Designing for Content

Women Pioneers in Design: 
A New Learning Resource 
for Students of Graphic Design History

Aaris Sherin

A thesis submitted to the Faculty of the College of Imaging Arts and Sciences in candidacy for the degree of Master of Fine Arts

May 15, 2003

Rochester Institute of Technology
College of Imaging Arts and Sciences
Graduate Graphic Design MFA Program
Designing for Content

Women Pioneers in Design:
A New Learning Resource
for Students of Graphic Design History

Professor Deborah Beardslee
Chief Advisor

Professor R. Roger Remington
Associate Advisor

Art and Photography Librarian Kari Horowicz
Associate Advisor

Professor Patti Lachance
Chairperson
School of Design

I, Aaris Sherin, hereby grant permission to the Wallace Memorial Library
of Rochester Institute of Technology to reproduce my thesis in whole or part.
Any reproduction will not be for commercial use or profit.

Aaris Sherin
Author
MFA Candidate
Thank you for your patience and support

Deborah Beardslee
R. Roger Remington
Kari Horowicz
Bruce Ian Meader
Richard Fasse
Kathy McGee
Monika Sherin
Erek Sherin
Delphine Sherin

my friends and colleagues in room 3510

and especially to the students in the Women Pioneers in Design class who embraced the opportunity to be active contributors to this project
Designing for Content

Women Pioneers in Design:
A New Learning Resource
for Students of Graphic Design History
Table of Contents

7 Project Definition
9 Precedents
11 Research and Analysis
19 Synthesis
22 Ideation
29 Intermediate Evaluation
30 Implementation
37 Dissemination
44 Retrospective Evaluation
45 Conclusion
46 Glossary
47 Bibliography

Appendices

50 A. Essay by Ayesha Habib
51 B. Course Management/Blended Learning
52 C. Exercise from Learning by Heart
54 D. Database Content Survey
55 E. Survey 2
56 F. Survey 3
57 G. Project Development and Evaluation Planning Document
Mission
This thesis project is centered on the development of a relational database that will take advantage of technology and increased student computer literacy to encourage and stimulate interest and utilization of design history content.

Project Definition

This project involves the creation of a new educational design resource to bridge the gap between printed and virtual information, to encourage students to explore both, and to help them evaluate the quality of digital material by example. The final application for this thesis project is an educational relational database. The creation of the proposed database will require research on each of the designers included in the project as well as in-depth inquiry into pedagogical theory and practice.

The relational database, developed for this thesis project, will be targeted at design history students in the new Women Pioneers in Design class. Professor R. Roger Remington, its creator, has offered to use this resource as part of the course to be offered during the spring 2003 quarter. Women Pioneers in Design class will allow students to participate in the creation of the database and test their own and their peer’s work. This unique opportunity allows the author of this thesis to gain valuable experience in design education and educational pedagogy as part of the larger thesis project. The class will provide a laboratory to test the usefulness and success of this project’s hypotheses.

Women as a subset of the larger theme, historically important designers, is particularly well-suited for use in this thesis because it is an area that lacks published research resources. Students interested in female designers are often frustrated by the lack of information that has been published about them compared to their male counterparts. As more and more young women are drawn to the field of design it is essential that they have strong role models and understand the pivotal role that their predecessors played in the history of the discipline.
The problem of causality. It is not always easy to determine what has caused specific change in science. What made such discovery possible? Why did this new concept appear? Where did this or that theory come from? Questions like these are often highly embarrassing because there are no definite methodological principles on which to base such analysis. The embarrassment is much greater in the case of those general changes that alter a science as a whole. It is greater still in the case of several corresponding changes. But it probably reaches its highest point in the case of the empirical sciences: for the role of instruments, techniques, institutions, events, ideologies, and interests is very much evidence; but one does not know how an articulation so complex and so diverse in composition actually operates.

Michel Foucault (Landow 1)

**Precedents**

The overwhelming democratization of information available via the Internet has given students greater access to data than ever before, but they often seem to lack the skills to sort and evaluate what they find. Technological advances in the last ten years challenge graphic design education and related disciplines to provide greater access to its history. Many experts argue that most technical fields of study will follow the legal field in providing excellent virtual resources for both students and practitioners, however the quality of databases and websites remain varied and inconstant in the field of graphic design.

Undergraduate college students enrolled in many small and mid-sized design departments struggle with a lack of reliable resources and have difficulty finding appropriate material to use for design history research. Students often gravitate toward a select few of the most well known designers when asked to do an assignment on a historically important designer or some aspect of design history. To counteract this trend, educators must approach their jobs with greater flexibility and innovation.

The field of graphic design has a responsibility to provide access to information on its history if it hopes to continue to grow in scope and influence. Professor R. Roger Remington gives a rationale of need for design history in education in his work entitled “Why Study Design History?” Ideally Remington’s theory states that design history provides intellectual, professional, and personal meaning for designers. Intellectual meaning increases general knowledge, provides content, and establishes a point of view. Professional meaning generates literacy, enhances career orientation, and builds a bridge to concrete applications. Personal meaning creates judgment and stimulates creativity. These building blocks work in tandem to provide students with a lifelong connection to theory and interdisciplinary connections. Together intellectual, professional, and personal meaning stimulates critical thinking skills, reinforces process, and inspires creativity. Instructors and institutions that embrace design history as part of their curricula produce more successful students since ultimately an informed individual is more effective.
In the late 1980's, Professor Louis Danziger, then head of the Graphic Design Department at Art Center College of Art and Design in Pasadena California, used Filemaker Pro 2.0 to create a database that incorporated both textual and visual components on design history. Danziger was one of the first educators to recognize the need for design history to be integrated into the curriculum of undergraduate graphic design students. The database was created to support Danziger's course work and document his vast image resources. His vision of a digital application that would efficiently allow the user to scroll their way through design history was largely unrealized due to the scope of the project and the technical limitations of the software.

Today a number of websites have partially realized Danziger’s vision of easily accessible information on design history. Internet-based resources provide focused surveys of subsets of design history but lack comprehensive data on the discipline as a whole. Design history websites often suffer from broken links and poorly designed and confusing navigation. Ad Access by Duke University Special Collections, and World War II Poster Collection and Africana: Posters from Melville J. Herskovits Library of African Studies, both by Northwestern University, provide a good working model for easily accessible material on the web (see page 40 for URL's). These sites use efficient navigation and include high-quality digital reproductions of their collections. Unfortunately both the Duke and Northwestern University sites retain the default horizontal information fields typical of Filemaker Pro databases. Although these sites allow for easy access to data, their uninspired interfaces seem to fly in the face of design as their primary content. The websites of the Cooper-Hewitt National Design Museum and the Herb Lubalin Study Center of Design and Typography at Cooper Union provide indicators of what can be done to make the traditional database interface more aesthetically sophisticated (see page 40 for URL's). The Cooper-Hewett site combines the best in both usability and visual interface with simple, well-designed navigation that enhances rather than detracts from the user’s experience with essential data.
Recently, there has been an upsurge in interactive art and design material on freestanding CD's distributed by textbook publishers and not-for-profit institutions. Unfortunately the quality of these resources is extremely varied since they often employ mediocre interface and systems design that hinders usability. There remains a need for easily obtainable quality information on graphic designers of influence and graphic design history through interactive modes.

Over the last twenty years pioneers in design history education advocated for its inclusion into graphic design curricula. Both Professor R. Roger Remington and Professor Louis Danziger were instrumental in this advance in pedagogical theory. Technology has made enormous advances since Danziger made his design history database with Filemaker 2.0. Today an increasing number of design history resources are available for student use but they often lack indexes of their content and therefore can be difficult to access. As innovations in technology continue, and educators and students become more comfortable working with such material, the quantity and quality of technologically-based educational tools will grow. A new generation of design and design educators are continuing the work of their predecessors by increasing the scope of information included in design history classes and using new tools to make that information more accessible to students.

This thesis project begins with Professor Remington's premise that the inclusion of design history into curricula is necessary for students studying graphic design. The websites and multimedia resources discussed previously provide models from which to begin further research. Through a combination of examining precedents and current educational resources and theory this project will act as an exemplar of the extended role that technology can play in graphic design education.
Research

Interface Design
Interface design was investigated to find the most effective way of presenting digital information. This research showed that grouping content is as important in digital interfaces as it is when designing for print. Successful web and multimedia design uses typographic and visual hierarchy to allow viewers to navigate through a page with a glance.

Research indicates that usability is currently the most important issue when designing for multimedia and web-based content. Testing has shown that users are not content to spend time figuring out how to navigate through digital material or unreadable text. Many experts on this subject advocate interface design that is intuitive for one to navigate through. In the book, Don’t Make Me Think: A Common Sense Approach to Web Usability, Roger Black makes the argument that a viewer should not have to think in order to understand or use an interface. He uses simple language and concrete examples to illustrate that if people can’t find their way though digital content they will go elsewhere. Black diagrams how ambiguous language and placement can confuse and frustrate users. The book, Homepage Usability by Jakob Nielsen, takes the reader though fifty popular website home pages and shows how small mistakes in design and copywriting can confuse viewers. The real-life examples and list of usability rules give designers and programmers a rational system to follow in the creation of successful interface design. Though individual authors present a personal take on the problem of interface design, the overall message of clearly written and presented content is overwhelmingly consistent.

Research on interface design and usability strongly influenced the approach, both to content gathering and later to grouping and design of this thesis project. It enabled the project content to be targeted toward digital viewing. This research was particularly important to refer back to during the ideation and implementation stages of this project because it kept the user in the forefront of the design and content placement considerations.
Hypertext and Intermedia

The student interaction aspect of this project was largely influenced by George Landow’s research on cooperative learning and the applicability of computer software to such goals. He chronicles his research in the book *Hypertext: The Convergence of Contemporary Critical Theory and Technology*. George Landow was a professor of English and Art History at Brown University. Beginning in 1985 he worked as part of the team at the Institute for Research in Information and Scholarship at Brown University that developed Iris Intermedia, a Hypertext system that allowed for student contribution and interaction in building a collective knowledge base. Iris Intermedia was developed to be used as an educational tool to enhance traditional classroom instruction. Landow used poststructuralist theory as a basis for much of the thinking that went into the structural development and design of Iris Intermedia. He believed that reading should be a pluralistic process without beginnings and endings dictated by an author, and a changing center that links to alternate content though user interaction. The aim of this work was to replace the fixed linear methodology intrinsic to traditional printed material with Hypertext, a system of text blocks and images joined by electronic links. Hypertext permitted individual readers to choose their own path through information; this allowed for the personalized investigation of textual material and images.

Landow’s work was two-fold. In addition to his writing on the critical theory that acted as the basis for the creation of Iris Intermedia, he also pioneered the use of technology to enhance classroom experience. Landow’s use of Iris Intermedia and Hypertext in the classroom enabled students to actively participate in their own education, as well as create a resource for later student use. In Landow’s model, students using Hypertext act as “reader-authors both by choosing individual paths through linked primary and secondary texts and by adding texts and links” (Landow 121). “Hypermedia learning systems will place more responsibility on the learner for assessing, sequencing, and deriving meaning from information” (Landow 121). Such systems embraced exploration and discovery by students. Because of their non-linear construction these educational tools were thought to stimulate integration and constextualization of both textual material and images.
One chief effect of electronic hypertext lies in the way it challenges no conventional assumptions about teachers, learners, and the institutions they inhabit. It changes the role of the teacher and student in much the same way it changes those of a writer and reader, which fundamentally calls into question general assumptions about reading, writing, and texts, similarly calls into question our assumptions about the literary education and its institutions that so depend upon these texts.

Landow believed that technology has the ability to transfer some power from the educator to the student and to make a teacher more of a coach than a lecturer. He emphasized collaborative learning between students and educators. Though successful in its original goals, Iris Intermedia did not fully realize Landow’s vision of technology enhancing classroom learning because the computer hardware and software of the time was not powerful enough to allow Iris Intermedia and Hypertext to become widely used.

Much of Landow’s work seems common sense in a post-Internet environment. The reading public is now familiar with and often uses web pages that act as advanced examples of information grouping and linking similar to web predecessors like Iris Intermedia. The advent of computer software like Apple Hypercard allowed text and images to be uploaded and stored in a retrievable form that revolutionized access to information. Digital storage and retrieval methods that are ubiquitous in the first part of the twenty-first century are a product of thinking and research done by scientists and researchers like Landow ten and twenty years ago. This realization that the seemingly intuitive organization of online content has a theoretical beginning was useful when considering the goals for the design and construction of a relational database.

(See page 14 for example of Iris Intermedia).
Howard Gardner’s Theory of Multiple Intelligences

The work of Howard Gardner was used to aid in the understanding of how students approach the same material differently and have varied styles of learning. Gardner, a cognitive psychologist at Harvard University, suggests that the term intelligence should be pluralized. His theory states that human beings have multiple intelligences, and that each person has a unique combination or profile. Intelligences can be nurtured and strengthened, or ignored and weakened, they can act together or individually (Gardner 15). Gardner originally identified seven faculties which he labeled “intelligence." These include verbal/linguistic, visual/spatial, logical/mathematical, bodily/kinesthetic, musical/rhythmic, and interpersonal/intrapersonal. Gardner’s Theory of Multiple Intelligences dismissed early theories of learning that were based almost solely on language. According to Gardner, intelligence is the ability to create an effective product or offer a service that is valued in a culture (Gardner 102). Intelligence is a set of skills that make it possible for a person to solve problems and have the capacity for finding or creating solutions to problems that requires gathering knowledge (Gardner 75).

Listed below are Gardner’s intelligences with brief descriptions.

**Visual/Spatial Intelligence** ability to perceive the visual. These learners tend to think in pictures and need to create vivid mental images to retain information.

**Verbal/Linguistic Intelligence** ability to use words and language. These learners have highly developed auditory skills and are generally eloquent speakers.

**Logical/Mathematical Intelligence** ability to use reason, logic, and numbers. These learners think conceptually in logical and numerical patterns making connections between pieces of information.

**Bodily/Kinesthetic Intelligence** ability to control body movements and handle objects skillfully. These learners express themselves through movement.

**Musical/Rhythmic Intelligence** ability to produce and appreciate music. These musically-inclined learners think in sounds, rhythms, and patterns.

**Interpersonal Intelligence** ability to relate and understand others. These learners try to see things from other people’s point of view in order to understand how they think and feel.

**Intrapersonal Intelligence** ability to self-reflect and be aware of one’s inner state of being. These learners try to understand their inner feelings, dreams, relationships with others, and strengths and weaknesses.

http://www.ericfacility.net/ericdigests/ed410226.html
Thomas Armstrong, an educator and psychologist, applied Gardner’s theory of intelligence to issues of pragmatic classroom instruction in his book, *Multiple Intelligences in the Classroom*. Armstrong argues that one of the benefits of Gardner’s work was the demystifying of intelligence by providing a means of mapping the broad range of abilities that humans possess by grouping their capabilities. “The theory of multiple intelligence investigates how the human mind operates on the content of the world” (Armstrong 1,2).

The application of multiple intelligence theory to classroom instruction encourages innovations that break out of confined one-sided approaches to learning (Armstrong 38). Educators have different styles of teaching just as students have different ways of learning. Armstrong says that “Multiple Intelligence theory makes its greatest contribution to education by suggesting that teachers need to expand their repertoire of techniques, tools, and strategies” (Armstrong 38). In this model a successful educator teaches from an interdisciplinary point of view, keeping his/her style loose and diverse.

To teach to multiple intelligences one must provide a variety of activities that are incorporated into classroom instruction since it is not possible to reach all learning styles with every assignment. This range of activities works toward the overall objective of teaching students how to think and approach new material and experience rather than what to think. Student participation in the Women Pioneers in Design Database fits into the large class objective of presenting content in a multitude of ways.

Many of the objectives of good teaching using multiple intelligences were applied to the overall organization of the Women Pioneers in Design taught by Professor Remington. This project was particularly well suited for incorporation into this class because both Gardner and Armstrong suggest tapping into technology as a way to incorporate new activities into classroom instruction. The integration of the database is directly supported by Gardner’s suggestion of working on traditional subjects in non-traditional ways as well as the use of project-centered instruction in the classroom.
Women in Design

A survey of current resources that included information on women in the field of design was done to see where the strengths and weaknesses in such material were. The process included looking at books, magazines, and websites, both those that primarily targeted their content to women in design and those that included such information on an occasional basis. The material used for this inquiry was found online, at Rochester Institute of Technology's Wallace Library, and ordered through interlibrary loan. Available resources were reviewed to establish parameters for the project and to identify where the greatest need lay. Biographical sources were used to determine accepted formats and headings for groupings of information. After the resource material was reviewed, research was conducted on individual women in design to create the content for the project application.

Content was found by using the following research aids:

- Einstein, Wallace Library Catalogue
- Design and Applied Arts Index
- Art Full-Text
- Art Index Retrospective
- ArtBibliographies Modern
- WorldCat
- Google Search
- ABI Inform
- Biographical References

Digital content files were made for each of the thirteen women designers identified as the first women to be included in the database. The material found on these women enabled the identification of research techniques for finding future information on lesser-known persons. The content on the identified women designers served a dual purpose. First it provided the material needed for the creation of the initial thirteen database entries, and second, it led to a body of research knowledge to share with students expanding the database as part of the Women Pioneers in Design class.
Research

Mycourses and Course Management Software

Mycourses is a course management software that is used as part of Rochester Institute of Technology’s online and distance learning programs. It is run by a program called Prometheus that was developed at George Washington University, and was later bought by BlackBoard, another course management software company. Such software applications were originally created for use in online learning but they have been adopted by traditional on-campus programs as well.

When online course management software is used to augment traditional classroom activities it is referred to as blended learning (see Appendix B). This synthesis of online course content combined with lecture and studio-style education has become increasingly popular on campuses around the country. Instructors using such learning management systems are able to upload class notes, links, images, and text as well as easily communicate with students. Teachers may use the testing feature to give and score quizzes, and they can create groups and discussion boards for students to use outside of the classroom. Students may access the system on campus or remotely from home. Programs designed for the ultimate flexibility of learning from distant locations currently enable a greater degree of freedom by allowing a broader range of resources to be integrated into classroom instruction. Research on blended learning was most applicable to student interaction and the collective establishment of knowledge, both of which are goals for the educational resource developed as the final application for this project.

As part of the Women Pioneers in Design class, Mycourses was used to display pertinent class information such as the syllabus, class bibliography, and notes from all three co-instructors. For the database component of the course it was used to track student research and to evaluate student responses to the assignment. The author of the Women Pioneers in Design database used Mycourses to communicate directly with students regarding research concerns and problem-solving strategies. Course management software is most often used to house general information about class assignments and to facilitate group discussions. This project allowed classroom technology to be pushed in new directions by using Mycourses to monitor group projects and act as a holding tank for materials gathered by individuals in separate locations. As an instructional aid, Mycourses proved very successful at enabling better and faster communication between students and the instructors.
Organizing and making sense of the content was a fundamental part of the project. After research was conducted it was necessary to use organizational tools to assimilate the range of information collected.

A review of existing material and comparison between sources was conducted as part of the synthesis process. A comparative matrix was the most effective tool to clearly organize and analyze this material. One axis of the matrix consists of a list of resources that had been identified during the research process. The other axis showed categories of information that were covered by these resources. By employing the matrix it was possible to see which resources included the greatest amount of useful types of information. Once filled in, the matrix provided a way to see which material one would look to for what type of information.

A Comparative Matrix

<table>
<thead>
<tr>
<th>Resource Materials</th>
<th>Areas of Inquiry</th>
<th>Interface design</th>
<th>Interface Design Function</th>
<th>Design Education</th>
<th>Pedagogical Theory</th>
<th>Use of Technology to Organize Content</th>
<th>Design Theory</th>
<th>External Truth</th>
<th>Good Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designing for Learning, The Pursuit of Well-Structured Content</td>
<td>✔️ ✔️ ✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Designing User Interfaces</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing User Interfaces</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphic User Interface Design &amp; Evaluation</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HyperText, The Convergence of Contemporary Theory &amp; Technology</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Mind &amp; Brain: A Cognitive Approach to Creativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eight Ways of Knowing: Teaching For Multiple Intelligence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index of 20th Century Artists</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contemporary Designers</td>
<td></td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dictionary of Woman Artists</td>
<td></td>
<td></td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.thirteen.org/edonline/concept2class/month1/#2">www.thirteen.org/edonline/concept2class/month1/#2</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.greatbuildings.com">www.greatbuildings.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.library.northwestern.edu/govpub/collections/wwii-posters/">www.library.northwestern.edu/govpub/collections/wwii-posters/</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.cooper.edu/art/lubalin/">www.cooper.edu/art/lubalin/</a></td>
<td></td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>scriptorium.lib.duke.edu/adaccess/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nmaa-ryder.si.edu/collections/exhibits/posters/index/html</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.dyleslie.com">www.dyleslie.com</a></td>
<td></td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design and Applied Arts Index - Online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Full Text - Online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Bibliographies - Online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.melot.org">www.melot.org</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.w3.org/WAI/Resources">www.w3.org/WAI/Resources</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The use of technology in the classroom can help in the accommodation of students with diverse learning styles. The goal of such material is to stimulate interest and learning in a variety of ways. The increasing array of information that can currently be accommodated by multimedia software and course management systems combined with focused class activities may allow teachers to effectively reach a larger number of students. For students, digital resources allow more immediate and flexible access to classroom material. As educators strive to increase the ease and speed by which students can make connections, technology provides useful options to augment the traditional classroom experience. Used in combination, resources like Mycourses and multimedia teaching tools can provide a more integrated classroom experience as well as speed up the feedback loop between students and their instructors.

Content Design/Data Fields
The organization of text for optimal usability was essential because of the project’s focus on design for content. Brainstorming was done to isolate which fields of data would be placed most prominently in the layout. Lists of different groupings of text categories were made and the most successful combinations were identified with the help of thesis committee members and by looking at precedents and the project goals. The content categories remained tentative through the ideation process as a combination of visual and textual brainstorming methods were employed and the design and content goals continued to shift.

Listed below are the final data fields that were used for project content/data entry:

- Name
- Place of Birth
- Dates of Birth/Death
- Education
- Area of Experience
- Biography
- Timeline/Awards
- Images
- Image Credits
- Publications By
- Publications On
Generative Matrices

In this project generative matrices were used to link the work done during the synthesis part of the project with ideation. The aim of the matrices was to produce ideas about the design and organization of different aspects of the project. So as not to be limited by the space provided by individual fields, the matrices were enlarged to allow handwritten ideas to fit in each field and be viewed from a distance. From the information entered into the fields of the enlarged matrices, the most useful ideas were identified and recorded on index cards. The information fields on smaller versions of the matrices were numbered to correspond with specific index cards. It was from this idea-building stage of the project that later design and content ideation took place.

A Generative Matrix

<table>
<thead>
<tr>
<th>Datafields</th>
<th>Audience</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>greatbuildings.com</td>
<td>adaccess</td>
</tr>
<tr>
<td>Birth &amp; Death Dates</td>
<td>1a</td>
<td>1b</td>
</tr>
<tr>
<td>Country of Origin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area of Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accomplishments/Awards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biographic Info/Timeline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search Fields</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women in Design Database</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accolades</td>
<td>2a</td>
<td>2b</td>
</tr>
<tr>
<td>Search Fields</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Images of Work</td>
<td>4a</td>
<td>4b</td>
</tr>
<tr>
<td>Where to Find More</td>
<td>books</td>
<td>3a</td>
</tr>
<tr>
<td></td>
<td>articles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>websites</td>
<td></td>
</tr>
<tr>
<td>Where to Find More</td>
<td>books</td>
<td>3a</td>
</tr>
<tr>
<td></td>
<td>articles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>websites</td>
<td></td>
</tr>
</tbody>
</table>
Ideation

During the ideation phase of the project the research and project content was transformed into a visual form through the use of brainstorming methods and sketching. These techniques helped ensure that unexpected ideas were explored and that the final design of the project application would break new ground.

Richard Saul Wurman is an architect and the author and designer of multiple books on understanding information. In his book Information Anxiety he looks at ways of organizing information by approaching it in specific ways. Wurman presents a method of classification called “The Five Ultimate Hattracks.” With this method one uses the headings of Time, Location, Category, ABC’s, and Continuum/Magnitude to identify and group information. By approaching the information through each of these five headings, one can understand the information from a variety of different perspectives. This allows one to see relationships and patterns in complex groupings of information. “Understanding the structure and organization of information permits you to extract value and significance from it (Wurman 42). Wurman argues that with each new structure can see different one meaning, from which the whole can be grasped and understood (Wurman 43).

Wurman’s Hattracks model was used during the ideation process of this thesis study. For the purpose of this project, common reference tools were organized under the headings Time, Location, Category, ABC’s, and Continuum/Magnitude. This list making process identified material such as train schedules, maps, textbooks, and phone books. For each section one of these items was chosen to explore further. The goal was to dissect these familiar reference tools, identifying their strengths and weaknesses at conveying information and then project those design and content considerations onto the thesis design application. Example: After a phone book was identified as a useful model, the question was asked, “What makes a phone book work?” “How is content organized?” and finally, “What about the design of a phone book might be applicable to the design of a database?”
Ideation

What if my database was designed like a...

Phonebook
- Is put together in alphabetical by my category
- Uses clear system every time
- User knows how to navigate from experience
- Uses color coding
- Uses headlines at top to let user know where they are
- Uses lia format
- Typographic elements call out specific material
- Simple and blocky design
- No design "embellishment" for design sake
- Clean/atomic
- Uses open page people
- Speed to largest possible audience

Brainstorming employing Wurman’s Hatracks model as a starting point
The book *Learning by Heart* by Corita Kent and Jan Steward is based on Corita Kent’s teaching in the art department at Immaculate Heart in Los Angeles. An artist and art educator, Corita Kent developed tools and techniques for approaching creative problems. Kent’s “assignments” are designed to help one look at a problem from a new direction. These assignments are exercises that combine specific tasks and are designed to push one’s thinking in new directions and stimulate new ideas. She instructs her students to “suspend all critical judgment until the end of the session. Idea production is ten times greater with imagination that isn’t restricted by judicial attitudes. By deferring our critical decisions, we keep ideas flowing and come up with many more alternatives from which we can choose later” (Kent 51). A student of Kent described her teaching this way, “Her nonstop, red-eye-special assignments tore away at preconceptions, exhausted the self-conscious approach to art that led us finally, open and hopeful, in new directions (Kent 6).

An exercise from *Learning by Heart* was used to approach the problem of designing the project application without being hampered by preconceived ideas of what a database should look like. A variety of contexts have been identified by the author as starting points for the exercise. These contexts include viewing the project sociologically, historically, anthropologically, like a fairytale, and as a directory, among others. One begins by looking at a project in many ways, one at a time and writing about each point of view. For the purpose of this project the original Kent assignment was slightly modified to include mindmapping and sketching as acceptable outcomes. Work began by asking the question, “What if my database was designed like a ... fairytale, revolutionary treatise, etc.? This allowed the content to be approached from numerous unexpected angles. A student of Kent’s said, “(she) taught us a way of working so true and basic that we could extract the essence of that process and apply it to the work before us, whatever direction our lives took.” (Kent 10). The ideas generated from each hypothetical context were documented by individual mindmaps and clusters of information were identified from which to make sketches. The combination of the assignment from *Learning by Heart*, mindmapping, and sketching proved ideal as a way to stimulate creative thinking on a project that includes both content and design considerations.
Brainstorming using the context exercise from *Learning by Heart* as a starting point.
Ideation

Interface Design
To begin the interface design part of the project, thumbnail sketches were used as a way to quickly jot down ideas. Eventually more refined sketches produced various designs for database layouts. After evaluation by the committee, computer-rendered layouts were created as options for the final implementation. Based on thesis committee feedback, the goals of the interface design became clearer and an additional twenty more refined layouts were created showing the incorporation of feedback plus new ideas for color and aesthetic solutions (see pages 24 and 25).

Navigation
Filemaker Pro 4.0 does not allow for advanced navigational strategies like those used in web design, however it was still necessary to make navigation through the database as easy for users as possible. The inclusion of four distinct layouts grew out of a need to clearly organize content and suggestions for inclusion of additional material by committee members and peers (see pages 30-33).

Aesthetic Considerations
The application’s final use as a research tool combined with the project goal of designing for very specific content meant that the aesthetic appearance of the database needed to be clear and understated. Color was included to help differentiate between areas of the layout. Ideation was conducted to explore which and how much color was needed, and where its placement would add to the overall design and user experience. Finally a color reminiscent of, but not identical to, manila files was chosen because it accentuated the filing metaphor made by the angled shape of the headline area (see page 30 for image). Because of the prominence of full color images in the overall layout it was decided that only black and white and shades of gray would be used to complement the one green color.

Analysis of the project goals and the content, combined with brainstorming and categorization techniques gave rise to the final application for this project. Brainstorming allowed for the exploration of alternate solutions to the problem based on what was learned during the synthesis stage. Ideation allowed for unencumbered exploration to find the most appropriate solution for the content.
Figures 1-4 are examples of layouts created during the first part of the ideation stage of the project. Figures 1 and 3 used placement of the images as a basis for altering the composition. All four layouts experimented with the use of color to add emphasis to parts of each layout. Figure 4 used a palette of gray to set off the images featured. The layouts here represent a small sampling of those done for the project.
Ideation

In Figure 5 black is used to offset the image area and red headline. Figure 6 breaks up the space into thirds, with images at the top, the designer's name and factual information on the bottom left, and the timeline and bibliographic information on the right. Figure 7 is similar to Figure 6, but only uses one color and a rule to differentiate the areas. Figure 8 includes an angled shape to differentiate the headline from the main text section and, like Figure 5, positions the images on the far right.
Intermediate Evaluation

Surveys were used at various points during the Women Pioneers of Design class to gauge reaction by students to research gathering and the final project application. At the beginning of the class students were asked to rate which of the project data fields they thought would be most important when doing research for a paper and background research for a studio project. This feedback was intended to be used during the ideation process to decide where and what categories of content should be most prominently featured. The results of this initial survey pointed to a lack of awareness on the part of students as to their own information-gathering practices. At the onset of the project casual observation was done on student’s natural research processes and preferences. Though not scientific, some conclusions were able to be drawn this work. It was assumed that the preliminary surveys would confirm the original conclusions from visual and verbal observation, however the survey feedback from the students ended up being quite different from collective preferences. Though this material did not prove very useful in the design of the project application it does raise interesting questions about whether or not the students were purposely skewing the results or if they are not fully aware of their own needs and practices (see Appendix A).

The second survey that students were given asked for feedback on how difficult it was to find information on the subject and how that knowledge would effect their opinion of the database (see Appendix E for a graph of the survey results). This survey was primarily intended to confirm the need for a new resource on historically-important women in design. When asked how difficult it was to find information on women in design, 56% said that it was what they expected and 38% responded that it was very difficult. This split might be accounted for in several ways. First, there are some women that the students were given to research that have had more written about them than others. Second, the students in the class were warned by all three instructors about how challenging this work would be before they started. Most likely it was a combination of these two issues that explained the differences in student response.
When the students were asked where they would like to see the information gathered for this project in the future, their opinion was split between a book, online, and on a CD. The majority, 50%, said that they would like to see the information online, while 38% wanted to see it in a book, and 13% on a CD. The fact that the majority of students said that they would like to see the information in a digital form confirms earlier assumptions about the degree of comfort that students have with information gathering and retrieval from multimedia applications.

To the question, “as a database user which would be most important, content or design?” about half of the students responded that the content (text and images) was more important than the design and while the other half said that they were equally important. The fact that no one chose design as most important reinforces the fact that though good design has value, people are used to discerning content from badly designed material. Since the responders to this survey were design students it was probable that many of them would rate design and content as equally important. Non-designers might not have answered in the same way however, because the target audience for this resource is primarily design students, the results from this question are likely representative of the intended audience. Though users may still be willing to accept less considered and inferior design, a well-designed piece can aid the user in greater understanding of the material and make the content more accessible.

When asked how needed this database is, 50% indicated that it was somewhat needed, while 44% responded that it was very needed. To the question. If you were researching information on women in design in the future would you use the database if available, 100% said that they would. The student response to this second survey reinforces that there is a need for a database on historically important women in design. Though not everyone who took the survey responded that the database was very needed, when asked more specifically if they would use such as a resource in the future, it was unanimous that they would.
Implementation

Based on ideation and committee feedback a relational database was designed and constructed using content on thirteen important women in design. The final application that resulted from this project was the fusion of all the steps of the process that came before.

After examining the available software and testing it against the project goals, it was found that Filemaker Pro 4.0 was the ideal program to use in the construction and design of the final application. The advantage of Filemaker Pro 4.0 was that databases created with it are easily expandable. It also used little memory and was not as complicated as web or multimedia development software. The relative ease with which one can learn to use this program was particularly attractive because students would be participating in the creation of the database. Filemaker Pro 4.0 does not allow for complicated interface design; therefore pushing the boundaries of what Filemaker was able to achieve in this respect became part of the way this project broke new ground.

The main content page of the database had the most diverse kinds of information to accommodate and therefore was chosen to serve as a the template for the design of all the database layouts. A clear visual hierarchy was established. The content was divided into three sections: title, images, and main textual content. These sections were visually distanced from each other using color and tone. The two most important pieces of textual information on the page were the title of the database and the name of the woman whose field the user was viewing. These two pieces of text needed to be prominent but not identical to each other. The solution was to reverse out the title on a black background and to make the name of the designer significantly larger than the body/running text. The decision to use three images of the designer’s work was made because of limited space. The images were located to the left of the content in a vertical row on a background of gray. Placing the images together and on a different color background gave them a clearly defined space. This space in the template acted as a guide for where to fit the varied sized and proportioned images on different designer’s pages. The content section of the main page included most of the textual information on the designer. All the text fields were aligned left on a vertical threshold. The publication fields were made to scroll in order to hold the varied number of bibliographic references on each designer (large example on page 32).
Implementation

Based on peer feedback, an additional layout was added to the database that included a more comprehensive list of women in design. The inclusion of additional names in the “important women” layout acknowledges that this database focuses on a selection of women in design and does not suppose to be a definitive bibliographic resource. These names and the expandability of the database act as an acknowledgment that any list of important women in design is not static, but expands as the field grows and as more is written about women whose contributions are less known (larger example on page 32).

The database was designed with expandability in mind. The scope layout describes the project goals and aims to viewers. The research showed that though ideal for long-term expansion, a Filemaker Pro database would not continue to be an effective tool if those entering information into it in the future did not understand the scope of the project or what given data fields should include. The scope page in traditional reference material most often includes the goals, aims, and what has been included in a given text. Though the term scope is used for the purposes of this project, the design of this layout page was derived from reviewing biographic references and research on publishing specification sheets. Such specification sheets are used to illustrate how a series of books should be produced in order for each book to have the same typographic and content treatment. The scope page included in this project has a dual purpose. First it seeks to educate users about the project, and second, it provides guidance for those engaged in future maintenance or expansion of the project (larger example on page 31).

The information in this database’s timelines was limited to the designer’s professional achievements and awards. This limit was designed to keep the length of the timelines to approximately one page and to avoid redundancy with text in other data fields. Ideation showed that the inclusion of timelines on the main information page made the layout congested and hard to work with. The timelines were targeted for removal from the main page because the information was separate enough from that included in other data fields that it would not suffer from being moved to an independent space. The length of the individual timelines fluctuated. Several were no more than a few lines while others took up an entire page. This made the separate page ideal for both the design of the database and for the grouping of the content. In addition to a textual timeline the designer’s photo with image credits have been included in this layout (larger example on page 33).
Women Pioneers in Design

Muriel Cooper

birth date: Boston Massachusetts (USA), 1924
death date: May 26, 1994
education: 1944 BS Education, Ohio State University
1948 BFA Design, Massachusetts College of Art
1951 BS Education, Massachusetts College of Art
expertise: Designer, Educator, Researcher

American graphic and book designer. Her contribution was recognized in 1986 when the AIGA awarded its Design Leadership Award to the three graphics groups that she founded and lead at MIT: Design director MIT Office of publications (Design Services) 1952-1958; design and media director, later special projects direct MIT Press 1966-78; in 1975 appointed to the Architecture Department at MIT, subsequently establishing the influential Visible Language Workshop, a research unit concerned with the impact of technological revolution on graphic communication.* Livingston, Alan and Isabella.

publications
on Cooper
Also republished in the Annual of the American Institute of Graphic Design, 17, 10-27.
Communication by Design: Muriel Cooper,

by Cooper
Interviews

Main Content Page
This page includes images of the designer’s work, key facts about her life, a bibliography, and a list of publications on and by the designer. This page is targeted at students engaged in research.
Scope

To browse through women pioneers database choose a new layout instead of Scope in the upper right hand corner.

This project is centered on the development of a relational database that will take advantage of technology and increased student computer literacy to encourage and stimulate interest and utilization of design history content.

This project uses MLA citation standards and the RIT Guide for evaluating information from the Internet.

Every effort has been made to portray a representative sampling of each designers work. When this was not possible due to the availability of images then 3 images have still been included.

Listed below are the datafields included in this database:

- **name**: Muriel Cooper
- **birth date**: place followed by month day and year
- **death date**: place followed by month day and year
- **education**: school followed by degree and year earned
- **expertise**: area of expertise, example: graphic design, publication design
- **biography**: approximately 200 words on designers over all career and highlights
- **publications on Cooper**: uses MLA citation standards and RIT Guide for Evaluating Information from the Internet
- **publications by Cooper**: uses MLA citation standards and RIT Guide for Evaluating Information from the Internet

Scope Page
This page is a guide for users to understand what the mission of this project is and how the database was put together. This page is targeted at general users and those who might expand the database in the future.
Master List Page

This page includes an expanded list of important women in design. The names of women included in the database have been highlighted. Both general users and those expanding the database in the future would use this page.
Timelines Page

This page acts as a companion page to the main content page. It is made up of a timeline of the woman’s work history and achievements, a photograph of the designer and the image credits for the designer’s work and portrait. This page is targeted at any user who is interested in a timeline on the designer, a picture of her or image citations.
Dissemination

Bevier Gallery Exhibit

The process leading up to the final application design for this project and the content that the database uses was featured in an exhibit in the Bevier Gallery at the Rochester Institute of Technology.

The goal of the thesis exhibit was to provide an overview of the project that was manageable for a viewer to assimilate in a short amount of time. The exhibit was designed with the intention that viewers who spent varying amounts of time in front of the work could still have a worthwhile experience. Viewers who looked at the images would make an association between numerous women's faces and their graphic design work featured. The goal of this was to remind the viewer that women are a part of design and that based on the varied ages and clothing worn by the featured designers, women have been a part of the field of design for many years. If a viewer's interest has been sparked by this initial contact then s/he may compare the numbered images to the corresponding name of the designer featured. For the viewer who spends slightly longer with the exhibit, s/he will see the screen shots of the database in production. And finally, for the person who is interested in seeing the full scope of the project, text has been included about the inspiration for student involvement and an overview of the goals for the project. For this exhibition a series of joined panels were designed and printed. The goal of the visuals presented in the exhibit was to communicate key aspects of the project and to give an indication of the process by which the Women Pioneers of Design database was created.

Neutral color selections were used in the design of the thesis panels. The colors that covered the largest areas were two shades of green, one dark, one light. In combination with a medium shade of blue, the color on the panels succeeded in its goal of commanding visual attention and drawing in the viewer without pointing to specific stereotypes of gender, race, or age.
Thesis exhibit in the Bevier Gallery (see page 36).
Designing for Content

Women Pioneers in Design: A New Learning Resource for Students of Graphic Design History

Mission

This thesis project is centered on the development of a relational database that will take advantage of technology and increased student computer literacy to encourage and stimulate interest and utilization of design history content.

1 April Greiman
2 Elaine Lustig Cohen
3 Helen Federico
4 Cipe Pineles
5 Muriel Cooper
6 Florence Knoll
7 Mildred Constantine
8 Lilian Bassman
9 Jacqueline Casey
10 Lela Vignelli
11 Mary Faulkner
12 Barbara Morgan

Panel 1 of thesis exhibit (see page 36).
Panel 2 of thesis exhibit (see page 36).
Dissemination

Project Goals
To bridge the gap between printed and digital resources
To encourage and model interest in Design History
To explore and test how technology can enhance classroom instruction
To activate students as partners in building knowledge and learning together

Student Interaction
The student interaction aspect of this project was largely influenced by George Landow's work during the early nineties at Brown University. Landow used HyperText to create an interactive educational tool called Iris Intermedia which enabled students to actively participate in their own education, as well as create a resource for future students. Though successful in its original aims the program was challenged by software that was not powerful or sophisticated enough to fully realize Landow's vision of using technology to enhance classroom learning.

Women Pioneers of Design Class
Students will:
Use current database as model for research
Work in groups to research historically important women designers
Create a database entry for one designer: bibliography, biography and timeline
Put the database entry through rigorous review by class instructors
Enter approved material into the database
Receive a CD of the complete database at the end of the class

Strides in Technology
During the last 10 years substantial strides have been made in the sophistication of software technology. Today educators can choose from a range of tools designed to aid in classroom instruction. Inspired by Landow's pedagogical theory, this project seeks to utilize several software applications to enhance the instruction of women's role in the history of graphic design.

Panel 3 of thesis exhibit (see page 36).
Panel 4 of thesis exhibit (see page 36).
Special Topics: Women in Design Class

The database of important women in design was used and expanded by students in Professor R. Roger Remington's class, Special Topics: Women Pioneers in Design during the Spring 2003 quarter. The goal of this interaction was to improve students' research skills and teach the evaluation of digital and printed material. Students began by participating in group research that was uploaded onto and tracked by MyCourses. From the information that they gathered, each student created an individual entry for a female designer that became part of the Women Pioneers in Design database. Upon completion of the class each student received a copy of the finished database on CD.

Students in Special Topics Women Pioneers in Design will:
- use the current database as model for research
- learn advanced research methods from the art and photography librarian
- work in small groups to maximize research efficiency
- create a database entry for one designer: bibliography, biography, and timeline
- enter data into existing database
- rate and give feedback on the database

The database created as part of this project serves as an expandable and interchangeable model for further research. It is a prototype and place to house the information gathered by students. In the future additional important female designers might be added to the existing database. The current structure can also be used to produce a learning resource for different groups of designers. The finished Women Pioneers in Design database on CD was given to the students in the Women Pioneers in Design class, and to design educators interested in similar research. In order to reach a greater audience, the data collected in the current database could be used to create a website or freestanding multimedia tool.

The work that was started as the thesis project, Designing for Content: A New Learning Resource for Students of Graphic Design History, will continue and be expanded upon as part of professional research engaged in by the author at the University of Northern Iowa.
Retrospective Evaluation

The work that began as Designing for Content – Women Pioneers in Design: A New Learning Resource for Students of Graphic Design History will continue as part of professional practice by the author. Based on student feedback, the content gathered for the project will be further disseminated either online or in book form so that the content can be used by a larger audience.

The model of student interaction that was used in the Women Pioneers in Design class could be applied to knowledge gathering on other sub-groups of design history. In the future, a fifteen-week semester would be a more ideal amount of time for students to spend on such a project. Though students were able to conduct their research adequately, more time could have been spent on revision and editing.

Filemaker Pro worked well for this project because of how easily and quickly new data could be entered into an existing file. If the project was expanded in the future and its overall duration allowed for more time, other methods of dissemination should be explored. Filemaker Pro. 5.0 needs to have the program installed on a user’s hard drive in order for files to be opened and viewed. This means that those without access to the software program cannot view the current database. To reach the widest audience possible the material would be better presented on a freestanding multimedia application or online. The use of more advanced programs to present the content would also allow for greater flexibility in the design of the end product. The design of the database that was created for this project was limited by the ability of Filemaker Pro to handle design elements and large images.

When the completed database was tested by students in the Women Pioneers in Design class it became apparent that those who did not have previous experience with Filemaker Pro had trouble understanding Filemaker Pro’s build-in navigation. This showed that the current description of how to use the database was not adequate. Using the database is very easy for those who know how, and when students were quickly shown how to use it they had no further problems. There are only two places a user need to click to move through all the content. A small diagram of these buttons was drawn with specific text to indicate where a user should click to do what action. These new directions were placed prominently at the top of the Scope page. When tested with new students it was found that the database was much easier for the user to navigate through.
The overall response by the targeted audience to the design of the database was very favorable. 83% of users said that the design added to their overall experience (see page 57 for results from Survey 3). The same number of students also said that the inclusion of images made the database more useful. All those surveyed responded that the type was very readable, the images were an appropriate size, and that the content of the database was clearly presented. The positive response that students had to the database as a whole shows that the project was successful in its overall goals for design and construction of a relational database on historically important women in design.

One area of continued concern was the titles given to different sections of the database. 67% of the students surveyed said that the titles of the sections/layouts were very clear while 33% said that they could have been more clear (see page 57 for results from Survey 3). This shows that most students did understand the kind of content that the titles referred to, however because this was a difficult issue from the start, there might be room for more work on this point in the future. It was particularly challenging to develop names for the layouts/sections that would communicate what they contained to the greatest number of users. It might have been helpful to list the titles given to each layout with a description of what it contained on the Scope page. If such information was presented at the beginning of the experience, the user could go directly to the information that they were most interested in and not have to browse through unnecessary content. This solution would only work if one read the text on the Scope page before trying to navigate through the overall database.

The students in the Women Pioneers in Design class were effective subjects to use in the testing phase of the project. It was somewhat difficult to get students to fill out online surveys on their own. This meant that they needed to be given more time to complete surveys than originally thought. Fortunately the scoring capability of Mycourses gave almost instantaneous results once the surveys were completed. The final survey was given in the presence of the author while students had the working database to refer to. This is when the most useful and meaningful feedback was gathered. In addition to completing the online survey many students gave verbal feedback on the design and usability of the database. Their ongoing contact with the author of the database meant that they were comfortable enough to make verbal suggestions for improvements and voice any concerns that they might have had. The evaluative component of the project was extremely useful to its overall success. It repeatedly reinforced the theory that outside feedback is a necessary part of any well-planned project.
Conclusion

Technology has arrived at a stage where it is easily accessible and used as a tool for educators. This project focused on the creation of a graphic design history resource. The resulting database on women pioneers in design was used and expanded by students in the Women Pioneers in Design class during spring 2003.

The creation of the Women Pioneers of Design database was a culmination of research, synthesis, ideation, selection, implementation, and dissemination. It was the combination of these processes that led to the successful creation of a new learning resource for students of graphic design history. The struggle that the students had finding material on women in design shows the need for a tool that bridges the gap between hard-to-find printed resources and accessible-but-incomplete online resources. The problem of lack of information on women designers is not an easy one to solve. Educators need to play an active role in guiding students in good research practices and in encouraging students’ interest in designers that have not traditionally been included in design history textbooks. To see a significant change in the way women in design are written about and their contributions recognized it is necessary for young men and women engaged in graphic design study to be exposed to new information. Resources like the Women Pioneers in Design database can act a model for teaching tools to help information be more accessible.

The use of the database to enhance classroom interaction is particularly effective when combined with an online course management tool such as MyCourses. Such a marriage of software reinforces the versatility of computer-aided education by exposing students to two software applications which, though different in the tasks they perform, work in tandem to expand learning possibilities within the traditional classroom setting.

This thesis project allowed for in-depth investigation into the creation of learning materials on graphic design. The process that served as a guide for the completion of this project provides knowledge of how to approach and design research projects rationally. This structure can serve as an example on which to base future projects. The research conducted as part of this project is directly applicable to further work in design education and can act as a starting point for long term inquiry.
Glossary of Terms

**Aesthetic**
Concerning or characterized by an appreciation of beauty or good taste; a philosophical theory as to what is beautiful.

**Dissemination**
Describing plans for future audience interaction. Example: How could this project or information be distributed/used in the future?

**Exhibition Design**
Three-dimensional presentation of information and objects for public view.

**Ideation**
The generation of a conceptual solution and preparation of a range of preliminary design approaches.

**Implementation**
Refining, developing, and producing a design solution to its final form or application.

**Intelligence**
The capacity to learn, and to solve problems and difficulties.

**Intelligence according to Gardner**
The ability to create an effective product or offer a service that is valued in a culture; a set of skills that make it possible for a person to solve problems in life; the potential for finding or creating solutions for problems, which involves gathering new knowledge.

**Learning Style**
A way of processing new and previous perceptions.

**Multiple Intelligence Theory**
Howard Gardner, a cognitive psychologist at Harvard, suggests that the term intelligence should be pluralized. His theory states that human beings all have multiple intelligences, but that each person has a unique combination, or profile. These multiple intelligences can be nurtured and strengthened, or ignored and weakened, they can act together or individually. Gardner originally identified seven faculties which he labeled “intelligence;” these include visual/spatial, verbal/linguistic, logical/mathematical, bodily/kinesthetic, musical/rhythmic, interpersonal, and intrapersonal. It has recently been suggested that naturalistic intelligence and existential intelligence be added to the list.

**MyCourses**
Course management software that is used at Rochester Institute of Technology for distance and blended learning.
Bibliography


**Reference Websites**

*Workshop Month 1 Tapping into Multiple Intelligences.* Disney Learning Partnership and Thirteen Ed Online, Workshop. www.thirteen.org/edonline/concept2class/month1

*Workshop Month 2 Constructivism as a Paradigm for Teaching and Learning.* Disney Learning Partnership and Thirteen Ed Online, Workshop. www.thirteen.org/edonline/concept2class/month2


*National Graphic Design Image Database.* Herb Lubalin Study Center of Design and Typography, The Cooper Union School of Art. www.cooper.edu/art/lubalin/


*Posters American Style.* Smithsonian American Art Museum. www.nmaa-ryder.si.edu/collections/exhibits/posters

*Dr. Leslie & The Composing Room.* 1994 www.drleslie.com

*WAI Resources.* Web Accessibility. 2003 www.w3.org/WAI/Resources
Appendices

Appendix A Essay by Ayesha Habib

This text is an excerpt from a paper by Ayesha Habib that was written for Professor R. Roger Remington's Junior Design History class in fall 2002. As an example of student frustration with research on historically important women in design it served as inspiration for the student interaction part of this thesis. Ayesha's testimony also confirmed the need for a new educational resource on women in design history.

Appendix B Course Management/Blended Learning

Excerpts from two articles on course management software have been included as references for the material on page 18.

Appendix C Page 56 from Learning by Heart

The page included is the exercise from the book Learning By Heart that was used during the ideation process. Refer to pages 23 and 24 for written and visual examples of how this material was used.

Appendix D Database Content Survey

Appendix E Results from Survey 2

This survey was administered via Mycourses to the students in the Women Pioneers of Design class.

Appendix F Results from Survey 3

This survey was administered via Mycourses to the students in the Women Pioneers of Design class at the end of the quarter.

Appendix G Project Development and Evaluation Book

The project proposal created during the Project Development and Evaluation class during the fall 2002 quarter has been included to show the initial stages of this thesis project Women Pioneers in Design: A New Learning Resource for Students of Graphic Design History.
Appendix A
Essay by Ayesha Habib

Ayesha Habib
10/10/02
Gender Essay
History of
Graphic Design
Roger Remington

Jumbo

On my way to the library I run a list of female designers through my head. I come up with about three. It’s not that I can’t think of any more, but more that I just don’t know of any others. Already I’m sure that I’m going to run into some trouble. So I start looking up names and the computer catalog can’t identify any of the names I type in. I end up going down the whole list of women pioneers of design that my professor has provided and when the computer finally identifies a name with research material, I find that there is a limited variety and quantity. This material has then either been checked out or is mysteriously missing off of the shelf. Okay, so now my curiosity and feminist nerves are starting to get restless. I had looked up Ben Shaha a while ago and had a multitude of available books to look through. I’ve looked up Tschichold, Burtin, and Brodavitch, among others who where all more than available. As I was scouring the shelves I would run into male designers whose books would go on, while the book I was looking for would be on its own or not on the shelf at all. I spent a considerable amount of time surfing the Internet as well. Most of the sites that came up with the names I typed in had to do with either the women’s husbands or cooking. I also scoured Boarders for information and was unsuccessful. The initial two hour search in a library filled with amazing design books and original artifacts, was proof enough to me that the women pioneers do not get enough credit for what they have done, especially in comparison to the their male contemporaries and husbands.
Appendix B
Course Management/Blended Learning

Course Management/Blended Learning

Several excerpts from the newsletter of Slone-C View have been included to provide further information and highlight some of the issues surrounding online and blended learning. The Sloan Consortium is made up of institutions and organizations committed to quality online education.

The purpose of the Sloan Consortium (Sloan-C) is to help learning organizations continually improve quality and scalability according to their own distinctive missions, so that education will become a part of everyday life, accessible and affordable for anyone, anywhere, at any time, in a wide variety of disciplines.

From the faculty perspective, teaching in a commercially designed LMS is comparable to teaching in a classroom set up for a particular learning style. On campus, if your class is assigned an auditorium style lecture hall when you prefer to teach with round table collaborative groups, you may be able to negotiate a more suitable classroom space. Online, you may have to teach in an environment that is organized in crude paradigm, read-the-notes-and-take-the-quiz with a few communication tools patched on, with inadequate design for linking complex discussions and project presentations. Thus, for faculty, LMSs directly affect pedagogy and control of content.

How do LMSs affect students? "Interactions with course interfaces are a real factor in learning; difficult or negative interactions with interfaces can depress learning," according to the research on learning effectiveness, says Karen Swan. What learning experiences do students have with "packaged" LMSs that barely tap multimedia broadband power, each course manufactured to be much like all others? Does stepping through different content provide the critical thinking, personalization and competencies that help learning thrive?

We Have the Technology
Synthesis of a listserv discussion
ISSN 1541-2806
Volume 2 Issue 1 - February 2003

Blended learning courses can replace synchronous classroom seat time with asynchronous online learning activities so that instruction occurs both in the classroom and online. Given the fluidity of the technologies and the near infinite number of ways that technology is applied and courses are organized in higher education, the presence of both conditions distinguish blended from wholly online and wholly classroom programs and courses.

Blended Learning, 3
Featured article by Richard Voos
Slone C View: Perspectives in Quality online Education. The Slone Consortium ISSN 1541-2806
Volume 2 Issue 1 - February 2003
Appendix C
Exercise from Learning by Heart

SOURCES

Taking the ink bottle or shells out of context is one way to find a source. Here is an exercise to take things out of context.

 ASSIGNMENT

Look at a magazine in many ways—one way at a time—and write three lines about each point of view.

* sociologically
* historically
* anthropologically
  * as a parable
  * meditatively
* as a directory
* as a work of art
* as a fairy tale
* as a revolutionary treatise
  * as humor
  * as poetry
  * as layout and design
  * as lettering
* as political indoctrination
* as an instruction book

Remember that sources are starting points. When looking for sources for a specific project, don’t get too fussy about what is appropriate. Include everything. Sources that might not fit one job may be just right for the next.
Appendix D
Database Content Survey

Datafields Survey

This survey seeks to find out what kinds of information students working on design history research are most interested in.

Please number the fields below in order of importance with 1 being most important and 8 being least important.

Research Paper

__________ Images – Images of Designer’s work
__________ Biography
__________ Bibliography – List of resources where you could find more information on each designer
__________ Timeline – List of important accomplishments, jobs, awards, etc. with corresponding year
__________ Designer’s Name
__________ Factual Information on the Designer. Example: birth dates, death dates, education.
__________ Designer’s Area of Specialization
__________ Scope – this tells why certain material has been included in the resource and what its goals are

Suggestions for Additional Fields of Information:

Studio Project Based on Design History

__________ Images – Images of Designer’s work
__________ Biography
__________ Bibliography – List of resources where you could find more information on each designer
__________ Timeline – List of important accomplishments, jobs, awards etc. with corresponding year
__________ Designer’s Name
__________ Factual Information on the Designer. Example: birth dates, death dates, education.
__________ Designer’s Area of Specialization
__________ Scope – this tells why what material has been included in the resource and what its goals are

Suggestions for Additional Fields of Information:

__ Male    __ Female

13 March 2003
Appendix D
Database Content Survey

Datafields Survey Results

Twenty students returned completed database surveys. The results are listed below, with the vertical axis indicating the fields of content and the horizontal axis showing the numbers 1 through 8 in order of importance. The numbers listed within the matrix indicate how many students selected each data field as number 1, then number 2 and so on to number 8.

<table>
<thead>
<tr>
<th>Research Paper</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Biography</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Bibliography</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Timeline</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Designer’s Name</td>
<td>13</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Factual Information</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Specialization</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Scope</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Studio Project Based on Design History</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Biography</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Bibliography</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Timeline</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Designer’s Name</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Factual Information</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Specialization</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Scope</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>13</td>
</tr>
</tbody>
</table>
### Results from Second Survey

| Question 1: How difficult was it to find information on women designers? |
|-----------------------------|-----------------|
| a: What I expected          | 56%             |
| b: Very difficult           | 38%             |
| c: Not very difficult       | 8%              |
| N/A                         | 0%              |

| Question 2: Based on your experience looking for information on women in design this database is _____ |
|-----------------------------|-----------------|
| a: Very needed              | 44%             |
| b: Won't make a difference  | 6%              |
| c: Somewhat needed          | 50%             |
| d: Not needed               | 0%              |
| N/A                         | 0%              |

| Question 3: In the future where would you like to see the information gathered for this project? |
|-----------------------------|-----------------|
| a: Online                   | 50%             |
| b: In a book                | 38%             |
| c: On a CD                  | 13%             |
| d: On a Video               | 0%              |
| N/A                         | 0%              |

| Question 4: As a database user which would be most important? |
|-----------------------------|-----------------|
| a: The content – (text and images) | 44%         |
| b: The design               | 0%              |
| c: Both are equally important | 56%         |
| N/A                         | 0%              |

<table>
<thead>
<tr>
<th>Question 5: If you were doing information on women in design in the future, you would use the database if available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
</tr>
<tr>
<td>False</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>
### Results from Third Survey

#### Question 1: The design of the database
- a: Adds to the users overall experience: 63%
- b: Detracts from the users overall experience: 17%
- c: Does not effect the content: 0%
- d: Does not seem considered: 0%
- N/A: 0%

#### Question 2: The titles of the sections/layouts of content
- a: Are clear: 67%
- b: Could be more clear: 33%
- c: Are unclear: 0%
- d: Are clear in some cases but not in others: 0%
- N/A: 0%

#### Question 3: The inclusion of images in the database
- a: Are not needed: 17%
- b: Are what I am most interested in: 0%
- c: Make the Database as a resource more useful: 83%
- N/A: 0%

#### Question 4: The type in the database is
- a: Very Readable: 100%
- b: Hard to Read: 0%
- c: I would have to print it out to read it: 0%
- N/A: 0%

#### Question 5: The navigation between layouts as stated on the top of the scope page is
- a: Easy to use: 0%
- b: Hard to use: 0%
- c: I didn't understand the description of how to use it: 17%
- d: I figured it out after a couple of tries: 83%
- N/A: 0%

#### Question 6: Did you find the library resources class (given by Kari Horowicz) helpful for the research projects in this course?
- a: Extremely helpful: 60%
- b: Somewhat helpful: 33%
- c: Not helpful: 0%
- N/A: 0%

#### Question 7: Did you find it useful to have the Art and Photography Librarian integrated into the mycourses module?
- a: Extremely useful: 60%
- b: Somewhat useful: 33%
- c: Not useful: 0%
- N/A: 0%

#### Question 8: Did you feel you were given enough time to work on the database part of the class?
- a: I had enough time: 63%
- b: I had too much time: 0%
- c: I didn't have enough time: 17%
- N/A: 0%

#### Question 9: The images in the database are an appropriate size.
- True: 100%
- False: 0%
- N/A: 0%

#### Question 10: The content of the database is clearly presented.
- True: 100%
- False: 0%
- N/A: 0%
Appendix G Project Development and Evaluation Planning Document

The Project Evaluation and Development Book
A new learning resource for students of design history

GRAPHIC DESIGNERS OF INFLUENCE
Contents

4 Committee Members
5 Needs Analysis
7 Problem Statement
8 Mission & Goals, Objectives and Strategies
12 Project Network Diagram
13 Project Timeline
14 Evaluation Plan Overview
15 Evaluation Plan
21 Project Inputs / Processes / Outputs Diagram
22 Evaluation Diagram
23 Glossary
24 Bibliography

Appendix
25   a. Citation of Reference Websites
26   b. Original Thesis Proposal
### Committee Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Telephone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaris Sherin</td>
<td>84 Lyndale Dive, Rochester, NY 14624</td>
<td>585-464-9447</td>
<td><a href="mailto:aarisanna@hotmail.com">aarisanna@hotmail.com</a></td>
</tr>
<tr>
<td>Deborah Beardslee</td>
<td>Rochester Institute of Technology, School of Design, 3420 James Booth Building</td>
<td>585-475-2667</td>
<td><a href="mailto:dabfaa@rit.edu">dabfaa@rit.edu</a></td>
</tr>
<tr>
<td>R. Roger Remington</td>
<td>Rochester Institute of Technology, School of Design, 3420 James Booth Building</td>
<td>585-475-2658</td>
<td><a href="mailto:rrfad@rit.edu">rrfad@rit.edu</a></td>
</tr>
<tr>
<td>Kari Horowicz</td>
<td>Rochester Institute of Technology, Wallace Library, 90 Lomb Memorial Drive</td>
<td>585-475-3660</td>
<td><a href="mailto:kehwml@rit.edu">kehwml@rit.edu</a></td>
</tr>
</tbody>
</table>
Needs Analysis

Undergraduate college students enrolled in many small and mid-sized design departments struggle with a lack of reliable resources and difficulty finding appropriate material to use for design history research. Students often gravitate towards a select few of the most well known designers when asked to do an assignment on a historically important designer or some aspect of design history. To counteract this trend educators have a responsibility to approach their jobs with greater flexibility and innovation.

The field of graphic design has a responsibility to provide access to information on its history if it hopes to continue to grow in scope and influence. Professor R. Roger Remington gives a rationale of need for design history in education in his work titled “Why Study Design History?” Ideally Professor Remington's theory states that design history provides intellectual, professional and personal meaning for designers. Intellectual meaning increases general knowledge, provides content and establishes a point of view. Professional Meaning generates literacy, enhances career orientation and builds a bridge to concrete applications. Personal meaning creates judgment and stimulates creativity. These building blocks work in tandem to provide students with a life long connection to theory, and interdisciplinary connections. Together intellectual, professional, and personal meaning stimulates critical thinking skills, reinforces process, and inspires creativity. Instructors and institutions that embrace design history as part of their curricula produce more successful students since ultimately an informed individual is more effective.
Precedents

In the late 1980's Louis Danziger then head of the graphic design department at Art Center College of Art and Design in Pasadena California, used Filemaker Pro 2.0 to create a database that incorporated both textual and visual components on design history. Danziger was one of the first educators to recognize the need for design history to be integrated into the curriculum of undergraduate graphic design students. The database was created to support Danziger's course work and document his vast image resources. His vision of a digital application that would efficiently allow the user to scroll their way through design history was largely unrealized due to the scope of the project and the technical limitations of the software.

Today a number of web sites have partially realized Danziger's vision of easily accessible information on design history. Internet based resources provide focused surveys of subsets of design history but lack comprehensive data on the discipline as a whole. Design history website often suffer from broken links and poorly designed and confusing navigation. Ad Access by Duke University Special Collections and World War II Poster Database and Africana: Posters from Melville J. Herskovits Library of African Studies both by Northwestern University provide a good working model for easily accessible material on the web. Both sites use efficient navigation and include high-quality digital reproductions of their collections. Unfortunately the Duke and Northwestern University sites retain the default horizontal information fields typical of Filemaker Pro databases. Though these sites allow for easy access to data their uninspired interfaces seem to fly in the face of design as their primary content. The Cooper-Hewett National Design Museum online and the website of the Herb Lubalin Study Center of Design and Typography at Cooper Union provide indicators of what can be done to make the traditional database interface more aesthetically sophisticated. The Cooper-Hewett site combines the best in both usability and visual interface with simple well-designed navigation that enhances rather than detracts from the users experience with essential data.

Recently, there has been an upsurge in interactive art and design material on freestanding CD's put out by textbook publishers and not for profit institutions. Unfortunately the quality of these resources is extremely varied since they often employ mediocre interface and systems design that hinders usability. There remains a need for easily obtainable quality information on graphic designers of influence and graphic design history.
Problem Statement

The overwhelming democratization of information available via the Internet has given students greater access to data than ever before, but they often seem to lack the skills to sort and evaluate what they find. Technological advances in the last ten years challenge graphic design education and related disciplines to provide greater access to the history of the discipline. Many experts argue that most technical fields of study will follow Law in providing excellent virtual resources for both students and practitioners, however the quality of databases and website remains varied and inconstant in the field of graphic design.

A comprehensive tool is needed for use in educating students about graphic design history. Undergraduate students increasingly come to research projects with a preconception of ease derived from the abundance of information on the Internet and in virtual resources. Such students are often resistant to traditional modes of investigation and first look to online journals and design sites. As difficult as it is to inspire students to engage in rigorous inquiry, it is equally hard for inexperienced students to judge the quality of virtual material. In order to encourage students to explore a wide range of resources when engaged in research, it is necessary to help them hone and develop selective critical research skills.

The creation of proposed relational database will require research about each of the designers included in the project as well as in-depth inquiry into pedagogical theory and practice. This project is centered around developing a new educational design resource to bridge the gap between printed and virtual information, to encourage students to explore both, and to help them evaluate the quality of digital material by example. The research and planning of this project will culminate in a relational database about historically important designers to be used by students and instructors of graphic design.
Mission

This thesis project is centered on the development of a relational database that will take advantage of technology and increased student computer literacy to encourage and stimulate interest and utilization of design history content.

Goals

<table>
<thead>
<tr>
<th>Goals</th>
<th>Objectives</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop an overall project plan</td>
<td>Given the project plan the designer will analyze the content in order to determine relevance and appropriate changes</td>
<td>The designer will review the project plan with the chief advisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will review the project plan with the committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will review the project plan with the expert</td>
</tr>
<tr>
<td></td>
<td>From the analysis of the project plan the designer will make changes in order to complete a final project plan</td>
<td>Based on feedback the designer will create a revised project plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will put the new project plan through a thorough review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will make final changes to the project plan</td>
</tr>
<tr>
<td>To clearly define the problem</td>
<td>Given the updated project plan the designer will identify the most appropriate theory to define the problem in order to determine an appropriate framework for the project</td>
<td>The designer will research in periodicals and books on design history and education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will assess each theory to determine the most applicable to the current project</td>
</tr>
<tr>
<td></td>
<td>Given the collected theory the designer will build a written description of the problem to meet accepted professional standards</td>
<td>The designer will draft a written problem statement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will evaluate problem statement with committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will make changes to the problem statement based on committee and self evaluation</td>
</tr>
<tr>
<td>Goals</td>
<td>Objectives</td>
<td>Strategies</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>To gather data within a given scope</td>
<td>With the problem statement complete the designer will develop a method for determining relevance of data in accordance with the project scope</td>
<td>The designer will create a criteria list</td>
</tr>
<tr>
<td></td>
<td>Given the previously identified parameters for collecting data the designer will compile data to meet author and committee conditions</td>
<td>The designer will test the criteria list on representative data</td>
</tr>
<tr>
<td></td>
<td>Given the compiled data the designer will employ known brainstorming techniques in order to utilize accepted problem solving methods</td>
<td>The designer will review and evaluate the list and respective data with committee members</td>
</tr>
<tr>
<td>To ideate visual design solutions</td>
<td>Given the ordered data resulting from brainstorming the designer will begin to apply visual solutions to the given data to determine the most appropriate solution and make necessary changes</td>
<td>The designer will research on the web</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will research in books and periodicals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will evaluate found data by comparing it with the recognized constraints</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will review material with committee and redirect research where necessary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will find appropriate brainstorming techniques with the help of the committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will explore several iterations of each brainstorming technique</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will sketch a variety of visual models</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will create layouts based on preliminary sketches</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will evaluate sketches and layouts with committee members</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The designer will incorporate committee feedback into a new selection of layouts</td>
</tr>
<tr>
<td>Goals</td>
<td>Objectives</td>
<td>Strategies</td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>To select the most viable design solution</td>
<td>From the possible layouts the designer will determine criteria for selection and use in the application in order to arrive at a single solution</td>
<td>The designer will create a criteria list. The designer will use the list to select from the possible iterations. The designer will review with committee. The designer will incorporate committee feedback into final decision.</td>
</tr>
<tr>
<td>Given the design criteria the designer will get outside feedback in order to meet the evaluation expectation of the project</td>
<td>The designer will ask the expert for feedback. The designer will ask peers for feedback. The designers will ask a number of non-designers for feedback.</td>
<td></td>
</tr>
<tr>
<td>To implement the project</td>
<td>Given the most appropriate solutions the designer will implement and construct the final application to meet defined project goals</td>
<td>The designer will lesion with the technical team to understand design and technical limitations. The designer will create the look and feel within the technical restriction and based on previous ideation. The designer will test application solutions against project goals. The designer will evaluate application with the committee and make appropriate changes.</td>
</tr>
<tr>
<td>Given the final application the designer will document the progress of the project in order to create the required report</td>
<td>The designer will collect all project information in a notebook. The designer will produce a thesis document.</td>
<td></td>
</tr>
<tr>
<td>Goals</td>
<td>Objectives</td>
<td>Strategies</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>To evaluate the project</td>
<td>Given the final application and documentation the designer will have the thesis committee members evaluate the document in order to establish need for adjustments. Given the final application the designer will provide a questionnaire to students who used the database as part of their history class to determine usefulness of final application.</td>
<td>The designer will document and discuss feedback from the committee. The designer will incorporate the feedback into the report. The questionnaire data will be incorporated into the thesis report. The designer will make final corrections to the report and print and bind the final thesis document.</td>
</tr>
</tbody>
</table>
### Graphic Designers of Influence

**A New Learning Resource**
For Students of Design History

<table>
<thead>
<tr>
<th>Manage Project</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designer</td>
<td>Aaris Sherin</td>
</tr>
<tr>
<td>Thesis Committee</td>
<td>Deborah Beardslee, Chief Advisor</td>
</tr>
<tr>
<td></td>
<td>R. Roger Remington, Associate Advisor</td>
</tr>
<tr>
<td></td>
<td>Kari Horowitz, Associate Advisor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assess Needs</th>
<th>2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs analysis</td>
<td>2.1</td>
</tr>
<tr>
<td>Initial research</td>
<td>2.2</td>
</tr>
<tr>
<td>Evaluation by Author</td>
<td>2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan Project</th>
<th>3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Statement</td>
<td>3.1</td>
</tr>
<tr>
<td>Identify theory</td>
<td>3.2</td>
</tr>
<tr>
<td>Analyze content</td>
<td>3.3</td>
</tr>
<tr>
<td>Evaluation by committee</td>
<td>3.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop Research</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>4.1</td>
</tr>
<tr>
<td>Compile data</td>
<td>4.1.1</td>
</tr>
<tr>
<td>Create Criteria</td>
<td>4.1.2</td>
</tr>
<tr>
<td>Evaluate Research</td>
<td>4.1.2</td>
</tr>
<tr>
<td>Ideate</td>
<td>4.2</td>
</tr>
<tr>
<td>Employ Brainstorming</td>
<td>4.2.1</td>
</tr>
<tr>
<td>Apply visual solution</td>
<td>4.2.2</td>
</tr>
<tr>
<td>Evaluate Ideation</td>
<td>4.2.3</td>
</tr>
<tr>
<td>Select</td>
<td>4.3</td>
</tr>
<tr>
<td>Determine Criteria</td>
<td>4.3.1</td>
</tr>
<tr>
<td>Gather feedback</td>
<td>4.3.2</td>
</tr>
<tr>
<td>Evaluate Selection</td>
<td>4.3.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Implement Project</th>
<th>5.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct Application</td>
<td>4.1</td>
</tr>
<tr>
<td>Review with Committee</td>
<td>4.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disseminate Solution</th>
<th>6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Digital Displays</td>
<td>5.1</td>
</tr>
<tr>
<td>Install Finished Application</td>
<td>5.2</td>
</tr>
<tr>
<td>Evaluate Application</td>
<td>5.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluate Project</th>
<th>7.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present Application to Design Experts</td>
<td>6.1</td>
</tr>
<tr>
<td>Review with Committee</td>
<td>6.2</td>
</tr>
<tr>
<td>Provide Questionnaires</td>
<td>6.3</td>
</tr>
</tbody>
</table>
## Project Timeline

### RIT Calendar | Thesis Calendar | 2002 Calendar
--- | --- | ---
**September**
classes begin | 09-05 | 
09-13 committee final | 2 Labor Day
09-25 proposal approved | 14 Columbus Day
| 31 Halloween

### October

November

last day of classes | 11-13 | 5 Election Day
fall/winter break | 11-15 | 11 Veteran's Day

December

winter classes begin | 12-02 Research | 25 Christmas
holiday break | 12-09 Committee Meeting | 
| 12-20 |

January

classes resume | 01-06 | 1 New Year’s Day
| 01-07 Research/Ideation |
| 01-30 Committee Meeting |

February

02-01 Presentation to 1st year students | 17 President's Day
| 02-15 Design Application |

March

spring classes begin | 03-10 Begin written Thesis Report | 17 St. Patrick's Day
| 03-11 Committee Meeting |
| 03-31 Thesis Exhibit Bevier Gallery |

April

May

last day of classes | 05-16 | 20 Easter Sunday
commencement | 05-24 |

**05-02 Submission of Thesis Report**
Evaluation Plan

The evaluation of this thesis project is organized in several categories. Included first is a detailed evaluation plan for each module of the project network diagram. The categories concerns, questions, procedures, and constraints and dimensions have been used to provide evaluative assessment criteria for each module. The latter part of the this section includes an Inputs, Processes, Outputs plan and matrix style evaluation diagram for modules 4.0 and 2.0, 6.0 and 7.0 respectively. The total plan for thesis evaluation provides both concrete evaluative criteria and sample diagrams to show how parts of the project plan can be categorized and assessed.
### Evaluation Plan

#### 2.0 Assess Needs

<table>
<thead>
<tr>
<th>Concerns</th>
<th>Whether the needs of this thesis have been defined and are valid?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions</td>
<td>Will the visual design enhance users experience with the content?</td>
</tr>
<tr>
<td></td>
<td>Is there need for the project?</td>
</tr>
<tr>
<td></td>
<td>Does the design of the application solve the established need of the thesis?</td>
</tr>
<tr>
<td></td>
<td>Does the project plan meet the needs of the project?</td>
</tr>
<tr>
<td></td>
<td>Does the ideation support the project goals and objectives?</td>
</tr>
<tr>
<td></td>
<td>Does the design allow students greater access to influential designers and published resources about them?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Meetings with committee members and outside expert.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Record the behavior of sampling of students with and without the application as a research aid.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constraints and Dimensions</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students willingness to test and evaluate the application objectively.</td>
</tr>
</tbody>
</table>
3.0 Project Planning

Concerns

Has the project been defined as an appropriate problem?

Questions

Was the project plan constructed within professional standards?

Does the project plan meet the established needs of the project?

Does the project plan provide realistic scope for the project?

Procedures

Analyze previous planning reports from successful past thesis.

Submit finished planning report to committee members for evaluation.

Constraints and Dimensions

Time

Designers experience with materials and processes.
### 4.0 Develop Research

**Concerns**

Whether the amount and depth of research is appropriate to the goals for the project application?

**Questions**

Has there been adequate investigation into the theories and practices that will inform the final application?

Does the ideation support the project goals and objectives?

Are the selection criteria complete?

**Procedures**

The designer will create and use criteria lists approved by the committee.

The designer will meet with committee members and make changes as suggested.

**Constraints and Dimensions**

Time

Availability of research materials.
## 5.0 Implementation of Project

### Concerns

Does the design accurately represent the theory and research applicable to the project?

### Questions

Does the design of the application solve the established need of the thesis?

Does the design allow for the greatest possible access to the material?

### Procedures

Meet with committee and outside experts?

Present the final application at the thesis show as a text case for the effectiveness of the project?

### Constraints and Dimensions

Time

Distractions from other exhibits at thesis show?

Viewers willingness to spend time with the application
6.0 Disseminate Solution

Concerns

Whether the public understands the need for a design history database?

Questions

Will the visual design enhance users experience with the content?

Does the design allow students greater access to influential designers and published resources about them?

Procedures

Meetings with committee members and outside expert.

Record the behavior of sampling of students with and without the application as a research aid.

Constraints and Dimensions

Time

Students willingness to test and evaluate the application objectively.
### 7.0 Evaluate Project

#### Concerns
Whether the evaluation of the project will provide useful feedback to the author?

#### Questions
Has the project met its original goals and objective?
Does the project provide a meaningful addition to the field of graphic design?

#### Procedures
Meet with professional experts.
Gather feedback from peers.
Gather feedback from committee members.

#### Constraints and Dimensions
Time
Skill of author and availability of resources
## Component: Develop Research 4.0

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Processes</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet sources</td>
<td>compile data</td>
<td>Database is designed to operate efficiently</td>
</tr>
<tr>
<td>Books and Periodicals</td>
<td>organize information</td>
<td>and provide a new resource for graphic</td>
</tr>
<tr>
<td>Laptop Computer</td>
<td>electronically input data</td>
<td>design students</td>
</tr>
<tr>
<td>Home office</td>
<td>create criteria</td>
<td>Data is organized and compiled based on</td>
</tr>
<tr>
<td>Committee Members</td>
<td>employ brainstorming techniques</td>
<td>criterium</td>
</tr>
<tr>
<td>Peers</td>
<td>create visual solution for final application</td>
<td>Project material is organized in the report</td>
</tr>
<tr>
<td>Project Author</td>
<td>gather feedback</td>
<td>book</td>
</tr>
<tr>
<td>Time schedule</td>
<td>test data against criteria</td>
<td></td>
</tr>
<tr>
<td>Theory and Methods notebook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical expert</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Evaluation Diagram

### Evaluation Plan 2.0 6.0 7.0

<table>
<thead>
<tr>
<th>Questions</th>
<th>Block Diagram</th>
<th>Audience</th>
<th>Evaluator</th>
<th>Procedures</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the need for this project been clearly established?</td>
<td>2.0 Access Needs</td>
<td>Author &amp; Committee</td>
<td>Author &amp; Committee</td>
<td>Author will conduct research &amp; survey educators &amp; students</td>
<td>Author will incorporate findings about project need into application</td>
</tr>
<tr>
<td>Does the research support the overall project goals</td>
<td>4.0 Develop Research</td>
<td>Author &amp; Committee</td>
<td>Committee</td>
<td>Author will review research content with committee members &amp; outside expert.</td>
<td>Author will utilize feedback to create the most appropriate final application</td>
</tr>
<tr>
<td>Does the application provide a useful tool for students of Design History</td>
<td>6.0 Evaluate Project</td>
<td>Author &amp; Committee</td>
<td>Committee</td>
<td>Author will record the behavior of sampling of students with and without the application as a research aid.</td>
<td>Author will incorporate behavior sampling in thesis report</td>
</tr>
</tbody>
</table>
Glossary

**Aesthetic:** Concerning or characterized by an appreciation of beauty or good taste; a philosophical theory as to what is beautiful.

**Dissemination:** Describing plans for future audience interaction. Example: How could this project or information by distributed/used in the future?

**Ideation:** Describing the generation of a conceptual solution and preparation of a range of preliminary design approaches.

**Implementation:** Describing how the project was refined, developed and produced to its final form or application.

**Intelligence:** The capacity to learn and to solve problems and difficulties. Metal Powers.

**Intelligence according to Gardner:** The ability to create an effective product or offer a service that is valued in a culture; A set of skills that make it possible for a person to solve problems in life; the potential for finding or creating solutions for problems, which involves gathering new knowledge.

**Multiple Intelligence Theory:** Howard Gardner, a cognitive psychologist at Harvard suggests that the term intelligence should be pluralized. His theory states that human beings all have multiple intelligences, but that each person has a unique combination, or profile. These multiple intelligence can be nurtured and strengthened, or ignored and weakened, they can act together or individually. Gardner originally identified seven faculties which he labeled "intelligence;" these include visual/spatial, verbal/linguistic, logical/mathematical, bodily/kinesthetic, musical/rhythmic, interpersonal/intrapersonal since that time it has been suggested that naturalistic intelligence and existential intelligence be added to the list.
Bibliography


*Lilly Reich in Her Own Right at MOMA*. Architecture. v. 85. (3/96) p35


Kent, Norman. *Vera Bock, Designer*. American Artist, 45 9:8-11


Appendix

Reference Websites

http://www.thirteen.org/edonline/concept2class/month1/#2
http://www.greatbuildings.com
http://www.library.northwestern.edu/govpub/collections/wwii-posters/
http://www.cooper.edu/art/lubalin/
http://scriptorium.lib.duke.edu/adaccess/
http://nmaa-ryder.si.edu/collections/exhibits/posters/index/html
http://www.drleslie.com
Original Thesis Proposal

A comprehensive tool is needed for use in educating students about graphic design history. Undergraduate students increasingly come to research projects with a preconception of ease derived from the abundance of information on the Internet and in virtual resources. Such students are often resistant to traditional modes of investigation and first look to online journals and design sites. As difficult as it is to inspire students to engage in rigorous inquiry, it is equally hard for inexperienced students to judge the quality of virtual material. In order to encourage students to explore a wide range of resources when engaged in research it is necessary to help them hone and develop selective critical skills.

This project is centered around developing a new educational design resource to bridge the gap between printed and virtual information, to encourage students to explore both, and to help them evaluate the quality of digital material by example. The research and planning of this project will culminate in a relational database about historically important designers to be used by students and instructors of graphic design. Theories and design principles to be investigated in this project will include but not be limited to systems theory, information design principles, and pedagogical theory (i.e. Howard Gardner’s Theory of Multiple Intelligences). It is hoped that the database resulting from this project will be tested and used as part of a new course to be taught during spring 2002 at Rochester Institute of Technology.
Women Pioneers in Design Database

The Women Pioneers in Design database was created in Filemaker 5.0. Filemaker must be installed on your hard drive to use the database. To view, open the file called "Women Pioneers." You may need to drag the folder called "support files" onto your desktop in order for the database to recognize the support files.