

# Usability Assessment For The Enhancement of Quality of a Web Portal Interface



Shageetha Ramachandran, Rozi Nor Haizan Nor, Yusmadi YahJusoh

**Abstract:** A web portal can be defined as a personalized, single point of access to information, resources and services covering a wide range of topic. Based on some researches, a system based on the internet can improve the work efficiency to some extent and provide all kinds of academic administration information timely. As to establish the intended function, usability is a crucial factor to be embarked on. This will ensure that the users are attracted to use the portal by increasing the relationship between the users and the portal's interface. The Applied Informatics Research Group (AIRG) is the group assigned by the Faculty of Computer Science and Information Technology (FSKTM) to manage the Research Group Portal System (RGPS) that is the sample used in this research. The RGPS is a web-based system that allows collaboration among the users; to locate, store, use and share their knowledge. The main objective of this research is to obtain the feedback from the users regarding the usability of the RGPS that is deterring them from optimizing the usage of this system. Surveys and questionnaires are used to evaluate and the output acts an input to modify the interface of the RGPS. Again, validation will be done to weight the users' experience with the modified user interface.

**Keywords:** Web Portal, Usability, User Interface, Validation, Research Group Portal System (RGPS)

## I. INTRODUCTION

A web portal can be defined as a personalized, single point of access to information, resources and services covering a wide range of topic. Based on some researches, a system based on the internet can improve the work efficiency to some extent and provide all kinds of academic administration information timely, John Brooke (2013). As to establish the intended function, usability is a crucial factor to be embarked on. This will ensure that the users are attracted to use the portal by increasing the relationship between the users and the portal's interface. The Applied Informatics Research Group (AIRG) is the group assigned by the Faculty of Computer Science and Information Technology (FSKTM) to manage the Research Group Portal System (RGPS) that is the sample used in this research. The RGPS is a web-based system that allows collaboration among the users; to locate, store, use and share their knowledge. The main objective of this research is to

obtain the feedback from the users regarding the usability of the RGPS that is deterring them from optimizing the usage of this system. Surveys and questionnaires are used to evaluate and the output acts an input to modify the interface of the RGPS.

## II. MATERIALS AND METHODS

According to Waloszek (2001), a portal's primary objective is to create a working environment that users can easily navigate through, via the blend of information, services and collaboration among users. In short, portals provide presents information from various different sources in a unified manner coupled with a single-entry point for multiple applications that may reside on various platforms. There are two major types of portals, Horizontal Enterprise Portals (HEP) and Vertical Enterprise Portals (VEP). Horizontal Enterprise Portals (HEP) is also known as a mega portal, is a public website is a public Web site that attempts to provide its users with all the services they might need. HEPs include shopping, weather, stock prices, news, search engines, chat groups, horoscopes, and others, Strauss (2002). HEP and the users are encouraged to make their site as the homepage on the browser. Personalization is allowed by a number of filtration questions, based on the users' data and typically, the personalization information is held in Web cookies that are stored in the users' local computer. Hence, this information is lost when the user accesses the HEP website via another computer.

Vertical Enterprise Portals (VEP) on the other hand is a portal that delivers organization-specific information in a user-centric way. A university HEP is a subset of a VEP, if they are not overlapping. A VEP requires authentication for access. When a user logs on to a VEP, it produces a customized portal page, tailored to the user who logged on. It knows a great deal about the user who logged on because the user is a member of the organization that produced the VEP. The user can personalize the initial portal page here too. Advance search capability is a compulsory field in a VEP as this is the main place for the users to obtain Web information. The search should be able to be performed on multiple platforms such as the information on the actual web page the user is viewing, all of the Web, only the web pages of the user's organization or only information related to specific channels on the portal, Nielsen (2003). Researches also believe that VEPs are focused on one functional area; they offer information and services customized to specific audiences about a particular area of interest, Andrina et al., (2003).

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There are the seven important features to be incorporated into a web portal, as listed below:

- i. Calendar: marks the events in the organization or group in a calendar view
- ii. Contacts: users of the system
- iii. Events: displays the upcoming events related to both or either the organization and the group.
- iv. Announcements: List announcements meant as broadcasted messages to the users.
- v. Feedback: to allow users/ visitors to send messages to the admin
- vi. FAQ (Frequently Asked Questions): Is a list of common questions alongside with the relevant answers to avoid repetitive questions to be asked to the admin.
- vii. Consistent Webpages: provides easy to use web pages using hovering menus and bread crumbing.

Besides the above, other features are dependent on the system i.e. an intranet will have more domestic features such as Knowledge management and collaborative tools as their users stay connected for longer period of time, whereas an extranet will incorporate features like search facilities and alerts. According to Quality Standards of ISO/IEC 9126-1:2001, usability is one of the main six quality characteristics identified and it consists of learnability, efficiency, memorability, error avoidance and handling and satisfaction. All these are defined in lieu respect to the end users. Usability is one of the most important characteristics of any user interface; it measures how easy the interface is to use, Ali (2012). AIRG portal is one of the suggested portals that has been developed by the AIRG group of the Faculty of Computer Science and Information Technology in UPM. Its objective is to allow the users (guests, students and staff) to access the system via the web thus sharing the data in it.

This research is focused on the usability aspects as this aspect is the main criteria on the web portal. This is because usability has a great influence on the improvement of the quality of the web portal. This will facilitate higher rate of

usage on the said portal. To perform the research on regards to this usability aspect, the Applied Informatics Research Group (AIRG) portal is used as a sample. AIRG is considered as to improve the quality of the usability criteria. Based on this research, the usability factors and attributes will be identified comprehensively. This will be followed by the changes being made to reflect the users' results and the improved system is validated.

### III. RESULTS AND DISCUSSION

In short, Applied Informatics System Group (AIRG) is a study of Information Technology (IT) and its application to the real world problems. AIRG covers computing and information technology as well as IT applications. It is also used to perform research collaboration in information system (IS), computer science and software engineering that are closely related to each other. AIRG is an effort by IS department of FSKTM, UPM, in promoting and further developing the science of information. Generally AIRG performs the study of IT and its uses. AIRG also leads research in current areas i.e. Big Data, Documents and Records Management, E-Commerce, Health Informatics, Segmented Marketing, Cloud Computing, Data Cleaning and Integration, Event Association Analysis, Modelling and Simulation, ICT Education, Decision Support and Computer Games.

The special research emphasis will be on IS and Knowledge Management (KM) especially to benefit various communities of practices (COP) within UPM as well as external parties. According to Akrami (2015), The AIRG was established to fulfil several objectives such as to provide a platform of research that involves a multidisciplinary IS in the university, locally and internationally, to perform research collaboration in IS and Computer Science, exploring the potential research with other disciplines of studies based on IS environment as well as to turn IS into a foundation of research and expand it into other fields that will benefit any COP.

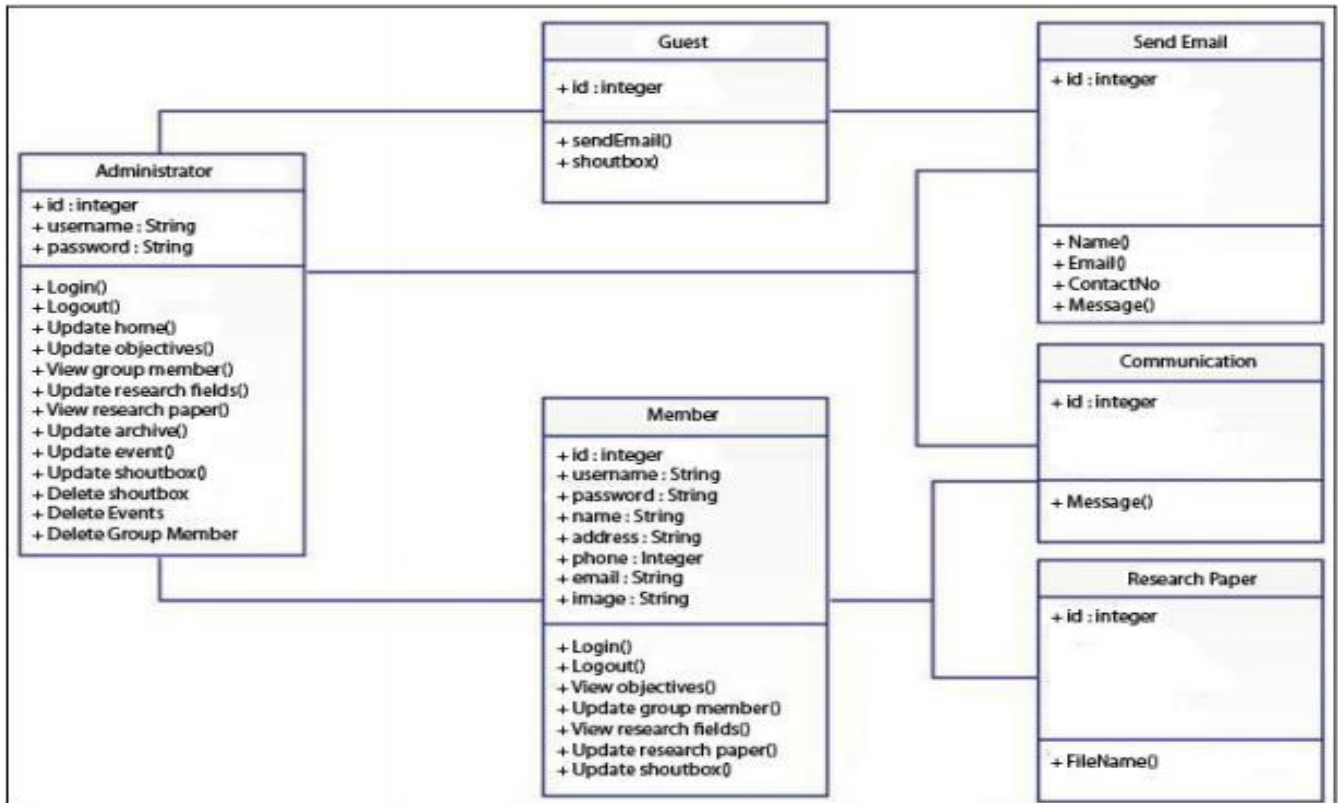


Fig. 1 Class Diagram for Research Group Portal System

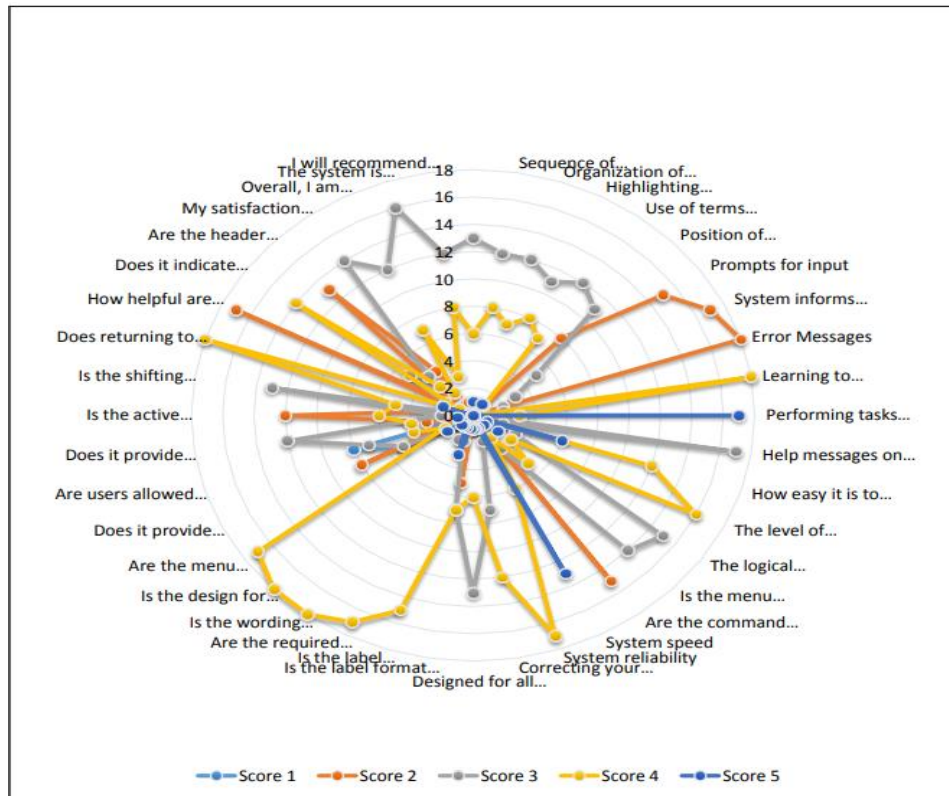
Based on Figure 1, administrator is the person authorized to use this Research Group Portal System that can manage to store all group member details information in the database. This is to avoid data redundancy for both the lecturer and student detail information. The admin could also manage all the grant project documentation, manage any new announcements regarding the research group and communicate among all group members. The important information that should be included in this administration scope is the group member information, research paper records, announcements of new events and also the content information of this research group.

Members are entitled to all the functionalities offered by the RGPS once they have registered in the portal. The member of this research group consists of lecturers and students. Members must be having the ID provided by UPM to register in this research group. Members can basically

manage their personal information. They can upload and download among group members research paper and in the same time view the report on the total of people downloading their research paper. The group member can also communicate with the other group member using the platform which is in the portal.

Other user who are also known as the guest, can be anyone interested about this research group. Guest can view what is this research group is all about and also download any of the research paper that has been uploaded by the group member. Guest could also send a private email to the admin regarding any issues or queries that they are interested in via the feedback form. But for them to be a group member, they need to have an ID provided by UPM. The guest user is required to register into the portal in order to use other facilities.





**Fig. 2** Summary of the questions and the responses

Based on the Figure 2, it can be concluded that users are 85% satisfied with features in the system. The remaining 15% of the users are slightly dissatisfied on certain aspects of the user interface and the usability aspects.

## IV. CONCLUSION

The whole objective of RGPS is to help the users to collaborate with one another by communicating as well as sharing of information and knowledge. The main objective of the system is to detect the defects in the usability aspect of the RGPS and revalidate after modifications have been performed to it. Upon that, the enhanced system is expected to be a centralized hub of reference for all research papers and can be a one-stop centre for the lecturers and students for the usage and management of their knowledge. The RGPS is expected to be fully operational and used optimally. The system has now been modified to cater to the users' requirements thus enabling all the features to be executed as planned. Some of the features that are attractive to the users are, data is being more systematically stored, Information can be stored and reviewed and retrieved easily, new updates can be broadcasted to all group members with ease and discussion among group member can be accomplished too. The users can now experience a better efficiency on this improved system that is fully functional to help them to complete their tasks effectively too.

This is the main objective of usability studies, to enable the users to be self-efficacy by using the technology. To achieve this, the web system has to be able to provide a good user experience that encourages the user to use the system to ease one's tasks. This will also encourage the users to be more independent in the longer run as well as to support the Government of Malaysia's vision to have a

paperless environment. The whole design can be considered to be ported to a document database such as Lotus Domino to support scalability. A NoSQL database is a term coined to support distributed processing and inexpensive hardware, NoSQL databases differ significantly on their approach to maintaining data integrity and consistency, Robert T. Mason (2015). This is because the idea of having this RGPS is to deal with documents and Lotus Domino is an excellent document database that enables efficient workflow embedded in it. Unlike in the current RGPS system which uses the file system to store the journals and use MySQL to store the pointers to the file system, Domino will store it in its database and more centralized. It also allows document-response hierarchy to enable more efficient feedback management. In this case, securities can never be compromised as Domino has a seven layer of authentication to be administered to any entity. Lotus Domino software delivers more than just e-mail and calendaring features - it offers an open, collaborative and connect. It also provides a rapid application environment for greater agility and speed.

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