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Unique Information Resources and Streamlined User Experience Design

What happens when a complex design impedes the utility of an information resource? This summer I worked at the Getty Research Institute as a User Experience Designer and witnessed this problem firsthand. My work focused on the Provenance Index Remodel project, a technical and User Experience design transformation of the collection of databases that contain incredibly rich information about artwork. There, my coworkers used Google to navigate the current Provenance Index when they were explaining the remodel project.[1] It was quicker and easier to do this instead of going to the Getty Main website, searching for resources, and then going through the next four or five decisions and screens, just to get to a place to attempt a search. It struck me how the Provenance Index showed its complexity by building the rich data structure into the immediate design which forces users to make numerous choices before even entering a search query. In their online resources, cultural institutions often attempt to convey their richness and depth of information at the design level. However, this level of detail is often counterproductive, as it impedes these resources' ease of use. Instead, these institutions can better deliver information with a streamlined User Experience design that shifts detail from the whole to the part.

[1] "Provenance Index Remodel (Getty Research Institute)." http://www.getty.edu/research/tools/provenance/provenance_remodel/index.html.

Background

Evaluation of the usability of a digital tool is rooted in the fields of Human-Computer Interaction, Interaction Design, and User Experience Design. These disciplines all contributed to evolving definitions of usability which currently includes the statement that there are "five criteria that a product must meet to be usable: Effectiveness, Efficiency, Engagingness, Error Tolerance, Ease of Learning."[2] User Experience research groups such as the Nielson Norman Group have provided years of research and defined heuristics for usability. The most relevant heuristic to overcomplicated cultural institution information resources is the following Nielsen Norman Design Heuristic of aesthetic and minimalist design as "every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility."[3] The Nielsen Norman Group also emphasizes the importance "recognition rather than recall: Instructions for use of the system should be visible or easily retrievable whenever appropriate."[4] The importance of placement of design features is underscored when combined with research about the ability of design to aid memory. The Nielson Norman Group has contributed to this research and writes "How easily information can be retrieved from memory depends on how often we've encountered that information, how recently we've used it, and how much it is **related to the current context**."[5] Bruce Tognazzini (a Human-Computer Interaction Researcher, Designer, and Engineer) distills this need for appropriate information into the *anticipation principle*, which requires design to "bring to the user all the information and tools needed for **each step of the process**."[6] When all information is contained within every page, a

[2] Komninos, Andreas. 2019. "An Introduction to Usability." The Interaction Design Foundation. This was a definition offered by Whitney Quesenbery, the UX and Usability Expert and former President of the Usability Professionals' Association (UXPA).
[3] "10 Heuristics for User Interface Design: Article by Jakob Nielsen." 1994. Nielsen Norman Group.
[4] Ibid.
[5] "Memory Recognition and Recall in User Interfaces." 2014. Nielsen Norman Group..
[6] Tognazzini, Bruce. 2014. "First Principles of Interaction Design (Revised & Expanded)." *AskTog* (blog). March 6, 2014.

user cannot easily remember what is relevant. For example, when the complexity of the Provenance Index is baked into the design of the information resource itself, it is hard to recognize the actual pertinent information in comparison to the extraneous information. The result is an overcomplicated design that blocks users from fully accessing the information resource.

Reasons for Complex Design

One reason for complex design is the unique information that the information resources must contain. For example, the Getty Provenance Index contains transcribed art gallery stock books and the database is populated with information about specific entities (art, people, places) but also relationships between entities. It is difficult to think of complex relationships and complex transcribed content as fitting into streamlined design. The accuracy and depth of information should not be lost; User Experience design must balance rich information with ease of use. While cultural institutions' information is unique, the design of the resource that contains the information does the richness a disservice by weighing down users' navigation with unnecessary complexity that confronts the users immediately. Overcomplicated design only encourages the use of simpler tools such as commercial search engines and if a site has to rely on Google to deliver resources to its users, it is not very effective.

Another reason for the complex design is because experts of the field build the information resources; they are highly familiar with the content stored within the information resources. Subsequently, the information resources are designed with the idea that all the information is relevant, and that complexity fully expresses the importance of the information. When experts of the field create these resources, they imagine themselves as the users and their expertise carries into the design. This result is termed the *false-consensus effect* and is defined by the Nielsen Norman Group as "people's tendency to assume that others share their beliefs and

will behave similarly in a given context."[7] This phenomenon is a contributing reason for the maintenance and not the re-design of existing resources. It is important to keep users in mind. *Information Architecture* by Louis Rosenfeld, Peter Morville, and Jorge Arango defines users as "the people who will use your information environment."[8] This definition certainly includes more than staff and experts. When developing a product that the general public will use, it is important for more than the experts to be designing the product. To make these resources usable for others, design needs to be streamlined, even experts will benefit from streamlined design.

Motivations for Change

Information resources connected by cultural institutions are intended to connect to the public and serve as a public good. Cultural institutions are specifically motivated to pursue changes in design as these resources function as public goods. Mission statements of institutions underscore the value of serving the public. One pertinent example is the Getty's mission statement, which includes the statement "The Getty pursues its mission in Los Angeles and throughout the world, serving both the **general interested public** and a **wide range of professional communities** in order to promote a vital civil society through an understanding of the visual arts."[9] In this line of thought, the general public should be able to use the information resources these institutions have devoted time and financing to create. When the information resources and the users exist but cannot meet, a disservice is done to the uniqueness of these resources. I would essentially call this a last mile problem, and this last mile problem essentially negates the existence of these resources.

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[7] "You Are Not the User: The False-Consensus Effect." 2017. Nielsen Norman Group. October 22, 2017.
[8] Rosenfeld, Louis, Peter Morville, and Jorge Arango. 2015. *Information Architecture*. Fourth. Sebastopol, CA: O'Reilly.
[9] "About the Getty". http://www.getty.edu/about/.

Examples of Complex Design

The following examples reveal problematic and overcomplicated design that attempt to communicate the entire complexity of the information all at once. The confusing entirety can be discussed in terms of information architecture and features. I have used red circles to isolate complex design features.

1. **Getty Provenance Index:**

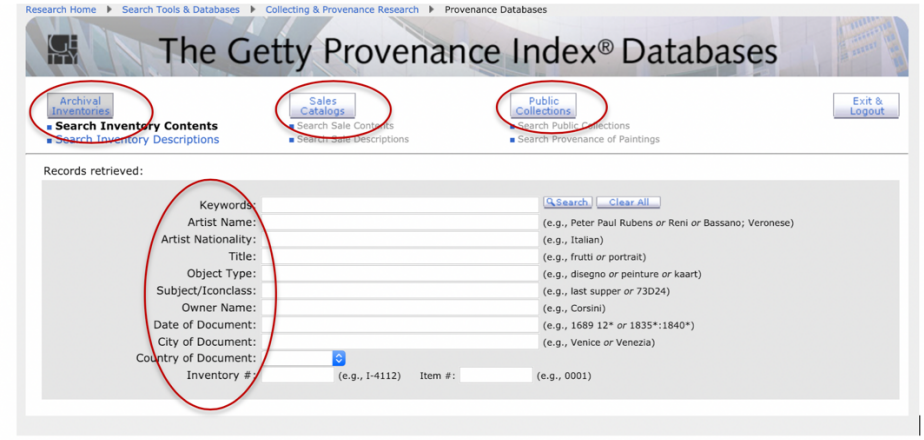

Figure 1

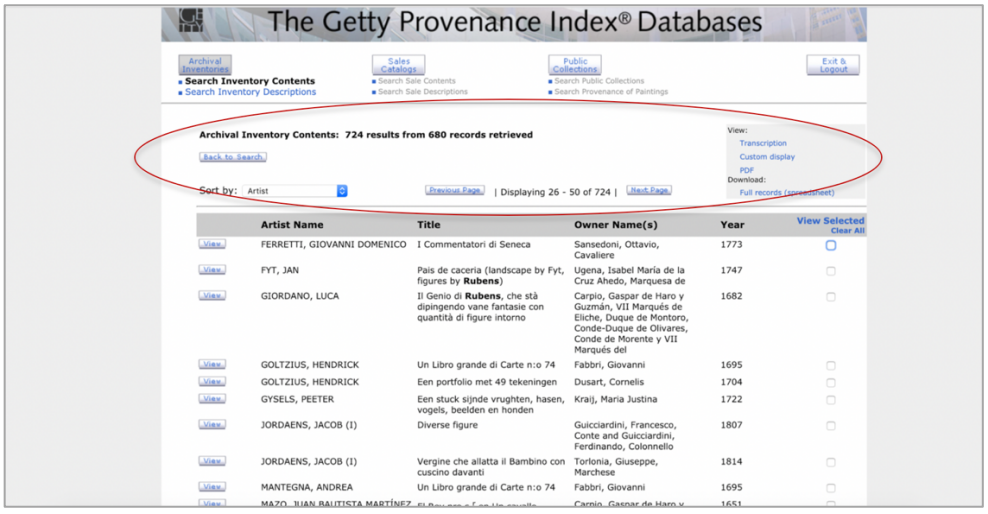

Figure 2

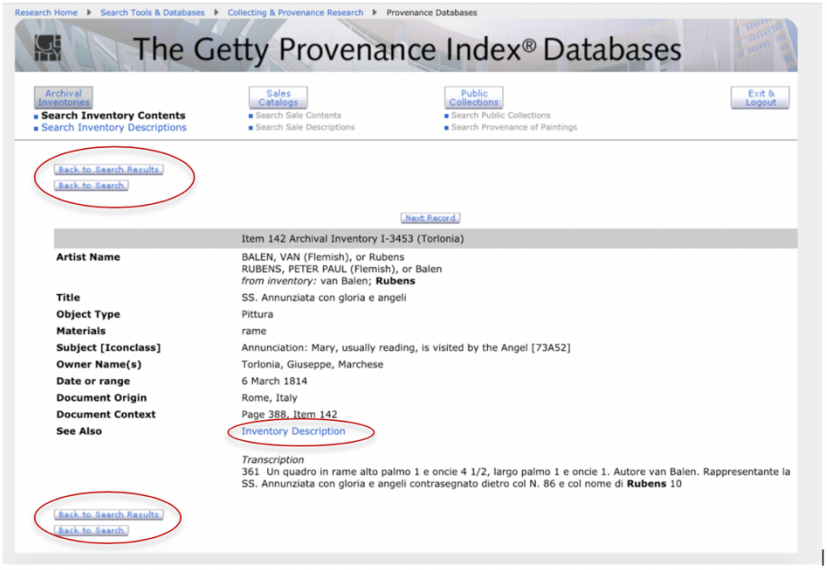

Figure 3 "Getty Provenance Databases." http://piprod.getty.edu/starweb/pi/servlet.starweb.

Here, the Getty Provenance Index provides quite a bit of unnecessary information at the search level. One feature highlighting above is that the results page does not allow a user to further refine a search. Furthermore, the list of results offers no way to filter or facet results. There is not a connection to original search at the individual result level. Users must wade through all of the results or search again by going back to the search page.

2. The Getty Museum's Search and Results' Page

Issues of overcomplication exist beyond the Getty Provenance Index. Below is an example of the Getty Museum's Collection search interface.

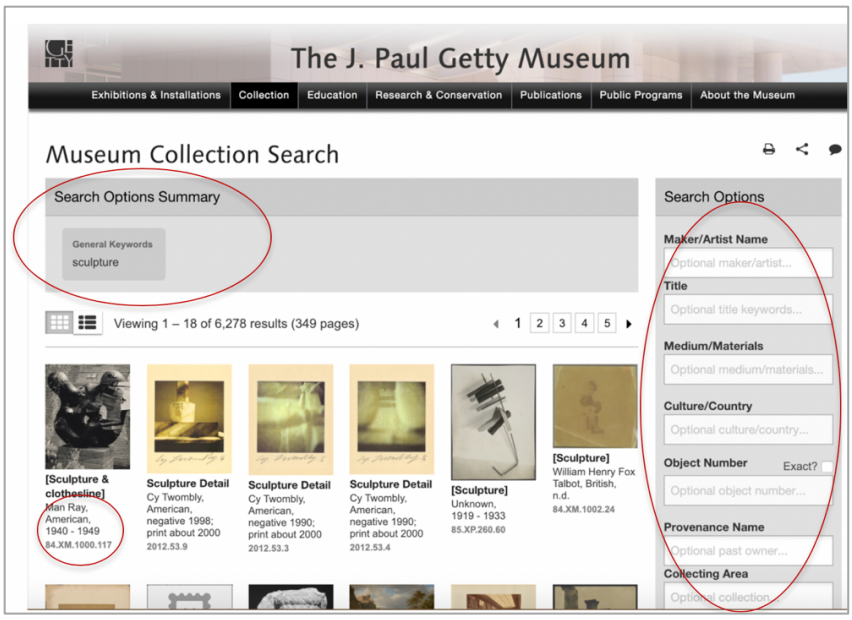

Figure 4 "Collection (Getty Museum)." The J. Paul Getty in Los Angeles.

The Getty Museum Collection search page is straightforward, yet the results page does not reflect this simplicity. In fact, the only way a user can continue to move through results is with advanced knowledge of the material. This requirement of advanced knowledge is reflected in the right column and the lack of a general search bar. Once again, the complexity of the information is built into the design of the user experience.

How to Achieve Streamlined Design

The next step in improving burdensome design is to understand who the user is and what are they trying to accomplish by using the information resource. User Experience design that reflects the full structure of the information also assumes that the user is an expert in the field, though that is not the only type of user. User research locates and improves complicated design by revealing the current problems of an information system and determining how future designs can fix those problems. Interviews with users will show how the information resource is approached, which aspects of design are utilized, and what specific roadblocks the design

presents. In regard to user testing, Catherine Baird and Tiffany Soares write in *Weave* that "[Data] can tell us about how [users] search and research, and what motivates those choices."[10] Designers translate user research data into iterative design specifications. Testing design and iterating design will reveal what aspects of design can be removed and the best configuration of elements of information.

There is also a litany of tools that aid in distilling interviews into actionable items. Tools that are applicable to streamlining design include use of analytics, card sorts, decision trees. Analytics provide more quantitative data about user behavior such as where people drop off in their searches and what people may be naming certain concepts. Card sorts are a tool to evaluate a user's mental model of the information. "The best way to support ease of learning is to design systems that match a user's existing mental models. A mental model is simply a representation of something in the real world and how it is done from the user's perspective."[11] Tree tests evaluate the effectiveness of information architecture. These tools all lead into the creation of a final streamlined design that creates a navigable information resource.

Filters and Facets

Next, designs derived from user data can be put into action. Streamlined design requires complexity to move to the background of design so that detail can be parceled out to each item that requires it. The User Experience design literature included in the introduction outlines the importance of restrained detailed which can be achieved in part with appropriate use of filters and facets. In describing these concepts, the Nielsen Norman Group writes, "Filters […] analyze a given set of content to exclude items that don't meet certain criteria. More recently, rich

[10] Baird, Catherine; Soares. 2018. "A Method of Improving Library Information Literacy Teaching With Usability Testing Data." *Weave: Journal of Library User Experience* 1 (8).
[11] Komninos, Andreas. 2019. "An Introduction to Usability." The Interaction Design Foundation.

information systems have also begun to provide faceted navigation**,** which basically extends the idea of filters even further into a complex structure that attempts to describe all the different aspects of an object, for maximum flexibility in information retrieval."[12] I would add that successful design moves specific choices (filters and facets) after an initial search; my experience testing designs at the Getty made clear that people just want to search when they encounter an information resource. When design changes to represent only the relevant part of a resource instead of attempting to showcase an entire system, a user is able to navigate through the system.

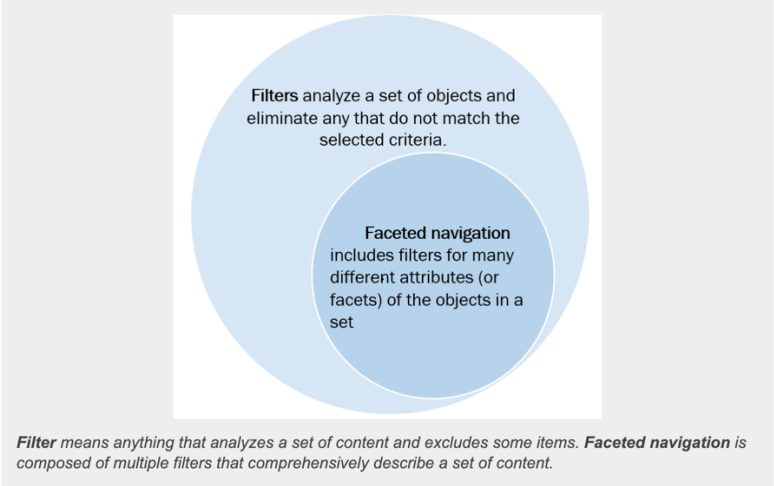

Figure 5 Filter and Facet graphic from Nielsen Norman Group "Filters vs. Facets: Definitions." 2014. Nielsen Norman Group.

Examples of Complex Data and Streamlined Design

I believe the concept of removing overcomplication in design is one best demonstrated with examples. One institution that has committed to a User Experience design overhaul is the

[12] "Filters vs. Facets: Definitions." 2014. Nielsen Norman Group.

Metropolitan Museum of Art.[13] They provide a wonderful visual example of a streamlined cultural institution information resource with their Collection Search. I have used red circles to isolate important features.

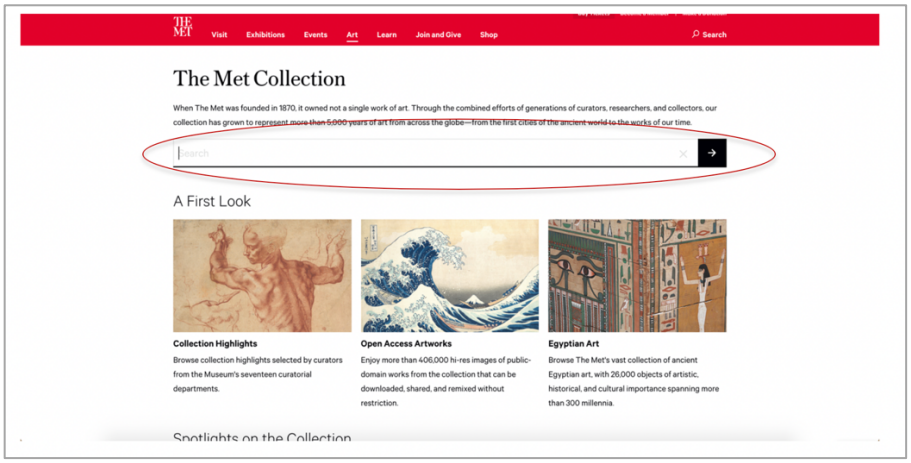

Figure 6

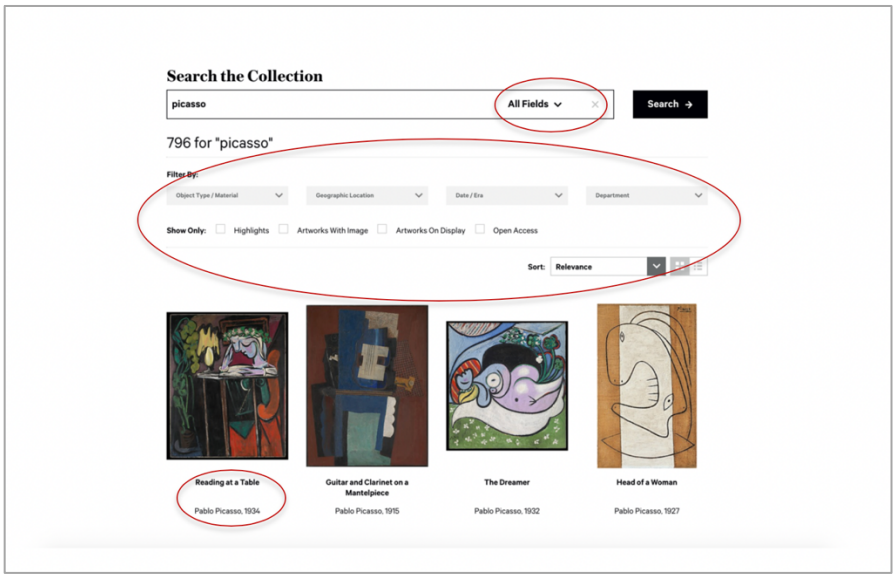

Figure 7

[13] Sree Sreenivasan, and Loic Talon. 2016. "A Fresh Digital Face for The Met." The Metropolitan Museum of Art, i.e. The Met Museum. February 29, 2016

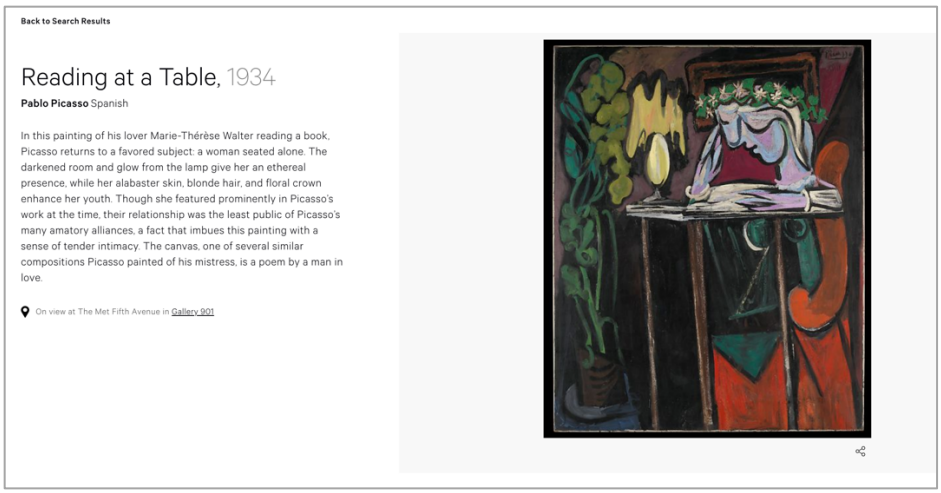

Figure 8 The most pertinent information is placed above the fold at the item level.

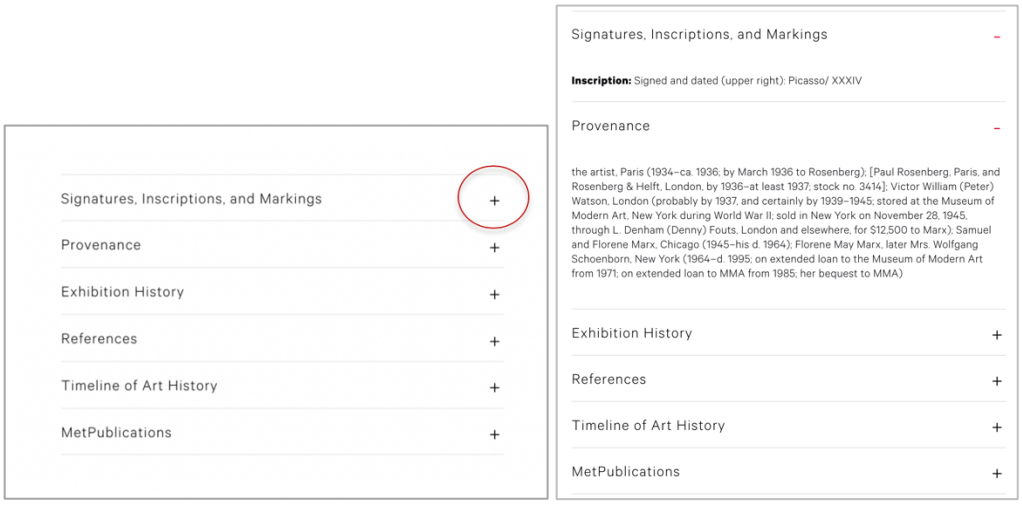

Figure 9 Details that provide a lot of content are compressed and can be opened if a user wishes to do so.

The Metropolitan Museum of Art example showcases a cultural institution's ability to simplify the complexity of information by editing detail to place it only where it is relevant. In this example, the user does not need deep knowledge of the subject to use the resource and an expert can further refine if they wish to do so. Moving the segmented aspects of information to the background of design allows users to leverage the entire information resource. The Met

achieves this movement of complexity by first showing a single search box. After that search, the results are listed with a single set of filters and the individual results on this screen do not contain all their information. Specific information is contained to the item's individual page. Above the fold, there is a description and an image; the granular detail is housed below the fold and accessed by opening the headings. The Metropolitan Museum of Art does not design its collection's search User Experience by just replicating the structure of the information at hand. Instead, the design allows for a user to toggle with different refinements of the information. The effect of a streamlined information resource is one that welcomes use instead of inhibiting it. More cultural institutions can follow the Metropolitan's User Experience design lead and streamline their information resources.

Simple Design Does Not Remove the Complexity of the Content

Any usage of a current information resource does not make it useful (or as useful as it could be). While experts in the field are capable of navigating an information resource built with granular detail in mind, overwhelming and complex design still presents roadblocks to users. Furthermore, I find it important to emphasize that simplifying the complexity of design does not do a disservice to the information — streamlining design allows for easier access of information. In fact, clarity of design that places detail only where it is relevant brings more focus to the information itself rather than to questions of how to use the resource.

Required Resources and Labor Requirements

Any fundamental revision to the form of an information resource requires investment. The resulting usefulness and achievement of usability is worth the investment. This investment includes design and engineering as this type of User Experience design also requires revised

engineering. This sort of design revision requires investment. The outlined solutions to the burdensome design problem can be remedied by people, specifically User Experience researchers and designers. My past work leads me to believe a devoted staff member who is a User Experience expert needs to be available to work on these design projects. Excellent, intuitive design recedes into the background, but a good designer is needed to make that happen.

Conclusion

The evolved state of User Experience Design allows cultural institutions and information institutions to think critically about their own design. Cultural institutions' missions are rooted in interaction with the public and these missions should encourage cultural institutions to improve the design component of their resources. Engaging users with clear design can draw them into the unique aspects of information resources; complex design blocks users from fundamentally accessing the information. Exceptional User Experience design is the final step in connecting people with a unique information resource. After all, why build the information resource in the first place if it will not be used to its greatest ability?

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