentation strategies developed by Rhizome primarily through their preservation efforts in the Net Art Anthology exhibition and the Webrecorder project. An interaction pattern deemed to be highly successful by most users is the presentation of artworks in their native environments made possible using cloud-based emulators, which are programmed to run automatically in users' own web browsers. In addition, some users raised the need for specific preservation-related information, as well as temporal and versioning metadata to contextualize the emulated artwork reperformance. These are all new design patterns that do not exist in the current version of the ArtBase (or the other example archives reviewed in report #3) and need to be developed and tested during the prototyping stage. Lastly, users commented on the need to clearly signal the relationship between the archive and the anthology. In this respect, their comments echo previous feedback collated in the second group of user stories ([p.33](#)). Once again, it is clear that Rhizome need to establish a clearer role for the archive within their broader cultural programme and software infrastructure. This can be signalled via the interface design of their main website, as well as through initiatives to historicize the archive by commissioning narrative texts or updating mission statements. Specific recommendations how this might be approached are presented in report #4.

User stories: Motivations for archive use

“
As an archivist, I want to browse digital archives, so that I can **research how records and metadata are structured**.

“
As an art student, I want to browse digital archives, so that I can do **research for assignments and get inspiration**.

“
As an academic, I want to browse digital archives, so that I can **find relevant materials for classes** that I teach.

“
As a researcher, I want to use digital archives, so that I can **research specific artists or artworks**.

“
As a researcher, I want to use (institutional) digital archives, so that I can **research institutional work and practices**.

“
As an artist, I want to look at digital archives, so that I can **compare strategies with my own digital archiving practices**.

“
As an artist, I want to **refer other people to digital archives**, so that they can better understand net art.

“
As an artist, I want to look at digital archives, so that I can **do my artistic research**.

Diagram key

 User story from study 2: general users

 User story featured as key insight

 User story from study 3: researchers

 User story featured as key insight

 User story from study 4: artists

User stories: General archive infrastructure and organizational policy

“

As an ArtBase user, I want the interface to follow **web accessibility standards**, so that it can be more accessible to visually impaired people.

“

As an ArtBase user, I want to know more about the **archive's history**, so that I can understand the context of the artworks in the archive better.

“

As a researcher, I want to see **different, less predictable, institutional choices** for archives of net art vs traditional digital archive interfaces, so that I can take a more interesting journey through the archive.

“

As a researcher, I want the archive **search interface to be clearly separated from the sitewide search**, so that I can conduct the queries that I need within the archive.

“

As an artist, I **don't want to see the archive become a wiki which is used as a self-promotional device**, edited by everyone, instead of being a source of authoritative information.

“

As an artist, I **want to see the archive become a wiki that is open rather than closed** and where people can have accounts, so that they may contribute data that they might not normally disclose.

User stories: Archive entry points and discovery

“

As an ArtBase user, I want to filter artworks by **keywords or categories**, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to see a **list of all tags** used in the archive, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to see **curated lists** around specific themes or processes, so that I can explore smaller subsets of the collection focused on a specific topic.

“

As an ArtBase user, I want to see **metadata about themes or subjects** in the archive, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to browse **lists of artworks created by curators or other users**, so that I can see what others consider to be of interest in the collection.

“

As an ArtBase user, I want to see **rotating highlights or random selections** on the archive homepage, so that I can discover new work every time I visit the archive.

“

As an ArtBase user, I want to be able to **search by color** in the archive, so that I can discover new works in serendipitous ways.

“

As an ArtBase user, I want to filter artworks by **attributes such as programming language**, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to have **multiple entry points** to browsing the works, such as sort-by-color, curated lists or a random button, so that I can discover new works in serendipitous ways.

“

As an ArtBase user, I want to interact with an interface with a **more exhibition-led approach**, featuring curated selections displayed on a curatorial calendar, akin to a museum, so that I can discover new works in serendipitous ways.

User stories: Archive entry points and discovery

“

As an ArtBase user, I want to interact with a **search query interface**, so that I can do research into very specific elements of the collection.

“

As a researcher, I want to be able to **search by alternate names/titles** and get all relevant results, so that I can conduct research even if I'm not familiar with the specifics of the data model in use in the archive .

“

As a researcher, I want to have an **expanded search capability**, including keywords, subject, media, form, etc, so that I can find works in the archive relevant to my research interests.

“

As a researcher, I want to use more **sophisticated search tools** with facets or filters similar to academic journal databases, so that I can create more precise search queries.

“

As a researcher, I want to see **keywords and categories**, so that I can find my way into a large collection by narrowing it down in terms of timeframe, media, etc.

“

As a researcher, I want to be able to interact with **timelines of collection materials**, so that I can study the development of themes or movements over time.

“

As a researcher, I want the archive to have a clearer chronology of materials, which involves a position of historicization by the institution, so that I can study the archive, as well as the relationships between the institution and the archive.

“

As a researcher, I want to be able to go back to search results or other previous states as I delve deeper into the records, so that I don't need to recreate a query or trace my path backwards.

“

As an artist, I **don't want to filter based on themes**, because it's very seldom that I want to see only art dealing with a particular topic.

“

As an artist, I **don't want to be looking at keywords or categories**, because it can be pretty random and I'm not a theoretician, so that's not so interesting to me.

User stories: Artwork record-level page

“

As a user of digital archives online, I want to see more **contextual information** around the archive items, so that I have to do less research in other sources.

“

As an ArtBase user, I want to see more **temporal contextual information** around each artwork, so that I have to do less research in other sources.

“

As an ArtBase user, I want to see the creation date of the artwork, as well as acquisition date and exhibition history, so that I can get a better understanding of the work's **provenance**.

“

As an ArtBase user, I want to see more **technical information** about the processes used in the artwork, so that I know what to expect when I try to access the artwork.

“

As an ArtBase user, I want to see **selections of related artworks**, so that I can explore the collection through the relationships within it.

“

As a researcher, I want to see metadata on **accession details, copyrights, conservation actions, technical components**, so that I can gain a better understanding of the context of the work within the collection.

“

As a bilingual user, I want the ArtBase to feature **multi-lingual metadata** for works by non-English artists, so that the archive is more accessible to non-English speakers.

“

As a researcher, I want to be able to see more **provenance or preservation metadata**, so that I can better understand the history of this work within Rhizome's collection and how it has been cared for over time.

“

As a researcher, I want to know mode **details about the platform, hardware, or software** that the work originally ran on, so that I can understand the considerations around its preservation.

“

As a researcher, I want to be able to get specific **citation information**, so that I can correctly reference artworks in my research.

User stories: Artwork record-level page

“

As a researcher, I want to see information about **exhibition history and publications featuring the work**, so that I can get an idea of how the work has been shown and received over time.

“

As a researcher, I want to see bi-directional **relationships between objects and creators**, so that I can find all works created by a person on their record page.

“

As a researcher, I want to see artwork **metadata, even if it's incomplete or inconsistent**, so that I can assess the work within my understanding of the archive as a collaborative, evolving and imperfect space.

“

As a researcher, I want the **metadata for the artwork records presented in a more granular way**, so that I can choose how much metadata to see if/when I need it.

“

As a researcher, I want to see the **origin of metadata** like keywords, so that I know how it was added to the archive, because I understand some categorisation can be contested.

“

As a researcher, I want to be able to **see related artwork sets**, so that I can find more work relevant to my research even if I'm not aware of it.

“

As a researcher, I want to see the **metadata added by artists**, so that I can also have that context from the original ArtBase.

“

As a researcher, I want to see the **artworks in sets, such as exhibition histories, or make my own sets**, so that I can also contextualise artworks and not only look at them in isolation.

“

As an artist, I want to see **metadata related to the technology**, so that I can track what kind of code or open source software the artists had used.

User stories: Net art presentation

“

As a net art exhibition visitor, I want to **access artworks in their native environment**, so that I can interact with them the same way as when they were originally developed.

“

As a net art exhibition visitor, I want to **access more information about conservation and preservation actions**, so that I can better understand the limitations of what I'm looking at.

“

As an ArtBase user, I want to see functional and informative **artwork entry points**, so that I know what to expect when I try to access the artwork.

“

As a researcher, I want to see **a clear temporal dimension in the presentation**, so that I know what timeframe I am looking at in an emulated presentation when the emulator is pointing to an archival copy of the work.

“

As a researcher, I want to **access artworks in their native environment**, so that I can interact with them the same way as when they were originally developed.

“

As a researcher, I want to be able to **see a form of versioning in the archive**, so that I can study how artworks change over time, which actors are involved in changes over time, the relationship to authorship, and also the role of the audience.

“

As a researcher, I want to be aware of **the artwork's boundary and the meaning of concepts such as “linked” and “cloned”**, so that I know when I'm looking at something within the boundary of the archive or outside.

“

As a researcher, I want to know **what is the relationship between the Net Art Anthology and the ArtBase and how artworks are linked between the two (or not)**, so that I know where to look for the information I need.

“

As an artist, I want to be able to **access the artworks quickly and easily**, so that I don't have to go through a lot of text or other context before I can look at the art.

Appendix

1. General user survey on the ArtBase website

Study set up—additional notes

A few key considerations influenced the design of the survey. First, as there was no compensation being offered to participants, it was important to keep the survey short in order to receive as many responses as possible; it included only four questions. Second, to encourage users to participate, Rhizome was able to offer rewards (Rhizome branded T-shirts) to five participants, selected at random. Third, a short blog post was prepared to advertise the survey and explain the purpose of the research project. The post was published on Rhizome's blog on March 29th (see [p.6](#)) and immediately attracted attention among Rhizome's community. Finally, the survey questionnaire itself was facilitated via the Google Forms interface, which offers a quick and easy-to-submit process, as well as useful data analysis tools once the survey is complete.

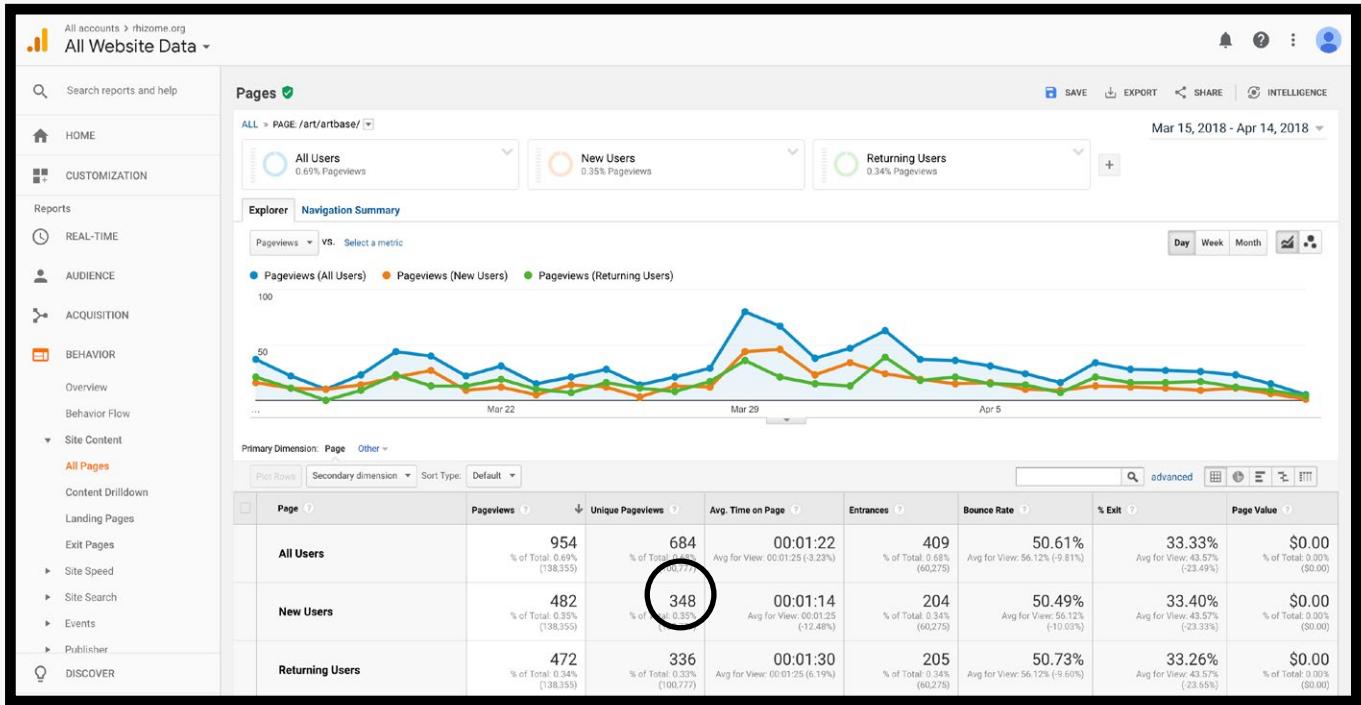
The total number of responses to the survey was 56, although one person had submitted their answers twice and one submission was read as spam, so the total number of unique responses actually analyzed in this study was 54.

Q1. User Backgrounds

As outlined on [p.13](#), the first question in the survey: “**How would you describe your field of work?**” aimed to gain quantitative data on the backgrounds of ArtBase users. Unsurprisingly, as the results shown on [p.12](#) indicate, the primary user group of the ArtBase (at nearly 50%) identify as artists. A marginally more popular choice was the ‘art lover’ category. However, ‘art lover’ tended to be selected as a secondary or tertiary option. For the purposes of this study, the category is considered to be indicative of self-identification rather than professional background. The ‘art lover’ category can also be read in connection to one of the options given in the second question of the survey, where users were asked to indicate reasons for browsing the archive, and ‘inspiration’ was selected by a significant percentage of respondents. For the purpose of identifying the core user communities of the archive, the ‘art lover’ category is folded into other groups, but it still impacts the overall analysis of archive use cases. This choice indicates that users of the ArtBase often visit simply for pleasure and fun, rather than to undertake professional or work-related tasks.



ArtBase pageview analytics



Snapshot from the Google Analytics Dashboard for Rhizome.org. The unique pageviews for new users (vs returning users) for the ArtBase URL (rhizome.org/art/artbase) during the period throughout which the user survey was online are estimated at roughly 350. While this number does not necessarily mean these are precisely the amount of people that visited the archive during that time period, taking the number as a very rough estimate, positions the 50+ participants who took part in the survey at roughly 15% representation of all archive users (at that time). Comparing this archive usage to usage from the previous and following months, reveals similar, even slightly lower numbers for the “new users unique pageviews” metric—292 & 260, respectively. Accounting for the spike in page visits around the time the post promoting the user survey was published on the Rhizome blog (March 29), we can position the number of users visiting the site on a monthly basis somewhere in the range of 250-300, which means the representative sample who responded to the survey are in the range of 15-20% of all regular monthly users.

The proportional representation of the rest of the user community groups is visualized on [p.12](#).

Q2. Primary reasons for visiting the archive

The second question in the survey asked users: “**What was the purpose for your visit to the ArtBase today?**”. The question featured multiple-choice checkboxes and users could, again, choose several or add additional text.

The checkbox results from this question are visualized on [p.16](#). A few of the free-text entry answers, which are worth highlighting, include: someone researching issues in digital preservation, another user doing further research following an art history class, and a user looking for artwork examples to include in their teaching. Such sample answers, alongside the primary purpose for visiting the archive being “research” (at just over 50%), testify to the continued relevance of the ArtBase as an educational resource and the importance of Rhizome’s efforts in maintaining the archive and rebuilding it for the future.

Q3. Overall experience with the archive

The next question of the survey aimed to assess the overall interaction experience users have with the archive and asked: “**In a few words describe your interaction with the archive today—were you able to locate what you were looking for? Was there anything missing that you wish was there?**” Admittedly, the question can be interpreted as leading, because it implied the potential for something to “be missing”, rather than asking users to share what they liked about the archive’s interface, for example. But the question was intended to encourage users to share frustrating experiences, which the Rhizome team may have already been aware of. Gathering evidence for these frustrations from users of the archive proved useful in articulating clear action points. Since this was a free-text entry question, there were no multiple choice options. The participants had the opportunity to share what they had observed during their user experience in the archive rather than pick pre-defined answers. The diversity of answers—many of them positive, with some suggestions for improvements—is encouraging and shows that the participants weren’t necessarily ‘led’ towards giving more negative feedback by the phrasing of the question.

In order to draw a quantitative analysis from the responses here, the answers were coded into three groups: “positive”, “neutral” and “room for improvement”. Answers that were classified as “neutral”, included simple statements, such as: “I was just browsing”, or “I use the archive to browse through and find things as I explore, rather than search for specific information”. Neutral responses didn’t express any particular dysfunctions but equally didn’t point to any specific positive features of the interface. Answers tagged as “positive” include examples such as—“Yes, I found what I was looking for and even more” or “Always inspiring”, since they express an overall satisfaction with the interaction in the archive and take the care to negate the “Was there anything missing...” question.



Q3. Highlights

Requested features split into three thematic areas:

Access to the works:

- make whole thumbnail images clickable links (x2)
- provide more reliable access (sometimes the links to access works are missing)
- provide artwork previews (e.g. “preview an artwork before clicking into its description to see a brief demo on hover”)
- signal dysfunctional works (e.g. “I was looking for John Simon’s “Every Icon”—I found it but it didn’t seem to load correctly on my browser”)

Organization/ exploration:

- provide more extensive indexing (x2)
- enable browsing artworks by keywords/ tags or date range (x3)
- curate collections into particular themes, processes etc. (e.g. “themes that have emerged over time or reveal new ones with hindsight”) (x3)
- provide further ways to explore works (e.g. “a random button, or a curated ‘top ten’ list that changed every so often and was curated by people in the art world”)

Artwork selection and metadata:

- provide more complete artwork records
- include more contemporary net art
- find artists/ organizations by geographic areas (e.g. “Eastern European artists”)

Q3. User stories

“

As an ArtBase user, I want to see functional and informative **artwork entry points**, so that I know what to expect when I try to access the artwork.

“

As an ArtBase user, I want to filter artworks by **keywords or categories**, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to see **curated lists** around specific themes or processes, so that I can explore smaller subsets of the collection focused on a specific topic.

Finally, answers tagged as “room for improvement” were not necessarily negative answers, but they expressed specific problems with certain interactions users had encountered or included feature requests, for example—“Can you add links to the thumbnails?” or “I would appreciate the ability to browse by keywords relating to content or to view a list of all works from a date range.”

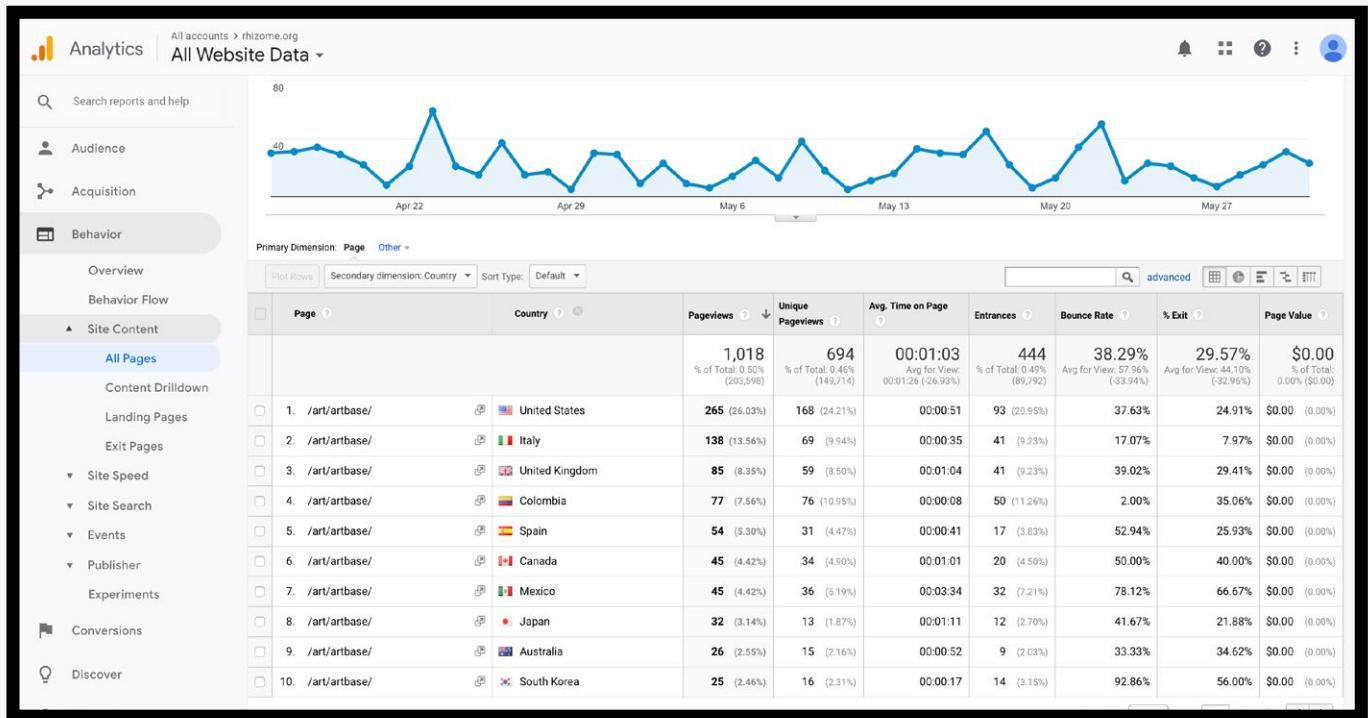
(See also the highlights and story cards on [p. 42](#).)

Tagging the answers with these codes resulted in roughly 40% of all answers suggesting “room for improvement”, “positive” answers amounted to roughly 33% of all answers, and the remaining 26% were “neutral” (as visualized on [p.14](#)). So on the whole, the majority of people (60%) didn’t have a negative experience with the archive, but the 40% that did, represent a significant proportion of users whose feedback could be valuable to the preservation team, and whose ideas could influence the redesign on the archive.

Further feedback sessions

At the end of the survey, users were asked to provide an email address if they were willing to be contacted about participating in further user feedback sessions. A total of 36 survey participants opted to provide their email address. The answers to the third survey question outlined above, alongside the responses relating to users’ backgrounds from the first question, served as key criteria in selecting a group of 10 users from this survey, who were contacted for a further, in-depth feedback session. Interviewing all 36 users who provided email contact information would be beyond the scope of this study. The 10 users who were selected for further interviews gave a mix of “positive”- and “room for improvement”-type answers and represented a range of communities including artists, students, academics and technologists.

ArtBase pageview analytics—country



Snapshot from the Google Analytics Dashboard for Rhizome.org. This particular snapshot looks at country of origin for page views of the ArtBase (accessed from rhizome.org/art/artbase) between mid-April and end of May 2018—the period when the targeted feedback sessions with users took place. Top countries appear to be the US, Italy & UK, which explains why respondents to the study were US/UK based. Data shown on this graph from Colombia and South Korea are likely to be misleading. The short duration of page views indicates that the ‘views’ represent bot traffic. This leaves Spain, Canada, Mexico, Japan and Australia as the other top countries, albeit with significantly less traffic compared to the US.

2. Follow-up feedback sessions with users from the general survey

Study set up—additional notes

This study followed immediately after the general survey on the ArtBase website. A total of 11 users were contacted. Of these, nine people expressed interest in participating, but only eight were able to do so within the timeframe of the study (before end of May). One additional participant took part after being recommended by another Rhizome colleague. Due to this partly intentional and partly incidental process of selection (based on availability of the contacted participants, but also on the range of respondents to the first survey), the make up of the final group of participants was not as diverse as it could have been. However, it does reflect who the most archive users of the archive are.

The participants were given a choice of completing a Google Form questionnaire online or connecting with the researcher (via Skype or Zoom) and giving a verbal interview. Half of the participants opted for the written survey, the other half—the verbal one. The data from the Google Forms was collated in a spreadsheet. Additionally, the audio from the interviews was recorded and then transcribed (partially and with paraphrasing) into the spreadsheet alongside the other collected user data.

The following sub-sections are structured in the same order as the questions posed to the participants (see [p.16](#)) and summarize the answers in order to draw out the key insights that were presented briefly on [pp.18–19](#).

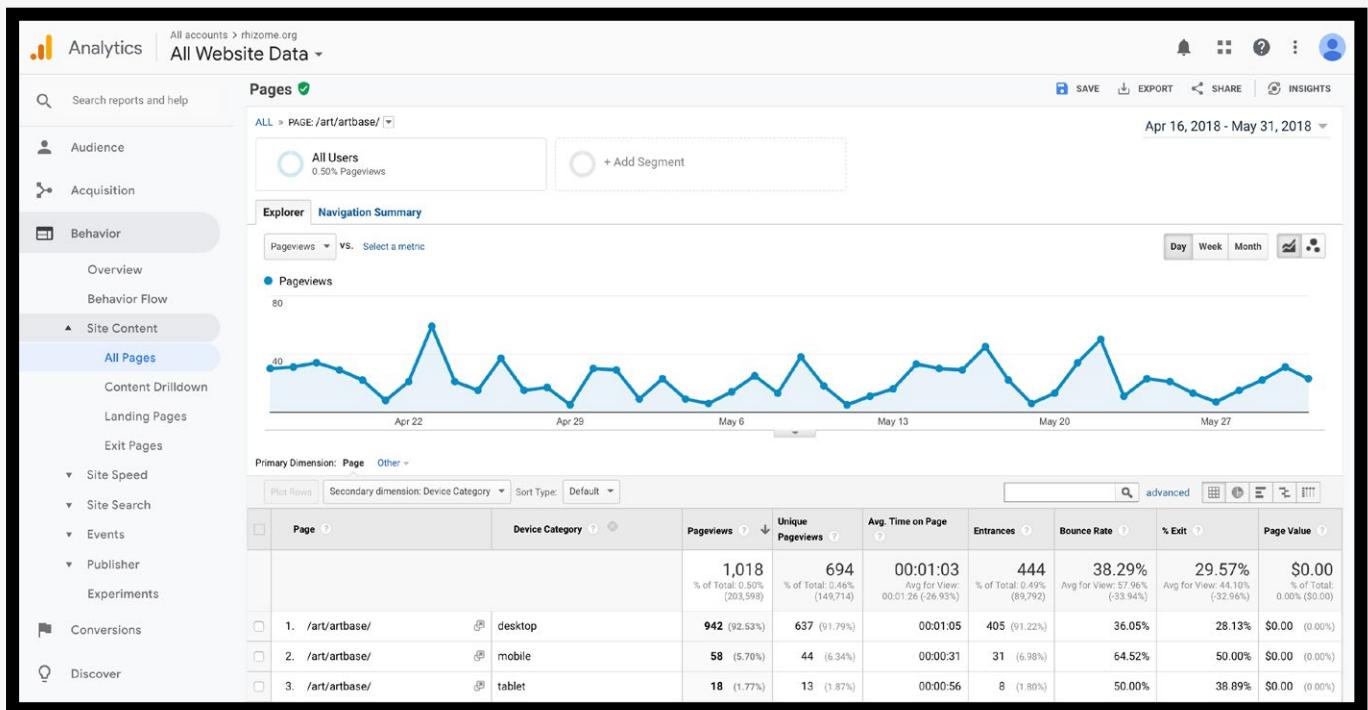
Q1. User Backgrounds

The first question in the survey asked users to give a bit more information about their backgrounds and professional experience. This revealed that half of the users worked in a library or archival context as information science professionals (two art librarians in US universities, one art archivist in a US university, and one arts production/ preservation professional at a US museum). The other half of the respondents identified as artists/ practitioners, but two were still students (one BA level, one MA level), and three more operated in academic/ institutional contexts (two teaching at university level, the other working as research fellow at a UK museum). **While this cannot be claimed as a representative sample of active users of the ArtBase, these results analyzed alongside the results from the targeted sessions with artists from Rhizome's community, point towards an increased use of the archive among users operating in an educational/ institutional context vs users who are active art practitioners with a busy studio practice.**

A strong prevalence of US/ UK users emerged both in this study and the general user survey outlined in the previous section.



ArtBase pageview analytics—device category



Snapshot from the Google Analytics Dashboard for Rhizome.org. This particular snapshot looks at the device category for page views of the ArtBase (accessed from rhizome.org/art/artbase) between mid-April and end of May 2018. Desktop traffic accounts for the majority of pageviews at >92%. However, mobile traffic at about 7% is not insignificant. Additionally, the numbers for mobile traffic to the general Rhizome website increased to 22% for the same time period, so mobile use is a growing interaction pattern for users on Rhizome.org and ideally, the archive section of the website should be able to respond to mobile traffic.

Q3. User stories

“

As an archivist, I want to browse digital archives, so that I can research how records and metadata are structured.

“

As an art student, I want to browse digital archives, so that I can do research for assignments and get inspiration.

“

As an academic, I want to browse digital archives, so that I can find relevant materials for classes I teach.

Q2. Awareness of Rhizome's programmes

The second question aimed to find out how long users have been familiar with Rhizome and the archive. Responses revealed that the majority of participants in the study were fairly new to Rhizome's community, the furthest point back in time they pointed to being aware of the organization and its programme was 2-3 years ago. While not necessarily a negative outcome, this represents a certain bias in the results. These users had little, if any, knowledge of the origins and history of the archive and its previous iterations. Later on, many of them later on expressed a desire to be made more aware of this history, which is a useful point to take forward into the redesign process. Additionally, these findings could point to the fact that previous users of the archive (or the people who were engaged in creating and adding to it) might have lost interest (or are using it less actively). **While not necessarily a negative outcome, this raises the question of whether Rhizome wants or needs to reach out and engage with these earlier community members more actively. Or, whether different strategies should be employed to ensure that the ArtBase's redesign also appeals to this newer, younger audience.**

Q3. The significance of archives

The third question asked users to indicate the role(s) digital archives play in their daily activities. Unsurprisingly, as these users dedicated personal time to participate in this study, they all identified digital archives as playing important roles for them. The four practitioners who work in the library or archival context use archives daily as part of their professional work. The remaining five participants identified archives as key sources for research and occasional, inspirational browsing, with three of them mentioning that they undertake side projects involving non-profit/ community archives. The two core reasons for using archives (other than one's own institutional archives for those users working in institutional contexts) were: research into how other archives are structured or function (i.e. these users were looking at the archive as a whole), and browsing for art inspiration/ research (i.e. these users were looking at individual artwork records).

Q4. Devices for archive access

This question asked users to identify what computer devices they used most often to access archives, and additionally what would they like to be able to use. All respondents identified their desktop or laptop computers as primary access points to archives. About half, however, identified that while they don't usually expect things to work on phones, they would very much benefit from being able to access archival interfaces from their smart phones.

Q5. Other online archives and information discovery

This question asked users if they use other online archives (besides the ArtBase) and aimed to understand whether discovery is more effective in other archives.



Q5. User stories

“

As a user of digital archives online,
I want to see more **contextual
information** around the archive items,
so that I have to do less research in
other sources.

Q7. User stories

“

As an ArtBase user, I want to filter
artworks by **keywords or categories**,
so that I can gain an overview of what
types of things are present in the
collection.

“

As an ArtBase user, I want to see
curated lists around specific themes
or processes, so that I can explore
smaller subsets of the collection
focused on a specific topic.

“

As an ArtBase user, I want to see
functional and informative **artwork
entry points**, so that I know what
to expect when I try to access the
artwork.

“

As an ArtBase user, I want to see
**rotating highlights or random
selections** on the archive homepage,
so that I can discover new work every
time I visit the archive.

Among those listed in the answers are: Artport, Adaweb, UbuWeb, DRAM (a music database), Art Texte, the Internet Archive/ Wayback machine, various university archives (for the university librarians/ archivists).

In terms of discovery, the majority of users said they had an easy-enough time finding information in these other archives, although the librarians/ archivists acknowledged that their professional background gives them an advantage when looking for information, even in systems which may have discovery issues. Other users raised issues with the lack of context provided by these archives, and the usual need to have multiple tabs open, searching for contextual information across various sources.

* “I go to the Wayback Machine a lot and I think everyone agrees that the indexing can be a lot better, unless I’m going to a specific collection where I know what they have, it’s just very hard to find things through the search mechanism. And I think also language is a huge issue. So when I’m looking at things in another language that is not English, I’m not going to get the first results.”

One user spoke specifically about challenges with indexing in the Internet Archive and pointed to the discrepancy in search results between the Wayback Machine interface and the Archive-It collections website, particularly when it came to other languages.*

Another user (who works in an institution) pointed to the usual reasons (financial, historic, cataloguing backlog, etc) that plague institutional collections and the subsequent digital archives. She also raised the issue of context and connections in the archive: “I wonder why there aren’t more links between items in the archive. I often find that the page for an object or a video stands alone, as this one item in history, and it’s quite difficult to get an understanding of the larger narrative of the collection as a whole. And I think that is sometimes more useful than these isolated objects. ... Even linking to something outside the [archive] is a new concept [in the institution], that you think would be quite practical.”

All these observations point to the fact that users of online archives, usually accept that they may not find everything they are looking for in these archives, and they develop various mechanisms to circumvent that. At the same time, most users would value the addition of more context (or links and connections) around items in the archive.

Q6. Frequency of using the ArtBase

This question asked users to share their usage patterns and estimate when they first started using the ArtBase. The answers ranged from “just a few times” (ever) to visiting “once every one to two weeks” (this response was particularly common among student participants). The time of first use ranged from “three years ago” to just “a few months ago”. Again, this points towards a bias in the study towards new users, who haven’t experienced the archive in its previous iterations.

Many of the users also mentioned that they engage with the Net Art Anthology more often than with the ArtBase (for numerous reasons, including its weekly newsletter feature).

This screenshot shows a web-based artwork record titled 'Endangered GIF Preserve'. The top navigation bar includes links for RHIZOME, Journal, Artbase, Community, and Programs. The main content area features a dark background with a white dove icon and the text 'Endangered GIF Preserve' and the URL 'anthonyantonellis.com/gif-preserve'. To the right, there's a 'TWEET' button and a descriptive text block about endangered image files from Wikipedia and Wikimedia. Below this is a 'WORK METADATA' section with details like Year Created (2012), Submitted to (Saturday Feb 18th, 2012), and Original Url (http://www.anthonystantonellis.com/gif-preserve). A 'RELATED WORKS' section shows thumbnail images of other artworks. At the bottom, there are links for 'About Us' and 'Membership'.

View of an artwork record in the 'classic' ArtBase interface (via an archived copy replayed in Webrecorder Player). Date of screenshot: 2017-06-30

This screenshot shows a web-based artwork record titled 'We See In Every Direction'. The top navigation bar includes links for RHIZOME, Blog, Program, Software, Community, and About. The main content area features a dark background with a central image of a web browser window displaying multiple overlapping URLs. Below this is a title 'We See In Every Direction' and a detailed description of the artwork by Jonas Lund. The description explains that it's a Web browser for collaborative, synchronized surfing. It includes a 'VIEW ARTWORK' button at the bottom.

View of an artwork record in the current ArtBase interface. Date of screenshot: 2018-05-13

Q7. Experience of browsing the current ArtBase

This question aimed to delve deeper into some of the issues already raised by the initial general user survey. Users in this study, once again confirmed all the known issues around discoverability in the archive and pointed to some specific features that they would like to be able to use for navigation. While a few users said that their user journey is generally smooth when they know what they are looking for, most agreed the process of discovery when you're not looking for anything specific can be frustrating, and if the only way to browse the archive is via a series of thumbnails, it is very limited.

Responses included frustrations over lack of:

- advanced search features by keyword or genre;
- a way to see all artists names in the archive (even in simple list form);
- curated collections/ rotating highlights;
- additional categories like subject, style, tags, topics or medium;
- a different (or randomly changing) order of thumbnails on homepage (this user identified the current order as random and couldn't see its logic);
- links to view artworks on some of the individual artwork pages;
- instructions or guidance what to do with some artworks (e.g. when a file just downloads itself to your desktop after you've clicked "View artwork").

Additionally, some users expressed frustration about not being able to re-find artworks which they've seen before and would like to go back to. One user in particular tried to create an account and was surprised by her inability to do so (she described a looping process involving password resets which didn't work).

Overall these frustrations point to the type of standard features (advanced search, tags, topics, account login) which users have grown to expect as the norm in archival interfaces. While none of their feature requests are particularly innovative, the new interface will have to take the browsing experience frustrations into consideration and provide some level of alternatives.

Q8. Comparing the current ArtBase to the 'classic' version

As all the users who participated in the survey were relatively new users in the Rhizome community, most of them had never seen or used the 'classic' version of the ArtBase interface which was online ca. 2011–2015.

Only two of the users had seen and used this interface before. They both observed that it is "more user-friendly", particularly pointing to the 'collection' and 'tags' features, which "make it much easier to use, and make much more sense". One of the users even observed: "Could you somehow merge the two or provide a link to the classic interface on the current version?"

Four of the respondents didn't comment on this question. However, two of the users interviewed via Skype were curious and wanted to have a quick look while we were conducting the interview (I offered to provide a link). They proceeded

Q9: User stories

“

As an ArtBase user, I want to see the creation date of the artwork, as well as acquisition date and exhibition history, so that I can get a better understanding of the work's **provenance**.

Q10: User stories

“

As an ArtBase user, I want to see a **list of all tags** used in the archive, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to see **metadata about themes or subjects** in the archive, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to see more **technical information** about the processes used in the artwork, so that I know what to expect when I try to access the artwork.

“

As an ArtBase user, I want to see more **temporal contextual information** around each artwork, so that I have to do less research in other sources.

* “I like that you can see the original URL. I think the comments aren’t necessary, but otherwise I really like this version. It’s not overwhelming, the information is presented pretty clearly. I can see that there is a whole institutional lens here, but I just like that information is organized better [than the current version]. I feel like the current version is more in line with the Rhizome brand. But this old version, I feel like it respects the object more.”

† “I really like this old version. Especially for people who are less familiar with net art, who might not get why it deserves the same respect as traditional art, I feel like this old version does a good job of presenting—there is a creation date, there is a sort of provenance, there are the contributors, and the featured exhibits, too.”

to spend at least 10 minutes exploring this older interface version and provided some further comments on it. One of those users (admittedly with an archival background and hence a bias towards certain forms of organization) expressed a strong preference towards this earlier interface.*

Q9. [Optional] Observations on the metadata in the ‘classic’ ArtBase

Similar to the previous question, this one was conditional on users having had some experience with the ‘classic’ version.

The two users who commented previously that they were familiar with it, replied affirmatively to this question as well. One of them observed further that: “It could be improved by adding more general terms for people who may be less familiar with the nomenclature of digital art, but the definitions you provide for the collections on the classic website are helpful.”

The other two users who browsed this version while we were speaking online, observed further that they liked the tags, the inclusion of the date when the artwork was added to the archive (vs creation date), and also the inclusion of exhibitions the work was featured in.† One user also noticed the personal account features and commented on this compared to the current version: “This is where you could have a profile and collect things. That was a nice idea. Obviously in terms of aesthetics the other one is maybe more appealing, but I find it more difficult to use. ... I guess the whole point of collecting encourages a community.”

The notion of the community is something that most of these users who participated in this user feedback session didn’t actually pick up on, because they were all relatively recent users of the ArtBase and were not involved in the historical development of the archive, which was heavily influenced by the early community of artists who contributed to it. Even so, when we did briefly discuss some of these notions around collecting works, making personal lists, having a personal account—i.e. adding capacity for social features to the archive—everyone was interested.

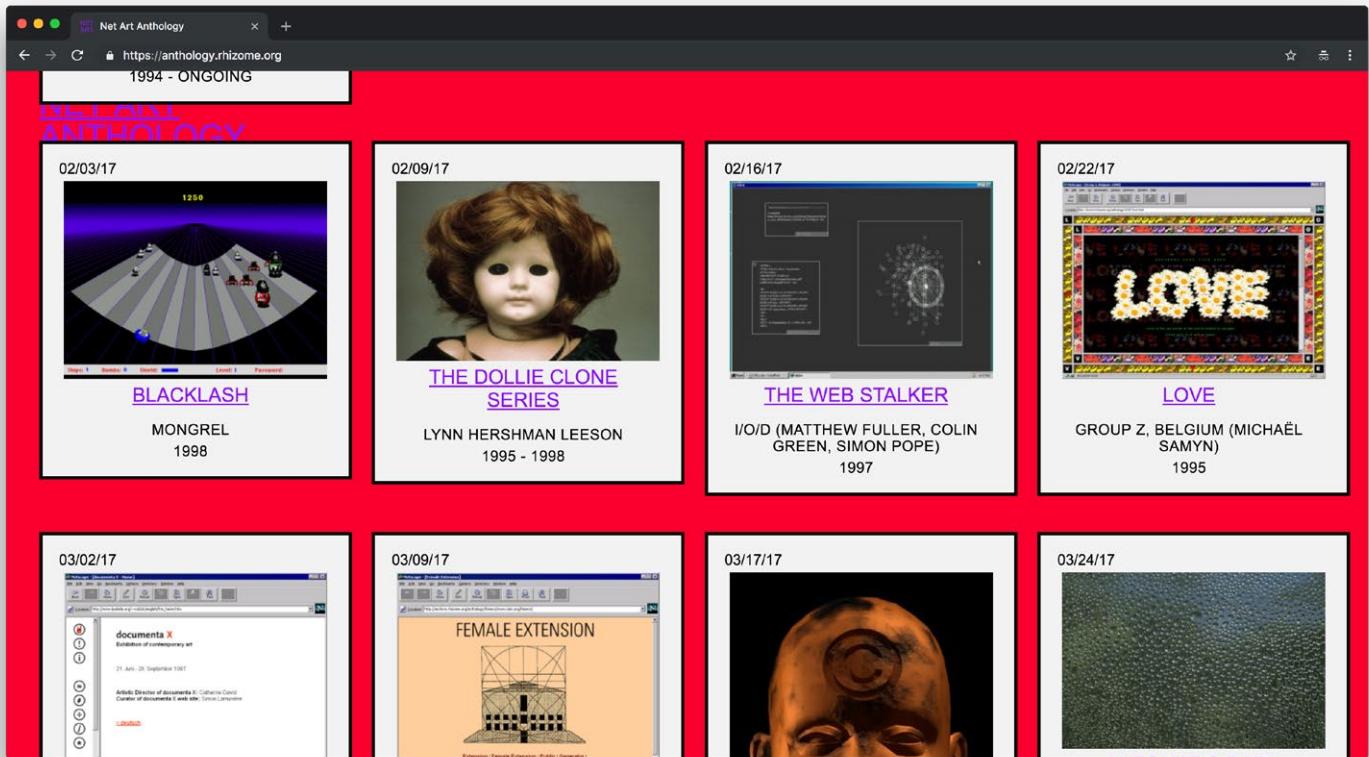
Q10. Requests for metadata in the current ArtBase

Building upon the previous few questions, this question asked for suggestions from users, which consisted mainly of:

- adding tags (plus a listing page with all tags);
- adding groupings by subject or common theme;

A few further suggestions included:

- crowd-sourced tagging (as a potential way of enriching the tagging system without the need to allocate significant internal resources);
- standardized information about the technical processes used in the artworks (the user requesting this acknowledged the difficulty of achieving this for all artworks in the archive);



Rhizome's Net Art Anthology—landing page of the exhibition website. *Date of screenshot: 2018-11-25*

Q11. User quotes

Some representative observations:

- “I love the style and the way it has been rolled out slowly over time, with extra context but also with enough space for the art to be the art.”
- “I think this is a great tool. I really enjoy reading about the works in terms of preservation and curatorial methodology.”
- “I think the [contextual] information is really well done and opens up a lot of these artists to me for the first time.”
- “I like having the chapters and the time-periods, so it feels like an unfolding story and you can follow that really easily and understand everything.”

– time context (e.g. “I don’t think it’s necessary, but I think it would be interesting to give a context to the medium and the artwork within a specific time frame.

... For a lot of these artworks, I can put them in context myself, like Googling more about the art scene, or that movement, or the technology that was being developed at the time of creation...”).

Q11. Context and presentation in the Net Art Anthology

This question aimed to gather feedback from users regarding the way artworks have been restored, presented and curated within an art historical context in Rhizome’s Net Art Anthology (NAA) exhibition. As this project is the prime place for showcasing the work of the digital preservation team at Rhizome, this question served as an opportunity to gather feedback concerning the presentation strategies which could also be integrated into the Artbase.

All respondents (with just one exception) reported that they follow the NAA actively. They pointed to the newsletter as a great entry point, reminding them to check back into the exhibition every week. **Most users commented positively on the development of the exhibition over time—they enjoyed the way the story is being narrated in serial format.**

In terms of the contextual information surrounding the artworks, all users agreed that it was well presented and really helpful in understanding the works. In terms of visual style, there were some slight disagreements. Most users were happy with the visual style, and welcomed the presentation of text in the form of short sentences, laid out inside boldly outlined boxes, as opposed to other more traditional forms, such as long continuous paragraphs. However, one user (with a more traditional archival background) considered the text blocks a bit confusing and not very well structured. In terms of images, another user pointed out how well they worked in representing the works at a glance. She compared them to the artwork thumbnails in the ArtBase which she felt worked less successfully. So overall, the visual style in the NAA was positively received and provides valuable insight into how images and text can be organized be within the ArtBase interface effectively.

* “I think the emulation is not that ‘intuitive’ but I like it. It places you ... well not quite ... but it places you in the artwork itself, which is something that can’t happen with other work which is not digital. I think the great part of digital art is how you interact with it. So I like that it (NAA) doesn’t just place you into viewing the work but it places you in a context where you can interact with the work in the way that you should have been able to when it was first developed.”

The final part of this question asked users to share some more specific observations about their experience of viewing artworks in emulated environments. The majority of users reported that they didn’t experience issues when using the emulation interface. One user pointed out the benefits of having access to the emulated presentations rather than solely image (screenshots) or video representations of the works.*

Another user commented on the benefit of seeing additional contextual information related to the reconstructed presentations: “I really like Scandalicious, and luckily they did an interview with the woman who did the recreation of the site, so that helped me understand the limitations of the project. Because when I started looking at the artwork, I wanted to see more, but they were able to retrieve

Q11: User stories

“

As a net art exhibition visitor, I want to **access artworks in their native environment**, so that I can interact with them the same way as when they were originally developed.

“

As a net art exhibition visitor, I want to **access more information about conservation and preservation actions**, so that I can better understand the limitations of what I'm looking at.

Q13: User stories

“

As an ArtBase user, I want to filter artworks by **attributes such as programming language**, so that I can gain an overview of what types of things are present in the collection.

“

As an ArtBase user, I want to see **selections of related artworks**, so that I can explore the collection through the relationships within it.

“

As an ArtBase user, I want to browse **lists of artworks created by curators or other users**, so that I can see what others consider to be of interest in the collection.

“

As an ArtBase user, I want to be able to **search by color** in the archive, so that I can discover new works in serendipitous ways.

only part of the project, not all of it. Because of the write-up and the interview with the programmer, I feel like there was enough additional documentation to understand why they weren't able to recreate as much of the piece as they would have liked to." The user then expressed a wish that this type of conservation documentation was available for more pieces in the archive, as well.

Another user also expressed interest in accessing further information about the emulated environments. "In terms of the emulators, I probably would want additional instructions. I often hit this 'Source not found', although I know this probably has to do more with conservation than guidance around the work, e.g. I'm on JackFM and I click to see the archived version and I get 'Source not found'. ... I would generally say it's always better to make things clearer." Although later, this user admitted that her opinion reflects her position in a museum institution where she wears a "public access hat" and perhaps Rhizome's audience is not as general. Nevertheless, some of her points about terminology were insightful and helped to illustrate how, without attention, some terminology (e.g. "legacy environments") and labelling (e.g. "start emulator") can impose a barrier to some audiences, when they don't understand what clicking a certain button might do to their own computers. This supports the case for including some level of descriptive or instructional information alongside emulator instances that could be ignored by a knowledgeable audience but might be useful for those with less technical understanding. Even so, this will require further testing to be fine-tuned and developed further.

Q12. Familiarity with other net art archives

The majority of users were not familiar with any archives of net art apart from the ArtBase. Only one user had used both ADA (Archive of Digital Art) and Turbulence before. One other user had used ADA before and commented on finding "the description of technology elements, as well as information on funding" useful. A third user looked at the ADA prompted by the questionnaire and responded that "the format is much more like what I'm used to with digital archival databases in terms of having keywords, subjects, etc. and a more formal aesthetic".

Other than ADA and Turbulence, the respondents did not recommend any other net art archives, which could serve as benchmarks for the new ArtBase interface.

Q13. Other online archives which have useful features

Building upon the previous question, this question sought to gain further clues about what other types of archives respondents enjoy using and why. Most couldn't identify specific examples. A few names that came up again included: Internet Archive, Art Texte, UbuWeb, Europeana, Art UK and Jacob's Pillow Dance Interactive Archive (a rare example of a performance art archive).



Q15. User quotes

Initial reactions included:

- “I think a more custom look for the Rhizome archive would be more appropriate.”
- “To me that feels like such an old way of presenting information.”
- “It depends on how you do it. I’m thinking of institutions who’ve adopted the wiki approach and it’s usually for manuals or instructions—‘this is how we did this’.”
- “I think that what is the strength of the way it is at the moment is that it highlights the visual experience. And I think that [the wiki] could potentially take that away. I think there are other ways to design the information that is in the archive than a wiki page, that could be something that’s more experience-driven.”

Upon further discussion, some users noted:

- “I can see benefits to both approaches [a custom branded Rhizome interface or a wiki interface]. When it comes down to it, for me what’s more important is what’s easy to navigate. It’s nice if aesthetically it fits in more with the general brand, but as a wiki I think it will be easily navigable and very user friendly.”
- “One thing I’ve noticed at institutions where the digital archives are built from scratch is that it’s very difficult for digital archivists to communicate to other members of the institutions that the digital archive cannot be a part of the main website, that the indexing has to be separate... People are so obsessed with branding generally that they can’t understand that it detracts from the archive, that the archive is not like a blog to be integrated into the main website... And I think maybe having a wiki can help cement that, because it’s so apart from the main website.”

Additional comments from users regarding feature requests included, primarily, further ways to discover artworks, such as being able to:

- sort by artwork attribute (e.g. “programing language”);
- read selections of how artworks relate to each other;
- browse curated lists (as the ones on UbuWeb, top 10 lists of artworks selected by artists, curators or just user generated);
- search by color (as on Europeana);
- get more information presented in a structured way (e.g. “not an overwhelming amount, but now it’s just so stripped down, that you don’t really get some key and important information about the pieces”).

Q14. Citations and sharing features

All users reacted positively to the proposal of adding sharing and citation features to the archival interface, so this is something that can be considered in the new design. However, none of the respondents actively raised these features as critical or lacking until they were prompted by the question. Therefore, the value and usefulness of these features will require further testing with mockups and prototypes.

Q15. Exploring the archive in the form of a wiki

This question aimed to gather some general feedback from users about the possibility of exploring the ArtBase in the form of a wiki. The question did not explicitly reveal that a MediaWiki extension was already being implemented in Rhizome’s Wikibase instance. Admittedly, the question lacked context and was hard to formulate in a more specific way without further explanation. But some of the insights from users still proved productive.

Those users who completed the questionnaire in written form via Google Forms, generally reacted positively to the idea of the archive as a wiki. One commented: “Yes that would be interesting and could be helpful in terms of metadata creation.” Another linked the wiki idea to the concept of crowd-sourced tagging, but noted: “But I don’t know—are there enough active people familiar with this work to be engaged? Is there enough buy-in, or reciprocity, to want to engage in that way?” This is one of the reasons why it is unlikely the new Artbase redesign will fully utilize the collaborative, editing capabilities of wikis. The users who responded via the verbal interview reacted negatively to the idea, initially. However, after I provided additional context, some of them changed their minds. The specifics of the linked data capacities of Wikibase were not communicated to the users properly through this simple questionnaire.

Overall, there seemed to be an openness towards a wiki-type interface among the respondents, even though some users expressed a preference for a more custom visual approach. Further user testing with more detailed prototypes/mockups will be needed to gather more specific feedback rather than merely a general sense of users’ visual preferences.



Q16: User stories

“

As an ArtBase user, I want the interface to follow **web accessibility standards**, so that it can be more accessible to visually impaired people.

“

As an ArtBase user, I want to see functional and informative **artwork entry points**, so that I know what to expect when I try to access the artwork.

“

As an ArtBase user, sometimes I want to interact with a **search query interface**, so that I can do research into very specific elements of the collection.

“

As an ArtBase user, sometimes I want to interact with an interface with a **more exhibition-led approach**, featuring curated selections displayed on a curatorial calendar, akin to a museum, so that I can discover new works in serendipitous ways.

“

As an ArtBase user, I want to know more about the **archive's history**, so that I can understand the context of the artworks in the archive better.

“

As an ArtBase user, I want to have **multiple entry points** to browsing the works, such as sort-by-color, curated lists or a random button, so that I can discover new works in serendipitous ways.

“

As a bilingual user, I want the ArtBase to feature **multi-lingual metadata** for works by non-English artists, so that the archive is more accessible to non-English speakers.

Q16. Final comments

This question was an open field available for users to add any final comments or observations. Many brought up interesting and insightful final points.

Highlights included:

- **website accessibility** (e.g. “I think you should consider an ADA (Americans with Disabilities Act) compliant version of both ArtBase and Rhizome especially, or at least explore incorporating some aspects of website accessibility. For instance, the changing colors of Rhizome are totally cool and fun but could be problematic for visually impaired people.”);
- providing information about the **mode of artwork presentation** (“via emulation, containers, etc”)
- **multiple interfaces**—e.g. an advanced search tool interface; an interface that foregrounds artwork curation (e.g. “I like the idea of wiki-like functions—but also love the style of Net Art Anthology. I have been wondering if the way forward is to think more like how a museum puts things on display on a curatorial calendar. Can the advanced search capabilities be there, while the entry point to the site is more publicly engaging?”);
- providing more elements to facilitate **serendipitous discovery**;
- providing information about the **ArtBase's own history** (e.g. “When did people start thinking: all this digital art that's being created needs to be preserved somehow? Because it also speaks to the moment when all this started being regarded as art. I would be interested in learning more about the history of the archive on the website.”);
- **multiple entry points** (e.g. “Color filtering—I think that would be helpful and would provide another entry point other than page 1. What makes browsing easier for me, is when there are more options for display. Or a random button even. Lists, I think, are nice. Or if a user could have a profile and they could ‘favorite’ things they liked. And if you could go to other people’s profiles and see their favorites, that’s almost like a social media thing, but that would be interesting.”);
- enabling **multilingual metadata** (e.g. “Going back to some of the conversations from the conference [Ethics and Archiving the Web, 2018], having metadata in multiple languages—like for the work that’s from Mexico, it would be good to respect the culture. We talk a lot about access, but you know, access for whom?...”).



PRESENTATION AND CONTEXTUALISATION IN THE ONLINE ARCHIVE OF INTERNET ART

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RESEARCH QUESTION & METHODOLOGY

The evolution of network environments and the development of new patterns of interaction between users and online interfaces creates challenges for the long-term preservation of digital artworks. How do we address the question of what constitutes the object? Internet artworks are not static objects, but rather they are dynamic entities that require specific software and network environments to be executed and rendered. They oftentimes change over time, and require specific user input in order to be performed.

This research project seeks to better understand problems associated with the archiving of Internet art and asks: How do artworks be made accessible to the public in their native environment – online – while enabling users of the archive to gain an expanded understanding of the artwork's context?

The methodology of this project is interdisciplinary, combining qualitative research methods from the fields of new media studies, information sciences and human computer interaction (HCI). Following common HCI qualitative research approaches [2], the project involves contextual inquiry, ethnographic observation and user research towards the design of a new interaction design framework for Rhizome's archive of internet art – the ArtBase.

TIMELINE OF POLICY & STRATEGY DEVELOPMENTS IN THE ARTBASE

The timeline illustrates the evolution of the ArtBase from its initial design in 1999 through various redesigns and technological advancements. Key milestones include:

- Open submission accession policy (1999–2008)**
- Keyword tags added by staff (1999–2006)**
- Folksonomy- & taxonomy-based tagging (2006–2011)**
- Filtered submission accession policy (2008–2013)**
- Accession only by invitation or commission (2013–)**
- Member exhibitions (2005–2015)**
- ARTInterface Alternative visitors for the ArtBase interface (2005)**
- Redesign (2006)**
- Redesign (2007)**
- Redesign (2008)**
- Redesign (2009)**
- Redesign + UPDATED landing page (2012)**
- LATEST DESIGN (2015)**
- UPCOMING REDESIGN (2016)**
- Webrecorder.io + WebArch**
- Wikibase instance of the ArtBase**
- Net Art Anthology (2016–2018) Online curatorial project**
- Most recent data audit**
- Wikibase instance of the ArtBase**

THE ARTBASE CONTEXT

Established in 1999, the vision and conception of the ArtBase is closely tied with Rhizome's position at the time as an influential laboratory with an active community, including some of the first artists working on the internet.

Besides its long history (almost 20 years) and its large volume (over 2300 artworks to date), the ArtBase is also an interesting and diverse archive, primarily hosting works of internet art, but also software-based works, moving images, games, and browsers. The diverse works in the ArtBase prove to be a good test case for the development of tools and strategies for digital preservation [3], which aim to not only protect the codebase of the works, but also allow users to experience the original form of the works through performance in legacy environments.

Over the last three years in particular, Rhizome has developed new preservation tools and strategies following a *performance-as-preservation paradigm*, wherein support for the performance qualities of internet artworks is seen as key both in terms of conserving the work for the future, as well as presenting the memory around the work and the specifics of its interaction affordances.

ArtBase statistics based on most recent data audit, 2016 [4]:

~46% link not among linked artworks	837 "stolen" artworks – hosted on Rhizome infrastructure
1416 artworks – hosted elsewhere; only external URL submitted to the ArtBase;	2253 ArtBase records
153 artworks with client-side issues, e.g. missing plug-ins; could be presented successfully with emulation;	

KEY CONSIDERATIONS FOR THE NEW ARCHIVAL FRAMEWORK

Diffuse digital objects

Internet art spans beyond the boundaries of a single digital object and can become "diffuse" [5], referencing external, dynamic and real-time data sources, or existing across multiple platforms and environments. This means that the object record, when certain external resources are used, such as Google Image Search or live Twitter feeds, for example, cannot become part of the archive record and need alternative treatment.

Reconceptualising provenance and context

A key concern for the backend of the archive remains the development of a provenance model where the record may no longer be the sole record, and the relationships and transformations may become more complex than the record itself. The dependencies of the performance and "stolen" artworks and the context within which a (re)performance happens, a context which also includes the audience / user experience of the (re)performance.

Metadata richness

Due to various stages in the history of the ArtBase, much of the archival metadata is not consistent or complete. Instead of forcing the metadata to conform to a single schema, the archive needs to support multiple levels of metadata richness (or complexity) to provide indication to users of the current state of each archive record. Additionally, the data that is available can be expressed in a linked data model to enable interoperability (also see Wikibase diagrams below).

Record richness

Record completeness

USER RESEARCH

USER GROUPS	WHO?	GOALS?	NEEDS?
EXPERT RESEARCH USERS*	artists curators academics (researchers and students)	• browsing & referencing historic artworks • researching the history of a specific artwork • researching the work of a specific artist • looking for artworks	• understanding the provenance of the version of the artwork presented in the archive • understanding who are the actors involved in the development and any dependencies of the artwork and how to access them • being able to look at artworks in sets, not just isolated instances • accessing any installation requirements / instructions, if available • accessing any rights information, if available • understanding who to contact regarding any copyrights clearance • being able to cite or reference/refer to artworks and who owns them
GENERAL USERS**	art enthusiasts digital culture practitioners (designers, developers) journalists	• browsing the archive • discovering new art • and information about digital cultural history	• multi-entry points to the archive in the archive • non-search-based methods for discovery in the archive • sharing and referencing artworks
INTERNAL USERS***	preservation staff curatorial staff editorial staff	• making historic works available again • improving metadata quality models • accessing new works	• adding differentiation (provenance) to description levels in metadata records • making sure that the artwork is presented in its original environment again • automating aspects of works in various broader environments; automating aspects of emulation environments, when needed • identifying pieces in the collection, possibly using automated interface tools

* User testing sessions for this user group carried out between mid-August and mid-September 2017.

** Speculative proposals for this user group based on anecdotal information; dedicated research scheduled for October 2017.

*** Internal workshop at Rhizome carried out in February 2017 to determine internal user goals and needs.

USER SCENARIOS*

Academic researcher with background in Art History, researching online art via a specific internet artist

visits the ArtBase via Rhizome's main site
searches for works by the artist's name
gets a result page with all available archive records
accesses each of the archive records

Curator preparing for a new exhibition of social media performance artworks

visits the Rhizome website to research online exhibitions
reviews current online exhibitions and enters one with social media artworks
reviews a particular artwork and is able to go to its Artbase record from the exhibition page
reviews the artwork record and is able to see other related works in the archive

Artist researching the history of internet art in order to inform their own practice

follows the Net Art Anthology exhibition every week
reviews artworks in an emulated instance on the Artbase directly from the Anthology page
visits the record for the artwork in the Artbase and is able to access further works by that artist

* These scenarios were developed based on insights from user testing sessions carried out between mid-August and mid-September 2017.

User scenarios are a key element in iterative design and usability testing practices. For more information: <https://www.usability.gov/how-to-and-tools/methods/scenarios.html>

METADATA EXPRESSIONS IN WIKIBASE

A diagrammatic schematic of the current metadata structure for a "cloned" artwork in Wikibase. The Wikibase data model is based on linked data principles.

Indicates possibility for multiple instances
Indicates possibility for multiple entries for this field

Possible additions (indicated in magenta) to the current metadata structure for artwork records in Wikibase – aiming to expand presentation and contextualisation potentials, based on identified user goals and user needs.

REFERENCES

- [1] Dekker, A. (2011) Enabling the Future, or How to Survive FOREVER: A study of networks, processes and ambiguity in art and the need for an expanded practice of conservation. PhD dissertation, Goldsmiths, University of London.
- [2] Blauert, A., Furniss, D. and Makin, S. (2015) Qualitative HCD Research: Going Beyond the Artifacts. Cambridge: Morgan Kaufmann.
- [3] Feltman, M. (2016) Best Digital Preservation in the Rhizome Archive. New York: National Digital Stewardship Residency. Available from: <http://media.rhizome.org/preserv/Digital-Preservation-Practices-and-the-Rhizome-Archive.pdf>
- [4] Fino-Radzi, B. (2011) Digital Preservation Practices and the Rhizome Archive. Available from: http://media.rhizome.org/preserv/Final_Report.pdf
- [5] Cook, T. (2001) Archival Science and Preservatism: New Formulations for Old Concepts. *Archival Science*, 1 (1) pp. 5-24. DOI: <https://doi.org/10.1023/A:100702439508>

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RHIZOME
The Centre for the Study of the Networked Image

London South Bank University

Arts & Humanities Research Council

Conference poster presented at iPRES2017 in Kyoto, Japan, September 25–29, 2017.

3. Targeted feedback sessions with academics and researchers

Study set up—additional notes

The targeted feedback sessions with academics and researchers were completed in Aug-Sept 2017, before the general user studies which are described above. They represent a narrower context of use, but were held first because it was expected they would still generate sufficient insights about basic interface deficiencies in the current ArtBase system.¹ These sessions also required less preparation and institutional involvement. It was relatively easy to recruit users through the researcher's own network in the UK, whereas for the general user studies, support and assistance from Rhizome were required, which took longer to plan and implement within the institutional calendar. In fact, originally this user session was planned as an 'expert-session' involving artists, curators, art writers and researchers, with the aim of providing insights for a conference poster presentation due in September 2017 (See poster image on [p.62](#)). Due to the fixed timeframe, the only respondents that were actually able to contribute on time were academics and researchers, with whom the researcher had already built a previous professional relationship and who were invested in the importance of the research. In the end, seven researchers took part in the study, three of whom filled in a written questionnaire on Google Forms, while the other four were interviewed in person.

The sessions involved the completion of a practical task, followed by a questionnaire/ interview (see the task outline on [p.20](#)). While the practical task focused on performing specific searches, rather than more speculative exploration, it was designed to further probe a research-led user story. The findings can be considered relevant at least with regards to the context of a user trying to perform a specific search vs more general browsing.

The questions in the following feedback session aimed to gather impressions related to the interactions users had just been asked to perform in the practical task. The data from the Google Forms questionnaire was collated in a spreadsheet and the interviews were recorded as audio files to be transcribed later. Partial and paraphrased quotes from the audio were transcribed into the spreadsheet containing all user responses. Additionally, the users were asked to record videos of their interactions while they were following the steps in the practical task. The videos were used to provide further insight into the way the researchers engaged with the online interfaces.

The analysis below follows the order of questions in the questionnaire.

¹ According to widely accepted research practices in usability testing, about 5 users produce ca. 80% of all usability-related insights. While tests with more users do provide some additional insights, the number of new insights is not proportional to the increase in scale and costs associated with bigger studies (Norman Nielsen Group, 2000). This view is somewhat reductive; a more nuanced discussion is provided in the thesis accompanying these practice reports.

Q4: User stories

“

As a researcher, I want to use digital archives, so that I can research specific artists or artworks.

“

As a researcher, I want to use (institutional) digital archives, so that I can research institutional work and practices.

Q1. User backgrounds

This question aimed to gather informal descriptions of users' backgrounds and experience. All users in this study were hand-picked for their research interests which have proximity to the subject matter and the practices involved in the archiving and documentation of born-digital art. They were representative of a niche, but growing, group of academics who actively use archives such as the ArtBase in their daily work. Users were based in Europe (UK, Belgium, Denmark), with just one being based in the US.

Five of the participants were current PhD students (in mid-to-late stages of their research), and all of them were researching topics in and around contemporary art and networked culture, computation, and to some degree archives and preservation. This meant they were not only active users of the ArtBase archive, but also subject-specialists with regards to the material presented in the ArtBase and expert users of archives in general. Their backgrounds prior to the PhD research projects were either artistic, curatorial or art historical, or a combination thereof. The other two researchers participating in the study were working in academic/institutional contexts and held a PhD degree in digital curation and an MA in archival science, respectively.

Q2. Other online archives and information discovery

This question asked users if they use other online archives (besides the ArtBase) and aimed to uncover if discovery is more effective in other archives. The archives that were mentioned include: Internet Archive (Wayback Machine), Archive of Digital Art, ELMCIP, Ubuweb, Mediakunstnetz.de, Turbulence, Artist archives (including JODI's archive; and artwork as archive, e.g. *Mouchette* by Martine Neddam), Beinecke Library at Yale online collections, Harvard Art Museum online collections, Getty Research Institute online collections, CCindex, Aaaarg, Monoskop, Tate online collections, V&A online collections.

The users reported that they have usually been able to find the information they were looking for in one of these archives, despite some of their user journey's being "bumpy". Some of the users of institutional archives observed that occasionally, they have had trouble finding something, even when they knew it was in the collection and had a specific reference number. One user shared an anecdote of using the Word file of the printed catalogue at her institution, because it was easier to search than the online interface to the collections. All of these comments point towards a level of understanding and acceptance among researchers who use online archives on a daily basis, that catalogs might not have the information they are looking for, and that even if it was there, information might still be difficult to find using the limited capabilities offered by the online interface.



Q5. User quotes

Some representative observations:

- “I find the ArtBase enjoyable to browse, but more difficult to use when searching in any concerted or specific way.”
- “Strangely difficult. Nearly nothing works as expected.”
- “the link to the artbase itself is a bit hidden in the website”
- “I found the whole sequence [of searching] frustrating and repetitive. I almost didn’t know how I managed to get into it in the end. So I didn’t even learn. I won’t be able to recreate my experience.”

Q5: User stories

“

As a researcher, I want to have an **expanded search capability**, including keywords, subject, media, form, etc, so that I can find works in the archive relevant to my research interests.

“

As a researcher, I want to be able to **search by alternate names/titles** and get all relevant results, so that I can conduct research even if I’m not familiar with the specifics of the data model in use in the archive .

“

As a researcher, I want to be **able to go back** to search results or other previous states as I delve deeper into the records, so that I don’t need to recreate a query or trace my path backwards.

“

As a researcher, I want to be able to **see related artwork sets**, so that I can find more work relevant to my research even if I’m not aware of it.

“

As a researcher, I want the archive **search interface to be clearly separated from the sitewide search**, so that I can conduct the queries that I need within the archive.

Q3. Devices for archive access

This question asked users to identify what computer devices they used most often to access archives, and additionally what operating systems and browsers they use. Their responses reflected a variety of options for access: Windows, Linux, Mac OS, as operating systems; and Firefox, Chrome, Safari as browsers. Most users, however, only use their laptops or desktop machines to do archival research. Mobile devices were not mentioned at all. This is probably due to the fact that these users see archival research as part of their work, rather than as a leisurely activity, notably this is unlike some of the users interviewed in the other studies).

Q4. Purpose and period of using the ArtBase

This question asked respondents to share their usage patterns of the archive, including when they first started using the ArtBase and for what purposes, as well as the date of their most recent visit. The majority of respondents had been using the ArtBase for several years at least. Some of them, knowing about it from its inception, remembered the general atmosphere of the anti-establishment art community at the time (“mixed feelings about an institution for net art—if those were compatible”). One user recalled the different interfaces throughout the ’00s. Two of the respondents were relatively new to the ArtBase, having used it only since 2015–16.

In terms of most recent use—several of the researchers responded that they’d last used the archive earlier in 2017. Another commented on the fact that she visits rhizome.org a lot, but uses the ArtBase less often and that sometimes the difference between the two can blur—“I associate the website itself with the archive, even though that’s not really the case.”

The primary purpose of respondents’ use was research, ranging from research of specific artworks to more general interest in Rhizome’s work and activities.

Q5. Experience of browsing the current ArtBase

This question aimed to delve deeper into challenges of browsing and navigating the ArtBase. Many of these issues had already been identified by staff at Rhizome, and the practical task was designed to involve some steps that led users directly into known areas of dysfunction, in order to gauge how/ if they are able to circumvent these.

Some issues which the users highlighted in their comments:

- not being able to search by an alternative name (or make any typing errors) when using the artist filter makes it difficult to find works made by collectives (if the user is searching for just one artist’s name);²

² This was a known issue and one of the practical tasks was designed specifically to check how users managed it—it took them a long time and it was frustrating judging from the video recordings and their comments.

Q6. User quotes

Some positive remarks about the ‘classic’ interface:

- “I actually prefer the ‘classic’ version of the ArtBase. There still aren’t many ways to search precisely, but I like being able to search by tags as well as artist name and title. I also appreciate the collections provided in the classic version.”
- “It seems that the new ArtBase is much simplified. It looks simplified, but also it has less information. I actually prefer the older version as it also includes information that relates to the database and to the artist (what artist decided to include to the ArtBase, when, etc). Plus, I liked features of ‘related works’ (though sometimes it’s not clear how these works relate, but I like the fact that there are those links and connections [...]) and ‘exhibitions’. The new ArtBase feels like there is some information missing, that I would have to go and look for more information elsewhere.”
- “Yes, browsing the classic version was more positive. There is more information, more metadata around the work. Overall better experience. Also quite useful that this version provided the original URL for most works, which allows me to also find the work online or go to the Internet Archive.”

However, some users also felt that neither of the more recent interfaces actually did justice to the original intentions of the archive:

- “I have the same question for both ArtBase interfaces: What is the added value of the metadata offered by Rhizome? I like that they provide a sort of cache for the artworks and that a copy is kept in the Artbase. What puzzles me is that the whole set of criteria seems very much coming from an art historical method. Isn’t net art begging for something radically different? I was a fan of the experiments of Martin Wattenberg. I miss these crazy splash pages.”

Q7: User stories

“

As a researcher, I want to be aware
of the artwork’s boundary and the
meaning of concepts such as “linked”
and “cloned”, so that I know when
I’m looking at something within the
boundary of the archive or outside.

- limited search ability when there is no metadata for keywords, subject matter, form, media/ platform, etc;
- no back button to navigate back to the database from an artwork record page;
- no related works to browse from an artwork record page;
- confusion over the sitewide search button, which is visible on the ArtBase pages but doesn't actually query the ArtBase.

Q6. Comparing the current ArtBase to the ‘classic’ version

Because most of the users had been following the ArtBase for a long time, they had actually used the ‘classic’ version of the ArtBase interface which was online ca. 2011–2015 and were able to offer a qualitative comparison.

As some of the other user feedback sessions have suggested, there are features of the ‘classic’ ArtBase interface that users would welcome being brought back into the current version of the archive, such as tags, keywords and the inclusion of an original URL. However, some of the researchers here also indicated that this earlier version wasn’t perfect either because it still didn’t make precise search possible. It provided some relationships between works, but these were opaque and not always relevant, meanwhile the metadata that was available attempted to impose a structure derived from a specific institutional/ art historical perspective over the archive. The redesign of the archive will need to evaluate which features of previous interfaces were actually useful and which features should be completely dispensed with, to be replaced with new and different approaches, informed by a different theoretical framework.

Q7. Was metadata from the ‘classic’ interface useful?

Building upon the previous question, this question aimed to gauge whether the metadata included in the previous iteration of the archival interface was actually useful to researchers. Except from the objections raised in the comments to the previous question, most researchers responded positively to this question, again raising the benefit of relationships created by tags and alternative ways it was possible to connect data in the previous interface.

One researcher provided additional reflections on the metadata relating to URLs:

– “Actually I think the original URL and the permanent link, I found that quite useful. But then I have to say, I knew that the ArtBase is a combination of linked URLs and cloned URLs, so I had this sense that there was a distinction between a website that was in its original location that I had to link out to, and a website that had almost been brought inside the website I was on. But even with that understanding, I still didn’t know whether I was in the ArtBase or not. ... I think [I found that] with both versions. That’s why I had to continuously look up at my URL bar and position it. Somehow I’d almost want to be aware of its [the artwork’s] boundary... I mean, these are not particularly complex concepts—cloned and linked. I wonder if it might not be a good idea to just share that with the user, because it does actually explain something about how that collection came to be and why some things have got quite a different character to others.”



Q8: User stories

“

As a researcher, I want to know mode details about the platform, hardware, or software that the work originally ran on, so that I can understand the considerations around its preservation.

“

As a researcher, I want to be able to see more provenance or preservation metadata, so that I can better understand the history of this work within Rhizome's collection and how it has been cared for over time.

“

As a researcher, I want to be able to see a form of versioning in the archive, so that I can study how artworks change over time, which actors are involved in changes over time, the relationship to authorship, and also the role of the audience.

“

As a researcher, I want the archive to have a clearer chronology of materials, which involves a position of historicization by the institution, so that I can study the archive, as well as the relationships between the institution and the archive.

“

As a researcher, I want to see the metadata added by artists, so that I can also have that context from the original ArtBase.

“

As a researcher, I want to see the artworks in sets, such as exhibition histories, or make my own sets, so that I can also contextualise artworks and not only look at them in isolation.

“

As a researcher, I want the metadata for the artwork records presented in a more granular way, so that I can choose how much metadata to see if/ when I need it.

This observation was interesting because it questioned the value of some of the metadata from the ‘classic’ interface (which otherwise was deemed to be generally quite useful) and particularly, the way this metadata was presented to the user. **This observation poses the challenge to think towards even more explicit statements about how metadata is communicated to users in the archive. Metadata which appears to be neutral (original URL / permalink) or opaque (related works), should be presented in more explicit ways which speak to the history of the archive and the conditions of its own construction.**

Q8: Requests for metadata in the current version of the ArtBase

Building upon the previous few questions, this question aimed to gather further suggestions from users about what other types of data they might find useful in the archive. Below is a selection of their comments, organized by topic.

Technical dependencies/ preservation provenance:

- “...the platform, hardware, or software that the work originally ran on would be very helpful. Also, I would appreciate provenance or preservation metadata: what is the history of this work within Rhizome’s collection, and how has it been cared for over time?”
- “I find provenance very important, and also very difficult to find often. For example, in the current archive, I am not aware which version of the website I am looking at—from which time—and the question is how to date an artwork like that. How can we go back to previous versions...”

Temporal dimension:

- “In my own work as a researcher, I am researching how artworks change over time, so I am also looking into who are the actors involved in changes over time, this is also related to authorship, but also what was the role of the audience? Were there any museums involved? Did they influence how the artwork changed, etc? So having a form of versioning in the archive would be very interesting, but it involves even more questions than having a 2013,-14,-15 version or so.”
- “I think a clearer chronology of materials is useful. All these things are historicizing what might be temporally-specific material and so it’s a kind of tension between art historicization and kind of nowness. [...] Maybe that’s an inbuilt tension with Rhizome as an organization. And I think that’s OK. But maybe it’s a case of declaring that and saying—we are historicizing these things and this is it within a chronological timeline. [...] I find people’s approaches to their identities online really interesting. [...] I find it quite sad sometimes, that institutions don’t acknowledge changes to their own websites, so you can understand the changing relationships that individuals have with that space, as well as staff and everything else. So I think it’s quite important to acknowledge these differences because even offline/ pre-digital art history is full of inaccuracies, but that’s the whole point—that you go and find these inaccuracies and you question them, otherwise it’s really boring.”



Q9. User quotes

All users noted a positive experience viewing the artworks via emulated browsers:

- “The remote browsers aren’t confusing or unclear. You can see the browser loading. It’s a much more textured experience. It’s certainly clear what’s happening.”
- “I think especially in terms of exhibition making, this is interesting because what happens quite frequently is that you just have videos on a flat screen. And that tends to be a very poor example of how you might exhibit or re-understand these materials.”
- “The work on emulators is just awesome. I am sure I will discover things that I couldn’t try at the time they were released because I was not on Windows and lacked the plug-ins.”

Q9: User stories

“

As a researcher, I want to **access artworks in their native environment**, so that I can interact with them the same way as when they were originally developed.

“

As a researcher, I want to see a **clear temporal dimension in the presentation**, so that I know what timeframe I am looking at in an emulated presentation when the emulator is pointing to an archival copy of the work.

“

As a researcher, I want to know what is the relationship between the Net Art Anthology and the ArtBase and how artworks are linked between the two (or not), so that I know where to look for the information I need.

Artist-added data:

– “What I liked about the original art base was the fact that it was added by artists themselves and so I would expect to see this metadata in the new version, too.”

Sets and exhibition instructions:

– “I wish I could see artworks in sets and not only separately. Or make my own sets. I also want to see—if they are exhibited—are there any specific installation instructions? Who should I contact if I want to exhibit this artwork in terms of copyrights?”

Granularity:

– “I would like a very brief description, maybe one or two sentences, and then be able—in the same page—if I want to, get more. So I think that date and artist name is very important, and perhaps two sentences about what this was, and then if you want to read more have a second section, which is hidden in a way. [...] I think what I’m referring to is more related to the Turbulence archive, even though I have issues with that design [...] I found it quite interesting that you can have some information there and maybe if I find that information interesting, I can click and have more.”

The researchers participating in this study seemed to think more deeply about this question, in comparison to users in the other studies. A particularly important aspect seemed to be a desire to access more ‘behind-the-scenes’ information.

This may not be relevant to the casual browser of the archive, but to historians or media scholars, the details around the provenance and preservations actions around an artwork seem to be of great interest. And further, the way the institution has changed its own thinking and actions around the archive seem to be worth recording and making available to researchers. Hence, the case for providing granularity in the archival interface becomes even more relevant—e.g. by making more detailed information available either by clicking to reveal additional text on a page, or by providing a view to that data only upon request, in the same way that special collections and physical archives with rare materials work.

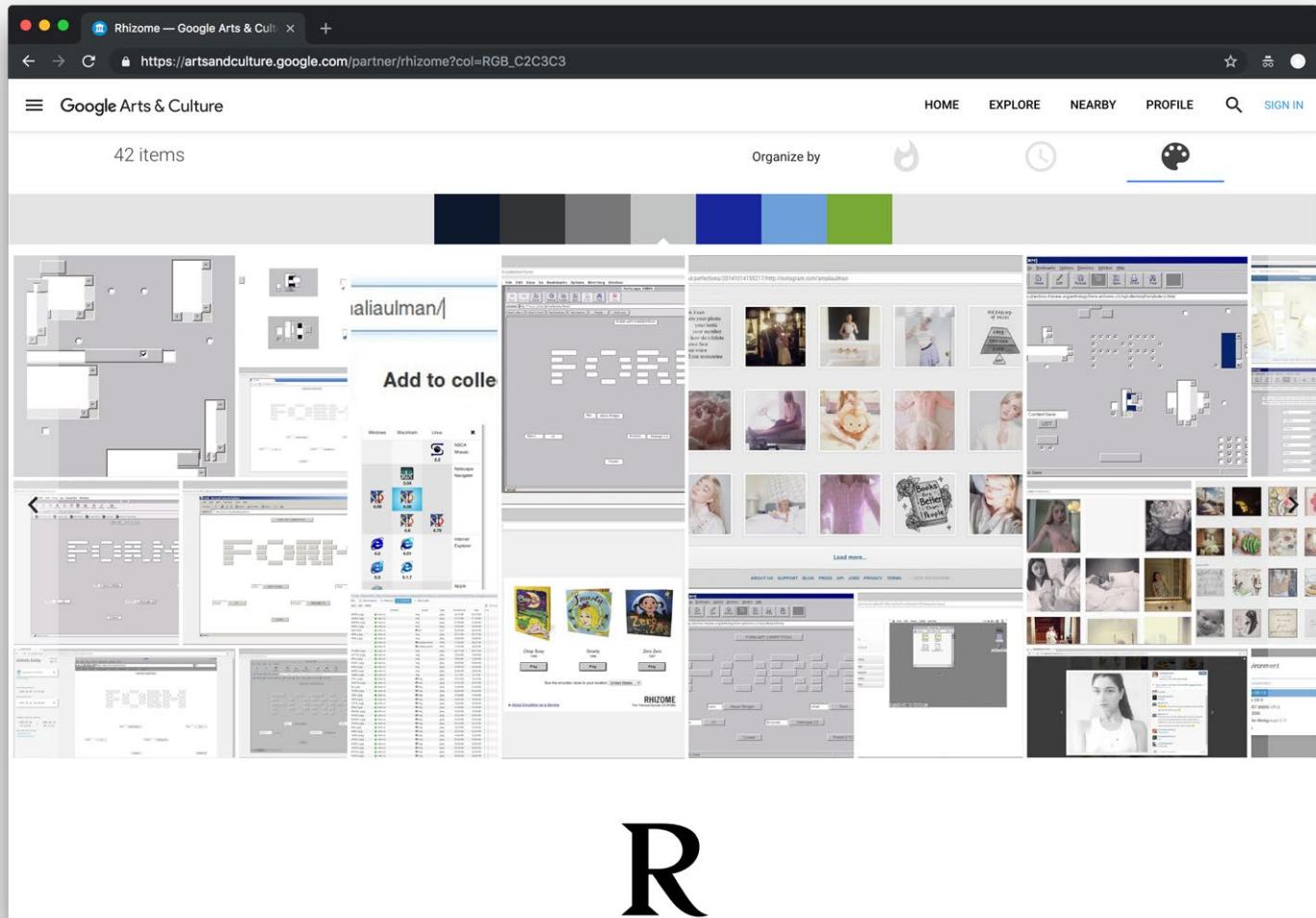
Q9. Context and presentation in the Net Art Anthology

This question aimed to gather feedback from users regarding the way artworks have been restored, presented and curated within an art historical context in Rhizome’s Net Art Anthology exhibition. Specifically, in relation to the practical task, this question focused on the experience of using emulated browsers.

All users noted a positive experience of viewing the artworks via emulated browsers. However, one of the users, whose work involves more historical research, pointed out the lack of clear temporal dimension in the presentations, including with the emulated browsers:

– “Here, again, I was missing the original location/ URL of the artwork, because even in the emulator the artwork points to the archival copy on Rhizome’s servers. [...] I do think it’s important to see the timeframe. If you look at a website and it’s in an archive, you don’t know which timeframe you’re looking at.”





R

View of Rhizome's collection of items in the Google Arts & Culture platform, set in the 'sort by color' mode. Date of screenshot: 2018-11-27

Q10. User stories

“

As a researcher, I want to be able to interact with timelines of collection materials, so that I can study the development of themes or movements over time.

* “I suppose I didn’t know how large it was. I didn’t have a sense of the scale. I would much have preferred a search facility within the Anthology.

Or to have some visual indication that things belong to chapters and chapters relate to time.”

* “I found the fact that you can’t search slightly frustrating. It feels quite counter to any other experience.”

† “What is confusing to me is the connection between the two, that is, how they relate to each other. There is some kind of consistency in the way the two look, so they could be considered as one project where Anthology expands on the metadata in ArtBase by also including additional information in form of interviews etc. But what is not clear to me, is how they relate. My question would be how would you link artworks in ArtBase and in the Anthology?”

The fact that it’s in an emulator at least shows that we’re not looking at a current website. [...] For me, as a historian, most important thing is to see from which time I am looking at the website, but in fact at the minute I can’t, because I see the emulated browser, but I don’t know if the website shown inside is from 1998 or 2003.”

Several other users commented on the general experience of navigating the Anthology website. Two of them pointed out the lack of “Search” options as frustrating.* Another user, questioned **the lack of any clear relations between the Anthology and the ArtBase.**†

All of these observations reflect the background of the researchers. They did not find working with the emulators confusing or need further instructions, but some of them wanted additional metadata, or projected their experience from general archival user interfaces (with “Search” as primary interaction paradigm) onto the Anthology’s website. Unlike the user participants from the more general surveys, who had little experience with the historic versions of Rhizome’s archive, these researchers were keen to connect historical work at Rhizome (the ArtBase) with the current digital preservation projects (Net Art Anthology). This raises a number of issues for consideration, including **the need to clearly differentiate projects at Rhizome (and even rhizome.org) from the ArtBase archive, or alternatively indicate connections where they do exist, e.g. when the Anthology presents works whose archival copies are part of the ArtBase, or where an accession date could provide temporal dimension to the presentation.**

Q10. Experience browsing Google Arts & Culture platform and using different navigation modes

This question connected to a practical task in which users were encouraged to browse Rhizome’s entries in the Google Arts & Culture platform and experiment with the navigation tools on the platform, such as the timeline and the browse-by-color feature. The majority of users did not feel this platform was particularly relevant to their research, they considered it too broad and generic, but acknowledged that it might be useful for different audiences. Some of them were pointedly critical of it, due to their opposition to Google’s general policies.

Several of the users provided more specific feedback on the navigation features, expressing interest in the timeline feature but less so in the color filtering options. They also suggested more traditional archival features such as tags as a useful way of browsing, but noted those were actually missing in Google A&C:

- “Color is not that important for me, could also be tag words and then you can search. But depends on audience. Timeline is very important for me. I find it fascinating when you can see a movement or a theme and see it in a timeline. And being able to search across worldwide collections could be very useful.”
- “I used the timeline. I found it a little bit frustrating that the objects were screenshots, and that there were multiple ‘items’ associated with 1 object. ...

C Digital Project, Ten Thousand C X + https://collection.cooperhewitt.org/objects/68743529/ SEARCH THE COLLECTION MENU

YOU TOYS EXPLORE THE COLLECTION RANDOM

There is one other image of this object. See our image rights statement.

DIGITAL PROJECT, TEN THOUSAND CENTS, 2007-08

Click the icon to save this object

This is a [Digital Project](#). It was designed by [Aaron Koblin](#). It is dated 2007–08 and we acquired it in 2014. Its medium is [processing](#), [adobe flash cs3](#), [php/mysql](#), [amazon mechanical turk](#), [adobe photoshop](#), [adobe after effects](#). It is a part of the [Digital](#) department.

See more objects with the tag [graphic design](#), [digital computing](#), [money](#), [Benjamin Franklin](#), [rendering](#).

View of a single artwork record page in the Cooper Hewitt collection, featuring image representation, followed by title, timeline and a description compiled as natural language out of structured data statements. Date of screenshot: 2018-11-15

Q11: User stories

“

As a researcher, I want to see metadata on accession details, copyrights, conservation actions, technical components, so that I can gain a better understanding of the context of the work within the collection.

“

As a researcher, I want to be able to get specific citation information, so that I can correctly reference artworks in my research.

But having said that, it was a ‘way in’, and the scale of those images was sufficient. I could see it was a web archive, I was aware of the banner. I could see that in the vein of Google Images, it was trying to find visual relationships between those works and other images, but those weren’t useful. I assume, although that might be seen as contamination, I suppose that’s what’s useful about a hub of cultural data—making these potential links between unlikely objects. But that seemed purely formal, I didn’t find any taxonomy, terms, or tags.”

– “I didn’t think there was a reason for the color sorting to exist actually. [...] Maybe it makes sense in a painting, not contemporary painting, classical painting or photography, color photography... but in net art, it’s not color that concerns me actually.”

Some of the researchers also commented on the fact that Rhizome is participating in Google A&C with mixed responses:

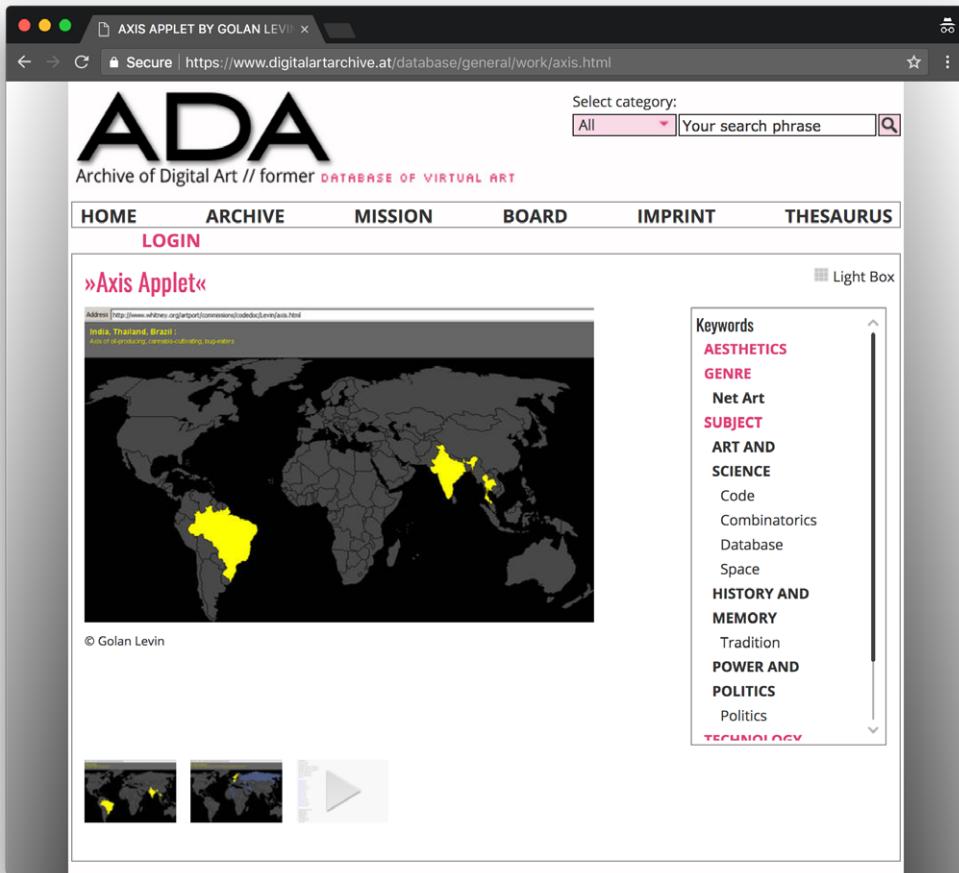
- “Terribly boring. Another institutional layer on top of Rhizome. Unbearable.”
- “It seemed like a very broad presentation I suppose. And obviously within Google’s interface, so it just sort of looks like anything.”
- “I think, the way Rhizome have used the Google platform is very interesting. They have a very special position. Their exhibitions are completely different for example, they have shown their presentation projects and I think they are using the Google platform much more creatively than other museums have done.”

Q11. Experience browsing Cooper Hewitt online catalogue and using different navigation modes

This question responded to a practical task in which users were asked to explore the Copper Hewitt online collections catalogue. This is one of the most innovative archival interfaces online that has been designed in recent years and therefore was a clear candidate for a benchmark interface to the ArtBase redesign process. The users were asked to try different ways of navigating the online collection and explore a single object record in more detail. This question also asked about the perceived usefulness of citation features in an online archival space.

A few of the key comments from users focused on the metadata available in the object records:

- “It was quite a nice browsing experience. I thought the data was good actually. [...] And it’s good that it has the accession details as well.”
- “...the copyrights information is good as well. That’s important for potentially the new generation of post-internet artists who are on the market...”
- “It was interesting to see that they make data about the museum available. In particular, data about their conservation work. Though when you follow that link there is not that much detail, but it would be really helpful to have a conservation project of Rhizome’s also made public in that way.”
- “The CH archive is not afraid of technical meta-data which could be of interest.”



View of a single artwork record page in ADA, featuring image thumbnail and keyword categories. Date of screenshot: 2018-05-14

Q12. User stories

“

As a researcher, I want to see **keywords and categories**, so that I can find my way into a large collection by narrowing it down in terms of timeframe, media, etc.

“

As a researcher, I want to see information about **exhibition history and publications featuring the work**, so that I can get an idea of how the work has been shown and received over time.

“

As a researcher, I want to see the **origin of metadata** like keywords, so that I know how it was added to the archive, because I understand some categorisation can be contested.

“

As a researcher, I want to see artwork **metadata, even if it's incomplete or inconsistent**, so that I can assess the work within my understanding of the archive as a collaborative, evolving and imperfect space.

** “If you’re building in the idea that this material is going to be researched more by researchers then, in effect, that’s what you want [making citations available], you want to be able to control how it’s shared. [...] If you’re going to be involved in projects around terminology, you want to be establishing this authority. And you want to be using your collection as test cases. I mean that’s what the Getty did, they had this collection and went ahead and defined the terminology and now they’re the authority, even if their collection wasn’t necessarily the best collection.”*

Some of the comments branched into more general observations about different ways of browsing the collections online:

- “I found myself using tools to move laterally through the collections, for example looking at works with similar color profiles or materials.”
- “I did look at the timeline, which I think is like the start of a provenance statement or a kind of object history, but it was very vague, you couldn’t click into it.”
- “I like the idea that you would be able to make your own sets.”

Finally, in terms of the citation features available on the object record pages, all users found them to be potentially useful for research work. One of the users provided some further observations linking citation features with establishing an authoritative position in the field.*

Q12. Experience navigating the ADA (Archive of Digital Art) and feedback on its metadata and categories

This question aimed to gather feedback about the data and the ways to navigate the ADA, after the users had completed a task with this archive. As an example of one of the relatively few platforms that attempt to catalogue, document and historicize (to various extents) net art and media art, this archival database seemed relevant as a benchmark for the design of the new ArtBase, as well.

Most of the comments from users focused on the categories/ strategies for categorisation present in the ADA. Several of these were positive:

- “I thought it was actually fairly easy to search because you could just go into Time Periods, which I think as a like top-line search thing is not so bad sometimes.”
- “The categorisation was useful in terms of finding your way into a large collection and narrowing it down in terms of timeframe, media, etc.”
- “I like also their keyword structure, which is like a tree with main categories and subcategories, for example genre or subject.”

But others problematized the way some of the categories had been determined:

- “I think the time scale is very useful if you’re looking at specific periods of art, but then in terms of genre, that becomes a problem in the theory of things. Why is, for example, Alexei Shulgin’s artwork ‘net art’ and it’s not a ‘performance’? Because I could argue that it’s a performance for me. [...] And I think the works that are coming out now are going to blur all those boundaries a lot. So I don’t know about categories. But dates always help.”
- “I prefer by far the keywords from [runme.org](#). When the project was open for submission, everyone could submit an artwork. [...] The ADA keywords are unsurprising.”

Turbulence | Commissioning art

Not Secure | turbulence.org

turbulence

Search or filter

2015 / 1996

projects grid projects with titles people

2015 > A grid of 10 small square thumbnails representing projects from 2015. The thumbnails include various abstract and conceptual artworks.

2014 > A grid of 10 small square thumbnails representing projects from 2014. The thumbnails include a network diagram, a painting, and a portrait.

2013 > A grid of 10 small square thumbnails representing projects from 2013. The thumbnails include a cityscape, a portrait, and a colorful abstract design.

2012 > A grid of 10 small square thumbnails representing projects from 2012. The thumbnails include a globe, a crowd, and a colorful abstract design.

2011 > A grid of 10 small square thumbnails representing projects from 2011. The thumbnails include a portrait, a colorful abstract design, and a landscape.

View of the collection overview page on turbulence.org. Date of screenshot: 2018-05-14

Q13: User stories

“

As a researcher, I want to see bi-directional relationships between objects and creators, so that I can find all works created by a person on their record page.

Users also commented positively on the variety of metadata available for some of the artworks:

- What I really liked about ADA is that literature is also becoming part of the archive. [...] Also it has exhibitions and events, which I think is really interesting because you can see the exhibition history of an artwork. [...] Also, something I found interesting was: ‘Click here to read the code’ in the description of the artwork, so you can read the code or enter the artwork, which really shows that these are digital artworks and they have a different backend.”
- “I especially like that the ADA has indexed the various shows or publications in which a work is featured. This gives me a good idea of how the work has been shown and received over time.”

Several respondents also observed the incompleteness of some of the metadata, which may not necessarily be a problem, if it's addressed in the archive's interface:

- “Something else that you can see about ADA is that it looks like it's also not finished, and I do think that multiple people are working on it, putting content in there. And I believe in this collaborative building of archives, but sometimes you see also that it is incomplete and there are a lot of empty parts.”
- “The metadata of the various objects I honed in on was fairly inconsistent in how complete or incomplete it was. Some had very little. Although maybe the inconsistency was not that problematic. I always think it's almost brave to make accessible what you have and say OK it's not perfect, but it didn't pretend otherwise.”

* “If any new metadata is added to the database, it should be made clear which data was added by the artist originally, which by the Rhizome curators and when.”

Another user commented on the need to be clear about the origin of the data, especially if certain “incompleteness” is sought to be corrected in the new redesign.*

While the majority of users found certain approaches employed by the ADA interface to be successful, they didn't necessarily see it as a perfect model for the ArtBase, because it is also quite a different type of database—its goal closer to cataloguing, than preserving works:

- “The entries felt like descriptions of objects rather than objects, it's more like a card catalogue really.”
- “I think ADA is really a database for curators and historians. The work itself is not even there, the links are external. The archive isn't preserving the artwork, it's more documentation—metadata, etc.”

Q13. Experience navigating the Turbulence archive and feedback on its metadata and navigation features

Similar to the previous question, this question aimed to gather feedback about the data collected in Turbulence and the ways to navigate it, after the users had completed a task with this archive. Turbulence is another example of an online platform attempting to catalogue net art projects, albeit quite different in mission and scope to ADA or ArtBase. In general, the user comments focused on the modes of navigation in the interface.

Q14: User stories

“

As a researcher, I want to use more sophisticated search tools with facets or filters similar to academic journal databases, so that I can create more precise search queries.

“

As a researcher, I want to see different, less predictable, institutional choices for archives of net art vs traditional digital archive interfaces, so that I can take a more interesting journey through the archive.

A number of reactions were relatively positive, specifically towards the “visual browsing” facilitated by an overview with thumbnails of the entire archive:

- “I think the web navigation is very nice. It’s very flexible. It is very interesting to explore as a web—it’s easier to explore as sets or collections—so you can see the artworks in different ways through these sets.”
- “Search feature is probably the most useful, also visual interface that allows for organizing the archive according to three criteria.”
- “I also found the Turbulence archive enjoyable to browse, but more difficult to navigate precisely.”

Beyond the visual experience, though, some users found the interface lacking in providing more in-depth information:

- “There was something quite frustrating, that I can’t articulate, about the relationship between objects and people in the Cooper Hewitt, and I think there was something like that here. It was that I was able to find a person, but then I wasn’t able to click through and find all the objects associated with that person.”
- “Frankly it seemed like a thin layer of design for a choice of URLs. The presence of the Google map images to locate the artists feel like a design trick and doesn’t give a lot of context.”
- “This feels like a really basic website. [...] It just looks like they drafted a front page on top of something really basic... a bit like Wordpress.”

* “It is interesting they also list dependencies, e.g. web browsers, which is useful for curators, but these things become quickly obsolete. So it made me aware that it is very difficult to make an archive timeless, because you can see that Turbulence has become dated quite quickly.”

Another user pointed to the problems with the dating of certain types of metadata in an archive that deals with technological artifacts (which is a problem for the ArtBase as well—for example stating something is dependent on a Firefox browser means very little without an accompanying date and versioning context).*

A takeaway from this comparative exercise appears to be the insufficiency of a visually-driven approach to an archival interface, when the needs of some user groups (researchers) go beyond surface-level browsing. While Turbulence offers some attractive approaches to providing visual overviews and groupings of artworks, ultimately without a more robust approach to information architecture and metadata curation, the archive’s value for research is diminished.

Question 14: Final comments

This question asked for any final observations from the users either in terms of the questions from the questionnaire or their experience of performing the practical task. A few raised interesting final points.

Several of the comments focused on search capabilities in archives generally:

- “Across the interfaces, I noticed that the search functionality was quite limited. Most of the interfaces offered only a blanket search without any real ability to search more precisely. Many databases for academic articles give you a number of facets to search across, and I like the flexibility and precision this enables.”

– “We expect to be overwhelmed by how many results there are, so we need to find a way of narrowing what’s retrieved to make it meaningful. And in that sense that’s why the Anthology is so good, because it draws something out of the archive, brings it to your attention and makes it manageable.”

Other comments focused on specific elements in the ArtBase interface, such as the confusion of a lack of ‘back button’ when a user has begun looking at an artwork record and wants to go back to the archive’s search results page, or the “disjunctive” use of background colors.

One of the most insightful comments addressed institutional policies regarding the different interface examples used in the practical task and questionnaire:

– “I think most of the problems I have with the examples do not come directly from the design, but the kind of institutional choices that are made. I don’t mind a bumpy road if it leads to an interesting journey. Net Art begs for another approach. Open the processes, you will have a different design. Use algorithmic methods in archiving upfront.”

Visual interfaces—by design—embody institutional policies, and if these are made more transparent and open, then the design (process) will look very different as well.

4. Targeted feedback sessions with artists

Study set up—additional notes

The study sessions with artists were devised in Jan–Feb 2018 and were planned to run in parallel to the general user survey and follow-up interviews in Spring 2018.

Initially, around 30 artists (and some artist collectives) were selected to be contacted and invited to participate. The invitations (and follow up reminders) for participation were sent out by email between March and June 2018. The emails included a brief description of the study's aims and explained that the study would involve a short practical task (see [p.24](#)) and a follow-up feedback questionnaire. Both the task and the questionnaire could be done entirely remotely (following a simple set of instructions and filling out an online survey) or partially in person—via an online video call to respond to the questionnaire. It was suggested that the sessions would take roughly 1-1.5 hours. The email explained that due to the academic setting of this study, unfortunately, no financial compensation was available, although Rhizome was able to offer New Museum tickets to anyone based in, or visiting NYC.

Of the initial set of invitations sent, only seven recipients responded. Five expressed interest in participating, the others declined due to lack of availability. Of these five positive responses, only one actually took part in the end. After a round of follow-up emails, there were eight new responses—six expressing interest and two declining.

Secondary emails were sent to those six who expressed interest in participating, explaining the setup of the study in more detail. The email provided instructions for the task, and gave access to the questionnaire. Two of the participants who received the detailed instructions replied with concern and confusion, stating they did not feel like they would be able to contribute with any specific feedback to these questions. Their response prompted a reconsideration of the whole study set up. As a way of mitigating the concern about their contributions, all six artists were contacted again, via email, and asked if they would prefer to respond to just three short questions (via email again), instead of completing the whole survey. At the end of this second round of participation recruitment, three artists eventually opted to participate in the shortened survey, while two artists participated in the full survey.

In total, two artists responded to the full feedback questionnaire via Google Forms online; one artist responded to the full feedback questionnaire via a Skype interview; and three responded to the much shorter version of the questionnaire via email. All responses were gathered between end of April and beginning of July 2018. Data from Google Forms and email responses was collated in a spreadsheet. Audio from the interview was recorded and then transcribed (partially and with paraphrasing) into the spreadsheet alongside the other collected user data.



Qa/Q1. User stories

“

As an artist, I want to look at digital archives, so that I can compare strategies with my own digital archiving practices.

“

As an artist, I want to refer other people to digital archives, so that they can better understand net art.

“

As an artist, I want to look at digital archives [in the expanded sense where internet platforms, like YouTube, are considered archives], so that I can do my own artistic research.

The following summaries of results are presented in sub-sections which mirror the order of the questions in the questionnaire. The starting point is the three primary questions which featured in both the longer survey and the very short email survey (noted as Qa, Qb, Qc). These questions elicited the greatest number of answers, as they were common to both versions of the survey. The remaining questions, which featured in the longer survey only, gathered 2–3 responses each (noted with numbers).

Qa/Q1. Role of digital archives in your life/ work

The first question, which was included in both the long and the short survey, asked the participants to outline the role and importance digital archives have in their daily activities. Half the responses (3/ 6) focused on the importance of archiving one's own work. Only one response mentioned the importance of archives for research in developing curatorial and artistic projects. Two responses were more general and expressed that archives are important to them if “you consider YouTube to be an online archive” and “given that the vast majority of the internet is a digital online archive”.

* *I think because my artistic practice revolves around the computer, the work almost starts out as an archive itself. Because net-art consists of files and domain names, the work is in the form of an archive from the start. Computers are basically archiving machines, so computer art is both art & documentation simultaneously.”*

This theme of the digital condition as an archival condition in itself (which is not something archivists would principally agree with), was raised by one of the artists, who talked about how important personal archiving is to them.*

Another artist, who discussed the importance or archiving their work (and the work of other artists, as well), focused on looking beyond ‘linear’ ways of archiving, such as screen recording. They mentioned that they look at other archives in order to see “how other people do it”. In relation to other archives of net art, they observed further that—“It’s not something that I very often use for my own personal research, I only use it if I explain net art to people and then I refer them to archives. Archives very often have a tendency to be there in order for you not to look at them.”

These responses suggest that artists care deeply about the archiving and preservation of their work (and that of their colleagues), but do not necessarily actively look at archives for research or inspiration, unless their own work is directly involved in critiquing/ commenting on archival practices.

Qb/Q3. Specific online archives and information discovery

This question asked artists if they use any specific online archives and if so, which. Also, whether they are generally able to find what they are looking for while there. The most frequently mentioned archives were: The Internet Archive (the Wayback Machine) (4/ 6), Wikipedia (3/ 6), Monoskop (1/ 6), ArtBase (1/ 6), there was also a none answer (1/ 6). No comments were made about information discovery, other than one mention of the Wayback Machine’s “aggressive” mode of archiving (without first seeking permissions from site publishers), which increases probability of finding what you are looking for there.

Despite the low overall number of responses, **there seems to be a preference towards more vernacular, rather than institutional platforms and approaches.**

Qc/Q8. Archival metadata for artworks

This question asked artists how they would like to see their work represented in the (ArtBase) archive, specifically in terms of metadata.

Several answers were quite general:

- “As detailed and as accurately as possible.”
- “Any way is fine. I do it my way on my website, but if people want to archive my work on their website, that’s fine, too (on a non-commercial basis).”

Two further answers were more specific, and quite similar:

- “Title. Authors. Year. Format.”
- “It depends on the work. I guess the basics: title, year, format, an experience of the actual work, maybe images of IRL installations if relevant, a description I wrote.”

One artist felt unable to answer because their work was not in the archive.

Overall, it seemed that artists were generally more concerned with the question of whether their work gets archived at all, than with the specifics of the metadata description. Possibly, due to the fact that digital work continues to be under-represented in institutional archives and collections, and therefore no specific standards have been established to be commented on or discussed by the artists.

NB: Questions a, b, c from the short email survey correspond to questions #1, 3, and 8 in the longer survey. The following questions were only included in the longer survey and therefore only received 2-3 answers.

Q2. Devices for archive access

The answers here focused on desktop devices. One answer mentioned “mobile, seldom”, and another answer acknowledged that while mobile “is the contemporary mode of interaction”, personally, they always preferred to use a device with a physical keyboard.

Q4. Frequency of using the ArtBase

Two answers here commented on the infrequency of use of the archive: “hardly ever” and “I don’t look at it that often.”

Three answers outlined some reasons for more regular use:

- “Used it once when I was an intern at an art museum in 2006. Was very helpful back then!”

- “I did look at the Anthology more, because it’s easy and it’s something I recommend students to look at, only when people want to do more research, then I point them to Artbase.”
- “I used it for research about net art.”

One more answer elaborated on first-time use:

- “I think the first time I used it was when they asked me for my work to be in it.”

Research, which is one of the primary use-cases for the ArtBase among other user groups, was raised less frequently in this study. Among artists, it no longer represents the primary reason for using the ArtBase.

Q5. Experience of browsing the current ArtBase

The answers to this question were largely inconclusive. There was one positive answer towards the UI & UX of the current archive and one negative. A third answer mentioned emulation, which is present in the Anthology, but they found missing from the current ArtBase.

Q6. Comparing the current ArtBase to the ‘classic’ version

Similarly to the previous question, there were no conclusive answers. One interesting point, which hadn’t come up in previous user studies, raised the issue of ease of access: “The only thing I like more is that it’s quicker for me to go into the actual works in the current version. I feel like I have to pass through more articles and context before I can actually get to the works in the classic version.”

Q7. Requests for metadata in the current version of the ArtBase

This question didn’t elicit many new insights, except a continuation of the idea from the previous question, relating to ease of access to the work: “In the older one—more metadata makes it easier to contextualise, but harder to see the original work.” Another answer suggested “tags providing information about the format of the work.”

Q9. Context and presentation in the Net Art Anthology

This question gathered several positive responses, in line with results from the other user studies:

- “I mostly like it.”
- “Yes. I like very much the way how artworks are presented. The design fits with the concept of an online exhibition.”
- “Oh great, same story, same layout, just great being able to go into the artwork in the same way. It’s really nice.”

Q6: User stories

“

As an artist, I want to be able to **access the artworks quickly and easily**, so that I that I don't have to go through a lot of text or other context before I can look at the art.

Q11. User stories

“

As an artist, I **don't want to be looking at keywords or categories**, because it can be pretty random and I'm not a theoretician, so that's not so interesting to me.

“

As an artist, I want to see **metadata related to the technology**, so that I can track what kind of code or open source software the artists had used.

Q12. User stories

“

As an artist, I **don't want to filter based on themes**, because it's very seldom that I want to see only art dealing with a particular topic.

Q10. Experience browsing Google Arts & Culture platform and using different navigation modes

Two of the participants responded negatively about the usefulness of navigation features on the Google A&C platform. One answer was more nuanced: “I find the color sorting in the navigation system pretty interesting, but at the same time I find the Google art platform too gamified.”

Q.11: Experience navigating the ADA (Archive of Digital art) and feedback on its metadata and categories

Two of the participants expressed indifference towards the metadata categories utilised in the archive:

- “I’m an artist, not a theoretician, so... sometimes I can see how people want to categorise the work, but it’s not particularly interesting to me.”
- “Don’t care, metadata is pretty random in general.”

Another answer focused on one type of metadata more specifically: “I find the ADA UX very frustrating, but the metadata like Technology are helpful in order to track what kind of code or open source software the artists had used.”

Q12. Experience navigating the Turbulence archive and feedback on its features

Two participants responded negatively towards the UX of this archive as a whole:

- “Thumbs down, way too insane—who could use this?”
- “I find the whole Turbulence website frustrating.”

A third participant picked up again on the issue of how artworks are accessed. They suggested that access seemed relatively straightforward in this archive interface (even though the actual works are not really hosted/ preserved by the archive, so the interface only creates the impression of easy access). However, this participant went on to criticise the filtering strategies, particularly the thematic ones:

- “I actually don’t enjoy the fact that it’s filtered on themes or these kinds of things. I can understand, but it’s very seldom I think that you want to see only art dealing with a particular topic. I don’t know, maybe I’m not the right consumer in that way, I just want to see the art.”

While these answers are too few to make general conclusions, it seems that the visual browsing of the archive (facilitated by the Turbulence interface), which other groups of users (e.g. researchers) found potentially useful, is less important to the participants in this study. The focus on more straightforward access to the artworks remains a recurring issue.

Q13. User stories

“

As an artist, I want to see a reenactment or an emulation or just see the actual work, and besides that a richer context available in a wiki form, so that I can access (or contribute to) that context if I choose to.

“

As an artist, I want to see the archive as a wiki that is open rather than closed and where people can have accounts, so that they may contribute data that they might not normally disclose.

“

As an artist, I don't want to see the archive as a wiki which is used as a self-promotional device, edited by everyone, instead of being a source of authoritative information.

Q14. User stories

“

As an artist, I want to see more documentation of users interacting with artworks other than the screen, so that I know which hardware is necessary for presentation, time delays, etc.

Q13. Exploring the archive in the form of a wiki

There were two positive answers to this question about the option of viewing the archive as a wiki. Similar to the caveat with this question in the previous study, the participants were not given much context or great detail about why or how a wiki might be implemented.

Nevertheless, one of the participants responded in some detail about this proposition and talked about a “context-driven” use-case: “If you have either a reenactment or an emulation, or you can see the actual work, and besides that the context is actually in a wiki form, I think that would be nice.” However, this participant was also conscious of what that means in terms of giving universal access, which is one of the feature characteristics of wikis, they thought the system could be vulnerable to misuse/ abuse then—“it could also be a very self-promotional device, if people can just edit it all the time.” The participant also observed that there would be a tension between an open archive and an archive that wants to project authority.* This is a question that is particularly relevant to the future direction the archive could take. It could become a place of authority, yet it’s important to retain its history as an originally open archive, which was not curated. The participant concluded their response noting that, on balance, they felt if the archive was a wiki, it would make more sense to open it up, rather than keep it closed.†

* “The thing is that these kind of archives often have a kind of authority, for example with the Net Art Anthology—these are the selected ones. ... ‘This is what we think is relevant’.”

†“If you want to have a back-catalog of people making everything accessible, then a wiki is really useful, because then you can maybe get to find people who would give you data that they might not normally disclose. [...] I think it makes more sense—if you have a wiki—you have to let people in and have accounts.”

Q14. Other archives with useful features

This question received one answer which linked back to the wiki topic in noting the usefulness of MediaWiki wikilinks (e.g. the links connecting different pages in Wikipedia).

The other answer was more detailed and the participant shared an archive they’re involved in: net.artdatabase.org. They specifically pointed to one of its characteristic features: “where you see the person using the hardware and people are encouraged to film themselves while using it. So you see alternative user experiences other than the screen.” They also discussed the ways in which this feature is useful for art preservation: “Very important to see which hardware to use on the artwork because of the time delays.”

This participant also shared one further idea for a feature that might benefit the ArtBase: “I think it’s fruitful to actually record works when you’re browsing them through Webrecorder, so you actually generate usage data to it, too.” The idea is that instead of simply providing a link to artworks that are still online, the archive could link to an integration with Webrecorder, where the “visits are captured, anonymized, but still captured in a certain way.” This user-generated data could then also be used for future preservation—as a guide to how certain navigation through an artwork might be “played out”.

These suggestions present interesting ideas for future archive development, but also further the concept of an archive that is more open to collaboration with its users.

Q15. Final comments

One of the participants left a comment expressing that they felt some of the questions were leading and should be rephrased. This is a fair point, and indeed some of the questions asked about narrating frustrating experiences or things that “didn’t work”. However, as it has been noted with regards to the limitations of the studies in the Introduction, the lack of capacity to meet with participants face-to-face, spend some time doing lab observations, and then conduct longer open interviews afterwards, necessitated the compounding of issues into some leading questions. Overall, the diverse responses (across the different studies with different user communities) point to the capacity of participants to respond in accordance to their own experiences as opposed to being led by the questions.

Another participant responded with the simple request to remove logins to archival interfaces and keep interfaces open to everyone.

Finally, during a discussion with one of the participants about access, using categorizations or filters and the role of users, they commented: “There are other ways you can make things accessible—you can also base it on user experience—you can track people jumping from one work to another and, of course, you can make these things accessible in a different way than actually revealing the keywords. For example, there can be other suggested works—‘People browsing this would also be interested in that’. I don’t think you have to say that—‘this is feminism, this other work also deals with feminism’, or ‘this is 90s, this is also 90s’. While this is an interesting approach of removing the need for occasionally arbitrary themes or filters, there are also ethical issues associated with tracking user actions or creating opaque relationships in the archive, which will be discussed in further outputs of this research project.

References

- Blandford, A., Furniss, D. and Makri, S. (2016) *Qualitative HCI research: Going behind the scenes*. San Rafael, California: Morgan & Claypool.
- Boag, P. (2018) Visualising your user research—are personas the answer? *Boagworks Blog*, Available from: <https://boagworld.com/usability/personas/> [Accessed on 14.01.2019]
- Cade. (2018) On weaponised design. *Tactical Tech: Our data ourselves*. Available from: <https://ourdataourselves.tacticaltech.org/posts/30-on-weaponised-design/> [Accessed on 14.01.2019]
- Cooper, A., Reimann, R., Cronin, D., and Noessel, C. (2014) *About face: The essentials of interaction design*. Indianapolis: Wiley.
- Government Digital Service. (2016) Writing user stories. *Service manual*. Available from: <https://www.gov.uk/service-manual/agile-delivery/writing-user-stories> [Accessed on 14.01.2019]
- Government Digital Service. (2017) User research. *Service manual*. Available from: <https://www.gov.uk/service-manual/user-research> [Accessed on 14.01.2019]
- Lialina, O. (2012) Turing complete user. Available from: <http://contemporary-home-computing.org/turing-complete-user/> [Accessed on 14.01.2019]
- Norman Nielsen Group. (2000) Why you only need to test with 5 users. Available from: <https://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/> [Accessed on 14.01.2019]
- Oudshoorn, N. and Pinch, T. (2003) *How users matter: The co-construction of users and technology*. Cambridge, Mass.: MIT Press.
- Roberts, S. (2017) The UX-ification of research. *Stripe Partners*. Available from: <http://www.stripepartners.com/the-ux-ification-of-research/> [Accessed on 14.01.2019]
- Shneiderman, B., Plaisant, C., Cohen, M., Jacobs, S., Elmquist, N., and Diakopolous, N. (2018) *Designing the user interface*. 6th ed. Harlow, Essex: Pearson Education Limited.
- Usability.gov. (2019a) Personas. *How to & Tools*. Available from: <https://www.usability.gov/how-to-and-tools/methods/personas.html> [Accessed on 14.01.2019]
- Usability.gov. (2019b) Scenarios. *How to & Tools*. Available from: <https://www.usability.gov/how-to-and-tools/methods/scenarios.html> [Accessed on 14.01.2019]
- Vermeeren, A., Roto, V. and Väänänen, K. (2016) Design-inclusive UX research: design as a part of doing user experience research. *Behaviour & Information Technology*, 35:1, pp.21–37. DOI: 10.1080/0144929X.2015.1081292

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