

Mapping Metaphors for the Design of Academic Library Websites

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Abstract. Internet has changed the way people acquire and consume information. In the academic setting, students turn to the library websites in the stead of visiting the library for their information needs. Using metaphor in the design of library website creates a resemblance that is grounded sensorily, psychologically, and conceptually on the physical library. This study aims to identify the analogies that connect the library website elements to the real-life library experience. Organizational, functional, visual, and textual metaphors elicited from the participating library users may provide an integrative design construct that incorporates real-life library experience into the design of library website.

Keywords: Metaphor design · Metaphor · Academic library website · Usability

1 Background

Most library users perceive library as an authority in hosting and providing intellectual and cultural enrichment. They have already developed a conceptualization of what a library is like. The Reading-For-All civic engagement effort, further elaborates the concept of a “place for reading”. Independent bookstores, cozy coffee shops, restaurants, are all becoming favorite places to read, in addition to the libraries. This change inevitably increases general public standards and attitudes toward reading places and the atmosphere.

Internet has changed the way people acquire and consume information. In the academic setting, students turn to the library website in the stead of visiting the library for their information needs. Library website, thus, becomes an one-stop-shop for university students when it comes to information needs for academic purposes. The usability and user experience of the library website therefore become a top priority in achieving quality information services. Using metaphor in the design of library website creates a resemblance that is grounded visually, sensorily, psychologically, and conceptually on the physical library. It is a useful technic of design, especially for those who may be frequent library users, but are novice website users.

Metaphor is a fundamental cognitive competence and is pervasive in everyday life [1], which can also be regarded as the concepts, terms, and images by which and through which information is easily recognized, understood, and remembered [2]. In this study, metaphor is reasoned as conceptual rather than linguistic metaphor, with

which mapping from a source domain to the target domain represents the interaction between two domains [3]. It has been widely discussed and utilized in the design of user interface in the Web environment. It is proved to be effective when designer take an unfamiliar domain and utilize its characteristics to find similarities and differences between it and the unfamiliar domain, so that an analogy can be created to minimize the sense of unfamiliarity and unknown. This study aims to identify the analogies that connect the library website elements to the real-life library experience. Organizational, functional, visual, and textual metaphors elicited from the participating library users may provide an integrative design construct that incorporates real-life library experience into the design of library website.

2 Study Design

In this study, a series of search tasks were designed to engage 14 undergraduate and 16 graduate students, to interact with various library services. These students, all frequent library service users who went to the university library or used the library services at least three times a week, were solicited into the study through research team members' social network as well as a call-for-participation invitation posted on several universities' bulletin board systems (BBS) based in Taiwan. Information on the participants' academic background, degree status, and frequent use of library services are provided in Table 1.

Table 1. Research participant's academic ground, degree status, and frequent use of library services.

#	Academic Background	Degree Status	Frequent Use of Library Services
1	Politics	Graduate	Study, borrow/renew/reserve
2	Electrical Engineering	Graduate	Study
3	Physics	Undergraduate	E-journals, borrow/renew/reserve
4	Chinese Literature	Undergraduate	borrow/renew/reserve, multimedia resources
5	Linguistics	Graduate	borrow/renew/reserve, WebPAC, E-books, E-journals
6	Business Administration	Undergraduate	Multimedia resources, newspapers & magazines, study
7	Dental Technology	Undergraduate	Compter access
8	Dentistry	Undergraduate	E-journals
9	Dentistry	Undergraduate	E-journals, WebPAC
10	Industrial Design	Graduate	Multimedia resources, borrow/renew/reserve
11	Industrial Design	Graduate	Multimedia resources, borrow/renew/reserve
12	Industrial Design	Graduate	Multimedia resources, newspapers & magazines

(Continued)

Table 1. (Continued)

#	Academic Background	Degree Status	Frequent Use of Library Services
13	Information Management	Undergraduate	Multimedia resources, study
14	Chemical Engineering	Undergraduate	borrow/renew/reserve
15	Library and Information Science	Graduate	Study, borrow/renew/reserve
16	Library and Information Science	Undergraduate	Study, borrow/renew/reserve, group study room
17	Library and Information Science	Undergraduate	Study, borrow/renew/reserve, WebPAC
18	Library and Information Science	Undergraduate	Study
19	Psychology	Undergraduate	borrow/renew/reserve, WebPAC
20	Library and Information Science	Graduate	Multimedia resources, borrow/renew/reserve
21	Library and Information Science	Graduate	E-journals, WebPAC
22	Library and Information Science	Graduate	borrow/renew/reserve
23	Library and Information Science	Undergraduate	Study, study room, borrow/renew/reserve
24	Library and Information Science	Graduate	WebPAC
25	Library and Information Science	Graduate	borrow/renew/reserve
26	Ethnology	Undergraduate	Computer access
27	Library and Information Science	Graduate	Study
28	Library and Information Science	Graduate	Computer access
29	Library and Information Science	Graduate	Study
30	Library and Information Science	Graduate	Study, group study room

The search task was conducted in the academic libraries of the participants' university. The participants were first asked to observe the library designs and environment, specifically on the public use areas, such as the circulation desk, reference desk, reading room, bookshelves and collection, and overall functional layout. Then they were instructed to navigate the library website, with focus on website's looks and feel, functions, navigation, accessibility, and multimedia use. The observation activity was a critical element in the search task so that the participants were able to socialize into and experience the library and its services. Each participant was later given a list of six items to be obtained, three for physical collections, and another three for digital

collections or online services. The participant was asked to search and locate the items in order to complete the tasks.

After the search tasks session, in-depth interview was followed by. Three research themes were probed: (1) What characterizes a physical space as a library? (2) What characterizes an online space as an academic library website? (3) What elements of a library website and a physical library can be related to each other? During the interview, the participants were asked to recall their library and library website experiences and describe what they found most appealing and representative in the aspects of design and atmosphere. The metaphor elicitation process allowed the participants to recall what they just experienced in the search tasks and to offer analogies to connect the website materials to the real world. Meanwhile, the researchers were able to establish mapped relationship between the sources and targets of the metaphor.

All 30 interview sessions were recorded and transcribed for data analysis. Analysis was organized around three themes: characteristics of an academic library as a physical place, characteristics of an academic library website as a virtual place, and the metaphorical linkage of the physical library that can be applied to the design of library website. Data was analyzed qualitatively with constant comparison method, by which the concepts mentioned by the participants were compared, added to, and refined into the coding schemes. For example, the concept of “consulting a research librarian” was constantly found in the interview transcripts, it was then coded as “reference interview” as one of a common activities that characterized library as a place.

3 Research Findings

This study found that most library users have already developed mental models of what a library and a library website is like. What characterizes a physical library and a library website can be perceived from social, physical, behavioral, and sensory perspectives. Table 2 lists the selected findings regarding how both entities were perceived by users of academic libraries.

Table 2. Characteristics of physical libraries and library Website

	Physical library	Library website
Social perspective	Consulting librarians; discussing with friends,	Facebook, virtual reference, welcome messages
Physical perspective	Books; Bookshelves; Computers; desks and tables	Library logo; image of the library; use of table; words of “books,” “libraries,” and “Information
Behavioral perspective	Reading books; using computers; finding collections	Search box; RSS
Sensory perspective	Hear (quietness); smell (smell of books)	Color schemes and color combination

The physical perspective of a library can be best represented by books, bookshelves, library furnitures (tables and chairs), and electronic security systems (gates). Students commented that the university libraries and the dorms are few places on campus where ID is checked and granted for access. Other students also mentioned the carpet and poster on the wall.

The behavioral perspective can be observed from the activities that the library users are engaged in. The most common activities are reading, using computers, searching for collections, and borrowing or returning books/collections. Students further indicated that while these activities were major reasons people went to the libraries, the surroundings remained quiet and orderly. However, these activities created a visually engaging and dynamic form of image of the library, as a place with people who were focused and with a particular purpose.

The social perspectives is best exemplified by the interaction between users and librarians. The interaction is primarily non-technical and non-academic. During the interview, the participants constantly mentioned the kindness generosity, and trustworthiness they felt when interacting with librarians. The library was also a place that provided a sense of fulfillment after leaving the libraries with some academic goals achieved. Diversity, was another concept frequently mentioned by the participants as library was one of the few places on campus where diversity was acknowledged and considered.

Lastly, the sensory perspective incorporated four out of all five senses, and they were sight, hearing, smell and touch. To the participants, a library was a place where it was quiet and respectful in conversation and interaction. Voice and sounds were managed to be minimal. The color was predominantly white with wood color furniture, creating a yellow-brown tone in interior decoration. What also distinguished a library from other types of architectural buildings was the musty smell of books, along with a light scent of wood. As to the sense of touch, the participants tended to focus on the texture of the books and the furniture, which they found smooth due to frequent use.

In this study, what the library users saw in the physical library was served as the source of the metaphor, and their perception of the library website was interpreted as the target of the metaphor. The findings identified four types of library metaphors that may be applied to library website design. Organizational metaphor, like elevator or signs in the physician library, can be applied as navigation guides or a drop-down menu in the library homepage. It is used to better organize the information on the website to facilitate efficient flow, similarly to the installation of the elevator or escalator in the libraries in order to support rapid services to the users. Another popular example of the organizational metaphor and its analogy would be the use of bookshelves in the library and the use of tables in organizing the content (See Table 3).



Functional metaphor, such as browsing the collection through bookshelves with friends, can be designed as browsing the digital items checked out by users with similar reading interests. Visual metaphor, such as color of the furniture, can be coordinated with color scheme of the library website. For example, a student mentioned the connection between the color of library wall and the background color of the library website, as well as the color of the furniture and bookshelves and the main color used

Table 3. Example of the source and target of organizational metaphor

Source- Bookshelves (Shih-Chien University Library)	Target- Use of Table (National Taiwan Normal University Library Website)
	

in the website. The student further commented that academic library websites tend to use white or light color for the background, and earth tone colors for the main scheme as this color combination blends well with the white wall and wood-framed shelves and furniture (See Table 4 for example).

Table 4. Example of the source and target of the visual metaphor

Source- White Wall (National Taiwan Normal University Library)	Target- White Background (National Taiwan University Library Website)
	

Textual metaphor is primarily verbal and graphical in nature, for example, the words “book,” “collection,” “library”, and the images of “library” are found all over the website. The use of these words in the Website homepage, creates a direct linkage to the actual artifacts found in the physical libraries.

4 Implications of the Study

The results of the study suggests that library users are seeking real-life experiences in the library website, and the sensory representation that a website displays greatly influences the user experience. University students of younger generation grow up with libraries, and many of them with regular visits to browse collections. However, an academic library website is one of the most complex types of websites, as it hosts countless data in both downloadable and networked forms. To facilitate users’ ability to search and retrieve information, this study suggests the strategic use metaphor in the design of the library presence in the virtual world.

The findings of the study can be developed into library website design guidelines. Findings of what characterizes a library space may be translated into the essential elements of the library website. These characteristics of what is familiar may provide an orientation and structure for users unfamiliar with the library websites. For example, the social aspects of the physical library may inspire the interactive experience by social networking and instant messaging capabilities. Quietness in the library suggests the need to avoid complicated use of sound effects in designing library website. Four types of library metaphors identify the linkage types between the sources and targets of the metaphor. Organizational, functional, visual, and textual metaphors elicited from the participating library users may provide an integrative design construct that incorporates real-life library experience into the design of library website. Some examples could be the use of white or light-color as the predominant color for Website background to mimic the wall color of the library. Also, effective alignment of the Web content and the organizational strategy can be best arranged with the use of tables, because according to the results of the study, the concept of bookshelves in the physical library can be translated into tables in the Web content design. In this case, both source domain and target domain represent a means of organizational artifacts for physical or virtual collection.

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