

Usability Evaluation Of An University Admission Portal

Bilal Bin Ijaz, Faizan Saeed, Dr.Nadeem Qaiser

Computer Science Department, University of Lahore
Main GT Road, Adjacent Chenab Bridge Gujrat, Punjab, Pakistan

bilalbinijaz@gmail.com; faizansaeed6089@gmail.com; nadeemqm@gmail.com

Abstract- Lot of universities have their online presence to provide information globally about their programs. Most of them have their online admission portals (OAP), but they are not user-friendly that's why students prefer to submit the application manually. There are a lot of ways such as surveys, interviews, Card Sort, Shneiderman's Eight Golden Rules, Heuristics etc. to evaluate and enhance the usability of online admission portals (OAP) to provide the user-friendly system to students. In this research we are going to use Shneiderman's Eight Golden Rules on an online admission portal of University Of Lahore (UOL), these set of rules and guidelines will head us in the right direction and allow us to spot major usability issues. We have found the main usability issues in the OAP if they fixed them they can target most of the students to submit their applications by using it.

Keywords- Human-computer interaction; a User interface; Usability; Shneiderman's; Golden rules;

I. INTRODUCTION

As experienced Internet users, students use Internet for a variety of reasons, categorized from email checking to shop. In addition, students are researching and applying to universities and colleges online. Reports show that the Web ranks second only to campus visits as the most important source for researching colleges [2]. This importance of websites then suggests that educational institutions of higher learning should put real effort into using the new medium as a communication tool. One way to provide information to the students in easily accessible manner for colleges and universities is to have their websites. Research has shown, however, college and university websites are poorly designed and reflect poorly on their hosting institutions. It has even been suggested that most of the students who find a Web site disappointing associate their e-experience with the quality and functioning of the institution itself and may terminate all inquiries about the college [2]. Little research, however, has been conducted to uncover the extent to which universities are meeting the needs of Web-surfing students. Students can access websites with the help of Human-Computer Interaction (HCI) assistance. Usability is an important factor in Human-Computer Interaction (HCI) field because it plays an important role in software design and development.

While developing a software system, usability gives the motivation to increase user satisfaction, efficiency and productivity also it helps the users of the system to perform their tasks and helpful for users which have less computer

literacy. The main objective of software development is to meet the user requirements because users do not like to accept the system if the systems are less usable. So if the software development organization will provide the less useable systems, which will not according to the usability rules and principles, then they will lose the market. Usability relates how the system interacts with users. User interaction is the way to exchange information between the system and the user because the user interface is the visible part of the systems such as navigation menu, radio buttons, background color, pictures and so forth.

So the user interaction design is not just designing the visible part of the user interface but also designing the rest of the system. Designers should follow and apply the appropriate design rules and principles for systems usability. Designers get the direction to promote the usability of the system by following usability rules and principles [5]. The objective of this research is to use the usability principles and rules to design and develop usable user interfaces.

II. BACKGROUND AND RELATED WORK

Nowadays most of the universities and colleges websites are different from the past, these are upgrading day by day with the better one because the world of technology is growing and they want to interact and deal with students in a better way to reduce the mistake or error happen on their websites. An inconsistency of design is the most common problem that is found in web pages, which cause a user to lost track. Second, the data management and information website which require too much input at one time causing a user to forget and make mistake.

Related work

Kostas and Xenos [6] used the heuristic evaluation method on the Hellenic Open University (HOU) website to In this section we have summarized the earlier research that evaluated the usability of educational websites using usability principle and rules.

evaluate the usability, it was conducted by two usability specialists and three experienced in heuristics evaluation. The heuristics suggested by Nielsen et al. [9] were used in

it. The results clearly showed that this method was effective and useful to identify various usability problems were not previously detected.

After the Kostaras and Xenos [6] another team, Papadopoulos and Xenos [12] used the new version of the Hellenic Open University (HOU) website and evaluated the usability using heuristic evaluation by employing Nielsen et al. [9] and performance measurement. Students and experts performed this evaluation. These two evaluation methods figured out most of the usability problems that had not been fixed during the website's development.

III. HUMAN-COMPUTER INTERACTION

Human-Computer Interaction term has been used since 1980's and now it's become an interesting and important field of research that's why has more established roots. At the beginning of the last century, the study of human performance started in factories on manual task. The interaction between human and machine was introduced in Second World War so that human can learn how to use the machine and to produce effective weapons systems. On the basis of these concepts, the Ergonomics Research Society was established in 1949. The society primarily concerned with the characteristics of machines and systems and how these effect with user performance. Human factors integrate these issues, which are often used interchangeably. Both of these issues indicated the user performance with any systems such as manual, computer or mechanical. As technology is growing day by day and use of a computer is increasing more, researchers are starting physiological and theoretical study the interaction between people and computer.

The first time it was started with the name of man-machine interaction, but after considering the particular interest of computer and user population, this became human-computer interaction [8]. ACM SIGCHI defines HCI as: "Human-computer interaction is a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them" [5]. Olson and Olson [5] termed Human-computer interaction as the study of how persons interact with computing technology. They pointed out two significant aspects of HCI such as the design of computer systems and evaluation of systems. They highlighted numerous levels of analysis for evaluation like the individual, the group, the organization, and societal sector or the industry [5].

Human-Computer Interaction (HCI) concepts have three components such as Human, which means users (persons) who interact with the system. Users may be groups of people or individuals. Computer means the device that users are interacted with. Devices have a lot of variations, such as desktop computer, laptop, cell phone, ATM, door lock and car etc. Interaction means all the information sharing between the human and the computer. For example, to login into a computer system, people give an input id and password. If both id and password are right then Computer returns output as displaying the welcome message and home page of that system to use. HCI is a multidisciplinary subject. But system design and computer science is the central concern of HCI. Computer science is

able to build necessary technology and HCI is involved to build usable and safe technology. HCI engages for design in system design, evaluation, and implementation of interactive systems based on user's task. Cognitive science and physiology can provide the user's cognitive and problem-solving skills, the user's perceptual for HCI. Ergonomics can provide user's physical capability; sociology can help to understand the wider context of the interactions for HCI [4].

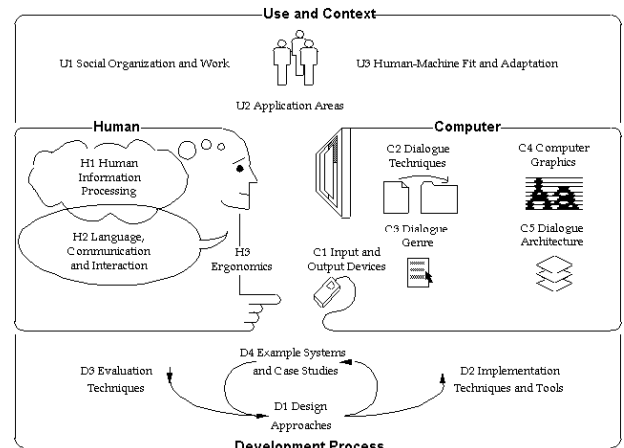


Figure:1

IV. USABILITY RULES AND PRINCIPLES

We should follow design principles and rules for designing and evaluating user interface. Usability principles and rules give guidance to the designer to produce usable systems. There are so many guidelines and principles are available to generate the user interface. But all of these rules need to be simpler and easy to use in a particular point. Many supporters have presented a set of golden rules or heuristics which are used to provide a useful summary of design advice and help to produce better usable systems. From all those rules, Shneiderman's eight golden rules are very useful and well known [4].

Shneiderman's Eight Golden Rules

1. Strive for Consistency:

- Every time users need to be able to do the same thing with the same way that they have been doing.
- Interfaces need to show 'consistent' quality across screens/ applications both behaviourally as well as visually.
- Consistency such as 'similar flow of actions in similar situations' makes it easy to learn.

2. Enable Frequent Users to use Shortcuts:

- There are so many shortcuts such as special key sequences for copy and paste, abbreviations to represent common words that are used to regular action very quickly.

3. Offer Informative Feedback:

- Interfaces need to not just to be attractive but also need to guide and inform the 'user' in terms of learning & feedback which tells them that they are proceeding in the right direction.
- There needs to be feedback for every action of the user— only then 'interaction' (in HCI) is said to take place.
- Users cannot proceed or become unsure of the correctness of the action unless the user gets feedback.

4. Design Dialog to Yield Closure:

- For better human-computer interaction - at end of an action, dialogue needs to have a closure which is recognized by the user.
- Proper flow of actions needs to proceed in a dialogue by engaging the user in a step-by-step manner.
- Every enclosing bracket needs a corresponding closing bracket, Like in a mathematical expression.

5. Offer Simple Error Handling:

- To minimize and prevent errors made by users, Human-Computer dialogue can be designed.
- Users can make errors while interacting with computers as well as while entering/evaluating information. So their could be many reasons for users errors but the user is not one of them.
- A system needs to be designed to detect the user error if the user makes an error, take precautionary or right steps to arrest it. The system also needs to offer a way out for recovery from the error.

6. Permit Easy Reversal of Actions:

- Interactions need to build in retracing reverse actions to give relief from anxiety to the user. One way to do this is to provide a retractable path backward of all actions and permit their state.

7. Support Internal Locus of Control:

- Interaction should allow a user to always feel 'in control' of the situation and of the system.
- The connection of where the user presently is helps the user to orient or reorient the interaction. The user should always feel everything is under his/her control, he/she never be allowed to feel lost.

8. Reduce Short-Term Memory Load:

- Always care not loads the cognitive short-term memory of the user by expecting a user to remember several sequences, actions and their consequences at a time. Means loading their short term memory while interacting.

V. METHODOLOGY

Usability criteria for evaluating the usability of UOL admission portal are based on Shneiderman's Eight Golden Rules. These golden rules are very important and useful because these present a suitable summary of the key principles of interface design and we can use these eight principles during interface designing as well as during the evaluation process.

The participants in this study were the professional staff members of a software company because they all have the knowledge of Shneiderman's Eight Golden Rules. In order to collect information regarding the characteristics (demographic information & Usability Evaluation information) of participants in the research, We provided them a Microsoft word file consisting of a table with list of all the screens of admission portal in column and Shneiderman's Eight Golden Rules in row with the liker scale ranging from 1-5 (as shown in Figure 1),and also provided them a computer system by opening the UOL admin portal, so that they can evaluate the admin portal.

Table 1. Research participant's Demographic information

		Total
Gender	Male	6
	Female	4
Computer Experience	< one year	0
	From one to five years	3
	> five years	7
Internet Experience	< one year	0
	From one to five years	3
	> five years	7



Figure:2

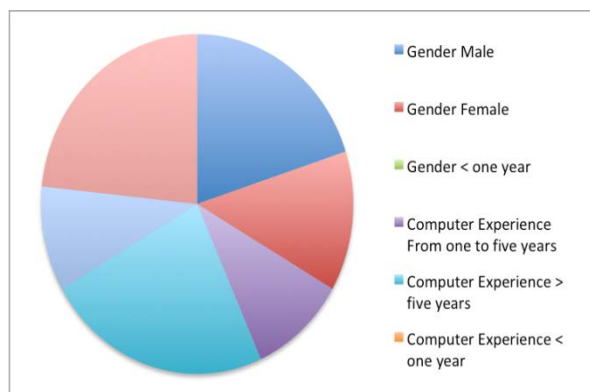


Figure:3

VI. RESULTS

The results showed that the most important Shneiderman's Rule for the usability of UOL admission portal from the viewpoint of a participant of research is the Offer Informative Feedback as it has the highest weight (as shown in Table 2). The results also showed that the Strive for Consistency is the second most important category for the usability of the UOL admission portal. The results showed that Permit Easy Reversal of Actions, and Enable Frequent Users to use Shortcuts and Offer Simple Error Handling are the third, fourth and fifth important Shneiderman's Rule respectively in the usability of UOL admission portal from the viewpoint of research participants. Finally, the results showed that the Reduce Short-Term Memory Load, Design Dialog to Yield Closure and Support Internal Locus of Control is the least important category for the usability of UOL admission portal from the viewpoint of research participants.

Table: 2. The weights of Shneiderman's Rules for all screens of UOL admission portal

Strive for Consistency	Enable Frequent Users to use Shortcuts	Offer Informative Feedback	Design Dialog to Yield Closure	Offer Simple Error Handling	Permit Easy Reversal of Actions	Support Internal Locus of Control	Reduce Short-Term Memory Load
19%	11%	31%	4%	9%	17%	4%	5%

In the above section we generate the table and below section, we generate the chart for weights of Shneiderman's Rules for all screen of UOL admission portal.

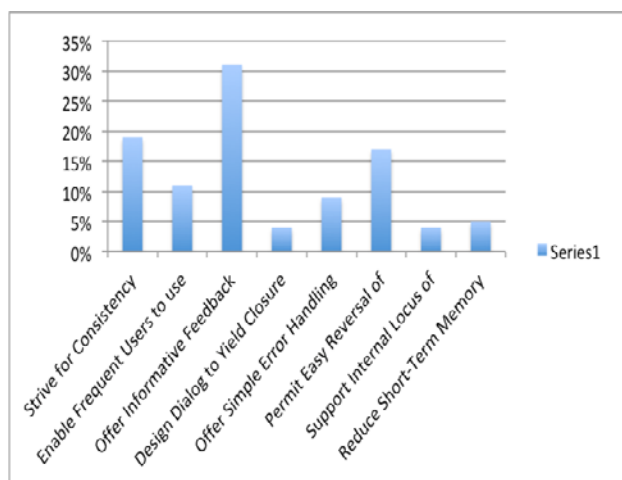


Figure:4

VII. CONCLUSION

This research provides observational evidence for UOL admission portal regarding the relative importance of specific design features on which to focus when designing the usability of their admin portal website. The results showed that providing the information feedback and provide the consistent design, colors, and fonts etc. are the most and second most important design categories respectively for the usability of UOL admission portal from the viewpoint of experts. The results also showed that the third, fourth and least important categories for UOL admission portal are: Permit Easy Reversal of Actions and Enable Frequent Users to use Shortcuts and Offer Simple Error Handling, respectively.

REFERENCES

- [1] M. Will, Elizabeth & Callison, Coy. (2006). Web presence of universities: Is higher education sending the right message online?. *Public Relations Review - PUBLIC RELAT REV.* 32. 180-183. 10.1016/j.pubrev.2006.02.014.
- [2] Abrahamson, T. (2000). Life and death on the Internet: To Web or not to Web is no longer the question. *The Journal of College Admissions*, 168, 6-11.
- [3] Ng, C. K., Parette, P., & Sterrett, J. (2003, June). Evaluation of graduate school Website by graduate assistants. *College Student Journal*, 37(2), 242-260.
- [4] Dix, A., Finlay, J., Abowd, G. D., Beale, R. (2004) *Human-Computer Interaction*, 3rd ed. Addison-Wesley Pearson Education, London. pp. 3, 4, 28, 191-364
- [5] Mazumder, F. K., & Das, U. K. (2014). Usability guidelines for the usable user interface. *International Journal of Research in Engineering and Technology*, 3(9), 79-82.

- [6] Ooi Boon, K. (2013). Study of FSKKP portal based on Shneiderman's eight golden rules.
- [7] Hasan, Layla. "Evaluating the usability of educational websites based on students' preferences of design characteristics." *International Arab Journal of e-Technology* 3.3 (2014): 179-193.
- [8] Dix, A., Finlay, J., Abowd, G. D., Beale, R. (2004) *Human-Computer Interaction*, 3rd ed. Addison-Wesley Pearson Education, London. pp. 3, 4, 28, 191-364
- [9] Preece, J., Rogers, Y., Sharp, H. (2002) *Interaction design: beyond human-computer interaction*. John Wiley & Sons, New York. pp 6, 12, 13, 27, 166

IJSER