Heuristic Usability Evaluation of the Uppsala University Student Portal

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ABSTRACT

Heuristic evaluation is a significant method used to evaluate the performance and usability of any web application. This research focuses on the usability evaluation of the Uppsala University student portal using the heuristic evaluation method. A survey was conducted to identify the usability problems in the student portal. The conducted survey determined that most of the participants agreed that the student portal is reliable, but more navigations and shortcuts need to be included so that the users can perform operations effectively. Nielsen's ten heuristic principles are added in the survey for evaluating the usability of the student portal. For the effectiveness and flexibility of the utilization of the student portal, it is suggested that significant icons and menus are added that can enable the users to select options in less time. It is significant for the student portal to alert the students if any error occurs and provide notification about the errors and problems.

Keywords: Heuristic method, usability evaluation, and Uppsala University portal

1. INTRODUCTION

This thesis is an individual research project. In this study, heuristics-based systematic evaluation of the UI (User Interface) of the Uppsala University student portal was conducted. Uppsala university student portal gives access to the students currently enrolled in the university. Using such a portal, students are capable to get study information, results and certificates, their timetable, online library service, spell checking, printing, and little study-related software, etc.

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User interface has a great impact on the usability and performance of a public access system. This research helps to understand the concept behind heuristic method and review the student portal of Uppsala University. Moreover, applicability of heuristic evaluation method for evaluating Student portal's interface was analyzed and discussed in this research.

1.1 RESEARCH OBJECTIVES

The objective of this study was to evaluate the user interface of the Uppsala university student portal accessed by around 50000 students at Uppsala University. The heuristic evaluation performed in this study involved the identification and analysis of usability problems based on a set of heuristics.

Moreover, guidelines or recommendations were made based on identified problems by evaluating the interface using Nielsen's heuristics [22]. The findings of this study will help designers in the development of a more usable interface of student portals and university websites. This study will provide guidelines to the researchers and practitioners for evaluating education institutions and study portals. This will also help designers designing university websites and student portals.

1.2 PROBLEM STATEMENT

University websites are the main source of interaction for everyone who wishes to get educational information. And for the students, student portals are the main source of interaction with their study material [26]. Therefore, it is very important for student portals and websites to be checked for usability problems. Being a student at Uppsala University, its own student portal was the priority to be checked for usability.

According to the person responsible for the evaluation of the accessibility in Uppsala University Student portal, their team has made some improvements in usability but since it is an old system there are a lot of features that have not been improved. They use software like Siteimprove, Wave, Lighthouse, and accessibility insight to check the pages and see what needs to be changed. As the usability team does not follow any specific evaluation method to evaluate the system this study

was planned to evaluate the portal with a specific evaluation method.

1.3 RESEARCH QUESTIONS

Heuristic evaluation has been used by many researchers to evaluate e-learning websites. However, research efforts to confront the problems in e-learning context are scarce [2]. A little was found in the literature that special heuristics or principles were being applied in academic institutions. Particularly a great proportion of the employed principles and heuristics has been built based on ISO standards or Nielsen's heuristics [14].

Research questions for this study are as follows:

1. What are the usability problems and issues identified in the Uppsala University student portal?
2. What are the guidelines for solving those usability problems?

2. LITERATURE REVIEW

[16] reported that usability is included to be one of the significant quality factors for web servers and applications. A system is said to be usable if it either have the qualities like efficiency effectiveness, and user satisfaction or it does not have usability problems. Typical examples of usability methods, which are used for evaluation, cognitive walkthrough, and heuristic evaluation. Both methods include experts inspecting the user interface and identifying problems users face while interacting with it [15]. Usability evaluation method is specifically crafted for the evaluation of web servers and networks that also support design procedure. HCI is concerned with the practice of usability that is capable to evaluate the simplicity of utilizing a software or interface to perform specific activities. Enhancing the communication among consumers and computer devices is the major objective of the HCI process which can be attained by improving the usability and effectiveness of the systems that contain web servers, networks, and computer systems. The recent literature determined that usability is a major part of the HCI process which is mainly used to measure the effectiveness and utilization of the proposed web servers or applications [17].

It is significant that the user interface is developed to be usable and effective so that the level of performance and effectiveness can be improved. The effective user interface can be obtained by collecting information related to the consumer's requirement before implementing the design and collect feedback from the users to reduce the problems and improve effectiveness [18]. [6] defined usability as a broad concept that helps to review the effectiveness of HCI systems and how proposed systems can be utilized for the business operations. There are five major quality elements that may be included for defining usability in the case of the learning portals and websites such as learnability, efficiency, memorability, errors prevention, and satisfaction. [19] determined that usability is a significant measure of how consumers operate the web applications to attain their activities or goals.

The developed university portals need to deliver effective access to the students by which goals can be attained effectively. The researchers determined that Heuristic evaluation is a significant technique used for finding the usability concerns or problems in user interface design [21]. It helps the evaluators to evaluate the user interface and identify the usability problems of such systems. [24] studied the usability attributes in the web applications and reported that heuristic is one of the significant approaches used to evaluate the usability of web applications and servers effectively.

Heuristic usability evaluation can be used for evaluating the effectiveness and performance and reviewing the quality of user interfaces [7]. There are various benefits of heuristic evaluation for example ease to utilize, low cost, more effective, and reliability [25]. From the heuristic principles, it is highlighted that complexity among users and computer devices needs to be addressed so that the problem of proper responses can be managed easily. [5] found that in the academic websites, the effective user interface is required to avoid the complexity in overall process of accessing important information.

[12] highlighted that the 10 principals of heuristic evaluation are beneficial for the evaluation of a university website and student portal. These heuristic principles contain numerous points such as the visibility of system status, match among the real world and structure, user control and freedom, consistency and standards, error prevention, recognition, flexibility, aesthetic and minimalist UI, help consumers to recover from errors, help, and documentation [8]. All these principals are included in this research and evaluated effectively for reviewing the usability and effectiveness of the Uppsala University portal. So, it is highlighted that heuristic evaluation is a significant approach used in the research for completing the evaluation process, and the previous studies provided complete data related to the usability and heuristic evaluation.

3. RESEARCH METHODOLOGY

The heuristic evaluation was used as a research method. Heuristic evaluation is not only fast and

easy to use even for novice users but it is the most effective method when compared with action analysis and cognitive walkthroughs [20]. As far as evaluation of education websites and study portals is concerned, very little was found on literature regarding any specific heuristics or principals to evaluate these kinds of systems. Meanwhile, a major portion of employed principals and heuristics were based on Nielsen's heuristics and ISO [2]. [5] and [2] were the motivation behind choosing Nielsen's heuristics among so many evaluation methods. This method is criticized as the evaluator's perspective is mostly the reflection of expert opinion instead of the actual users. To solve this problem students at Uppsala university were also included in the evaluation process along with the evaluators having experience in usability and design. Another advantage of involving end-users is that they are the students at Uppsala university hence well familiar with student portal.

The evaluation process includes the examination and judgment of the user interface whether the user interface is designed according to the heuristics [11].

This study consists of the following steps for heuristic evaluation.

- Evaluators were presented with the survey questionnaire for heuristic evaluation individually,
- Each evaluator evaluated the UI individually,
- There was a debriefing session between the researcher and the evaluators to discuss the issues.

Usability problems identified by the evaluators were noted down. The same types of problems expressed in different ways were given a description. Problems and heuristic violations are categorized. Evaluators inspect the interface alone and go through the inspection multiple times. They should not express their own feelings about the interface before the completion of overall evaluation to sustain the evaluation integrity and data independency [4].

3.1 PILOT STUDY

A pilot study has been conducted prior to the actual evaluation with one of the students in informatics and media department of Uppsala university. The purpose of the pilot study was to assess the feasibility of the whole process. It was helpful in time estimation of the evaluation process. Few changes were made after the pilot study. We considered Nielsen's ten heuristics while preparing the survey questionnaire. After pilot study it was concluded that most of the questions are redundant. Redundancy was removed after pilot study. Questions format was also review after pilot study. Hence pilot study helped us increasing the likelihood of the success of the main evaluation process.

3.2 RESEARCH APPROACH

The exploration approach is categorized into various types for example inductive and deductive [23]. For this investigation, the deductive approach was used. Such type of approach is beneficial for this research because of its effectiveness and appropriateness. It helps to establish links between the objectives of the research and the findings derived from raw data. According to [9] deduction is from general to specific; arguments based on widely accepted principles, rules and laws are best expressed deductively.

3.3 PARTICIPANTS FOR THE STUDY

For evaluating the usability of the Uppsala University portal, the heuristic evaluation method has been conducted through a survey based on 10 principals of heuristic evaluation. Online social media such as Facebook was used to recruit the participants for this survey. Recruitment of participants through online social platform is much cheaper and faster. Further it is comparatively easy to access to the desired target group [10]. People having experience in usability and design were contacted through personal links and references. They were contacted through direct message and calls. The survey was also circulated among the students in Uppsala university. Participants' approval was gained to include them in the research. They were informed that their data will be used only for study purpose and they will be treated as anonymous. 22 Uppsala university students were contacted as they already had the access to the student portal and familiar with its usage. 16 of them participated in the evaluation process. 4 industry professionals having expertise in design, usability, and evaluation were also contacted through social media. A total of 20 participants participated in the study who provided their viewpoints about the usability of the Uppsala University student portal and its effectiveness. There was a debriefing session before and after the evaluation process. In first session they were explained about the evaluation process. They were asked to complete two sequence of tasks. 1. Access the online library and download a research article. 2. Go to a registered course and download a lecture for that registered course. Purpose of assigning these two tasks was to make them familiar with the portal and access its usability. After completing these two sequences of tasks they were in better position to evaluate the portal and find out the usability drawbacks.

3.4 DATA ANALYSIS

Various methods and tools are included in the data analysis such as Excel, statistical analysis, content analysis, and SPSS [3]. In this study, the descriptive statistical analysis was used for interpreting the obtained information or data. Moreover, Microsoft Excel was also selected for representing the findings through various charts, tables, and graphs. So, such methods were appropriate and effective for this research to address the questions and attain objectives within the desired time [1]. We have first sent out a survey to the participants. Survey questionnaire was designed based on heuristics mentioned by Nielsen. According to Nielsen these ten principals are rule of thumb for usability [13]. Nielsen's principals for usability are as follows: visibility of system status, match between system and real world, user control and freedom, consistency and standards, error prevention, recognition rather than recall, flexibility and efficiency of use, esthetic and minimalist design, help user recognize, diagnose and recover from errors and help and documentation. The designed questionnaire was based on the above-mentioned principals of usability. Participants were given access to the student portal to perform few tasks to access the usability of the student portal based on the above-mentioned heuristics.

4. RESULTS AND ANALYSIS

It was found that 67% of participants are below 3 years experienced about usability and heuristic evaluation. On the other side, 17% of the individuals are above 3 years and the rest of them are below 1 year experienced but that also helped to obtain reliable points and findings of heuristic evaluation and usability approach. They were asked questions about Nielsen's principals of usability. Summary of the findings is below:

4.1. Visibility of system status

It was determined that 35% of the members reported that the Uppsala university portal hardly informs consumers about what is going on using proper feedback. Feedback means how well the state of the system is conveyed to the user or how well the system notifies in response of a user interaction weather the interaction was successful or unsuccessful. 30% of them reported that the portal provides feedback some of the times. 15% of the members reported most of the time management to provide feedback, 10% of them agreed that the portal always delivers feedback and 10% of them disagreed with the included statement. So, it is demonstrated that most of the participants agreed that the student portal helps the users to get effective feedback on a regular basis and it is beneficial for the daily updates.

As far as quality of feedback is concerned 40% of the participants highlighted that the provided feedback was acceptable, 20% of them reported it was appropriate, 25% of participants highlighted it was very appropriate. However, 10% of members stated inappropriate and 5% reported completely inappropriate. So, it is analyzed that the given feedback to the students was acceptable and appropriate by which the performance can be evaluated in a significant manner.

Participants were then asked about their opinion about the response time of the system. It was hard to judge the exact timing of each interaction sequence that's why researcher preferred to have their opinion about the timing of feedback. 5% of the participants reported the timing of the system feedback as very fast, 40% of the participants highlighted it as fast, 30% of them reported as reasonable and 25% of members highlighted as slow. Overall, it is demonstrated the timing of system feedback is fast, but a reasonable number of participants found that there was delay in timing of the feedback generated by the system.

4,2. Match between system and the real world

It was determined that 30% of the members reported that the language used in the student portal was technical but 30% of them highlighted that there was a reasonable amount of technical words used in the portal. 25% of the participants reported that the included language is very normal and only 15% of members highlighted the language as highly technical. So, it is found that the language used in the student portal was technical.

4.3 User Control and freedom

83% of the members agreed that the student portal provides the required navigation buttons while 17% of them disagreed with this statement. Therefore, it is analyzed that the student portal helps the users to get navigation buttons by which they can move to the previous or next page and also move to the home page effectively.

63% of the members agreed that every page in the student portal had an emergency exit to leave the page while 37% of members disagreed with this point. Overall, it can be said that the Uppsala University portal provides a way where the users can directly leave the page and come to the home screen but sometimes the users face difficulty doing so.

It is demonstrated that 89% of the members reported that the student portal provides shortcuts when required. 11% of them reported that the shortcuts are not much effective. Rather they must go step by step to complete any task. Therefore, it is significant to manage and include effective

shortcuts so that users can access study materials in less time.

It was found that 60% of the participants agreed that the students were able to undo and redo tasks in the student portal while only 25% of them disagreed with this statement. However, 15% of the members stated that they were able to undo and redo tasks some of the times, the developed portal is not able to provide redo related opportunities, Therefore, it is analyzed that the student portal mainly provided undo related activities to the students but not helps to redo the tasks regularly.

4.4 Consistency and standards

40% of the participants strongly agreed that the screen layout, graphics, menus, and color were consistent throughout all the pages. 35% of participants agreed that the screen layout is consistent in all the pages. But 25% of the participants disagree with the statement that the screen layout, graphics, menus, and color of all the pages were consistent. Therefore, it is analyzed that these should be improved, and more graphics should be included for attracting the users and satisfying the consumers.

4.5 Flexibility and efficiency of use

It is determined that 78% of the members agreed that the student portal delivers shortcuts for experienced consumers i.e. function keys and shortcut keys by which the operations can be performed faster. However, 22% of the participants disagreed that the portal delivers shortcuts for experienced users. It should be improved so that the skilled users can get their tasks done in efficient way.

4.6 Aesthetic and minimalist design

37% of the members agreed and 37% of them strongly agreed that pages contain relevant information in minimum screen elements. On the other side, 16% of members disagreed and 5% strongly disagreed with this statement and highlighted that the pages need to include effective information.

It is found that 50% of the members agreed, 5% of members strongly agreed that the graphical menus and instructions are meaningful. On the other side, 25% of the members disagreed that the provided graphical menus and instructions are meaningful. So, improvement in menus and taskbar should be made so that the level of performance can be enhanced.

It is found that 55% of the participants agreed and 5% of them strongly agreed that the text buttons are logical and simple to understand by which the users can easily perform operations and activities. On the other side, 15% of the members disagreed with this statement and reported that the included buttons are not much effective that do not include proper information and require more effort.

4.7 Help users recognize, diagnose, and recover from error

It was determined that 25% of the participants reported that system always promptly notifies the user when an error is detected, 50% of the participants reported that the system usually notify when any error occurs, 15% told they rarely found the error notification and only 5% of the members disagreed with this argument. Therefore, it is highlighted that the included programs and algorithms are capable to provide information to the users when any error occurs in the system and server.

21% of participants highlighted that it was very easy for the users to move backward when an error occurs, 32% reported as easy while 26% of them reported neither easy nor difficult. However, 21% of members reported that sometimes it is difficult to move backward when an error occurs which can produce complexity and problems for the users.

At the end participants were asked to provide overall rating to the usability of student portal. 50% of the participants provided 4 ratings to the student portal and 15% of members reported 5 ratings out of 5 that shows that the developed student portal is effective and reliable. However, 35% of the members reported rating 3 out of 5 which shows they do not think the usability of student portal is up to the mark. Interface elements need to be improved to make the portal highly usable.

The conducted survey provided significant responses regarding the usability of the student portal and helped to enhance research quality. Overall, it is demonstrated that the heuristic evaluated helped to evaluate the performance and usability of the Uppsala University student portal.

5 USABILITY PROBLEMS OF UPPSALA UNIVERSITY PORTAL

The usability of Uppsala University student portal was evaluated by the end users and the usability experts recruited in the research. There are various problems identified from the Uppsala University portals which are highlighted below:

- Less flexible in terms of usability and interaction
- Usually provides notification to the students if any error occurred but not always.

- Does not always provide efficient and fast ways to perform the tasks for expert users.
- Less effectiveness, in terms of the user interface, menus, and icons
- Provide fewer shortcuts and common actions
- Does not deliver more detailed feedback
- Problems linked with helping messages and notifications.
- Does not provide easy ways of error correction if someone makes an error.
- Lack of consistency between pages, graphics, and menus.

Therefore, all these are major problems identified from the Uppsala University student portal are needed to be addressed to enhance the usability and effectiveness of the student portal.

To find severity rate, we asked the participants to provide usability rating to the portal. It is found that 5% people gave 5 rating out of 5 to the portal, 50% of the participants gave rating 4 which shows that the proposed portal has minor problems that need to be addressed. 35% participants gave usability rating of 3 to the portal which means they experienced many usability problems when they evaluate the student portal according to Nielsen heuristics during heuristic evaluation.

So, the identified usability problems are genuine but need to be improved and addressed to enhance the usability of student portal. From the viewpoints of the participants and experts we have found various usability problems linked with the student portal.

6. GUIDELINES FOR SOLVING USABILITY PROBLEMS

After reviewing the usability problems and issues linked with the student portal, following usability guidelines are suggested to improve the performance of the portal. These guidelines or recommendations are based on the results of heuristic evaluation performed in this study,

- To enhance the communication among the users and student portal, it is suggested that the portal should cater to both advanced consumers and novice users through function keys and shortcut keys for performing activities effectively.
- It is significant for the student portal to alert the students if any error occurs and provide notification about the errors and problems.
- For providing the larger flexibility, it is suggested to provide the students with the possibly to cancel the actions and provide proper interactions with the portal.
- For delivering effective assistance to the users, it is suggested that the student portal offers some recommendations to support the students for solving the problems and errors.
- For the effectiveness and flexibility of the utilization of the student portal, it is suggested that significant icons and menus are added that can enable the users to select options in less time.
- To deliver larger flexibility, it is significant to deliver reliable and effective user interfaces so that the performance can be enhanced.
- It is suggested that helping information and notifications may be offered every time so that the students can get proper notification and information about their study materials.

7. ETHICS

While performing this research some ethics were kept in mind. A consent was taken from the participants of heuristic evaluation. They were informed that this study is for educational purpose and part of a master's thesis. All the participants and their information were kept anonymous. However, they were free to withdraw from the research during any phase of research. They can even withdraw themselves after the completion of the heuristic evaluation. Their data was secure and will never be used by any third party.

8. LIMITATIONS

The researcher acknowledges that this study has some limitations. Actual results may vary if this study was done without these limitations. First, all the participants were recruited through social media i.e. Facebook and WhatsApp. They were instructed about the heuristic evaluation online. Due to covid-19 it was hard to meet all the participants. So, the only way to contact usability experts and students was through online sources. Secondly, they were told to perform two sequences of tasks to evaluate the portal and after that they were asked to answer the survey questions. There were no motivations behind choosing these two tasks. The purpose behind selecting these two tasks was to avoid the participants from being confused what to do. Performing evaluation with two different tasks may also affect the results. Researcher helped the participants during survey if they were confused with the questions or

terminologies used in the survey. Few questions were generic because they cover 2 to 3 aspects of heuristic principals in them. They were kept in this way to minimize the length of the survey. Around 80% of the participants were the students at Uppsala university who were already familiar with the student portal. Their previous understanding and familiarity with the student portal may also cause biasedness.

9. CONCLUSION

From this investigation, it may be concluded that heuristic evaluation is a significant method that helped to evaluate and review the Uppsala University student portal. This research determined and evaluated the usability of the student portal and identified the usability problems. It is found that heuristic evaluation is an appropriate process that provided a way to review and identify the problems linked with the student portals and study related platforms. As compared to previous studies, this research provided in depth information and helped to evaluate student portal or websites through heuristic methods. The developers need to focus on the performance and effectiveness of the web servers and student portal so that the students can get effective and reliable responses.

It is determined that the user interface provided effective design to the student portal for leading performance and effectiveness, but the navigation buttons and error detection processes need to be included so that performance can be enhanced. To enhance the communication among the users and student portal, it is suggested that the portal should cater to both advanced and novice users through keyboard function keys and shortcut keys for performing activities in efficient way. For the effectiveness and flexibility of the utilization of the student portal, it is suggested that significant icons and menus are added that can enable the users to select options in less time.

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APPENDIX

SURVEY QUESTIONS

Q# 1 What is your age?

Options	Response Percentage	Responses
Below 20	6%	1
20-24	28%	5
25-30	61%	11
Above 30	6%	1
Total Responses: 20	**Answered Responses: 18**	**Skipped Responses: 2**

Q# 2 What is your gender?

Options	Response Percentage	Responses
Male	69%	11
Female	31%	5
Total Responses: 20	**Answered Responses: 16**	**Skipped Responses: 4**

Q# 3 How many years of experience do you have in usaibility and heuristic techniques?

Options	Response Percentage	Responses
Below 1 years	17%	3
1 to 3 years	67%	12
Above 3 years	17%	3
Total Responses: 20	**Answered Responses: 18**	**Skipped Responses: 2**

Q# 4 UU portal informs user about what is going on through proper feedback?

Options	Response Percentage	Responses
Never	10%	2
Hardly Ever	35%	7
Some of the times	30%	6
Most of the times	15%	3
Always	10%	2
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 5 Was the feedback given Appropriate?

Options	Response Percentage	Responses
Completely Inappropriate	5%	1

Inappropriate	10%	2
Acceptable	40%	8
Appropriate	20%	4
Very Appropriate	25%	5
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 6 Timing of system feedback?

Options	Response Percentage	Responses
Very Slow	0%	0
Slow	25%	5
Reasonable	30%	6
Fast	40%	8
Very Fast	5%	1
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 7 How do you rate the language used in UU student portal?

Options	Response Percentage	Responses
Very Natural	25%	5
Reasonable amount of technical words	30%	6
Technical	30%	6
Highly Technical	15%	3
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 8 I was able to undo and redo my tasks

Options	Response Percentage	Responses
YES	60%	12
NO	25%	5
Some of the times	15%	3
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 9 Portal provides the required nevigation buttons. (Previous, next, home)

Options	Response Percentage	Responses
YES	83%	15
NO	17%	3

Total Responses: 20	Answered Responses: 18	Skipped Responses: 2

Q# 10 Each page had emergency exit to leave the page

Options	Response Percentage	Responses
YES	63%	12
NO	37%	7
Total Responses: 20	**Answered Responses: 19**	**Skipped Responses: 1**

Q# 11 Shortcuts were available when required

Options	Response Percentage	Responses
YES	89%	17
NO	11%	2
Total Responses: 20	**Answered Responses: 19**	**Skipped Responses: 1**

Q# 12 Do you agree that the screen layout is consistent in all the pages and graphics, icons and color are consistent in all the pages?

Options	Response Percentage	Responses
Strongly Agree	**40%**	**8**
agree	35%	7
Disagree	25%	5
Strongly Disagree	0%	0
Neutral	0%	0
Other	0%	0
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 13 The system promptly notify the user when it detected the errors. What do you think?

Options	Response Percentage	Responses
Always	25%	5
Usually	50%	10
Sometimes	5%	1
Rarely	15%	3
Never	5%	1
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 14 Is it easy to step back when error occurs?

Options	Response Percentage	Responses
Very easy	21%	4
Easy	32%	6
Neither easy nor difficult	26%	5
Difficult	21%	4
Very difficult	0%	0
Total Responses: 20	**Answered Responses: 19**	**Skipped Responses: 1**

Q# 15 Are provided graphical menus and instructions meaningful?

Options	Response Percentage	Responses
Strongly agree	5%	1
Agree	50%	10
Neither agree nor disagree	20%	4
Disagree	25%	5
Strongly disagree	0%	0
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 16 Are text buttons logical and easy to understand?

Options	Response Percentage	Responses
Strongly agree	5%	1
Agree	55%	11
Neither agree nor disagree	25%	5
Disagree	15%	3
Strongly disagree	0%	0
Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 17 Portal provides shortcuts for experienced users i.e function keys and shortcut keys?

Options	Response Percentage	Responses
Yes	78%	14
No	22%	4
Total Responses: 20	**Answered Responses: 18**	**Skipped Responses: 2**

Q# 18 Do you agree that pages contain relevant information in minimum screen elements?

Options	Response Percentage	Responses
Strongly agree	37%	7
Agree	37%	7
Neither agree nor disagree	5%	1
Disagree	16%	3
Strongly Disagree	5%	1
Total Responses: 20	**Answered Responses: 19**	**Skipped Responses: 1**

Total Responses: 20	**Answered Responses: 20**	**Skipped Responses: 0**

Q# 19 Please provide rating to the Uppsala University student portal (1 for below average and 5 for excellent)

Options	Response Percentage	Responses
1	0%	0
2	0%	0
3	35%	7
4	50%	10
5	15%	3