Understanding Personal Digital Collections:
An Interdisciplinary Exploration

Melanie Feinberg, Gary Geisler, Eryn Whitworth, Emily Clark
School of Information
University of Texas at Austin
Austin, TX, USA
feinberg@ischool.utexas.edu;
ggeisler, erynwhitworth, emilyhclark@gmail.com

ABSTRACT

Once undertaken primarily by museum professionals, the activity of *curatorship* has been popularized via the Web. Social media tools, such as YouTube playlists and Pinterest Web bulletin boards, enable users to curate a diverse range of materials for personal use and for broader publication. But what makes one set of "curated" items more interesting than another? In this paper, we show how findings from an initial humanistic inquiry led to a lab-based user experiment, and how combined insights from these studies have illuminated new research streams in both humanistic and design research modes.

Author Keywords

Design, humanities, curatorship, digital collections

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design

INTRODUCTION

To *curate* involves the thoughtful selection of a subset of material from a larger collection of items, often to illustrate a particular theme. Previously used most often in the context of museum exhibitions, the notion of curatorship has recently become ubiquitous. Food vendors at a flea market are "curated"; bands at a music festival are "curated" as well [20]. In the digital realm, curatorship increasingly describes the selection, organization, and description of online information, particularly when these activities are conducted by users. By encouraging the creation of personal digital collections, social media tools enable the Internet community at large to curate a diverse range of materials for both personal use and for broader publication. GoodReads has "shelves" to arrange book

citations; fashion Web sites such as Polyvore enable their users to design and share "style collages," and Pinterest boards collect images from across the Web, among many potential examples.

While services for building personal digital collections have proliferated, our understanding of these artifacts as forms of user expression remains limited. Are all personal digital collections the same? What characteristics distinguish them? Two examples illustrate some of the possible variations in collection types.

As the first example, "Dr.Dada," the creator of a personal collection on the Seattle Art Museum's Web site, plucked examples from diverse cultures, time periods, styles, and media to illustrate the role of color in contributing to an artwork's aesthetic impression and emotional force [6, 9]. Dr.Dada articulated this position to other users by providing detailed annotations that explained distinctive elements of each selected resource and how these contributed to the collection's ideas about color. This exploration of color as a boundary-spanning theme shows connections between pieces that the museum's own system of organization and description does not emphasize.

In contrast, the Seattle Art Museum user "laurenmurphy" merely selects a list of museum favorites for her personal collection, without elucidating a theme or other relationship between the items [12]. While laurenmurphy's collection may be of use to its creator as a personal information-management tool, say in planning or remembering a museum visit, it does not speak as vividly to an outside audience than Dr.Dada's collection [8].

While libraries, archives, and museums have shown particular interest in facilitating user-curated collections as a means to encourage audience engagement with their digital assets, the differences between these two examples are significant for any attempt at exploiting the potential of curated personal collections as a means of grappling with the tremendous volume of Internet-accessible content [14]. In providing an intriguing, original point of view, personal collections like Dr.Dada's can expand access to digital resources by operating as editorial filters. But not all personal collections are as richly illuminating as Dr.Dada's;

many are opaque, like laurenmurphy's, and, although they are available to all on the Internet, operate more as private lists than public expression. Is there a way to explain how a personal digital collection like Dr.Dada's differs from one like laurenmurphy's? What makes one collection of items more expressive, and thus more interesting to an outside audience, than another collection? These questions provide the initial motivation for our work.

INVESTIGATING PERSONAL DIGITAL COLLECTIONS AS EXPRESSIVE ARTIFACTS: A HUMANISTIC APPROACH

One way of approaching this problem space is by analogy with other forms of creative expression, such as poetry or cinema. The humanities have long scholarly traditions that engage such questions through systematic, critical inquiry. One result of this form of scholarship is to develop a sophisticated vocabulary to describe different textual effects (using here the sense of "text" as any communicative artifact) that contribute to overall expression, as well as to detail how those effects might be produced. For example, a poem might use figurative language, such as metaphor and allusion, to concentrate a complex idea in a few evocative words, or a film might use montage to convey the passage of time. Humanistic criticism in this vein provides a nuanced, rigorous interpretation of expressive artifacts [1]. The use of humanistic criticism as a complement to other forms of inquiry has been suggested as a productive addition to HCI [2, 13]. Such research can, for example, develop a vocabulary for describing expressive effects (such as idea compression) and the mechanisms used to create those effects (such as figurative language). Lowgren and Stolterman provide an example of this in their idea of "use qualities" for interactive artifacts [13].

Expressive Characteristics of Personal Digital Collections

In work initially reported elsewhere, Feinberg followed an approach similar to Lowgren and Stolterman in suggesting a set of characteristics that distinguish expressive personal digital collections like Dr.Dada's [9, 13]. This humanistic study employed textual analysis to propose three qualities that contribute to collection expressiveness: eclectic goals for collecting and describing, a unique authorial voice, and engagement with emotional experience [9]. The characteristic of eclectic purpose involves a distinctive, original motive for selecting the items within the collection. For example, a collection of citations to library materials gathered by a user at the University of Pennsylvania's library recommends, for medical students in a clinical decision-making class, resources that adhere to standards of evidence-based medicine, thus arguing, in a sense, for a data-driven approach to medical practice [18]. This advocacy of a particular clinical perspective forms an original purpose for the collection. The characteristic of voice involves the presentation of a unique authorial persona. As an example, the collection of another Seattle Art Museum user, "michelem," has the fairly generic

purpose of including highlights from the museum's permanent collection [16]. However, in item annotations, the breadth of michelem's remarks and her fluent references to contemporary styles (Dada, Pop, Action Painting) mark a distinct, educated authorial persona, with a sophisticated eye. This sense of original vision distinguishes michelem's collection from the blandness of a "favorite things" collection like laurenmurphy's, although the collection purpose is similar. The final characteristic, emotional intimacy, involves the revelation of personal feeling as a means to greater understanding of the collection's contents. As an example, the author of an item annotation in the Smith College Art Museum's ID Tags project explores complex, contradictory feelings of race and class difference occasioned by a painting in the collection. The initial textual analysis concludes that skilled deployment of these characteristics, achieved through the selection, description, and arrangement of collection items, can enable personal collections to attain the combination of control and ambiguity that Umberto Eco calls the poetry of lists [7]. A poetic list, for Eco, illuminates the conceptual space in which its items find themselves juxtaposed; in enacting a sense of coherence upon its contents, it shows intellectual, emotional, and aesthetic depth that reaches beyond the significance of any individual element. Paradoxically, perhaps, in providing an interpretive frame that suggests a distinctive character for the items it contains, a poetic list bestows a sense of infinity upon the bounded limits of its parts.

FROM HUMANISTIC INQUIRY TO USER STUDY

The initial humanistic study provides a preliminary critical vocabulary to more systematically explain how personal digital collections work as expressive artifacts. It further contends that collections exhibiting the three expressive characteristics are "poetic" in Eco's sense, which makes them interesting to a public audience as a form of creative work. Dr.Dada's collection, for example, shows all three characteristics, while laurenmurphy's does not display any.

While we do not want to imply that humanistic inquiry merely provides a starting point from which other research questions might emerge, in this case, the vocabulary of three expressive characteristics prompted us to consider the user-curator's project of collection design. The initial study focused on the domain of libraries, archives, and museums, and in that cultural heritage context, sponsoring institutions actively seek user involvement in activities such as building personal digital collections as a means of collaboratively generating new knowledge with the user community [15]. However, these institutions don't provide instructions or examples for creating user collections. Beginning to think from a design perspective, we wondered: are users like laurenmurphy creating the collections they do because that's what they want to create, or because they aren't aware of the expressive potential of the collection as a document form? Just as writers are often advised to read others' work in order to develop their own skills, would

interacting with example collections have any effect on how potential users understand and create personal digital collections?

To approach these related notions, we conducted a user study that provides initial data regarding the following more specific questions:

- For what purposes do people create their own and use others' personal digital collections?

- How do people conceptualize the design process for creating personal digital collections?

- How does exposure to examples of "poetic" collections like Dr.Dada's affect how people create their own collections?

We determined that a lab-based experiment was the best means to investigate these questions. We wanted to see how people approached the collection design task on their own, whether or not they had created collections in the past, and we wanted to assess and compare collections that they created. We then wanted to see if interacting with "poetic" collections, ones that exhibited all three of the expressive characteristics from the earlier study, changed participants' conceptions of the task, or the characteristics of the collections that they created. A simple within-subjects design accommodates these goals.

METHOD

To prepare a controlled environment for our study, we created two themed video libraries, implemented using the open source Open Video Digital Library Toolkit (OVDLT), an easy-to-use digital library system for video that includes facilities for users to create personal collections (called playlists in the OVDLT interface) [10]. The OVDLT playlist feature enables users to title a collection, to add videos to it, and to include a description of the playlist as a whole, as well as individual annotations for each video. Users cannot rearrange videos in the list once added; in the study, we instructed participants to plot an order in advance if they wanted to specify an arrangement for their collection.

Study Libraries

In selecting themes for our test libraries, we identified broad, complex subject areas within which users might form a variety of ideas and opinions, to provide a fertile ground for the potential creation of interesting collections. We decided on "Sustainability" and "Texas" as subject domains with wide-ranging expressive potential (citizens of Texas, where our study was conducted, tend to have intense pride in their state, in a way that differs from other states in the U.S.; new residents respond to this in different ways).

We collected videos on these topics from around the Internet, focusing on material to represent a diverse array of subject matter, ending up with 51 videos in the Texas collection and 94 videos in the Sustainability collection. To enable study participants to explore and select videos

without necessarily watching them, we developed a set of browsing categories for each collection and cataloged the videos with the following additional metadata:

- Title.

- Sentence summary, to encapsulate the primary argument or action.

- Abstract, to describe the video's arguments and documented action, including important participants, location, and other contextual information to help the viewer understand the video's significance.

- Responsible entities, including on-screen participants, director, producer, sponsoring institution (e.g., the TED conference), and original broadcast context (e.g., PBS).

- A creation date and/or broadcast date.

The metadata was created according to a detailed set of content rules to ensure consistency across records. To avoid undue influence in participants' interpretations of the videos, catalogers were directed to avoid evaluative judgment. (As an example, describing the Austin, TX landmark of Barton Springs as "beautiful" was excised from a video abstract as an inappropriate assessment.) Entries were copyedited by a single proofreader to harmonize deviations in approach.

Study Protocol

Participants were instructed on the OVDLT interface using a demonstration video collection of classic cartoons. As part of this instruction, participants created a practice playlist. Then, participants were introduced to one of the test collections (odd-numbered participants saw the Texas collection first, while even-numbered participants saw the Sustainability collection first) and asked to create their own collection with the test library, according to a brief task scenario. These scenarios provided a skeletal purpose for collection building: either to demonstrate the uniqueness of Texas or to motivate people to be more sustainable. Following a brief interview, participants were then shown two "poetic" examples of personal collections based on the same library they had just been working with. To provide a sense of context, each example was accompanied by a brief, fictitious sketch of the collection's "creator." After reviewing the examples, participants provided their impressions of the sample collections and compared them to the collection they had just made. Next, participants were introduced to the second test library and asked to create a second personal collection, following the same instructions as when they created the first collection. A final interview concluded the session.

Study Example Collections

Our sample collections were created to embody the three expressive characteristics identified in the initial humanistic study and to display different approaches to the subject matter at hand. Each example went through multiple rounds

Goodbye Texas

created by study1
Videos: 9
Views: 76
Added: 2011-02-19
Last Updated: 2011-02-19

After my husband and I had our second child, we both decided it would be helpful and beneficial for our children and our sanity to live closer to family members for support. My own parents died a few years earlier and my husband's close knit family all lived in the same community. Unfortunately, that community was outside Dallas, Texas. I always hated Texas, but I decided to put away my biases and keep an open mind for the sake of my family. We moved to Texas even though I remained skeptical, thinking it would be the best thing for our children. Huge mistake! Despite my initial attempts to find positive aspects of Texas, every stereotype I ever had about the state and the majority of its citizens has proven not only to be accurate, but much worse than I possibly could have imagined. This collection of videos describes only some of the many reasons I hate this state. After living here for a couple of years, my husband and I are now taking our children away from this god awful place. After viewing this collection, I'm certain you'll see why.

Displaying all 9 videos

Martyrs of the Alamo: The Birth of Texas, Part One (1915)
An introduction to and the first several scenes of D.W. Griffit's 1915 "The Birth of Texas".

Ah the Birth of Texas. A time when civilized, upstanding and virtuous Anglo citizens of the United States escaped East Coast oppression only to find savage foreigners living in their promised land. When filmmaker and ardent KKK supporter DW Griffith extols the virtues of the founding of your state, you might want to move if possible...particularly if you aren't an Anglo!

Figure 1: Goodbye Texas sample collection

The Beauty of Sustainability

created by study1
Videos: 6
Views: 59
Added: 2011-02-23
Last Updated: 2011-02-23

Why do so many sustainable practices result in beautiful objects? A single-produced, hand-crafted objects.. scenes of awe-inspiring nature... living architecture that actually grows, in complex natural patterns... gardens inspired by the natural growing tendencies of plants... the minimalist simplicity of ancient, time-tested, sustainable technologies... The results of our industrialized, efficiency-focused practices pale in comparison to these natural beauties. Whether truly sustainable or not, the results of some of these sustainability experiments and practices ARE TRULY GORGEOUS.

Displaying all 6 videos

Magnus Larsson: Turning Dunes into Architecture (2009)
Magnus Larsson details a plan to build in the Sahara using sand itself.

Check out what can be made using sand- actual buildings that people could live in! As an artist myself, I know that sometimes the greatest constraints bring out the greatest creativity. This is obviously an example of that phenomenon- these dune buildings are unlike anything you would see made out of steel cement, or any of your typical industrial building materials.

Figure 2: The Beauty of Sustainability sample collection

of development by the research team. The final samples were assessed for expressiveness by at least three raters, following the same protocols used for participant-created collections (described in the next section of this paper). For the Texas collection, our two samples were:

- The Non-Texan's Guide to Austin (an excerpt from the collection's overall description reads: "I hope this playlist provides an inspiration for an enjoyable exploration of this great city!")

- Goodbye Texas (an excerpt from the collection's overall description reads: "This collection of videos describes only some of the many reasons I hate this state.")

For the Sustainability collection, our two samples were:

- The Beauty of Sustainability (an excerpt from the collection's overall description reads: "Why do so many sustainable practices result in beautiful objects?")

- What Does It Take to Be Sustainable? (an excerpt from the collection's overall description reads: "I've selected most of these videos to question them. Is buying chips packaged in a bag made of more recycled material really a sustainable practice?"

Figure 1 shows the overall description and one video for the Goodbye Texas sample, the most extreme position of the four examples, while Figure 2 shows a similar excerpt from The Beauty of Sustainability, which takes a more moderate perspective on its subject matter. (The title and sentence summary for the video, in plain text, are automatic imports from the test library's metadata, and appear in any playlist; the italicized text shows a user-contributed annotation to the standard metadata.)

DATA ANALYSIS

Twelve participants completed the protocol. While this sample was not large, it was appropriate for the preliminary nature of our study. Moreover, each participant contributed

multiple rich data sources: two digital collections as well as associated interviews. Seven participants were age 25 or under, four were in the range of 26 to 40, and one was older than 56. There were nine women and three men, and nine participants were associated with the University of Texas, while three had no academic affiliation. Of the university participants, three were in the School of Information, two in business, two in psychology, and one from natural sciences. The last was a staff member in technology resources. A preliminary coding scheme was developed based on an inventory review of all interview transcripts, and each transcript was coded by two researchers, with additional codes added as necessary.

Analyzing the collections posed methodological challenges associated with the interdisciplinary genesis of this project. As explained via humanistic inquiry, expressive characteristics of eclectic purpose, authorial voice, and emotional intimacy are not discrete, measurable attributes, and it can certainly be seen as problematic to investigate creative expression with social-science data analysis. Trying to rate, for example, the relative expressiveness of *Hamlet* and *Othello* would be meaningless. Still, for the design context of our user study, we needed to determine reasonably consistent dimensions for comparison, even if our conclusions could only identify large differences between groups of collections, rather than subtle ones between individual instances. Accordingly, our goal in developing a collection assessment protocol was to obtain reliable data for comparing divergently expressive artifacts (e.g., comparing *Hamlet* to a grocery list) as opposed to comparing similarly expressive artifacts (e.g., *Hamlet* to *Othello,* or even one grocery list to another). We believe that we can consistently describe distinctions at this level.

Our assessment process looked at each expressive characteristic in turn and described how it was demonstrated in a collection through resource selection,

resource description, and arrangement. First, assessors described, in free text, how the collection manifested each characteristic (e.g., "describe the purpose that you identify"). For selection and description, assessors applied codes for each instance within the collection where a particular aspect of selection or description seemed to contribute to the identified purpose. Description codes identified both the substance of content, with codes such as "experiences" and "feelings" and the means by which content was expressed, such as "sentence structure." Selection codes addressed video content, genre (like a lecture or a demonstration), goal (like education or advocacy), and the creator. For arrangement, assessors described any effects in free text. Finally, assessors assigned a rating on a scale of 1-10 for each characteristic and for overall expressiveness.

FINDINGS

Our first research question asked why people create personal digital collections of any sort, and what benefit they might see for looking at others' collections. Seven participants, or roughly half, indicated that they had created some sort of publicly available personal collection, such as a YouTube playlist. All these participants mentioned personal information management as the motivation for creating collections. A typical explanation for creating a collection, in this case a YouTube playlist, was:

> Participant 10: *So that if I were to come back to it... If I were to have an interest in coming back and viewing this content, that it'll be easier to... It'll be right there for me, basically, as opposed to having to go back to YouTube home, do the search again, select the content again, so...*

> Interviewer: *But did you think about sharing the resources with anyone, or just sort of...?*

> Participant 10: *No, not really.*

No participants created collections specifically for other people to look at. Eight participants mentioned using collections created by others, but they primarily did so to simplify retrieval based on existing, identified information needs. This participant's experience was typical:

> Participant 11: *...on YouTube, some people would compile, like, for example, a playlist of a certain artist, and I would just check that out so I wouldn't have to scramble and look for songs of one artist.*

A few participants described using others' playlists to potentially discover new interests, often in relation to music. This participant discussed using other peoples' playlists on a music site, Groove Shark:

> Participant 7: *To find new music and see...because if someone else has liked a certain song that I like then I think maybe they have similar tastes and they've found new music that I can like as well.*

Overwhelmingly, however, participants considered personal collections as private information-management tools and not as public expression. These findings confirm those of [12] that users of museum personal collection services consider their collections as private favorites. In other words, most users do not have an existing conception of the expressive possibilities of personal digital collections.

Our second research question asked how users conceptualize the process of creating personal digital collections. The initial humanistic study suggested that meaning is generated through the selection, description, and arrangement of resources in a collection, and that those communicative mechanisms can be manipulated to produce the expressive characteristics of original purpose, distinct authorial voice, and emotional intimacy. Our participants focused on selection in creating their collections. No one mentioned description or arrangement except when prompted by an interviewer. Only six out of the 24 total collections employed descriptive annotations; only one participant plotted out a careful order for a collection.

Participants did, however, employ a sophisticated array of selection criteria in creating playlists. Many considered various aspects of video content, including personal interest in the subject matter, appeal to an imagined audience, and applicability to the participant's strategy regarding the scenario task (for example, a number of participants wanted to select videos that showed diverse aspects of Texas, as a means of interpreting the scenario's direction to "create a playlist that shows the distinctive character of Texas"). Often these criteria were used together, such as considering both personal interest and audience appeal, as the following quotation illustrates:

> Participant 6: *So, like there's a thing in there about some guy in Atlanta. Well, I went to school in Atlanta. So, I put that in there because, you know, it's about food and Atlanta, and I like that. And I feel like people are very into being healthy, as well and I also went to both of those interests, potentially.*

Table 1 shows the selection criteria for all collections.

Selection criteria	# of Collections Referenced (n=24)
Fits participant task strategy	19
Personal interest in content	12
Audience appeal (seen as interesting, informative, amusing, etc., to others)	9
Credibility of video creator, sponsor	4
Video length	3
Video popularity (as automatically generated by the OVDLT software)	1

Table 1. Participants' selection criteria

Collection Group	Ratings				Total # Codes Assigned	
	Expressiveness	Purpose	Voice	Emotion	Selection	Description
All examples, mean	7.9	9.1	8.7	6.5	23.8	43.5
All participant collections, mean	2.5	4.3	2.3	1.5	10.7	4.1
Sustainability collections, mean	2.5	4.4	2.0	1.4	10.9	3.9
Texas collections, mean	2.5	4.2	2.5	1.6	10.5	4.3
Task 1 collections, mean	1.9	3.9	1.5	1.1	8.0	2.8
Task 1 collections, median	1.5	4.0	1.0	1.0	7.5	0
Task 2 collections, mean	3.2	4.7	3.1	2.0	13.4	5.4
Task 2 collections, median	2.0	5.0	3.0	1.0	10.0	1.5

Table 2. Descriptive statistics for participant collection assessments

When participants discussed what they liked about their collections, they invariably mentioned selection-based characteristics, often referring to a good balance of topics, as in this participant remark:

> Interviewer: So what do you like about this collection that you ended up with?

> Participant 5: *I think it's a good range of topics relating to sustainability and probably doable topics.*

While participants thought carefully about resource selection, description and arrangement were afterthoughts, if considered at all. A single participant, P12, mentioned taking care with the order of his second collection. These efforts were noticed by both assessors of this collection, who interpreted the arrangement in similar ways:

> Rater 1: *This arrangement expresses a purpose in going from the broad aspects of Texas and its patriotism, to its geography, before concluding with more specific cultural practices.*

> Rater 2: *I think the playlist goes from general (Texas songs, landscapes) to specific places (specific locations and businesses in Texas).*

However, both raters noticed the arrangement and ascribed meaning to it primarily because it aligned with an overall collection description, which read:

A compilation of sights and sounds (and smells) of Texas. From the Panhandle to South Padre, the Republic of Texas is a country all in its own.

As the first rater wrote, "the general to the specific in the playlist progression combined with the description" contributed to the collection's expressiveness; without the description, the arrangement's force would have been lost. However, the participant did not mention writing this annotation during the interview; it wasn't apparently important to point out.

Together, these findings suggest that for the participants, developing resource collections primarily involves selection; description and arrangement play minor parts if any. However, for the raters, the contributions made by selection to a collection's expressiveness were difficult to identify without additional descriptive elements, such as a title to convey the collection's purpose or annotations to clarify how videos contribute to the collection's theme. Descriptive statistics for the collection assessments, shown in Table 2, bear this out.

Acknowledging that these assessments only show rough comparisons between collections, the differences between examples and participant collections are strongly marked. Participant collections are much less expressive, as determined by the raters, than the examples, and the differences hold for all three of the expressive characteristics. Raters noted extensive use of descriptions in the example collections, while the participant collections showed dramatically fewer description effects. Differences between Texas and Sustainability participant collections were negligible. There was a very modest rise between Task 1 and Task 2. (After Task 1, participants had examined the examples and been asked to compare them to the first collection they made.) However, there was also more deviation between collections in Task 2 than for Task 1, as showed by the wider difference between average and median for overall expressiveness with Task 2. While a few participants achieved more expressive collections for Task 2, the findings suggest, most did not.

Regarding our third research question, exposure to poetic collections did not seem to change how participants approached their design task. However, despite consistency in their own design processes, 11 out of 12 participants noted the use of descriptions in examples. Further, all of these 11 noted at least one expressive characteristic in the examples (not, of course, using this terminology, which was never introduced to the participants). All 11 mentioned purpose, 10 noticed voice, and 4 referred to emotion. These findings are especially significant given that few of the participants had previously used others' collections for reasons beyond simplification of retrieval tasks, and none mentioned encountering, in their own experience, personal digital collections that were interesting from the standpoint of creative expression.

In the following exchange, a participant notes how the Goodbye Texas sample used videos to create a form of expression. The participant refers to the sample's purpose (to criticize Texas) and its voice (the person who created the list "came to life"):

Participant 1: *These really come to life. Mine are just kind of bland. . . The annotations, I feel, make you want to look at them. . . Also, the person creating the playlist comes to life too. Especially in this "Goodbye Texas" one. Her opinions.*

Interviewer: *Anything else you can think of about those lists compared to your lists or compared to each other?*

Participant 1: *Well. With this list, a number of videos that I didn't put on my list because my political/cultural values are in opposition to them, this person chose. And then used for her own means, to point out certain things about Texas.*

Interviewer: *So do you feel like they would maybe have a different meaning if it wasn't...*

Participant 1: *Well, she's looking at them with a critical eye.*

Interviewer: *OK.*

Participant 1: *And I didn't include them because I was looking at them with a critical eye. Not thinking, "Oh, I could create them." And try to get somebody else to see them from a different point. And I liked that about it.*

This participant thoughtfully explains how the Goodbye Texas annotations work to "create" the selected videos in a new way, suggesting a new interpretation for the reader. The participant also notes that she had not previously considered using the form of a personal digital collection to make a statement in that way. Despite this recognition, however, Participant 1 did not change her design approach for her second collection. She didn't use annotations in either collection, and both assessors assigned an overall expressiveness rating of 1 for both her collections. Figure 3 shows Participant 1's second collection, titled "sustainability" (the text in the playlist is standard metadata from the test video library; no annotations were used).

DISCUSSION

Our work confirms that people tend to think of personal digital collections, both their own and those created by others, as information-management tools, and not as documents to be read for enjoyment or illumination. However, when confronted with collections that were less like tools and more like documents, in the form of our examples, the participants were able to "read" them fluently, without prompting or instruction on our part. These findings are revealing on two complementary levels: that of the artifact, and that of activities involving the artifact. On the artifact level, the distinctions that participants made in talking about their collections and our

Figure 3: Participant 1's sustainability collection

examples suggests that multiple document genres may exist within the larger space of personal digital collections. Regarding activities, differences in the ways that participants approached interacting with the example collections and creating their own collections suggest that reading and writing activities may vary by genre, and both these activities might benefit from different forms of interface support. In this section, we describe two streams of additional research that lead from these observations. One stream returns to the domain of the humanities, while the other takes a design approach.

Collections as artifacts: understanding the range of genre diversity

The initial humanistic investigation considered personal digital collections as a single genre, given the structural similarities between all instances of this form. The differences between lists that exhibited the three expressive characteristics and those that did not seemed to be differences of degree, rather than indicative of speciation. Similarly, when Eco discusses pragmatic and poetic lists, he notes that distinctions between the two can be vague and contested, due to their essential closeness of form. For Eco, a pragmatic list can become poetic if it is perceived as such, a notion echoed by William Davies King in describing his lifelong obsession with collecting ephemera, such as cereal boxes and business cards [7, 11]. King's "collections of nothing" obtain meaning through an authorially informed process of accumulation; his cereal boxes become poetic when set against the context of King's life experience as a collector, as conveyed through his book. In one episode, King's boxes gain another layer of meaning as they are reorganized with the assistance of his children. In contrast,

if the boxes were discovered on their own in a crowded storage space, their poetry would be elusive.

Findings from the user study, however, suggest that different types of personal digital collections might instead constitute distinct artifact genres. In current genre theory, a genre comprises not just recognizable, consistent structural elements (such as line breaks in a poem or the salutation in a letter) but a shared purpose that such conventions serve, as maintained and modulated by a group of skilled writers and readers; as such they are a form of social action [5, 17] Joanne Yates, for example, discusses how the genre of the memo both reflected and helped shape emerging corporate business practices in the mid-nineteenth and early twentieth century United States [21]. Memos, among other functions, provided a structure for data to be summarized and decisions quickly made on that basis.

Our participants read the sample collections and their own creations in strikingly different ways. While Participant 1, for example, cogently described how the Goodbye Texas collection differed from her own first collection attempt, she made no attempts to change her design strategy for the second design task. One explanation for this apparent dissonance is that the participant instinctively viewed her own collection as a different type of artifact from the sample, with different characteristics and a different purpose. A chance remark from another participant further hints at such distinctions. This participant mentioned that she used the social media service GoodReads for personal information-management purposes, "to keep track of the books she was reading." However, she experimented with Google Boutiques, where users create fashion collages that illustrate their personal style, in a different way, saying "that's just more of like a fun thing that I do." Such comments point to different goals, expectations, and actors in a different social context, suggesting separate genres for the two collection types, private information-management tool and audience-focused public expression.

One area for further research involves more comprehensive survey of the personal digital collection landscape, across subject domains (fashion, books, music, academic citations, to name a few) and sponsoring institutions (nonprofit and for-profit variations), to get a better sense of the shape of these two potentially distinct genres (and, indeed, to see if additional genres become apparent) and how they relate to each other. Genre analyses of this sort have been performed by rhetoricians such as Clay Spinuzzi and Anis Bawarshi, and by functional linguists such as Vijay Bhatia [19, 3, 4]. A project to map the range of genre diversity in the personal digital collection space is interesting for reasons beyond interaction design of collection services, although it may be productive there as well. Understanding the genre distinctions between forms that appear very similar, and that may be created as part of the same social media service, with the same tools, as in the examples of Dr.Dada and laurenmurphy, or in our sample collections and those

our participants created, may additionally contribute to genre theory itself, expanding our ideas of what genres constitute and how they manifest.

Activities with collections: interface support for reading and writing
While a systematic genre analysis of personal digital collections is an exciting research prospect, even the basic insights from the user study's findings, absent further investigation, point towards fruitful possibilities for interaction design of collection functionality. If we hypothesize from this study that collections for personal information management require a different approach to reading and writing than audience-focused collections for public expression, we can use this supposition to inform design experiments.

If we imagine that a digital library, for example, wants to take advantage of its user community to "curate" personal collections as a means of exploratory access, our hypothesis suggests that readers and writers of these potentially complex documents will be better supported in their activities if privately oriented lists of favorites and hastily saved search results are separated from collections specifically crafted for an outside audience. For readers, this clarifies the goals with which one productively approaches such collections: discovery, enjoyment, and intellectual engagement, for example, and not directed retrieval tasks. For potential writers, the benefits are twofold. First, aspiring writers can access a repertoire of examples to illustrate the potential of the form, in a persistent way, as opposed to the single encounter of our study. Second, this approach emphasizes a clear audience and publication venue. If a reader only encounters expressive collections opportunistically, then there is little confidence that, as a writer, one's efforts will be received by an audience, and the motivation to create lessens. From a "writing" perspective, creators who are interested in using collections as private information-management tools do not require sophisticated features for description and arrangement, or do not need such features to be emphasized. But writers of audience-focused public collections can be supported in achieving the three expressive characteristics by integrating the activities of selection, description, and arrangement, and by incorporating opportunities for instruction within the interface.

We can test this hypothesis by developing design prototypes that structure a mode of reading and writing optimized for audience-focused public collections, to separate them from privately focused lists. Figure 4 shows part of a prototype we are developing to illustrate how such support could be integrated into a digital library or collection-oriented Web site. In future work, we intend to use this prototype to explore the potential of system-supported collection design.
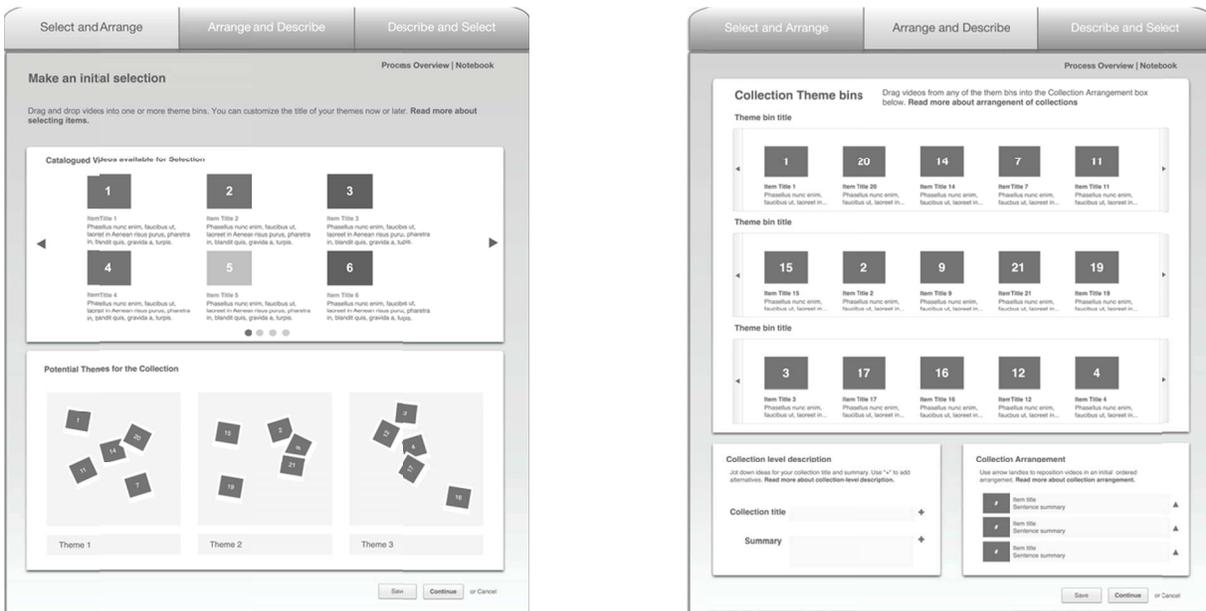
Figure 4: Two parts of a prototype to support writing activities for audience-focused public collections, separate from private information-management collections. First, the user drags videos into tentative collections (left). The application next prompts the user to describe the items and refine arrangement. In a subsequent step (not shown) the user makes and describes final selections.

BEYOND THE COLLECTION: CURATORSHIP AS EXPERIENCE

This study shows how conceptual understanding of an information artifact, the personal digital collection, derived from critical inquiry in the humanistic tradition, can inform the goals of a user study, and how the understanding gained from both these investigations can lead to better understanding of a design space. The initial humanistic study provided a new understanding of how personal digital collections can marshal expressive power. From this user study, we have gained additional insights about the artifacts under investigation: the distinctions between private information-management collections and audience-focused expressive collections are perhaps even greater than initially supposed. Moreover, we have a sense these two different artifacts (potentially distinct genres) employ different modes of reading and writing, and thus require separate interface support.

At a higher level, these findings suggest that the activity of curatorship is evolving in character as it expands into new domains (both in terms of content and media) and is undertaken by new actors. In addition to the investigation of collection genres and the design of tools to support their production and use, we might examine the notion of curatorship more broadly as a form of experience, from both writer and reader perspectives. What makes the act of curatorship, as opposed to its product, meaningful? When does engagement with a user-curated collection transcend the properties of its object to become a sort of end in itself? And how do the possibilities afforded through digital materials and digital environments contribute to the changing nature of these experiences? Such questions represent further opportunities for interdisciplinary efforts, such as this one, that employ humanistic critical inquiry to illuminate an interaction design space.

REFERENCES

1. J. Bardzell. Interaction criticism and aesthetics. *Proceedings of ACM CHI,* 2357–2366, 2009.

2. J. Bardzell, J. Bolter, and J. Lowgren. Interaction criticism: three readings of an interaction design, and what they get us. *Interactions,* 32–37, 2010.

3. A. Bawarshi. *Genre and the invention of the writer.* Logan, UT: Utah State University Press, 2003.

4. V. Bhatia. *Worlds of written discourse.* London and New York: Continuum, 2004.

5. C. Bazerman. *Shaping written knowledge.* Madison, WI: University of Wisconsin Press., 1988.

6. Dr.Dada. Dr.Dada's color collection. Seattle Art Museum Web site, 2007. Retrieved January 16, 2012, from
http://www.seattleartmuseum.org/emuseum/code/em

useum.asp?emu_action=searchrequest&moduleid=6&profile=mySAM&currentrecord=1&style=single&rawsearch=mysamid/,/is/,/113/,/false/,/false

7. U. Eco. *The infinity of lists.* McEwen, Alastair, trans. New York: Rizzoli, 2009.

8. S. Filippini-Fantoni and J. Bowen. Bookmarking in museums: extending the experience beyond the visit? *Proceedings Museums and the Web,* 2007. Available at: http://www.archimuse.com/mw2007/papers/filippini-fantoni/filippini-fantoni.html

9. M. Feinberg. Personal expressive bibliography in the public space of cultural heritage institutions. *Library Trends* 59(4): 588–606, 2011.

10. G. Geisler. Open Video Digital Library Toolkit software. Documented at http://www.open-video-toolkit.org/

11. W. Davies King. *Collections of nothing.* Chicago: Chicago University Press, 2008.

12. laurenmurphy. Laurenmurphy's "my favorite works" collection. Seattle Art Museum Web site, 2009. Retrieved January 16, 2012, from http://www.seattleartmuseum.org/emuseum/code/emuseum.asp?emu_action=searchrequest&moduleid=6&profile=mySAM&currentrecord=1&style=single&rawsearch=mysamid/,/is/,/798/,/false/,/false

13. J. Lowgren and E. Stolterman. *Thoughtful interaction design: A design perspective on information technology.* Cambridge, MA: MIT Press, 2004.

14. P. Marty. My lost museum: user expectations and motivations for creating personal digital collections on museum websites. *Library and Information Science Research*, 33(3): 211–219, 2011.

15. P. Marty and M. Kazmer. Introduction to understanding users. *Library Trends* 59(4): 563–567, 2011.

16. michelem. Michelem's modern and contemporary collection. Seattle Art Museum, 2007. Retrieved January 16, 2012, from http://www.seattleartmuseum.org/emuseum/code/emuseum.asp?emu_action=searchrequest&moduleid=6&profile=mySAM&currentrecord=1&style=single&rawsearch=mysamid/,/is/,/162/,/false/,/false

17. C. Miller. Genre as social action. Reprinted in A. Freedman and P. Medway, eds. *Genre and the new rhetoric.* London: Taylor and Francis, 1994.

18. rodrigue. Clinical decision making, a Penn Tags project by rodrigue. University of Pennsylvania Libraries Web site. No date. Retrieved January 16, 2012, from http://tags.library.upenn.edu/project/3984

19. C. Spinuzzi. *Tracing genres through organizations: a sociocultural approach to information design.* Cambridge, MA: MIT Press, 2003.

20. A. Williams. On the tip of creative tongues. *New York Times,* October 4, 2009.

21. J. Yates. *Control through communication: the rise of the system in American management.* Baltimore, MA: Johns Hopkins University Press, 1993.