Curatorial Groupware: Designing Collaborative Curation Tools for Public Exhibition of Community-Built Archives

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This paper discusses the design and production of a groupware tool as a method for advancing a larger interdisciplinary research collaboration. Groupware is defined here as software enabling real-time collaboration. In this case study, the digital tool is being designed to facilitate participatory design through remote collaboration. Community participants and interdisciplinary researchers in multiple locations will use this groupware tool to remotely and collaboratively design venue-specific installations from a community-built archive. Each installation of the archive can be designed specifically to the contextual, historical, and local conditions of the venue itself, as determined by the community participants. The collaborative efficacy of user-centered design for the production of groupware is cast in relation to participatory methods (and mindsets) using the case study of History Moves, a research collaborative at the intersection of public history and participatory design. As the History Moves team prepares a nationally touring exhibition of an oral history project called "A Women's History of HIV in America," the design of custom—but extensible—groupware for collaborative curation extends the participatory scope of the project. The voices of the over 40 participating women—from disparate social geographies of Chicago, Brooklyn, and North Carolina—are represented at multiple touchpoints in the process, through the sharing of their narratives, participation in the construction of an archive of their materials, and now the design of a collaborative curation tool. The collaborative curation groupware expands the participants' agency to self-represent through curating unique exhibitions at distinct venues. This approach to the decolonization of design aims to expand the scope of the project's broader participatory model and enact advocacy through local programming that directly involves the participating women.

Keywords: Collaborative curation • Participatory design • Exhibition design • Remote collaboration • Groupware design

1 Background

Exhibitions are thematic public displays of information, curated to visually and tangibly represent a notable point of view. Historical archives, contemporary concepts, and future speculations are thus publicly presented to transcend their moment while also producing new sites for critical discourse. Exhibition design and associated programming comprise an interdisciplinary process, which presents challenges of coordination and pre-requisites the capacity to co-design. The diversity of skills and their relevance to individual exhibitions makes exhibition designers accustomed to working in project-oriented multi-disciplinary teams (Hammond & Waite, 2010). The following section illustrates some of these challenges through an ongoing case study, originally piloted through local exhibitions in 2016, and now working toward broader implementation in 2020.

1.1 History Moves: An oral history of women with HIV in America

History Moves is a research collaborative led by a public historian and a graphic designer who partner with topically-connected communities with limited representation in and access to the construction of public narratives. As a platform for participatory projects, History Moves brings together historians, designers, and community-based organizations to produce public history forged in participatory engagement. The goal is to make public historical narratives *more participatory* and *more engaging* than those enacted by experts alone. By synthesizing methods from both public history and participatory design, the collection, curation, design, production, and study of public histories are undertaken in a hybrid historical-design process. This process engages contemporary publics in producing substantive community responses to pressing contemporary political issues.
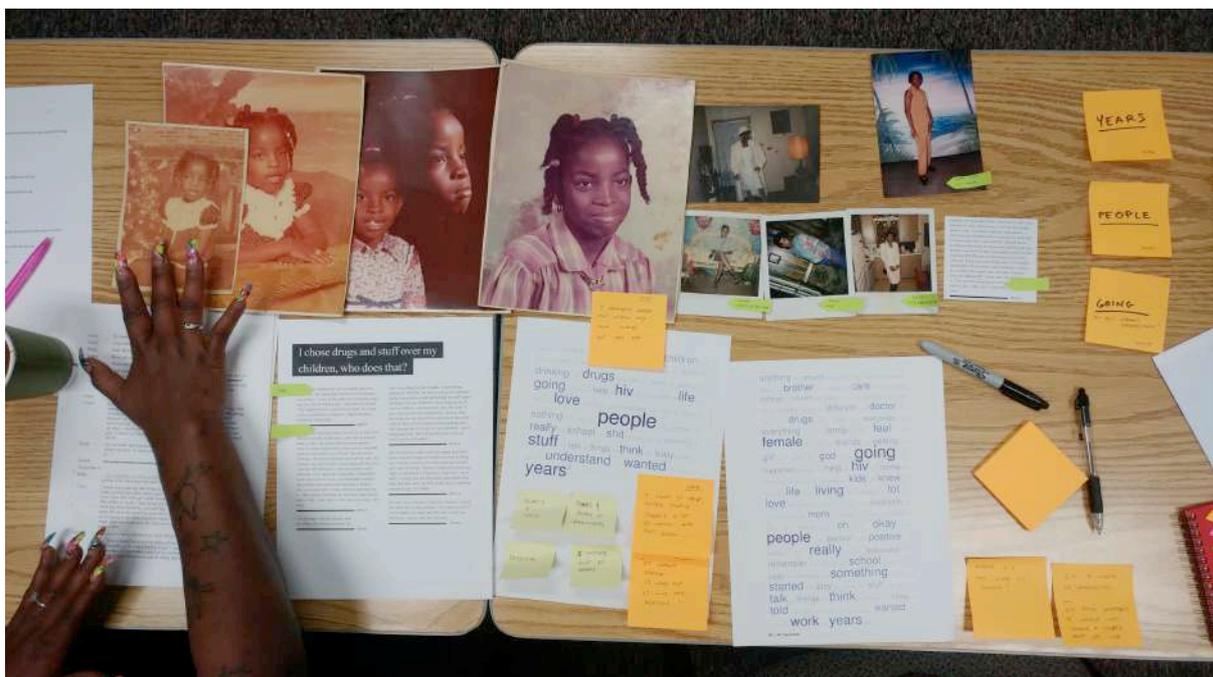

Figure 1. Participatory editing and curation workshop, North Carolina, 2017

Since 2014, the History Moves research collaborative has worked with over forty women living with HIV in three locations from across the United States: Brooklyn, Chicago, and North Carolina. These women are all participants in the Women's Interagency HIV Study (WIHS), a multi-site longitudinal study "to investigate the progression of HIV disease in women" (Bloomberg, 2017) The study was started by Johns Hopkins Hospital in 1993 and is the largest ongoing longitudinal study of women with and at risk for HIV in the United States.

This process began with collecting oral histories and develops into production and dissemination of public media that present collectively determined narratives about the past, present and future. There has been a deliberate focus on mobile, physical exhibitions with the aim of articulating *mobility* beyond that of digital media. By touring mobile exhibitions of this material, the social boundaries of urban spaces are transgressed, physical spaces and environments are transformed, and new sites and audiences are produced for informed dialogue on the ongoing risks, challenges, and stories of surviving HIV/AIDS in the 21st century. Cultural theorist Paula Treichler states that in order to form a definition of HIV/AIDS that will govern policies, regulations and rules must 'rest upon the deeply entrenched cultural narratives' of those living positive. What AIDS signifies must be democratically determined (Treichler, 1987).

1.2   Designing curatorial groupware

Curation in the contemporary context refers most often to the preservation, organization, and interpretation activities of a museum, a gallery, or other types of collections for the public to see. It is the act of 'selecting, organizing, and presenting (online content, merchandise, information, etc.), typically using professional or expert knowledge' (Oxford Dictionary definition). However, the word "curate" originated from the Latin word 'cura' which translates as 'care, concern, attention, management'. This fundamental understanding of the term establishes the relationship between the curator and the exhibit itself, to be grounded in care and mindful representation. The participatory design model employed to develop History Moves thus far, personifies intentional, mindful representation in that it stresses the participation of community participants—in this case, American women living with HIV—as empowered decision-makers throughout the process from collection to curation to public display. Unlike co-design, that gathers user insights which may or may not translate to viable design outcomes (Trischler, Pervan, Kelly, & Scott, 2017), the participatory model seeks community inputs at multiple sequential phases, which are highly iterative and collaborative in nature. It views the "users" not just as content experts–the ones with the most knowledge about what they do and what they need–or potential consumers. Instead, they are partners in design and technical direction (Namioka, Schuler, 1993).

Currently, the History Moves team is working on the design, production, and programming for a nationally touring exhibition to combine narratives of all

participating women from Chicago, Brooklyn, and North Carolina. New tools and workflows are necessary to achieve the project's aim at expanding its participatory model for not only collecting, but also interpreting, publicly presenting, and generating active and local discourse on relevant contemporary social topics.
To achieve this goal—and fill a gap in the landscape of easily accessible tools for community-engaged research—the team is now designing and producing a "collaborative curation" tool, designed to facilitate participatory processes that will allow each venue the exhibition visits to be uniquely curated and designed with direct input from the community participants (in this case, participating women from the respective US geographies). "Groupware" describes software, tools, process, and/or programs that enable real-time synchronous collaboration (Podgorny, Walczak, Warner, & Fox, 1998). In this case, the groupware tool is being designed to facilitate participatory design and curation through remote collaboration between researchers and participants.

While this groupware is uniquely designed for the specific conditions of this particular archive and its parameters, the goal—and impetus for this article—is to conceive this groupware tool as a model for similar community-engaged projects. While custom, the general functions and user experience of this groupware can be made extensible for interdisciplinary research teams working in similar community-engaged contexts, in which there is a desire to publicly disseminate community-built archives in a fully participatory manner.

The process this groupware enables has three primary stages.

1.2.1   Site Visit
Exhibit curation is initiated by visiting different sites to identify and document the unique capacities of each venue. The site visit is simply generative and can be discipline agnostic. For instance, a member from the research team, a local clinician participating in the project, or one of the engaged community participants could fulfill this function. An inspection of the venue is structured to record its spatial measurements, accommodative capacity, details of the location including neighborhood insights, demographics, and history, as well as interior specifications. This data feeds the groupware with floorplans along with geographical, visual, and empirical data to aid in planning. Any existing local knowledge, such as the neighborhood, venue history, regular audiences, etc., are also collected to initiate curatorial discussion.

1.2.2   Collaborative Curation, Design, and Programming
The inbuilt data on the tool is tagged with identifiers of location, neighborhood, type of data (photograph or verbatim, static or interactive) that help classify and filter the artifacts, in this case, a series of dozens of unique "posters"—each containing several previously aggregated excerpts of oral histories, personal or archival

imagery, or local historical context—for each venue and the exhibit configurations it allows.

Once the content elements (posters) are selected, filtered and sorted by type, this content is assembled in the curator's library, which can be revisited with a quick action (Fig 3.) The content that is left unselected is also carried forward, but rests at the bottom of the library in a separately identifiable pile that can be accessed at any time. These decisions were made keeping in mind the agile nature of collaborative projects, where this dynamism facilitates rapid iteration. Taking into consideration the iterative process of designing the panels, the tool allows the curator to select a greater variety of content even though the site visits quantify the capacity of the venue.

The curation of the exhibition panels will simulate a walkthrough on a path through the selected floorplan. The design of each panel will be visualized individually, pairing posters in sets of four, static or interactive, which can be configured in multiple ways through simple drag and drop interactions (Fig 6.). The sequential movement from one panel to the other establishes an intended sequence of viewing the exhibition, helping the curatorial team of researchers and participants to build a step by step narrative.

Programming community-engaged events—also specific to each venue—is critical to producing new sites and audiences for discourse. The context-specificity of the exhibition contents and design, enabled and executed by the design of the groupware, is extended by context and venue specific programming. Speaking events, symposia, workshops, tours, and even informal but organized discussions not only generate substantive local discourse, they also produce new opportunities for community participants to translate their personal experiences into expertise, operating as docents, lecturers, and facilitators.

Planning for a robust programming schedule at each venue is facilitated by the groupware. Proposed events can not only be accessed and acted upon by multiple collaborators but are also stored in the knowledge base for incremental development. This living archive preserves and expands on the possibilities of the venue, creating a package file as an outcome that stores both the context-specific content curation as well as the programming. This feeds into future work as an advanced vantage point each time when designing within similar contexts which might have overlaps in venue, content, or program planning.

Any given work session may have participants working in three or more physical locations. A new session ID at the beginning of each curatorial or programming planning session keeps track of who participated on the project, with fields to input insights on the group's discussion and decision-making. For example, in this case study, some participants wish to retain anonymity so the physical proximity of any

given exhibition to their place of residence may be one very important factor for curatorial consideration. This real-time synchronization would mimic the natural ways of everyday communication and vastly improve future work efficiency. The tool relays instructions that can be executed by the team using a user-centered design methodology.

1.2.3 Implementation of Collaboratively Curated Plans

After a city's multiple venues have been collaboratively curated and programming plans initiated, the tool produces documents and workflows that assign follow-up tasks to the team. Group content selections are applied to elevation drawings, and data sets of the required components (including digital audio files and physical posters) are produced. These venue specific components are then attached to a generic set of installation instructions for assembly of the exhibitory, which can be distributed to the installation team at each site. The group's decisions about event programming are similarly captured and distributed to team members for planning, confirmation, and implementation. In this workflow, the collaborative planning activities catalyse and organize the work of implementing each venue's installation and programming.

2   Methods: User-Centred Design in service to Participatory Design

History Moves begins its projects with oral history, uses hybrid participatory design/public history methods to interpret collected narratives, and then translates (aggregates) those collective narratives into public-facing media, including books, short films, digital publications, archive interfaces, and mobile exhibitions (Wizinsky, 2019). In this process, the participating women transformed their roles from anonymous subjects of medical study into a network of agents actively shaping their own historical narratives—from anonymity to authorship.

Figure 2. Manual curation process of the exhibition

In order to for the exhibition to be mobile and remotely curated, a team of designers and digital humanists are designing and developing a digital collaborative curation tool. Currently developing as a tablet app, this tool facilitates and visualizes the curation of the exhibition by the participating women. The tool is being developed in the form of wireframes with structural specificity that drives functionality even without the content itself. Dozens of modular "posters" (printed content) with images or quotations from the oral history interviews comprise the primary content of the modular exhibition design. Some of these posters use conductive inks connected to micro-processors to allow for touch-activated audio playback. The database of posters, audio files, and related metadata comprise the central archive planning tool at the back end of the curatorial groupware.

The design and development of the collaborative curation tool is a joint effort between designers and design researchers from History Moves and faculty, students, and staff from the University of Cincinnati Digital Scholarship Center (DSC). The DSC is a catalyst for collaborative, trans-disciplinary forms of research and teaching. The DSC brings together humanistic methods and technical innovations to test paradigms and create new knowledge between disciplines. Faculty, students and staff with specialties in Digital Humanities, Computer Sciences, and Library Sciences collaborated with design faculty and students in conceptualizing and developing the tool and workflow, making for a fully hybrid, trans-disciplinary experience.

3   Results: Task Flows, Wireframes, and User Testing

Design researchers engaged in the project have developed a workflow for the app, annotated wireframes, and an (in progress) interface design which will be developed by a team of students and faculty organized by the University of Cincinnati DSC. The focus is on democratizing the user experience, as the users will be interdisciplinary, mostly not exhibition designers. User journey maps have been developed and tested, to be taken in the field for usability testing with participating women and clinicians. Developed sections of the groupware app will be evaluated as well, through usability tests aimed at universally efficient information architecture.

In order to keep up the project's participatory values, usability goals are oriented towards real-time collaboration, effective visualization, and true modularity as the determinants of the features of the first version. The user-centered approach is employed here in service to the project's broader participatory framework, which is to build the groupware with the participating women and with features that empower them and other non-design stakeholders to voice their opinions in the collaborative process.
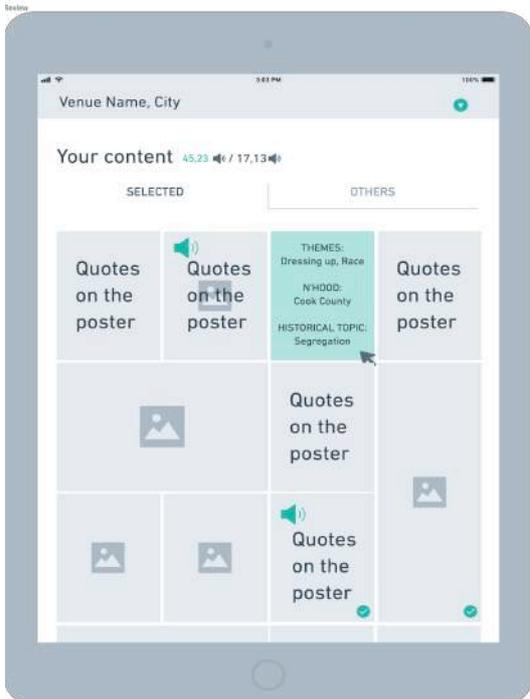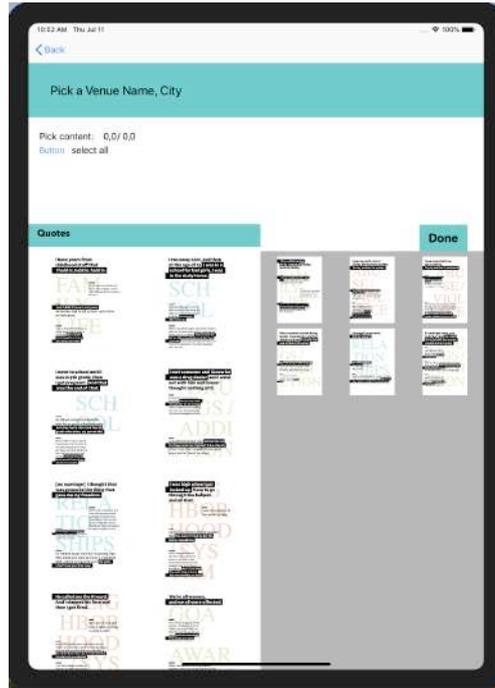
Figure 3. Wireframe of the content review

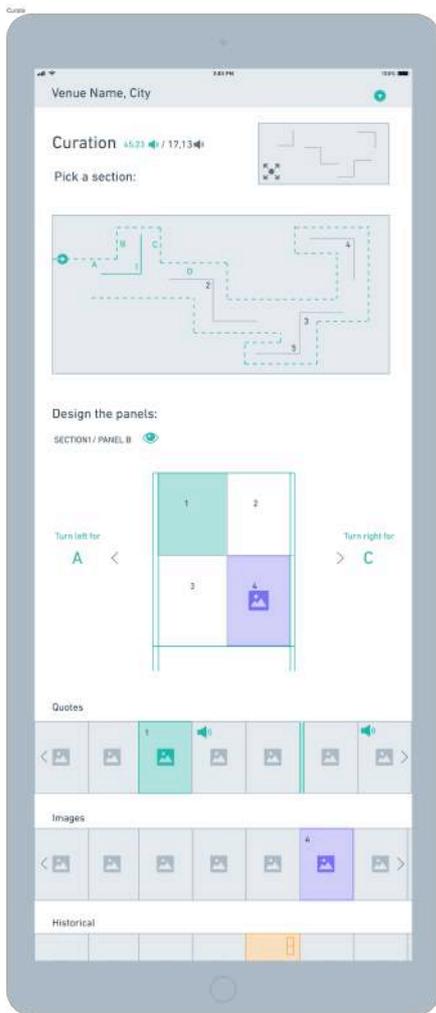*Figure 4. Prototype of the filtering process*

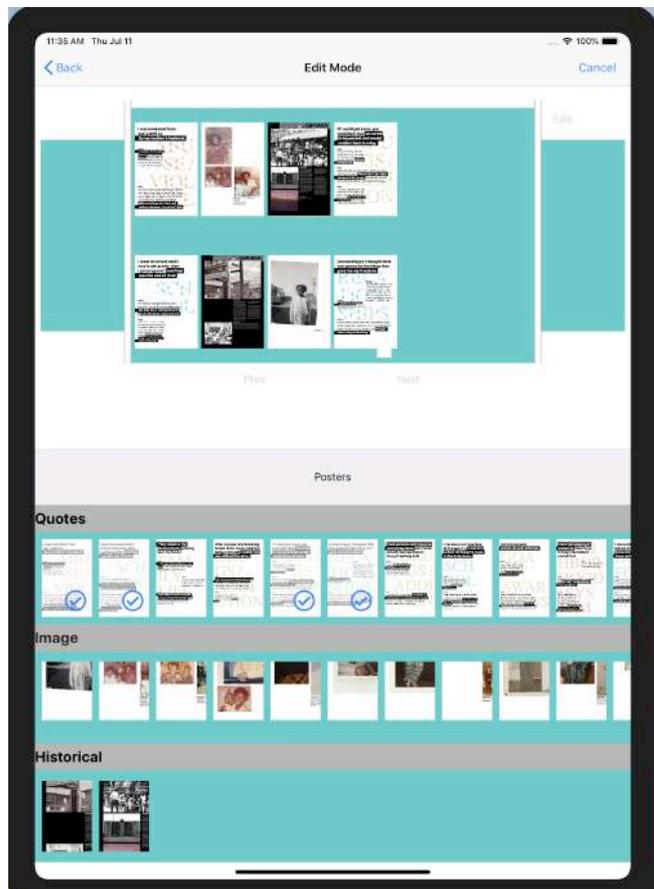*Figure 5. Wireframe of the curation screen*

Figure 6. Functional prototype of curation screen
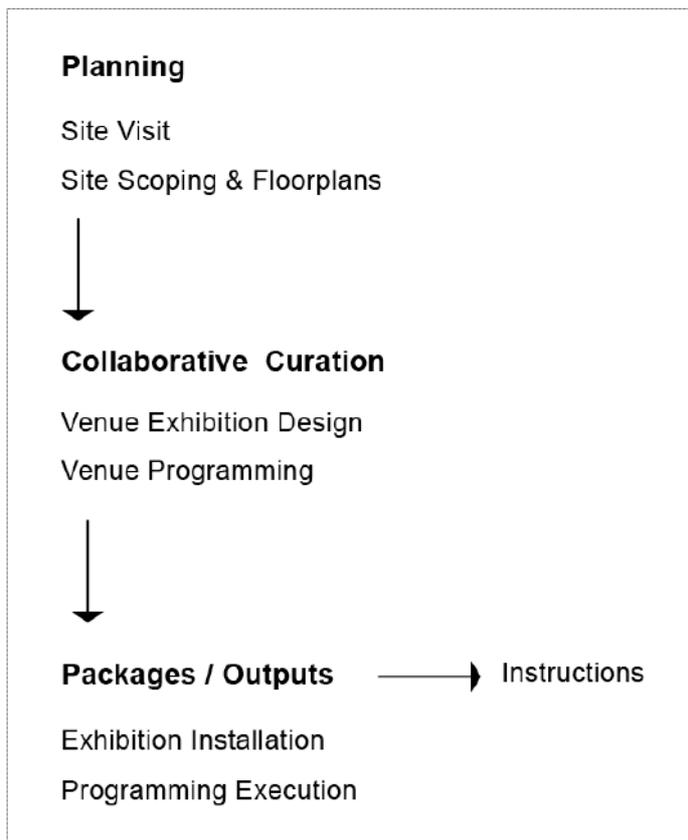
Figure 7. Workflow of the groupware

4 Conclusion

An interdisciplinary research team is working with community participants in diverse geographical locations. The team desires to engage in real-time, participatory, and reflective collaboration with geographically remote participants to collaboratively curate each site for an upcoming touring exhibition of the community-built archive. To do so, designers and design researchers on the project have employed user-centred design methods to plan, design, and develop a collaborative curation groupware tool. The application of user-centred design for an otherwise participatory design centred research project demonstrates how multiple design and design research mindsets—with their own sets of methodologies—can come together to contribute in multiple ways for large interdisciplinary, community-engaged research.

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