

Unleashing collections and the stories they hold

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Abstract

Collecting is a fascinating area of human experience. Collections are used to express the collector's knowledge and experience, as well as reveal their extended identity. The emergence of computing systems creates good opportunities for collectors to significantly increase the number of people they can share their collections with. Surprisingly, few tools exist that support the process of displaying and organizing collections and the stories they hold.

This project is about discovering how collectors could further construct their collections in a virtualized version to preserve the rich experience behind their collections, share more knowledge and beauty with people, and present an image of their self in terms of their collections. A website is designed which allows collectors to track long-term collecting activities, create relevant metadata online, discover internal connections between items or sets, and share more information with a larger audience.

1. Introduction

People have been collecting for centuries. It is well documented that the origins of personal collections date back hundreds of years. Nearly one in every three people in North America collects something (O'Brien 1981), and nearly two-thirds of American households contain one or more collectors (Schiffer et al. 1981). Many people define themselves as collectors, and see collecting as an important part of their lives.

Collecting is a long-term activity, including seeking, acquiring, organizing, displaying, storing and maintaining material possessions. Supporting tools become indispensable for shaping a more satisfying collecting experience. Currently, collectors are able to search and obtain collectable objects in both physical ways such as flea market and antique stores, and digital ways such as eBay online shopping system. Collectors often use simple methods to track and organize their collections such as spreadsheets, catalogs and labels. However, they are not able to display all their collections at home due to limited space. Most collectors can only display a small set of their favorite items in their living rooms or study rooms.

Lack of displaying tools may result in disconnection between collectors and other people. Since collectors usually attach their personal experiences, rich knowledge, or even their extended self (Belk 1988) to their collections, there is a need for communication channels to convey the value of objects and the meaning of collecting activities. Without displaying tools, collectors are unable to share their physical objects and the stories they hold with a wide range of audiences. They may lose chances to exchange further information, gain deeper knowledge, and get more feedback. Many collectors are very knowledgeable and eager to educate people who are interested in the same area. Sharing collections with other people is one way to compare and compete with others. Through sharing, collectors gain recognition and a feeling of pride and accomplishment (Jackson 1976; McClelland 1961; Witty and Lehman 1933).

In order to better display collections and explain them in an understandable way, organizing tools are also important. Physical methods can record basic information for each item, but they cannot reveal the complex interrelationships among items and sets. Collectors, at times, have difficult explaining what they collect and why they collect. Collections are not only composed of single items. One reason why they are unique is that all items are in different sets and internally connected with each other under certain themes.

Thus, a desire for better displaying and organizing collections reveal a good design opportunity. Can design utilize new technology to break the con-

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straints the physical world imposes on collectors and collections?

By following a human-centered design approach, I designed a collecting website. It allows collectors to take advantage of multiple organizational principles to better display their objects online, explore the internal connections between items or sets, preserve and share related experiences and knowledge with other people, and obtain access to a wider range of resources. I took a step towards utilizing new technologies to help bridge the gaps between physical objects and related information, as well as collectors and their audience. This interactive platform is beneficial for collectors to share stories behind collections, connect people who have similar interests, increase the value of collecting, and fulfill collectors' needs physically and emotionally.

2. Related Work

2.1 Definition of Collecting, Collector and Collection

Collecting is a profound behavior. It has been studied from various disciplines such as anthropology, psychology, cultural economics, consumer behavior, consumer policy and material culture. Researchers have provided several definitions in order to capture the complexity of collecting behavior.

For example, from the perspective of material cultural, Akin described collecting as “an effort to remember and relive the past” (Akin 1996). From business and consumer behavior point of view, Belk defined collecting as “a common, intensely involving form of consumption” (Belk 1995). In the field of cultural economics, Bianchi claimed that, “collecting is an activity which creates a context, a frame of reference, for managing and producing novelty” (Bianchi 1997). The most concrete definition of collecting is found from Belk that “Collecting is the process of actively, selectively, and passionately acquiring and possessing things remove from ordinary use and perceived as part of a set of non-identical objects or experiences” (Belk 1995).

To better understand the behavior of collecting, it is important to define the collectors and the collections. Belk emphasized that collecting requires acquisition and passionate involvement (Belk 1995). Acquisition makes a collector not only possesses a set of collectible objects but also continues to acquire additional things for enriching the set. Passionate involvement makes collectors competitive and feel attached to their collections even though the ways they treat their collections seem irrational. Here, the form of competition is revealed to take place with both self (Jackson 1976; McClelland 1961) and others (Witty and Lehman 1933). Collectors may share a kindred passion, learn some knowledge, compare the collections with other collectors, or compete against their own criterion, in order to gain the achievement of pride and accomplishment. Belk suggested that a successful collector must be “shrewder, quicker, more knowledgeable, more discerning, more diligent or simply luckier” than others (Belk 1995).

In terms of collection, researchers have found several features to describe it. First of all, collectable objects are not put in use while non-collectable objects are primarily intended for use (Belk 1995). Durost specified that collectible items must contribute to the whole set of collection by more than the utilitarian and aesthetic appeals (Durost 1932). Thompson also pointed out, “Obsolete items may appeal to collectors even more strongly because of their obsolescence” (Thompson 1976). Collections are managed by sets. In order to perceive things interrelated, it is crucial to define the boundaries of the sets and include the appropriation in the collection. “These boundaries can be either conceptual or perceptual (Belk 1995).” Items in a collection

must not be identical (Danet 1989; Nicholson 1994; Walls et al. 1975). Collectors may concentrate on either expanding or upgrading their collections, which allows either quantitative or qualitative growth as a result (Belk 1995). Collectible items can be physical objects or experiences. They are not in themselves necessarily high in value. Yet, they are often rare or difficult to assemble.

2.2 Distinguishing Collecting from Accumulating and Hoarding

Collecting, accumulating and hoarding are different types of possessing with their own purposes in people's life. Several researchers specified that collecting is a special possessing of items or obsession by the owner (Kron 1983; Danet et al. 1986). This distinguishes the collector from the possessor of a bunch of objects assembled by someone else. One has to know the definition of an accumulator: "who is acquisitive, but lacks selectivity" and a hoarder: "who is possessive, but views the items possessed" (Belk et al. 1988; c.f. McKinnon, Smith, and Hunt 1985). Although either collecting activities or other acquisitive activities can be obsessive and compulsive (Jensen 1963), the degree of obsession is the key to distinguish the accumulator, hoarder from collector.

To differentiate collecting from other obsessing behaviors, the items' value in a collection should go beyond its utilitarian qualities. As mentioned before, although items collected may have their own functional or aesthetic value, they must additionally have significance to the collectors because of their importance in contributing to the group of items that comprise the collection (Durost 1932). It was mentioned that the origin of hoarding typically arose from accumulation by consumers who experienced horrible distress. "The behavior of hoarding goods intending for the owners' investment value for utilitarian reason rather for collecting" (Belk et al. 1988). Even though collectors may consider investment as a secondary purpose, they have much more passion and feeling attachment than hoarders. Interestingly, Belk suggested that accumulating could transit to collecting under the circumstance when the one selectively forms collections by "imposing or finding a unifying principle for items accumulated" (Belk 1995).

2.3 Motivations for Collecting

There is considerable diversity in the motivations of collections for collectors. Based on Belk's previous research (Belk 1995), "a feeling of mastery, competence, or success" is the most general motivation. As the creator and the possessor of the collections, collectors feel the power of control in the "little world" of the interrelated sets of collections. Except the physical control, collectors are able to generate the "illusion of control" (Breckenridge 1989) and demonstrate their "relative prowess and the effects of superior knowledge, tenacity, monetary resources, cleverness, or luck." At the same time, since

or knowledgeable skills may also affect collectors' motivation. In addition, collectors can be content by getting opportunities to "stand out as being unique" by their self-selected possessions (Taylor 1980; Jackson 1989).

Another related motivation is referred to the thrill of the hunt (Belk 1995), which makes collector's behavior interesting and meaningful. Actually, search behavior is frequently described as both an obsession and a compulsion (Belk et al. 1988). Furthermore, passionate collectors subsequently devote their lives to collecting because they own the feeling of rescuing and saving. They believe that it is right and necessary to reserve the objects for the history and the society.

2.3.1 Incompleteness and Addiction

The addiction and compulsive obsession seem to be the key characteristics in the process of collecting. One element makes collecting attractive and addictive is that collecting represents "an exception to the law of diminishing desire" (Binachi et al. 1997; c.f. Viner 1968). Sometimes, the last unit of the items for completing a set of collection may be desirable, or even more desirable than the first unit. The motivation to complete the collections will keep the desire undiminished. Baudrillard also emphasized the incompleteness as one of the main motivation in collecting. The fact of the incompleteness makes a collection "transcend mere accumulation" in the end (Baudrillard 1997).

Also, it is found that collectors have a feeling of inadequacy (Belk et al. 1988; c.f. Delattre 1986) and an intention of "fix" by adding new items to the collections (Belk et al. 1988). However, Peele considered addiction is not a positive condition. He suggested, "Insecurity prompts the addicted individual to seek reassurance through a repeated ritualized activity" (Belk et al. 1988; c.f. Peele 1985).

2.3.2 Legitimizing Acquisitiveness

Legitimizing acquisitiveness is another source of motivation in collecting behavior. The collections can become meaningful and worthwhile when others provide their appreciation and recognition, which legitimize the abnormal acquisitiveness. At the same time, the collectors can be given "a sense of noble purpose" (Belk et al. 1988), which can make collectors feel that they are contributing to the part of art, science or history.

Moreover, both Hughes and Meyer suggested that, it would legitimize the collecting activity, if one's collection exhibits in a museum or becomes a museum (Hughes 1987; Belk et al. 1988; c.f. Meyer 1979).

2.3.3 Profane and Sacred Transformation

Belk discussed another phenomenon that "ordinary profane commodities" may transform to "sacred icons" in collecting, which related to legitimization

and sanctioning of acquisitiveness (Belk and Wallendorf 1987). Here, “profane is taken to mean mundane, ordinary, and common, while sacred is taken to be extraordinary, special, and capable of generating reverence.” (Belk and Wallendorf 1987) Usually, the collectible items are merely defined by their own functional purpose before they are collected. However, if they are collected in a set, the items value jumps beyond their own “profane” functional and aesthetical purposes and converts to more personally or socially significant meanings (Kopytoff 1986).

A glass collecting study from Ekström in Sweden found that the individual collections were considered sacred after these collections were exhibited to the public. In the same research, it is also found that some of individual collectors gave the objects more prominent placement at home after they were exhibited. The exhibition to the public seemed to reinforce the value of the objects (Ekström et al. 2007). Meanwhile, it was noted that collectors would never sell items as long as they belonged to their collection’s sets (Belk et al. 1988).

2.3.4 Collector’s Identity

The growing of collector’s sense of self is another related motivation. In the field of psychology, it was found that collections can aid self definition in children’s development” (Witty and Lehman 1930; Tooley 1978). Muensterberger also demonstrated that control of the collection brings “relief of the child’s anxiety and frustration that comes with feeling helpless and being alone” (Muensterberger 1994). From anthropological perspective, Fusco and Lee pointed out that collections represent one’s “occupation, family heritage, or appearance” (Belk et al. 1988; c.f. Fusco 1984; c.f. Lee 1984). At the same time, Stewart emphasized that the connection between collections and collector’s judgments and tastes is visible and undeniable (Stewart 1984). After that, Belk found that collections could be related to personal and occupational history, self-completion (Belk 1995), and the collector’s sense of past (Belk 1991b). Similarly, Akin offered an idea that collecting is based on a need to remember and relive the past. As an expert on the subject of why people collect, she claimed “people collect for a connection to the past and memories” (Akin 1996).

More importantly, Belk suggested that collections are used not only to represent collector’s direct experiences, but also “express fantasies about the self.” He agreed with Stewart’s point of view by further indicating that collections can be seen as “instrumental for development of the self” (Belk et al. 1988). He continued that the reason why the collector spends a lot of time and effort in assembling a collection is that “the collector has devoted a part of self into the collection” (Belk et al. 1988). Thus, Belk defined collections as one part of collector’s extended self (Belk 1988b), which was based on the observation that people present their items and themselves “for inspection and

evaluation" (Dannefer 1980). On the other hand, the concern of self-evaluation was also interpreted as the idea that collectors are eager to be appraised by the experts (Belk et al. 1991). Additionally, McCracken stated the similar idea that collections can help express aloud about collector's self which would not be socially acceptable (McCracken 1988).

2.4 Sharing

The concept of extended self is also mentioned in the study of sharing. Belk analyzed that sharing can be divided to two perspectives which are sharing in and sharing out (Belk, 2010). Sharing in makes the roles of giver and receiver ambiguous, and "extending the circle of people who can enjoy the benefits of the shared resource" (Belk 2010). It is stated that sharing in can enlarge the boundaries of extended self so that people can expand their self-identities through not only possessions but also other people.

The concept of "collaborative ownership" (David 2005) demonstrates points toward a major example of sharing. By sharing content through Internet, people can offer a wealth of resources to others who share the same interests. It encourages more communication and allows more people to realize the uniqueness of certain things.

Although collecting is a very personal and self-indulgent activity, collectors are always passionate to share and compare their knowledge, memories and experience of their collections with those who have the similar interests. Without hesitation, collectors are enthusiastic to devote time and energy to the long-term collecting activity, so that they are able to legitimize their collecting behavior, transform the ordinary objects to sacred, and gain great joy, pride and sense of accomplishment.

Currently, no tools effectively support the process of organizing and displaying collections and the stories they hold. However, with the development of computing systems, there is a good opportunity to break the constraints of physical surroundings and explore virtual potentials. As an interaction designer, I want to discover how collectors could construct a virtual version of their collections, in order to preserve the rich experience behind their collections, share more knowledge and beauty with people, and present an image of their self in terms of their collections.

3. Exploratory Phase

The goal of exploratory phase is to discover how collectors display, share, and organize their collections in their daily life, and frame the potential opportunities for further design. I want to observe the existing tools and methods they use and find out both advantages and disadvantages in the current state. I also want to explore collectors' urgent needs, which have not been met yet.

3.1 Methods

Based on Belk's definition of collecting that "Collecting is the process of actively, selectively, and passionately acquiring and possessing things removed from ordinary use and perceived as part of a set of non-identical objects or experiences" (Belk 1995), I recruited 18 individual collectors in the United States, including 6 females and 12 males. Their ages range from 24 to 62. They were mainly recruited through bulletin board flyers, craigslist posts, collecting events, and collectors' recommendations. I pre-screened these volunteers in order to include a wide range of professions, ages, collections, and duration of collecting activity. All these collectors have collected the same set of physical objects for more than five years and are continuing to actively collect. Their collections involve vintage toys, beer glasses, cobalt blue glasses, depression glasses, coins, stamps, snow globes, train models, antique jewelry, souvenir spoons, ticket stubs, books, bobble heads, lunch boxes, Chinese porcelain, vintage house wares, material related to the maritime history of the Great Lakes, etc.

I began with one-hour contextual interviews in the homes of the 12 local collectors. These participants are living in Pittsburgh area and are easy to access. Meanwhile, 6 remote interviews were conducted via phone calls and emails. Because these participants are located in states of Massachusetts, New Jersey, Ohio, Nevada, Texas and Washington, it is difficult for me to visit their homes and talk with them face to face.

The benefit of contextual interview is that researchers can get access to interviewees' real life, which allows researchers to observe actual contexts and ask direct questions. Contextual interviews can help researchers to catch detailed information, especially for the small clues ignored by interviewees. It can also help researchers to better understand existing problems, needs and desires. In this case, interviews aimed to develop an understanding of three aspects of the collecting relationships, which are collection-to-collection, collector-to-collection, and collector-to-others.

For the contextual interviews, I employed directed storytelling and observation. I asked collectors to describe their motivation for collecting and their feelings attached to their collections. At the same time, I asked them to lead

me a tour of their collections in order to better explain the principles and methods they use to display and organize the collections. I asked collectors to demonstrate their roles in collecting social interactions and show me the tools they use to connect with others, such as websites or newsletters. To gain additional insight into the collecting experience, I also asked collectors to define their characteristics as individual collectors. In addition to the interviews, I took photos, recorded audios, and took field notes during the face-to-face interviews.

For the remote interviews, I asked some collectors to answer the same sets of questions by directed storytelling on the phone and recorded audios. I also asked the rest of the collectors who can only be reached by email to write down their answers on the questionnaire form. Meanwhile, I asked all of these remote participants to send me the photos and additional materials related to the interview content in order to have a full understanding of their collecting experience.

After the interviews, I repeatedly reviewed field notes, audio and photographs. I built a spreadsheet to record participants' interview scripts, compared and analyzed their physical activities and emotional reflections.

3.2 Findings

All participants are experienced and active collectors. Some of them started to collect when they were teenagers, and the longest collecting activity has persisted for more than 50 years. All of them collect at least one set of physical objects that are not used in their daily lives. In pre-screen session, I disqualified two people who accumulate digital photos and woodworking tools. Because based on the previous discussion of collecting, objects have to have additional significance to the set of items beyond their utilitarian and aesthetic values (Durost 1932). One of the unqualified people uses digital photos to create artworks, while the other one still uses the woodworking tools to build furniture.

In general, interviews and observations revealed collectors' common activities of collecting, indicated their potential needs and desires, and displayed their strong motivations. The following sections will discuss my observations in detail:

1. Collectors introduce their collections via stories
2. Collectors dig deep in background research
3. Collectors spend much time with their collections
4. Collectors lack tools to organize their collections
5. Collectors lack space to display their collections
6. Collectors attach their self-identity to their collections

Table 1. Detailed description of participating collectors

No.	Collector	Collection	Duration
01	Graduate student A 25, male	Transformers toys	16 years
		Beer glasses	5 years
02	Graduate student B 30, female	Antique jewelry	15 years
03	Graduate student C 24, female	Souvenir spoons Ticket stubs	10 years 7 years
04	Violist 56, female	Cobalt blue glasses	10 years
05	Hospital employee 31, male	Coins Stamps	7 years 6 years
06	Chef 57, male	Anything Steelers	12 years
07	Artist A 60, female	Rocks Fossils	42 years
08	Artist B 40, male	Vintage toys Comic books	30 years 30 years
09	Wardrobe stylist 61, female	Snow globes Depression glasses	28 years 35 years
10	Carpenter 55, male	Train models	33 years
11	Research assistant 36, male	Coins	9 years
12	Research engineer 38, male	Antique books	10 years
13	Copy editor 45, male	Bobble heads Golf divot tools	40 years 10 years
14	Delivery man 52, male	Snow globes Lunch boxes	12 years 10 years
15	IT consulting director 43, male	Chinese porcelain	16 years
16	Merchandiser 47, female	Vintage housewares	20 years
17	Pastor 62, male	Train models	53 years
18	University professor 61, male	Material related to the maritime history of the Great Lakes	51 years

3.2.1 Collectors introduce their collections via stories

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When I asked participants to give me a tour of their collections, our conversation always led to storytelling, which allowed collectors to explain what, why and how they collect.

Collectors shared multiple types of stories in interviews. Some stories expressed collectors' sentimental connection with other people. For example, the wardrobe stylist has over 450 snow globes, which represent different cities around the world. She showed me a lot of photographs such as her wedding when she got her first snow globe as a gift, and the snow globe collectors' convention she attended with her niece in Washington D.C. She demonstrated that the reason why she likes snow globe is that her mother would make snow globes with her and her sisters when they were children.

Some stories represented collectors' thrill of hunting. For example, the copy editor I interviewed is a local Pittsburgher. He is a big fan of Pittsburgh sports teams, and he started his collection when he was a teenager. His major collection is baseball bobble heads dolls. He began with introducing his favorite baseball players in the local team and expressed why and how he owns many bobble heads related to them. He also told me a story that once he bought an extra baseball ticket and let his niece go for the game twice in order to get himself a bobblehead, which was promotional item only for kids. He has a strong feeling desire to express his love to the local sports team and his affinity for his hometown through his collections.

Other stories explained collectors' motivation of collecting. The examples include the graduate student A who collects beer glasses relating to his rich knowledge of beer. He told me that he introduced one type of beer to his mom, which changed his mom's thoughts about beer and made her willing to taste different kinds of beers. He also expressed his pleasure in spreading his knowledge of beer to many friends. His dream is to have his own brewery in the future.

3.2.2 Collectors dig deep in background research

Collectors gain great joy from collecting both physical objects and relevant information. They indulge in spending time collecting relevant information in order to add depth to the value of their collections.

Many participants emphasized their efforts on background research. "What I did was, I had to read the history, then make sure that every car matched the history book. I never worked on a railroad, but I learn from books" (carpenter). "Sometimes it is difficult to figure out the difference between the book from 1920 or the book from 1855, but there is a way you can tell...it takes a lot of knowledge. You have to learn that" (research engineer). "I really more

focused on research surrounding... Over time I have moved from ceramics as works of art toward an interest in their historical significance, particularly as trade items in the earliest history of interactions between China and the West" (IT Consulting director). "I derive self-satisfaction when I am able to identify an unknown vessel in one of these photographs... I also visit as many museums and libraries around the lake Michigan as I can, and note any images those institutions might hold that would complement my collection" (university professor).

Additionally, at least 10 participants mentioned that they have very broad knowledge about what they collect, and they are willing to inform people when questions are raised. "I like to be informed on items, such as value, rarity, worth... I like to be able to inform others" (artist B). "I do my best to help other people when they ask me questions" (IT consulting director). "I am often contacted by organizations such as the Great Lakes Historical Society, the Thunder Bay Marine Sanctuary, and others, as well as both professional and amateur historians, who seek images I may have or assistance in identifying images in their collections" (university professor). Over the years, aside from his professional scholarly obligations, this university professor has developed a reputation as a prominent maritime historian focusing on the Great Lakes. He recently published a book related to this, and used his photo collection for the bulk of its many photographs.

3.2.3 Collectors spend much time with their collections

All participants expressed their enthusiasm for being with their collections. They spend time to appreciate their collections, do background research and data input, or work on maintenance.

For instance, the pastor gains help and support from his wife who is a librarian to categorize his trains in different types and in alphabetical order. He said "I put train on shelves. I will take a train off, run it, so I actually go through my entire collection to make sure it's ok... There is a lot of care and preparation if you truly love it, you just have to go through all these little segments to make sure it's appropriate." The carpenter told me that he defines every Friday as his "working day" with his train models. He always spends the whole day in his garage to read the history, design the pattern and build the cars for his layout. He also proudly announced to me, "it is the spirit of fun from my heart."

3.2.4 Collectors lack tools to organize their collections

All of my participants have multiple organizational principles for their collections. They emphasized that they like to focus on sets of collections rather than single items.

Like the research engineer said, "... That is actually what most people collect or argue about or talk about to each other. It's about how they organize, and what is the best way they organize their collections." However, since most tools they use today are paper-based, collectors are not satisfied with the current organizational methods for constructing their collections. The university professor, who is in the process of cataloguing his photo collection, expressed his concern that "... the cataloguing and filling of the photographs is a very tedious process, especially when one attempts to execute these tasks as close to museum standards as possible..." "I maintain digital images of my collections and a catalog to keep track. However, organization in the sense of keeping track is problematic" (IT consulting director).

3.2.5 Collectors lack space to display their collections

Another common complaint from my participants is the physical space for displaying. Although everyone wishes they could display the collections, it is hard to accomplish it in reality. Almost all the collectors I interviewed expressed their concern that it is overwhelming to try to fit the collections in one place.

"I display the ones I like the best, or the most recent... It's just not having enough space to display them. Lack of space, actually, my collection is bigger than my ability to display them in my little house" (wardrobe stylist). "I stored all stuff in boxes because I can't have a large room" (carpenter). He also raised an issue when he was invited to exhibit his collections to kids. "I cannot take the biggest one to school because it takes 8 hours to set up... When I go to schools, they always ask me about the layout. You cannot get the whole on one camera. Even professional photographers, they have to use the big equipment to get the whole pictures... I have no ideas..." "The way I want to organize and display them I guess is through how they related... The only problem I think would be running out of room" (copy editor). "... Of course finding a central place, so I am not cluttering up my living space. Sometimes, I find it difficult to group stuff together because I have limited space" (artist B).

3.2.6 Collectors attach their self-identity to their collections

Participants both implicitly and explicitly expressed their characteristics as an individual collector. The characteristics include self-accomplishment, self-expression, human connection, and heritage appreciation.

The artist A claimed a feeling of accomplishment when she is around her collections. She likes having her collections organized and feels like "they are waiting for a new life." The university professor expressed his strong feeling that "I thoroughly enjoy the process of collecting these images: the glee that comes when I discover a rare and arcane image; the self-satisfaction I derive when I am able to identify an unknown vessel in one of these photographs;

the oddly reassuring sense I feel when I realize that I may possess the only image to exist of a particular vessel, as if I've done a service for posterity."

The wardrobe stylist is one of the collectors who are more motivated by human connection. She told me that, "it's sort of like a diary that defines certain times of my life... Because it's emotional, it makes me feel a certain connection... It connected me to my family and friends." She describes her collections as sentimental, and she deeply appreciates the personal experience and the stories behind her snow globes.

One typical example for heritage appreciation is the merchandiser who claimed that "I enjoy the vintage pieces that I buy, and I also feel that I am saving a little pieces of Americana by purchasing the plates and creamers." The university professor expressed that "I like the notion that I am preserving visually a small portion of an increasingly unknown past..." The research engineer mentioned that "... Some of the items here have some historical importance. You can't replace them. If we lose them, we lose a big of evidence of history... So, I do collect to preserve, to maintain that what we go through does exist."

Albeit the collections owned by my participants were wide ranging, their collecting experience revealed certain similarities. Collecting is one way for people to appreciate beauty, explore and share knowledge, maintain memories and human connection, obtain fun, and present an image of their selves in terms of collections.

3.3 Insights

My findings show how stories behind collections expand the value to the physical objects, and how collectors desire an innovative way, which can break the constraints of physical world and connect both physical collections and virtual information more effectively. I also found that collectors eager to have a platform for spreading their rich knowledge, expressing their strong motivations of collecting, and extending a sense of their self. These findings suggest several opportunities that can aid designers in generating new interactive systems to engage collectors to better construct their collections and the stories they hold. Through repeated analysis of my findings, I identified three specific opportunity areas for further design.

3.3.1 Unleashing stories from collections

Collectors treat stories behind their collections as the most significant element in collecting. Whatever the thrill of searching, the history and origin, the experiences they preserve, or the knowledge they gain can increase huge amount of value of collections. Currently, I observed participants using photos, newsletters, timetables, postcards, spreadsheets, articles from maga-

zines, and messages from Internet to provide valued resources for connecting an object or a set of collection to direct experiences and knowledge. At the same time, many collections from participants contain representative meanings. They often associate with various resources so that they are able to explain collectors' original motivations clearly.

Stories and resources can not only preserve collectors' experiences and add depth of their knowledge, but also reveal collectors' extended-self (Belk et al. 1988). Belk stated that one's self definition often depends on one's possessions. It was validated continuously in my research, such as the copy editor's love of local sports teams, the wardrobe stylist's sentimental connection with her family and friends, or the pastor's mastery of his train engine world. Like Belk said "collections represent one's extended self accounts for many of the self-enhancing motives given for collecting, such as seeking power, knowledge, reminder of one's childhood, prestige, mastery, and control" (Belk et al. 1988).

These instances suggest an opportunity to design technologies that enable users to attach a more diverse range of information to their collections. Words, photos, videos and external links should be considered as four major types of information linked to the collections. I imagine some virtual systems could open a richer space for collectors to store and link more relevant stories and resources, and present a vivid image of their extended-self. Thus, a website can be an option. It should allow collectors to quickly input personal data, search internal data, link external data, and organize different types of data in structure.

3.3.2 Breaking physical constraints for displaying and organizing

My findings show participants' big concern of the physical limitations. As mentioned before, collections are selectively assembled and have to fit the collectors' themes and sets (Belk 1995). An object or a set is actually in a very complex relationship with each other. The connections may exist in both vertical and horizontal levels, which cause collectors use multiple organizational principles. However, collectors are not able to see these multiple connections at the same time because of the physical limitation. Especially when the connections are the keys to explain collectors' motivation of collecting or reveal the value of the collections. Additionally, the number of objects in their collections doesn't allow for the display of the whole. Although collectors try many different ways to display and organize their collections, it is obvious that the current tools cannot meet collectors' increasing needs.

Meanwhile, several participants mentioned taking advantage of virtual world for collecting, such as searching new items, doing background research, viewing and checking collections, informing people their new findings, or exchanging opinions and ideas with others, etc. Once the merchandiser men-

tioned that she subscribed on collector's blog for tracking newest information, and now she is learning how to build her own blog for collecting.

These instances reveal a significant desire to break constraints of physical world and obtain more benefits from utilizing virtual resources. It suggests a good opportunity for designers to provide an unlimited space for collectors to have wider access to their collections, display and organize objects and sets in multiple layers, and explore more meaningful internal connections. Thus, a solution should allow collectors to filter their collections in different ways and check multiple connections between the filtering results at the meantime.

3.3.3 Encouraging sharing and communication

In my research, many participants mentioned their limited social interactions while collecting. Most of them noted that they only share their updated information of collection with a small group of people. Although collectors have few social interactions in terms of collections, they emphasized that they wish they could have more opportunities to share their collections with others who have the same interests. They would like to take feedback from those who know about their collections. They also want to absorb more information to enrich their knowledge.

In addition, participants admitted that they are full of knowledge of their collections and desire a communication channel to share their experience and spread their knowledge to more people. The carpenter I interviewed mentioned how he enjoys showing his collection to kids in school. The research engineer emphasized his content when other people are attracted by his stories and gain a great joy from his stories. What I found confirmed previous researchers' statement that collectors can gain the passion, the achievement of pride, accomplishment, and the legitimization of acquisitiveness (Witty and Lehman 1933; Belk et al. 1988; c.f. Meyer 1979).

Thus, it will be valuable for designers to provide a dynamic platform for collectors. The emergence of computing systems could create good opportunities for collectors to significantly increase the number of people they can share their collections with. I imagine some sharing and communication channel can bridge the gap between collectors and other people, and convey richer information and knowledge among them. It should allow collectors to exchanging comments and opinions with experts or those who have the same interests. It should also allow collectors to create some support groups for updating information with each other and encouraging further social interactions.

4. Generative Phase

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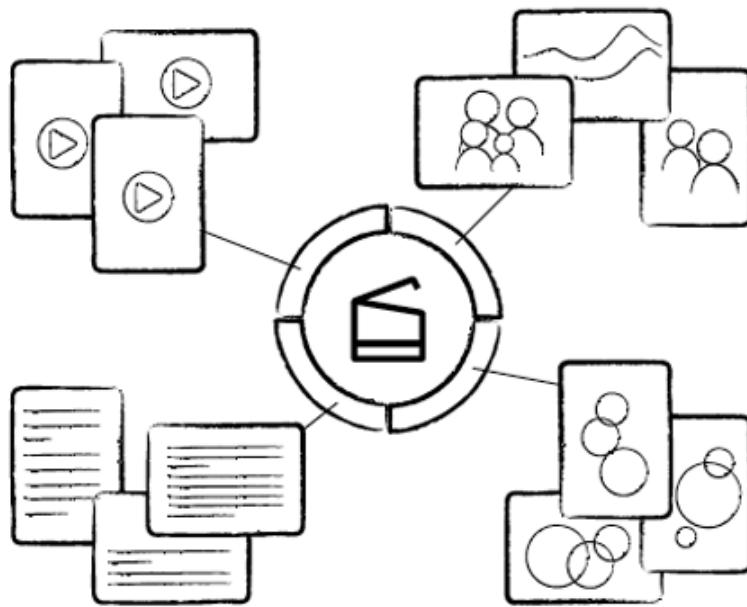
The goal of generative phase is to ideate and develop the design opportunities based on the exploratory research. The final design direction will be decided in the end of this phase. It is important to verify collectors' main needs in daily activities, reveal their preference of the ideas, and collect further feedbacks for refinement in the future.

4.1 Methods

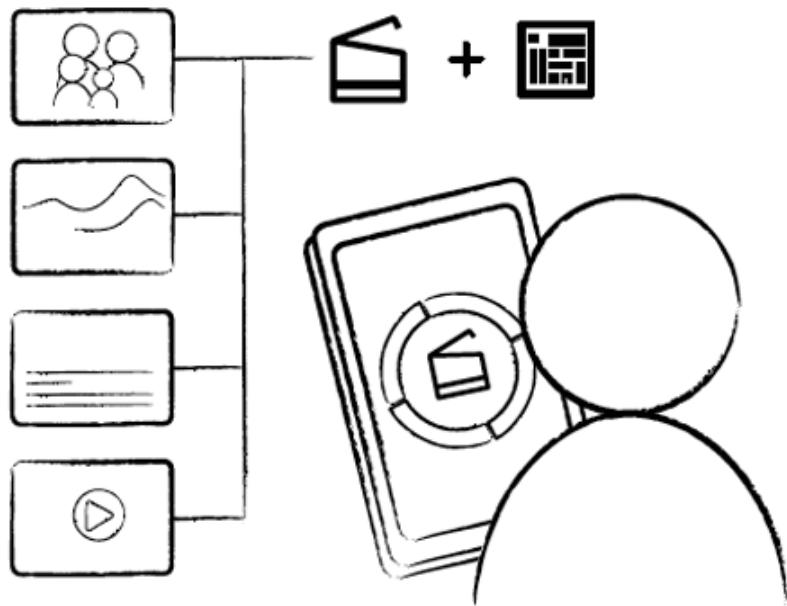
I brainstormed 10 initial concepts based on my research findings and the opportunities I defined:

1. A timeline allows collectors to track when they get their collections
2. A map allows collectors to track where they get their collections
3. A bubble-shape organizer allows collectors to categorize their collections and view connections between subcategories
4. A digital diary allows collectors to attach information to each item and record the stories behind the collections
5. A wish list allows collectors to track what they already have, what they want to have and what they provide for trade off
6. A display screen allows collectors to display and check all their collections at the same time
7. A RFID tag allows collectors to transfer physical objects to digital information, and allows visitors to view details by cell phones
8. An digital diary allows collectors to track their collecting experiences and their emotional changes by colors
9. An educational tool allows collectors to store the stories their collections hold and invite people to learn these background knowledge from their collections
10. An updating system allows collectors to inform their newest findings to other people who have the same interests.

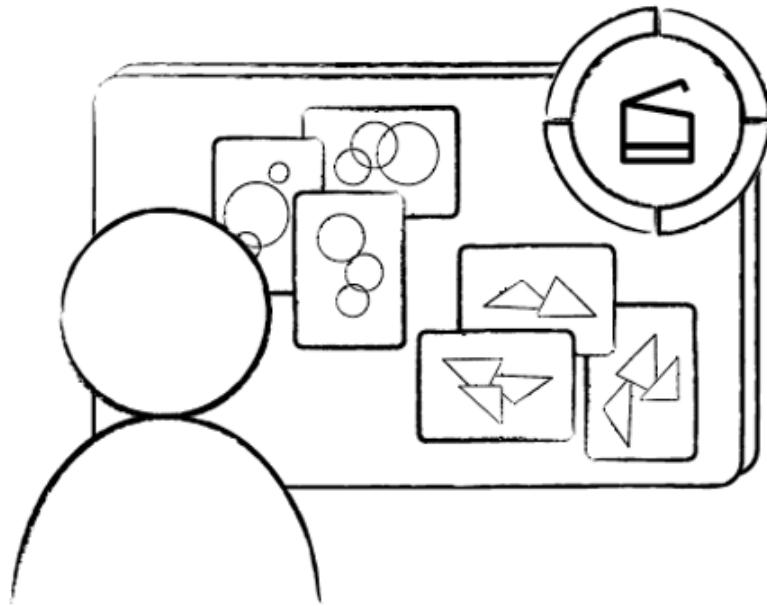
I quick sketched these concepts and categorized them into three design directions, which are multi-dimensional organizer, interactive tag, and virtual museum.



This is an organizational tool to help collectors record their experience and express the meaning of their collections. The tool provides both macro and micro views of the collections. Collectors would have the options to set up their preferred organizational principles and customize the information by sections. Collectors could attach different formats of information to each item, such as documents, photos, videos, audio records, etc. When collectors play with the tool to check what they have, they could easily switch the views between each subcategory. It provides a systematic way for collectors to better organize both external and internal connections of the collections.



It brings collections to life and builds interaction between physical objects and human beings. Collectors could create RFID tags by using all the related links, documents, photos, videos and audio records, etc. The content could be multi-dimensional. Collectors could set privacy levels to their content, open information selectively to themselves, their family members, or visitors. When other people come to visit, they could use their cell phones to scan the RFID tags and find some interesting information on their phones. Collectors don't need to talk too much, visitors would have the chance to explore what collections the collector has and additionally understand the identity of the collector.



This is a platform for collectors to better organize their collections and share their rich knowledge with other people. Collectors could input and store related information on their collections online. Also, multiple tags could categorize the collections. The platform would track the tags and pick themes for the virtual exhibition online. The platform would invite a group of collectors to share their collections and knowledge in a virtual exhibition. The collectors could selectively display their collections and explain the knowledge and beauty of their collections. For the audience, they could actively explore interesting topics from various directions and perspectives.

After developing these three directions in detail, I conducted one-hour speed dating with 7 participants in my local area. In speed dating, I explained my initial ideas with sketches, used a think aloud protocol to help participants express their thoughts, and encourage them to articulate their like and dislike.

Speed dating is a low-cost evaluation technique. It can rapidly explore a wide variety of concepts in context without the use of high technology. It allows users to easily understand the design assumptions and compare the ideas in acceptable behavior. Speed dating is an efficient way for designers to validate initial ideas and understand contextual risk factors in order to develop more desired design approaches. A think aloud protocol encourages participants to express their thoughts without hesitation. The direct reflection from users' thought can reveal users' attitude towards design ideas and identify users' real concerns. Thus, speed dating and think aloud protocols can help designers to discover the potential of the initial ideas and develop them in depth.

4.2 Findings

4.2.1 Multi-dimensional organizer is necessary and helpful

In speed dating, all participants expressed their interest in the idea of multi-dimensional organizer. The first advantage of this idea is that they can record both physical features and relevant information of their collections. It would make the collecting activities more interesting. "I like that, that's so much like a portrait of your time with a thing, and that's very nice. And it's not abstract but very concrete, and I can see it all at once, that's great" (hospital employee).

The second advantage of this idea is that collectors can organize their collections more effective so that they would explain their collections to other people easier. "I could probably see this working as a tool for somebody who wants to explain their collection to somebody else. Like you try to organize everything, and if you have something like this, it could probably help to see how the relationships work" (graduate student B). "I can imagine that would be useful for collectors. Because a lot of time, the collection doesn't make any sense to other people. So this could be a way to explaining what's important, how it's composed, and why I have it. An explaining mechanism would be helpful. Most of the time collectors have a hard time explaining what is so important about their collection" (chef).

Thirdly, collectors can get an opportunity to lead viewers to certain experiences or knowledge, which is beneficial for both sides. "Maybe it could be similar beers, like if you can somehow record the characteristics of this, it could take you to other beers you might like based on the characteristics of the beer. Now we are going to more general level because this is bringing

into the world of beer not only the beer glasses, so it'd be a lot more information" (graduate student A). "Then it could be a resource for other people. I mean, really, a collection is very important to the collector, but can be useful for someone else. So if I had online access to other people's collection, I can see why they collect it, I can easily find out even information that I need to know without even looking at what they have, just by seeing their relationships simple like this of why they have something and how it's related to something else they have. And the relationship during those objects tells me something about them and maybe a relation that I haven't thought of" (research engineer).

4.2.2 Interactive tag is redundant for individual collectors

Most participants don't like the idea of interactive tag. The main reason is that, as an individual collector, one can directly show and explain the collection to visitors at home. There is no need for viewers to take a photo of RFID tag and read information via mobile phones. Also, some collectors don't like to put extra stickers on their collections. "Most people wouldn't care about having something like that. I mean if you are at your house and you have some friends coming over, you want to show them your collection, just show to them, you don't have to go to this, hold a thing, take a picture and you can learn about it. I will tell you about it sort of thing. I don't see it being useful to be honest" (copy editor). "So given the scale of what I collect, this would not be appropriate, but if it was a larger object, I would like to use these" (graduate student B).

Although it seems redundant for individual collectors, participants see its potential benefits for institutional collectors. "I like that because I can instantly take the information from the object without taking it off shelf. This I think museum and library would like this kind of stuff" (chef). "Unless somebody who's going to have some sort of gallery, showing off their collections or something like that, I don't see why people would use it. I mean if you were in a museum, this would be useful" (delivery man).

Instead of getting information from RFID tag and mobile phones, participants provided some good suggestions to help modify my original idea. They suggested that certain website or collecting profile would be more acceptable and useful. "I think what would be cooler is, if you had a collection that I want to find out about, but I don't know you so much and I don't want to try to find you on the website, I could take a picture of it, and then it would take me to your page on the website whatever, and I could look through your stuff. So how the RFID tag for a person but not for an item would be useful" (delivery man). "If you had this integrated into a website, so after the users set up their preferences, what they want and what the categories they want to fill out, if that could then be accessible from the phone, so when you take a picture of this, you could start typing information, that would make it . Because you

don't have to necessarily wait till home to do it, you can put information then and there. And then later on you can categorize by the information" (copy editor).

4.2.3 Virtual exhibition can encourage sharing

All participants liked the idea of virtual exhibition and would love to use it for storytelling and knowledge sharing. They liked the opportunity to attract larger audience and share more stories behind their collections. "I like the idea, I think it would be a great way to sort of invite people into the website and be kind of like those shows how stuff works or how things are made, whatever where they focus on a particular product, every episode whatever, and they told you everything you want to know about, so it is almost be like a Wikipedia but with all these pictures whatever. So, yea, I think that would be pretty cool and very useful. And anybody who wants to learn more about any sort of subject can come in and learn from the experts or collectors" (graduate student A). "If this virtual exhibition attracted people similar to me, they could look at my stuff and I could look at their stuff, that might be very interesting" (graduate student B). "It would be very informative for people if they want to find out something, you know. As far as making this a learning tool, I can definitely see that" (copy editor).

Collectors thought this idea is fascinating also because it provides a dynamic communication system for information exchanging. Collectors would love to absorb further knowledge from people who are experts or who share the same interests with them. "There are a lot of people around may know more or interested in something in similar. I am always surprised to meet people that know more about what they have than I do. So it's always fascinates me. This allows people to have their own museum that would be extremely attractive to a lot of people" (research engineer). "People can come in and comment, talk about their experience with whatever, and maybe be like 'oh I have an extra one of these, I will be willing to trade off'" (hospital employee). "If other people can add to that information, then that would be more interesting because they would be giving information that I don't have access to" (delivery man).

4.2.4 Collectors need control of privacy

In addition to expressing their interests in organizational website and virtual exhibition, participants emphasized couple concerns to refine a better solution. The major concern is about control of privacy for online activities. "As far as like the website thing, I like that idea. I think all that you have to include is some sort of security measures, like Facebook where only people who you friend can see it or people on your network can see it. Although I don't care, as far as collections, I don't think it's a problem. I don't really see that the security is being an issue, unless for some reason you don't want to show this,

but then, if there is, probably just said that you don't have to share with everybody. You were just using it as a management tool, then, that could be one option, but I think being able to share with other people would be cool" (graduate student A). "Family, friends and collectors, sounds good. The system can prone me to other people, based upon like sub-category whatever, and that would be fine. I would just limit the types of information these people could see. Each of these strangers, family, friends, collectors, just like the Facebook you can have a list and you can change what they see, so I would want to modify what each of these people were able to see, everyone could see something, that's fine, I would just want to control over what that is" (graduate student B). "I would absolutely like to share information with people. But I would want to have control over how it is shown. Because the exhibition view of this, you represent yourself, as well as your collection. You will be representing your knowledge about the collection, this is not exactly the same like this...this is more notes and this is more organizing and presenting" (research engineer).

4.2.5 Collectors are willing to make effort of input

My biggest concern for the initial concepts is whether collectors are willing to devote their time and effort to a new system. Fortunately, all participants gave me positive feedback in speed dating. "I think that would be very useful but require a lot of user input. And a lot of collectors don't mind doing that type of stuff because it's a passion for them, so they would be willing to do it" (copy editor). "Most collectors that are serious enough about it won't really mind having to do that because they enjoy it, you know. I wouldn't mind doing that because I would be learning more stuff just because I have really looked into much. I don't think the whole inputting thing would be much of a big deal, and it's not that you have to it. If you don't do it, it's not a big deal. Being able to submit what they want to input in by the category, that would be better I think" (hospital employee). "Organize and document is very important for me. I would be willing to input some information, like a picture will be great because they are highly visible and physical things. I can add a story to each of them, where and when I purchased, where and when I think they are from, and what little I have learned about its origin and these experiences I have had with these objects like that" (graduate student B).

4.3 Insights

My findings revealed that a dynamic online platform is desired for collectors to display, share, and exchange information germane to their collections. What I found confirmed that collectors cherish both their physical objects and the knowledge and experiences behind their collections.

Interestingly, collectors see their role as both a collector and an informant. Internally, collectors desire an effective organizational tool to help themselves

preserve valuable items and information, as well as accomplish their various motivation for collecting. Externally, collectors desire a convenient communicational channel to help them share what they have with other people and gain a great joy and pride from it. Besides letting people understand and appreciate more about their collections and their collecting activities, collectors desire to attract those who are experts or those who have same interests to be the other side of this communicational channel. Collectors would love to show off their collections to a larger audience, educate those who are full of curiosity, exchange information with experts, and absorb further information to enrich their own knowledge.

Thus, a website for individual collectors will be a good option. It should combine the idea of multi-dimensional organizer and virtual exhibition. For the users who are collectors, the website should allow them to utilize their preferred organizational principles to track and explore the internal connections of their collections. It should allow them to present their experience and knowledge to other people, and at the same time, gain feedback from others. It should also allow collectors to have the control of what they want to share and whom they want to share with. For the users who are visitors, the website should allow them to filter the content and find what they like to see efficiently. It should also allow them to build an easy connection with collectors and make possible contribution to others.

5. Refinement Phase

The goal of refinement phase is to develop the full experience flow of the final design. The concepts should be put into the context and the details will be added in this phase.

5.1 Methods

In refinement phase, I sketched my idea of website, created two personas and scenarios based on the stories from participants, and built four wireframes on computer to explain the key steps of using this website. These scenarios and wireframes are an early iteration of the final solution, which is able to represent design ideas and be easily changeable in the context of designing for interaction.

Wireframes have a number of benefits. First of all, it is a lo-fidelity technique that is quickly realized. Designers can easily build scrolling sections, functional dropdown menus, slight differences between pages, or links between pages. It also allows for easy and inexpensive modification to existing designs. Secondly, since wireframes are not precious, it can encourage more honest comment and critique by users than “perfect looking” screens rendered in programs. Meanwhile, it is an effective communication tool in the refinement phase, because it is dynamic and can help enhance the understanding of users’ expectations and constraints.

I showed these wireframes to my advisor, and my peer designers to get some quick feedback. The discussion was mainly focus on the flow of user experience and the layout of the whole site. When I had questions regarding some functional elements on the site, I sent emails to 4 participants with my wireframes and questions, in order to know about real collectors’ needs and preferences. Later on, I modified my ideas based on their feedback, and completed my final design.

Basically, I got quite positive feedbacks from my advisor and peer designers. The layout is clear and the functions work well. I also got several suggestions listed below:

1. It might be helpful to show some examples under “Exhibition” section, such as “create new” button and certain virtual exhibitions the user has attended before.
2. It might be useful to add some statistics to indicate how many people have visited the site/object, how many people have liked the site/object, etc.
3. It might be necessary to divide “time” and “location” in couple more definitions, because collectors may have various understanding of these two organizational principles.
4. It might be more helpful to provide multiple folders, sections or guide options for categorizing collectors’ stories conveniently in order to emphasize stories the collections hold.
5. It might be more effective to provide privacy settings to each type of information rather than a master control.

I emailed 4 participants as to whether they wanted to have statistics on their website to indicate “the number of people who visited the site/collection set/object” or “the number of people who ‘like’ the site/collection set/object. All 4 participants responded that they would like to know how many people “like” the object rather than other options. “Because it gives me specific feedback about one of my items, and if there is a comment box, even better. Then I could go visit the page of the person who liked it and check out their work” (graduate student A).

The wireframe shows a user profile for 'Aaron' on the left. The main area displays a grid of 20 items, each labeled 'Item Name' and 'Album Name update time tags'. A search bar at the top right contains a magnifying glass icon and the word 'search'. To the right of the search bar are sections for 'My Filter' (Time, Location, Type, Alphabetical Index, Tags), 'My Profile' (Notifications, Messages, Collections, Albums, Wish List, Groups, Exhibitions), and 'My Collections' (Snow Globes, Antique Jewelry, All).

Wireframe 1: main page when a user logs in to the website.

This wireframe shows the process of adding a new item. It includes fields for 'General Info' (Title: 'Pittsburgh Ferris Wheel', Update time: '01/24/2011', Found at: 'Eons' Antique, Pittsburgh, PA 15232'), 'Customized Info' (Album: 'Pittsburgh & Western Pennsylvania', Type: ' ', Tags: ' '), and 'Privacy Setting' (Everyone, Friends only, Myself only, Customize). The right side features the same filter and profile sections as Wireframe 1. At the bottom are 'Cancel' and 'Confirm to create' buttons.

Wireframe 2: "adding new item" page for data input.

This wireframe shows a user profile for 'Aaron' on a platform named 'Site name here'. The left sidebar includes links for Notifications (2), Messages (1), Collections, Snow Globes (450), Antique Jewelry (380), Albums, Wish List, Groups, and Exhibitions. The main content area displays a collection item for 'Pittsburgh Ferris Wheel'. The item details include its title, update time (01/24/2011), privacy level (everyone), and location (Eons' Antique, Pittsburgh, PA 15232). It also lists the album it belongs to ('Pittsburgh & Western Pennsylvania') and the exhibition it attended ('Attended Exhibition'). A detailed description of the Ferris Wheel is provided, mentioning its construction by George Washington Gale Ferris, Jr. and its debut at the 1893 World's Columbian Exposition in Chicago. External links to Wikipedia and Inventors About are included. The right sidebar features filters for Time, Location, Type, and an Alphabetical Index, along with a Tags section containing placeholder text.

Wireframe 3: overview page with visitors' comments

This wireframe illustrates a filtering interface for item information. The left sidebar is identical to Wireframe 3. The main content area features a map view where items are represented by small gray dots. A specific item, 'Pittsburgh Ferris Wheel', is highlighted with a callout box. This box contains the same detailed information as in Wireframe 3, including the title, update time, privacy level, location, album, exhibition, and description. Below the callout, there is a 'Comments:' section with a placeholder for visitor 01's comment. The right sidebar includes a 'Map view' checkbox (which is checked), a 'Region' dropdown set to 'United States', and the same filter sections as in Wireframe 3.

Wireframe 4: filtering page with item information

5.3 Insights

As I aim to help collectors share and organize their collections and the stories they hold, it is very important to emphasize the stories on this website. The earlier concepts didn't deal with the variety of story forms such as historical stories, personal experiences, common knowledge, etc. Thus, it is necessary to support these different types in detail, and provide some guidelines for collectors to easily input the data. It would also be helpful for the computing system to display and organize the stories in a logical way.

Secondly, in order to build a larger social interaction for collectors, it is important to attract and maintain visitors on collectors' own sites. When a virtual exhibition is created, visitors might view all details on the exhibition site. However, it may lower the chance for viewers to explore more interesting objects and stories from the same collector. Obviously, there is a possibility that the viewers get attracted by one object from a collector and then go through the same person's website for interrelated objects or stories. In this case, it will be helpful to design a simple page for virtual exhibition but embed more entry points for viewers to link back to collectors' own sites.

6. Final Design

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6.1 Key Features

By following the human-centered design approach discussed above, a collecting website was designed. It contains a profile panel and a filter system on each side of the website, which allows collectors to take advantage of multiple organizational principles to better place their objects online, and explore the internal connections between items or sets. The main entry page allows collectors to preserve and share related experiences and knowledge with other people, and obtain access to a wider range of resources. The feature of virtual exhibition makes this website more dynamic. Objects from different collectors will be gathered together by themes and exhibited online. It allows collectors to share stories behind collections, connect people who have similar interests, increase the value of collecting, and fulfill collectors' needs physically and emotionally.

Collectology

search

My Profile + **My Collections** + **My Filter** +



Aaron

Collections

- Snow Globes (450)
- Sets

 - Pittsburgh & Western Pennsylvania (48)
 - Geography (365)
 - Christmas (52)

- Wish List
- Bookmarks
- Exhibitions

Culture in Pittsburgh
start from : Jan. 01, 2011

824 ppl like it!

Christmas Snow Globe
start from: May. 01, 2010

3212 ppl like it!

Statistics

Until 04/14/2011,
2186 ppl visited this object.

Object: The Pittsburgh Pierogie
Album: Pittsburgh & Western Pennsylvania



255 ppl like it!

Lauren (02/04/2011 9:30pm)
This Pierogie snow globe is so adorable. Thanks for sharing your story with it! I will definitely try the Chipped Ham BBQ Pierogie this weekend! [read more >>](#)

Object: Prague, the Czech Republic
Album: World Trip, Europe



1280 ppl like it!

Captain Lee (02/03/2011 9:12pm)
I have been looking for a snowglobe to give as a present but have only found them in stores around christmas. I am looking for a nice snowglobe and if anyone knows... [read more >>](#)

Object: Berlin, Germany
Album: World Trip, Europe



169 ppl like it!

Min Min (02/02/2011 12:55pm)
This wonderful snow-filled objects is a world of fascination in themselves. My dad had the same one like yours, unfortunately, I broke it when I was little. I'd love to show it... [read more >>](#)

Object: Santa Claus 2005
Album: Merry Christmas,



1240 ppl like it!

Cupcake (02/01/2011 8:25pm)
Snow globes were first manufactured in France and Germany in the 19th century. Many, like this one, had a Christmas theme. [read more >>](#)

Time

object view set view

View order: / / ▼ ▼

Select by the time I found it:
 From: / / ▼ ▼
 to: / / ▼ ▼

Select by the manufacturing history:
 From: / / ▼ ▼
 to: / / ▼ ▼

Location

Map view

Select by the location it's from:
▼

Select by the location it's manufactured:
▼

Type

round oval
 double sides vintage

Alphabetical Index

· A · B · C · D · E · F · G ·
 H · I · J · K · L · M · N · O ·
 P · Q · R · S · T · U · V · W ·
 X · Y · Z

Tags

snow globe invention
Ferris wheel World's Fair

6.1.1 Profile Panel

33

The expandable control panel allows the collector to conveniently track his collecting activity on the site.

The collector can view the total amount of his collections, the various sets he has, and the number of objects in each set.

The wish list allows the collector to record the objects he desires and objects he is still in search of. Based on my research, all my participants claimed that they would love to share a wish list with others in order to allow for potential trades or any other useful clues.

The collector can bookmark other collectors' sites or virtual exhibitions. This allows him to easily follow information they like, or even build social networks with other collectors to share similar interests.

User testing revealed the virtual exhibition to be one of the collectors' favorite features. It allows the collector to create his own virtual exhibition actively or join others', in order to share the knowledge and experiences behind every collection to a larger audience. This will enable collectors to attract greater appreciation for their collections from more people, and additionally gain a sense of pride and self-completion from such sharing.

6.1.2 Creating New Collections

Collectors can create and organize online records of their collections by following the simple guidelines provided. Collectors can also decide their preferred privacy levels, in order to have a safe and satisfying online collecting experience.

The general information section allows the collector to record basic data of their collections, assign them to appropriate sets, and attach any related photos, videos or external links to help enrich the information tied to these objects.

The story telling section provides a platform for the collector to take notes on any related history, knowledge, experience, event or people. All of the information is categorized in the same structure for convenient review.

The organizational information section allows the collector to take advantage of multiple organizational methods, in order to better organize their collections and track interesting connections between objects or sets. Since the organizational methods are diverse and they help organize information based on the characteristics of the collections, it is beneficial for the collector to define their own methods.

Collectology

search

[My Profile](#) [+ edit](#) [My Collections](#) [+ edit](#) [My Filter](#) [+ edit](#)



Aaron

[Collections](#)
Snow Globes (450)

[Sets](#)
Pittsburgh & Western Pennsylvania (48)

Geography (365)

Christmas (52)

[Wish List](#)

[Bookmarks](#)

[Exhibitions](#)
Culture in Pittsburgh
start from : Jan. 01, 2011

 824 ppl like it!

Christmas Snow Globe
start from: May. 01, 2010

 3212 ppl like it!

[Statistics](#)
Until 04/14/2011,
2186 ppl visited this object.

Step 1: General Info

Object:

Set:

Update: 03/24/2011

Found:

Privacy: Everyone

Media:

Step 2: Tell the stories

Type:
 Historical Story

details here...

Privacy: Everyone
 Everyone

Media:

[add a new story >>](#)

Step 3: Organizational Info

The time I found it: / /

The manufacturing history: / /

The location it's from:

The location it's manufactured:

Type:

Tags:

[add a new organizational principle >>](#)

[Cancel](#) [Confirm to create](#)

Collectology

search

[My Profile](#) + [My Collections](#) + [My Filter](#) +



Aaron

[Collections](#)
Snow Globes (450)

[Sets](#)
Pittsburgh & Western Pennsylvania (48)

Geography (365)

Christmas (52)

[Wish List](#)

[Bookmarks](#)

[Exhibitions](#)

Culture in Pittsburgh
start from : Jan. 01, 2011

 824 ppl like it!

Christmas Snow Globe
start from: May. 01, 2010

 3212 ppl like it!

[Statistics](#)

Until 04/14/2011,
2186 ppl visited this site.

The History It Holds

The Ferris wheel has been a featured attraction at amusement parks and carnivals for over a century. In fact, this twirling contraption has been around for so long, it's easy to forget what an incredible feat of engineering it represented. And the story behind the first Ferris wheel is as amazing as the ride itself.

Invented by a bridge builder from Pittsburgh named George W. Ferris, the wheel first debuted at the 1893 Chicago World's Fair. According to legend, the Windy City wanted an attraction that rivaled the Eiffel Tower in Paris, host to the 1893 World's Fair. Architects from all over the country submitted plans for various structures but none were thought worthy -- until Mr. Ferris scribbled down plans for a giant wheel that would spin around on its axis while carrying passengers.

[read more >>](#)





[view more photos >>](#)

The Story It Holds

Remember when the fair would come to town? If you grew up in a smallish town like I did, there was that one magical week of the year when the county fair would run and a row of creaky, rusty carnival rides would suddenly appear on the otherwise vacant skyline. You'd run down to the fairgrounds to ride as many of them as possible before you threw up your funnel cake all over a carny. It was a yearly tradition. Once they were gone, you'd be sad for about a week and then go on with your life, almost completely forgetting about the rides and the cotton candy and the shifty, greasy carny.

The most impressive memory of Ferris wheel is from the carnival in 2009, which had a 150-foot-tall Ferris wheel that towered over the festival grounds. On Saturday, as the sun hung low in the sky, the line to get on the ride was 35+ people deep with assorted revelers, including several young women with extravagantly painted faces and a trio of shirtless guys wearing Vietnamese peasant hats. My wife and I brought our 4-year old daughter, Penny, to carnival for the first time and rode the Ferris wheel twice. The view from up there was fantastic. I wasn't expecting this.

[read more >>](#)






[Additional Info](#)

Until 04/14/2011, there are **196 ppl** visited this object.

 178 ppl like it!

Attended Exhibition:
Culture of Pittsburgh

Tags:

- [snow globe](#)
- [invention](#)
- [Ferris wheel](#)
- [World's Fair](#)
- [Pittsburgh & Western Pennsylvania](#)

[Visitor's Message](#)

 **Laura** (04/14/2011 8:25pm)

Hi, I am a Ferris wheel lover from Vienna, Austria. I am creating a virtual exhibition for world's tallest wheels on Collectology. Your Ferris wheel snow globe and its stories are wonderful. Please join my virtual exhibition and let more people see it!

[view the exhibition >>](#)

[No, thanks](#) [Join the exhibition](#)

[Comments, Message, Ideas...](#)

6.1.3 Sharing Stories

37

This main screen gathers all the information provided by the collector and presents it to the audience in a structured manner. The viewer can expand each section for further details and allows them to view more images. Clicking on tags links viewers to related sets, exhibitions, or other objects with the same tags.

The collector can also access statistics related to the number of visitors and the number of people who have liked the information he has shared. Moreover, the collector can obtain feedback, comments or invitations from others. It connects collectors and other people who have the same interests, allowing people to express their appreciation for the collection and also share more ideas and thoughts.

6.1.4 Discovering Connections

Another key feature on the site is a customized filter that uses the organizational method to allow users to find particular objects or sets and view internal connections between them. When the user mouse's over a particular area, a preview window will pop up, showing general information and links to more detailed information.

It breaks constraints of the physical world, and allows viewers to change the perspectives and discover multiple connections simultaneously.

It helps the collector displays and organizes his collections more effectively. Also, it makes the collections more interesting and understandable.

Collectology

search

[My Profile](#) [+ ↗](#) [My Collections](#) [+ ↗](#) [My Filter](#) [+ ↗](#)

Aaron

Collections
Snow Globes (450)

Sets
Pittsburgh & Western Pennsylvania (48)
Geography (365)
Christmas (52)

Wish List
Bookmarks
Exhibitions

Culture in Pittsburgh
start from: Jan. 01, 2011

824 ppl like it!

Christmas Snow Globe
start from: May. 01, 2010

3212 ppl like it!

Statistics
Until 04/14/2011, 2186 ppl visited this site.

Object: Pittsburgh Ferris Wheel
Set: Pittsburgh & Western Pennsylvania
Update: 03/24/2011
Found: Amy's antique store on Walnut St. Pittsburgh
Privacy: everyone
Attended Exhibition: Culture of Pittsburgh
Tags: snow globe, invention, Ferris wheel, World's Fair, Pittsburgh & Western Pennsylvania

Time
 object view set view
View order:
Select by the time I found it:
From: 01 / 01 / 2008 To: 04 / 14 / 2011
Select by the manufacturing history:
From: / / To: / /
Location
 Map view
Select by the location it's from:
Europe
- Europe
- USA
Select by the location it's manufactured:

Type
 round oval
 double sides vintage
Alphabetical Index
Tags

Collectology

Virtual Exhibition: World's Tallest Wheels

Laura

Collections

- Ferros wheel related (450)
- Sets
- Spring Carnival (48)
- Geography (365)
- Disney World (52)

Wish List

Bookmarks

Exhibitions

Statistics

Until 04/14/2011,
2186 ppl visited this site.

Object: Pittsburgh Ferris Wheel
Album: Pittsburgh & Western Pennsylvania
Collector: Aaron
Invented by a bridge builder from Pittsburgh named George W. Ferris, the wheel first debuted at the 1893 Chicago World's Fair. According to legend, the Windy City wanted an attraction that rivaled the Eiffel Tower in Paris, host to the 1889 World's Fair... [read more >>](#)

Object: Great Wheel
Album: Photo 1900
Collector: Jerry Jr.
The Great Wheel was built for the Empire of India Exhibition at Earls Court, London, UK, and was 94 metres (308 ft) tall. Construction began in March 1894 and it opened to the public on July 17, 1895. It stayed in service until 1906 and was demolished in 1907... [read more >>](#)

Object: The Grande Roue de Paris
Album: World's Fair Postcards
Collector: Zoe Jura
The Grande Roue de Paris was built for the Exposition Universelle, a world's fair held in Paris, France. It was demolished in 1920, but its 100-metre (328 ft) height was not surpassed until almost 90 years after its construction... [read more >>](#)

Object: The World's Columbian Exposition
Album: 1st Set of World Fair
Collector: Franklin
The original Ferris Wheel was 80.4 metres (264 ft) tall. Built for the World's Columbian Exposition in Chicago, Illinois, it was moved to St. Louis, Missouri, in 1904 for the Louisiana Purchase Exposition, and demolished there in 1906.... [read more >>](#)

Object: The Cosmo Clock 21
Album: My Life in Japan, Sentimental Attachment
Collector: Cat 001
The Cosmo Clock 21 was built for the YES '89 Yokohama Exposition at Minato Mirai 21, Yokohama, Japan. Originally constructed with a height of 107.5 metres (353 ft), it was dismantled in 1997 and then in 1999 relocated onto a taller... [read more >>](#)

search

The Filter

Time

Location

Type

Alphabetical Index

· A · B · C · D · E · F · G ·
H · I · J · K · L · M · N · O ·
P · Q · R · S · T · U · V · W ·
X · Y · Z

Tags

6.1.5 Virtual Exhibitions

41

This is the screen for a virtual exhibition. After the collector accepted the invitation, all the related objects will show up together on this page with simple descriptions. Visitors can go through several objects quickly, use the filter effectively and conveniently link to more detailed information on the collectors' original site.

It is beneficial for both collectors and visitors. Collectors have the opportunity to attract a larger audience and share more stories behind their collections. Visitors will have a more focused online browsing experience, gain greater knowledge, and enjoy the process of exploration.

6.2.1 Persona



Aaron Smith

- 36, male,
- Married, two kids
- Pittsburgh, Pennsylvania
- Senior consultant at financial advisory service
- Snow globes collector



Laura Anderson

- 30, female,
- Married, one kid
- Vienna, Austria
- Research assistant for breast cancer
- Ferris wheel lover

6.2.2 Scenario

43

Aaron is always enthusiastic to enrich his snow globe collection. Excitedly, he found a Ferris wheel snow globe from an antique store this weekend. Since the world's first Ferris wheel was designed by a bridge-builder from Pittsburgh, this Ferris wheel snow globe is a good one for Aaron's collection of Pittsburgh and Western Pennsylvania.

At home, Aaron carefully cleaned this Ferris wheel snow globe, took a photo of it, and started to do the background research in his study room. Aaron found a digital copy of one newspaper article from 1893. It was a news report for the World's Columbian Exposition in Chicago, IL. It introduced the world's first Ferris wheel and its inventor in details. Aaron also found some photocopies of the first Ferris wheel on the website of Carnegie Library. Aaron was excited about the historical stories he found. At the same time, it reminded him the latest experience with a fascinating Ferris wheel at the carnival in 2009. That was also his 4-year old daughter Lili's first try with Ferris wheel. Aaron selected some photos from his photo album. He can't wait to put all these exciting information together for his new Ferris wheel collection.

Collectology

search

[My Profile](#) [+ /](#) [My Collections](#) [+ /](#) [My Filter](#) [+ /](#)



Aaron

[Collections](#)

Snow Globes (450)

[Sets](#)

Pittsburgh & Western Pennsylvania (48)

Geography (365)

Christmas (52)

[Wish List](#)

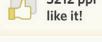
[Bookmarks](#)

[Exhibitions](#)

Culture in Pittsburgh
start from : Jan. 01, 2011



Christmas Snow Globe
start from: May. 01, 2010

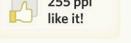


[Statistics](#)

Until 04/14/2011,
2186 ppl visited this object.



Object: The Pittsburgh Pierogie
Album: Pittsburgh & Western Pennsylvania



 Lauren (02/04/2011 9:30pm)
This Pierogie snow globe is so adorable. Thanks for sharing your story with it! I will definitely try the Chipped Ham BBQ Pierogie this weekend! [read more >>](#)



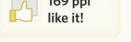
Object: Prague, the Czech Republic
Album: World Trip, Europe



 Captain Lee (02/03/2011 9:12pm)
I have been looking for a snowglobe to give as a present but have only found them in stores around christmas. I am looking for a nice snowglobe and if anyone knows... [read more >>](#)



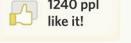
Object: Berlin, Germany
Album: World Trip, Europe



 Min Min (02/02/2011 12:55pm)
This wonderful snow-filled objects is a world of fascination in themselves. My dad had the same one like yours, unfortunately, I broke it when I was little. I'd love to show it... [read more >>](#)



Object: Santa Claus 2005
Album: Merry Christmas,



 Cupcake (02/01/2011 8:25pm)
Snow globes were first manufactured in France and Germany in the 19th century. Many, like this one, had a Christmas theme. [read more >>](#)

Time

object view set view

View order:  

Select by the time I found it:

From: / /

to: / /

Select by the manufacturing history:

From: / /

to: / /

Location

Map view

Select by the location it's from:

Select by the location it's manufactured:

Type

round oval

double sides vintage

Alphabetical Index

· A · B · C · D · E · F · G ·
H · I · J · K · L · M · N · O ·
P · Q · R · S · T · U · V · W ·
X · Y · Z

Tags

[snow globe](#) [invention](#)
[Ferris wheel](#) [World's Fair](#)

Aaron logs in his Collectology account, where he can record, organize and share all his snow globe collections online. He goes to "My Collections" and ready to add a new item.

The screenshot shows a user profile for "Aaron" on the Collectology platform. The left sidebar contains links for "My Profile", "My Collections", "My Filter", and sections for "Collections", "Sets", "Wish List", "Bookmarks", and "Exhibitions". It also displays statistics like "824 ppl like it!" for a "Christmas Snow Globe" and "3212 ppl like it!" for "Culture in Pittsburgh".

The main area features a 3-step creation form:

- Step 1: General Info** includes fields for Object, Set, Update (03/24/2011), Found, Privacy (Everyone), and Media (Upload images, Upload videos, Add external links).
- Step 2: Tell the stories** includes a Type dropdown (Historical Story selected), a text area for "details here...", and a Media section (Privacy set to Everyone, Media options: Upload videos, Add external links).
- Step 3: Organizational Info** includes fields for The time I found it, The manufacturing history, The location it's from, The location it's manufactured, and Tags.

At the bottom right of the form are "Cancel" and "Confirm to create" buttons.

Aaron followed the 3-step guideline on the screen and quickly recorded the general information of the snow globe. Next, he wrote a short paragraph to describe his new findings, input all the related historical stories and personal experiences to the collection page, uploaded the photos he selected, and linked the site of Carnegie Library to it. Then, Aaron selected the privacy levels as “everyone”, so all the information of this Ferris wheel snow globe will open to the public. After that, he links his new snow globe to the set of Pittsburgh and Western Pennsylvania, defines the type of it, and creates some tags for further organization.



Collectology

search

[My Profile](#)
+
[My Collections](#)
+
[My Filter](#)
+



Aaron

Collections
Snow Globes (450)

Sets
Pittsburgh & Western Pennsylvania (48)
Geography (365)
Christmas (52)

Wish List

Bookmarks

Exhibitions

Culture in Pittsburgh
start from: Jan. 01, 2011

824 ppl like it!

Christmas Snow Globe
start from: May. 01, 2010

3212 ppl like it!

Statistics
Until 04/14/2011, 2186 ppl visited this site.



Object:
Pittsburgh Ferris Wheel

Set:
Pittsburgh & Western Pennsylvania

Update: 03/24/2011
Found: Amy's antique store on Walnut St. Pittsburgh
Privacy: everyone

The History It Holds

The Ferris wheel has been a featured attraction at amusement parks and carnivals for over a century. In fact, this twirling contraption has been around for so long, it's easy to forget what an incredible feat of engineering it represented. And the story behind the first Ferris wheel is as amazing as the ride itself.

Invented by a bridge builder from Pittsburgh named George W. Ferris, the wheel first debuted at the 1893 Chicago World's Fair. According to legend, the Windy City wanted an attraction that rivaled the Eiffel Tower in Paris, host to the 1889 World's Fair. Architects from all over the country submitted plans for various structures but none were thought worthy -- until Mr. Ferris scribbled down plans for a giant wheel that would spin around on its axis while carrying passengers.

[read more >>](#)

[view more photos >>](#)

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[read more >>](#)

Additional Info

Until 04/14/2011, there are **196 ppl** visited this object.

178 ppl like it!

Attended Exhibition:
none. [Create a new exhibition >>](#)

Tags:

snow globe invention
Ferris wheel World's Fair
Pittsburgh & Western Pennsylvania

Visitor's Message

Comments, Message, Ideas...

Cancel Send

The Ferris wheel snow globe is now online.

Collectology

[My Profile](#) [+ ⚙](#) [My Collections](#) [+ ⚙](#) [My Filter](#) [+ ⚙](#)



Aaron

- Collections
Snow Globes (450)
- Sets
Pittsburgh & Western Pennsylvania (48)
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- Wish List
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Object: Pittsburgh Ferris Wheel

Set: Pittsburgh & Western Pennsylvania

Update: 03/24/2011

Found: Amy's antique store on Walnut St. Pittsburgh

Privacy: everyone

Attended Exhibition: Culture of Pittsburgh

Tags: snow globe, invention, Ferris wheel, World's Fair, Pittsburgh & Western Pennsylvania

 196 ppl like it!

 178 ppl like it!

Time

object view set view

View order: ▲ ▼

Select by the time I found it:
 From: ▼
 to: ▼

Select by the manufacturing history:
 From: ▼
 to: ▼

Location

Map view

Select by the location it's from:
 Europe ▼
 - Europe
 - USA

Select by the location it's manufactured:
 ▼

Type

round oval
 double sides vintage

Alphabetical Index

Tags

He can use the filtering tool to explore the interrelations between his collections. He found that his new Ferris wheel snow globe in the set of Pittsburgh and Western Pennsylvania is connected with the other Ferris wheel snow globe in the set of Europe. That is the one represents the oldest Ferris wheel in Vienna, Austria. Aaron bought it 5 years ago when he had a business trip in Vienna.

Collectology

search

[My Profile](#) [+ /](#) [My Collections](#) [+ /](#) [My Filter](#) [+ /](#)



Aaron

[Collections](#)

Snow Globes (450)

[Sets](#)

Pittsburgh & Western Pennsylvania (48)

Geography (365)

Christmas (52)

[Wish List](#)

[Bookmarks](#)

[Exhibitions](#)

Culture in Pittsburgh
start from: Jan. 01, 2011



Christmas Snow Globe
start from: May. 01, 2010

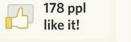


[Statistics](#)

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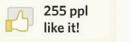
Object: Pittsburgh Ferris Wheel
Album: Pittsburgh & Western Pennsylvania



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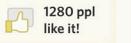
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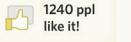
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Album: Merry Christmas,



[Cupcake \(02/01/2011 8:25pm\)](#)
Snow globes were first manufactured in France and Germany in the 19th century. Many, like this one, had a Christmas theme. [read more >>](#)

Time

object view set view

View order: [▲](#) [▼](#)

Select by the time I found it:
 From: /
 to: /

Select by the manufacturing history:
 From: /
 to: /

Location

Map view

Select by the location it's from:

Select by the location it's manufactured:

Type

round oval
 double sides vintage

Alphabetical Index

· A · B · C · D · E · F · G ·
 H · I · J · K · L · M · N · O ·
 P · Q · R · S · T · U · V · W ·
 X · Y · Z

Tags

[snow globe](#) [invention](#)
[Ferris wheel](#) [World's Fair](#)

Days later, Aaron got a notification showed that someone sent him a message under his Ferris wheel snow globe collection.



My Profile
+
My Collections
+
My Filter
+



Aaron

Collections
Snow Globes (450)

Sets
Pittsburgh & Western Pennsylvania (48)
Geography (365)
Christmas (52)

Wish List

Bookmarks

Exhibitions

Culture in Pittsburgh
start from: Jan. 01, 2011



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[read more >>](#)




[view more photos >>](#)

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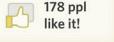
[read more >>](#)






Additional Info

Until 04/14/2011, there are **196 ppl** visited this object.



Attended Exhibition:
Culture of Pittsburgh

Tags:

- [snow globe](#)
- [invention](#)
- [Ferris wheel](#)
- [World's Fair](#)
- [Pittsburgh & Western Pennsylvania](#)

Visitor's Message

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[view the exhibition >>](#)

[No, thanks](#) [Join the exhibition](#)

Comments, Message, Ideas...

The message is an invitation sent by Laura Anderson from Vienna, Austria. She is a Ferris wheel lover who just created a virtual exhibition for world's tallest wheels on Collectology. Laura likes Aaron's snow globe and his detailed descriptions of the first Ferris wheel. She invited Aaron to join her virtual exhibition and share this invention history of Ferris wheel to more people.

Collectology

Virtual Exhibition: World's Tallest Wheels

Creator's Profile + | The Filter +

search

Laura

Collections

- Ferros wheel related (450)
- Sets

 - Spring Carnival (48)
 - Geography (365)
 - Disney World (52)

- Wish List
- Bookmarks
- Exhibitions
- Statistics

Until 04/14/2011, 2186 ppl visited this site.

Pittsburgh Ferris Wheel

Object: Pittsburgh Ferris Wheel
Album: Pittsburgh & Western Pennsylvania
Collector: Aaron
Invented by a bridge builder from Pittsburgh named George W. Ferris, the wheel first debuted at the 1893 Chicago World's Fair. According to legend, the Windy City wanted an attraction that rivaled the Eiffel Tower in Paris, host to the 1889 World's Fair... [read more >>](#)

Great Wheel

Object: Great Wheel
Album: Photo 1900
Collector: Jerry Jr.
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Album: World's Fair Postcards
Collector: Zoe Jura
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The World's Columbian Exposition

Object: The World's Columbian Exposition
Album: 1st Set of World Fair
Collector: Franklin
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The Cosmo Clock 21

Object: The Cosmo Clock 21
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The Cosmo Clock 21 was built for the YES '89 Yokohama Exposition at Minato Mirai 21, Yokohama, Japan. Originally constructed with a height of 107.5 metres (353 ft), it was dismantled in 1997 and then in 1999 relocated onto a taller... [read more >>](#)

Time

Location

Type

Alphabetical Index

· A · B · C · D · E · F · G · H · I · J · K · L · M · N · O · P · Q · R · S · T · U · V · W · X · Y · Z

Tags

Aaron joined Laura's exhibition online. It attracted many people to visit his Ferris wheel page for the invention stories, and more people noticed his snow globe collections, including other snow globe collectors and people who are interested in the history and culture of Pittsburgh and Pennsylvania.

7. Reflection

51

Collecting is a socially approved activity. The collections and the fantasy world collectors build are always full of stories and ready to be shared with others. However, lack of effective tools for displaying, sharing and organizing can result to communication problems. It is hard for collectors to reveal the value of what they have and explain the meaning of what they do. In my project, I was impressed by collectors' strong motivations and their sentimental connections. I realized that even though the collections are very personal, their owners' enthusiasm of displaying, sharing, and organizing is considerable. The experience and knowledge illustrated by the collections could be great resources for people who have the same interests.

I gained a great experience from this project. I practiced multiple research methods and human-centered design principles in three design phases. It is helpful to use contextual interview and field observation in the exploratory phase to reach target users, to get to know their typical experiences, and to explore their real needs and desires. It is productive to use sketches and speed dating in generative phase to validate designers' assumptions and identify the key opportunities. It is effective to build wireframes for designing in details, and also efficient to modify ideas to meet users expectation. Finally, it is always important to be open-minded and share design ideas with both users and other designers. Inspirations can be lighted during discussions and help generate more satisfied design approaches.

In a word, this is a very enjoyable experience for me to confront challenges and opportunities. I hope my design can break the constraints of the physical world, and consider collectors' emotional needs. I hope it utilizes technology well and creates more effective ways for collectors to support their collecting activities. I also hope collectors gain great joy and appreciation when they use this innovative platform.

References

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