A Concise Guide to Usability Issues in the Context of the Digital Library

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Abstract

Usability is a quality metric that measures how easily a user interacts with an interface. It refers to the simplicity with which a product or system may be utilized to attain goals in an effective and efficient manner. The usability of digital libraries is defined by the effectiveness and efficiency of the information access system, the ease of use, the pleasantness of the user interface, user needs, usage patterns, and other aspects.

The objective of this paper is to explore the five characteristics of digital library's usability: learnability, efficiency, memorability, errors, and satisfaction. with regard to methodology, a theoretical approach was used as the research technique for this study which involves doing a review of various publications, research papers, and studies published on this topic, but it focuses more on primary sources of information. The findings of the paper demonstrates that considerable numbers of usability and evaluation studies of digital libraries have been conducted over the last two decades, using a variety of usability study tools and data collection and analysis methods. The study indicates also that research community have developed several models for the use and assessment of digital library's usability. Therefore, digital library developers should consider the five characteristics of usability while creating new digital library projects.

Keywords: Usability; Digital Library's Usability; Information Technology.

INTRODUCTION

The utilization of computing technology is changing fundamentally. As non experts started using the computer, the access and use criteria altered substantially. A technology oriented

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specialist who utilizes a system on a regular basis may learn (at some point) to use nearly any mechanism, no matter how poorly built it is. The scenario is different with the new user community. Most of them lack both a technological orientation and the incentive to invest in significant training. Another class of users sees a computer as a tool to help them complete another activity; the computer is not a goal in itself. This new user generation is far less tolerant of "unfriendly" and poorly built technologies.

As a result, users began to demand better systems, and developers began to take usability concerns more seriously. Therefore, a digital library's usability should not just be concerned with the characteristics of its interface but also with

the whole range of services provided by the library. *(Bishop et al, 2003)*. The term 'usability' means how easily a product or a service can be used. In the context of digital libraries, user studies and assessment of digital library products and services are both part of usability studies.

ISO 9241 is a multi-part standard from the International Organization for Standardization (ISO) covering ergonomics of human computer interaction defines usability as " the degree to which a product may be used by specific users to achieve specific goals with effectiveness, efficiency, and satisfaction in a specific context of usage. *(International Organization for Standardization, 2023)*. That is also why we may conclude that usability studies began and have largely been carried out within the context of human computer interactions.

According to *Chowdhury, S. (2012)* Usability is a quality metric that measures how easily a user interacts with an interface. It refers to the simplicity with which a product or system may be utilized to attain goals in an effective and efficient manner. In the context of digital libraries, usability studies include both user studies and evaluation of digital library products and services. Simply said, 'usability' refers to how easily a product or service may be utilized *(Myriam C Traub et al, 2015)*.

There are a number of differences between usability and user experience. Infact, usability focuses on the product's simplicity of use, learnability, and efficiency, whereas user experience is a larger term that considers the complete process before the user interacts with the system. Learnability, efficiency, memorability, mistake frequency, and satisfaction are all characteristics of usability, whereas user experience includes usability, value, adaptability, and attractiveness *(Peng Ye and David Doer Mapp, 2015)*.

Jakob Nielsen (1993) identifies five usability attributes or dimensions for information systems as well as other applications: learnability, efficiency, memorability, errors, and satisfaction.

The objectives of this research:

- To highlight the importance of usability for the digital library.

- To demonstrates the goal of usability and explain why ease of use is an important issue for the digital library.

- To explain why usability is a fundamental factor that can influence the success of the digital library.

- To shed light on the significance of usability since bad usability can lower productivity while also making it harder for users to do activities correctly and effectively.

The five dimensions of digital library's usability

The usability of digital libraries is determined by a variety of elements, including the effectiveness and efficiency of the information access system, the simplicity of use and pleasantness of the user interface, the demands of users, usage patterns, and so on. *Nielsen (2003, 2006)* states that usability is determined by five characteristics of an information service's interface: learnability, efficiency, memorability, errors, and satisfaction. The following are a description of these dimensions.

Learnability in the context of digital library's usability

Learnability in the context of digital library's usability refers to how simple it is for users to learn how to utilize a digital library system. It is one of the usability characteristics used to evaluate digital libraries. Learnability may be measured by determining how fast and simply users can learn and remember how to utilize a digital library system.

There are several approaches to use to improve learnability in digital libraries. The followings are some pointers that might be useful:

- While designing your digital library system, be precise and clear.

- Clear instructions on how to use your digital library system should be provided to users.

- Ensure that the interface of your digital library is simple to use.

- Maintain a unified visual throughout your digital library system.

- Provide feedback to users on their behavior inside your digital library.

Efficiency in the context of digital library's usability

Efficiency in the context of digital library's usability refers to how quickly users may finish activities using a system for a digital library. It is one of the usability criteria that are used to rank digital libraries. By measuring how quickly users can execute activities using a digital library system and how effortlessly they can recall how to complete those tasks, efficiency may be determined *(Chowdhury, G., & Chowdhury, S. 2011)*.

There are a variety of ways that may be used to enhance efficiency in digital libraries. The following

are some suggestions that may be helpful.

- Expand library products and services beyond traditional user groups.

- Workflows should be streamlined, procedures should be automated, and services may be rationalized and accelerated.

- Ensure that your suppliers and supporters are efficient and dependable.

- Ensure that your work team are enthusiastic, skilled, and technically knowledgeable.

Users Satisfaction in the Context of Digital Library's Usability

User satisfaction in the context of digital libraries refers to how users feel following their usage of the information resources and services as well as their willingness to visit the library again the next time they require information. It is a method through which users assess the suitability of the library's information resources and services supplied to them, as well as if their expectations are met *(Chowdhury, S. (2012).*

While developing a digital library, there are many strategies to increase user satisfaction, the suggestions that are listed below might be useful.

- Consider the initial impression that your library gives.

- Consider what improvements you can make to your service model.

- Reconsider your visual graphics.

- Provide possibilities for exploration.

- Create a strategy to connect everything together.

Memorability in the context of digital library's usability

In the context of usability, memorability refers to a user's ability to leave a program and remember how to perform things in it when they return to it. It is one of the five usability dimensions, along with learnability, efficiency, memorability, error, and satisfaction. *(Chowdhury, G., & Chowdhury, S. 2011).*

Here are some suggestions for increasing memorability in digital libraries:

- Utilize interactive elements like high-lighting, sketching, annotating, writing notes, and referencing sources to improve the reading experience.

- For read aloud, use digital resources.

- Offer readability elements such as font size and text contrast.

Errors in the Context of Digital Library's Usability

In the context of usability, an error refers to a mistake or problem that occurs when a user interacts with a product or service. Usability errors can occur at any stage of the user experience, from initial discovery and learning to on going use and maintenance. Usability errors can be classified into three categories: critical errors, serious errors, and minor errors. Critical errors prevent users from completing activities, whereas serious errors make it difficult for users to perform tasks. Minor errors are those that do not significantly affect the user's ability to complete their tasks *(G. Chiron, et al 2017).*

Here are some suggestions for improving error codes in digital libraries:

- Define the users and their objectives.

- Develop tasks that address these objectives.

- Choose a group of people to participate in the usability research.

- Watch them attempt to complete the tasks assigned using the service or product whose usability is being evaluated.

Concluding Thoughts

A digital library's usability is determined by a variety of elements, including the effective and efficiency of the digital library, the simplicity of use and pleasantness of the user interface, adding to that user needs, and usage patterns. Throughout the last two decades, there have been a number of usability and assessment studies of digital libraries that have employed a range of usability research approaches and data gathering and analysis methods. Research community have also developed several models for the use and assessment of usability of digital libraries. Usability is an important matter in the process of designing digital library projects. Therefore, digital library developers should consider the five characteristics of usability while creating new digital library projects.

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