Usability Analysis of University Websites in Pakistan

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Abstract

Usability analysis of a website determines how easy it is for the user to navigate between the pages, find information of interest, and his overall experience of the usage. Good website design is focused on the user experience. Usability is one of the major factors deciding the product's value. It can decide what value the product holds for its user hence the importance of website usability cannot be ignored. In this research, we have used different, manual, and automated heuristic evaluation methods to determine the usability of different Pakistani University websites. Our main goal is to provide some insight on the usability of these University websites as no such work has been done in the past on this. We evaluate a system based on heuristic evaluation and usability standards to measure its score. We also conducted an online survey on University students to get their feedback on their University website. We concluded that the user experience of most of the University websites in Pakistan fails from the usability perspective and students usually have to face a hard time finding the relevant information.

Keywords: Formal Modelling, Web Services Composition, Model Checking, heuristic evaluation, usability analysis

1. INTRODUCTION

Usability for a website is an important factor in determining how easy the website is to use for its viewers. It is the major factor that decides the overall user experience of the product, if ignored, can be very costly [1]. It is something crucial to strive against competition and to increase the overall user population [10]. The impact of a website cannot be measured without

considering its usability and the lack of it can cause problems for integrating it in society [13-14]. Since Web conventions 2.0, the usage of the websites has been changing, the web has evolved but our standards remain the same. Many of the recognized websites don't follow these standards, individuals using the sites are certain to find hardships in using them and It is nearly impossible for the disabled to get access to any educational material

through online websites, due to lack of any standardization and not following the W3C standards [5,15]. Even though more than 50% of the disabled population lives in Punjab, they have very less information access [7]. This is a major problem and can be easily solved by making university websites have a better design. There is a lack of adoption in e-government services, this is due to the lack of citizens knowledge, the respondents hold positive reviews when provided a better interface whereas hold negative reviews for unpleasant and hard to use interface which is interesting because such interface can force users to withdraw from online access and this lack of knowledge may never go away [22]. The adoption speed of websites is low because of factors like low internet rates, trust, user knowledge, and user preferences [6]. So how can we improve usability? Overall, there are many usability evaluation methods used. These methods depend on how much time and money we have to make an impact on the interface. Which, when on a smaller scale, can be sometimes very hard to manage. Usability is sometimes not the only thing we are concerned with when designing and interface. Something visually appealing can attract more customers but may not have higher usability [3]. Based on an empirical analysis of the websites by a set of well-defined rules, and the time gap between the updates on the websites it can be concluded that the changes required in them are not as costly, and don't require a lot of time. Different variables impact usability. Age is an important factor; we usually have a focus group for usability testing [4]. For example, a site targeted towards students and teachers should remember

what their main audience is. The designers should consider how likely is the audience is to use their site.

The Internet is the easiest way to spread and get information. For countries who are striving for progress, Like Pakistan, the Internet is one of the most valuable resources. The Internet is now available nearly everywhere in Pakistan, and nearly everyone uses it to get information. But the university websites are rarely used to get information. Most people prefer to go to university just to know the courses and fees. Which is mostly caused by low usability rates of the websites. Most of the HEC recognized University websites do not follow any usability standards. The interface is sometimes very hard to navigate for a novice user. The website is not designed by taking into consideration the kind of user population it will be used by. The Usability of the websites is for the most part ignored, Which in turn results in a lack of overall user population on the website. Few people use it and it forces students and teachers to seek help elsewhere which then damages the overall reputation of the university. Most users prefer to remain at home, be notified if possible through a website. It is also very important that they can get to the information they are looking for without putting a lot of effort in navigating and searching.

The problem this research will address is the issues related to the usability of the higher education institutes websites of Pakistan. This paper has considered 10 very basic usability issues that websites commonly have and measured the results. Furthermore, heuristic evaluations have been performed and

gathered user feedback for the university websites.

2. LITERATURE REVIEW

Web usability has had an increase in studies in recent years. Achieving higher usability for a website under a certain budget is not an easy thing. Agility has to be sacrificed to achieve higher usability or vice versa. Which in turn expresses an issue with trying to achieve high usability, that it costs too much time. Increased usability will always slow down the production of the software and will slow down the agile method [8]. But User experience is also very important when it comes to usability. User experience improves if a user uses an application with a similar design [9]. This implies that a drastic change in the website design has a negative impact on usability and user experience. A web user needs a search bar on every page he visits. He will always need links to related content and he must be able to recognize these links very easily [10]. The website usability is highly related to good user experience. There are different kinds of user types even on the website's enthusiasts, adopters, and non-adopters and we want to reduce the number of non-adapters and increase the adopters as much as we can [12]. To achieve this goal, we cannot just make a website look more aesthetically pleasing but instead, we want it to have some higher usability because aesthetics and usability are not interchangeable [3]. Measures the usability of university websites in relation to attractiveness, controllability, helpfulness, efficiency, and learn ability [2]. The study shows that four of these five factors are positively related to the usability

experience of the website, while, hypothesis 2, that usability is positively related to controllability is not accepted. It also reveals that gender plays a significant role in web usability by showing us those female students found the websites more usable than male students. it also measures the relationship between a user's age and usability. The study showed that the participants who were more experienced were harder to be satisfied with the usability of the website [23]. Measured the score for the usability of the university sites of Saudi Arabia. It Concluded that the usability of the university websites of Saudi Arabia has a good usability score considering the seven Heuristic Evaluation principles. [1- Visual Design and Consistency, 2- Links and Navigation, 3- Data Entry Forms, 4- Information, Truth and Precision, 5- Privacy and Security, 6- Search Functionality, 7-Help Feedback, and Error Tolerance]. It also concluded that government websites have a higher usability score than the private university websites that investigates the university ranking system (known as Eduroute) [24]. And checks if this ranking system provides any useful information regarding the usability of the university websites. it gathered the information about the top 3 university websites by using heuristic evaluation. It also investigated the most visited pages from surveying 237 students. The research concluded that the ranking of the website was related to the usability of the website. The highest-ranked website had the least usability issues. The research also highlighted the 14 issues that were commonly found on university websites. Uses usability heuristics for measuring the usability of Thai academic websites and US

academic websites. and compares the results. They check four public universities from both countries They used a checklist that was divided into four sections. Finding information, understanding information, presenting the information, and supporting the user tasks. Each guideline from the checklist was presented as a yes or no question.

The study found that US websites have higher usability indexes than Thai websites. Thai websites had additional problems. It also found that the web design style issues were very different between Thai and US websites. Used the 10-heuristic evaluation method to measure the score for the websites of Hellenic Open University. The study identified 38 usability problems. That is related to, Lack of navigational links, inconsistency problems, Search tool problems. And inappropriate menu design Similarly measures the usability issues of the academic marketing department at the University of South Africa, the study uses Heuristic evaluation methods for determining usability issues. They used two evaluators for the websites and according to the evaluator's scores, the usability problems were identified. The test was divided into 5 categories, 1) Content, organization, readability, 2) Navigation and links, 3) User interface and design, 4) Performance and effectiveness, 5) Educational information. The lowest score was given to the questions related to category 5. For example, how easy it is to access the registering page and how easily can we register for the semester., and how much information website provides about what the courses are and who is teaching these courses, etc. investigates the usability issues related

to the Harvard University website. It uses 10 heuristics. It identifies many usability problems with the website. These issues were too much scrolling on internal pages, inconsistent navigation scheme, duplicate search engines, no breadcrumbs, or any other method used to allow users to see where they are, inappropriate design for the homepage, and an inconsistent color scheme for the website. Analyzed the websites of the tourism departments of universities.

The study analyzed websites of 102 vocational school of 30 universities. The study showed that state university websites are more functional and have more features compared to private universities. The study also found that the websites of tourism departments were independent of the institution, and was updated by the lecturers. It also highlighted the usability issues, like no internal search function, no option to present content in a foreign language, and a lack of important information on the website. Investigates the student's satisfaction with academic websites. more than 10% of the college population responded to the survey. The study found that 89% of the students agreed that they are satisfied with the website. 93% of students agreed that information is useful, 88% on that the site is easy to use, 53% of the students agreed that the search function is effective. Investigates the usability of three Jordanian University websites. the study evaluates the usability of three large public universities. Using the heuristic evaluation method. It found 34 common usability problems. These problems included weak navigational support, misleading links, broken links, orphan pages, inconsistent design,

inappropriate color choice, old or incomplete information, Punctuation errors, and communicational problems identifies the most important and least important features in a university site. From out of 62 website elements the most important elements the students need on a university site are 1) Online admission form, 2) A search tool, 3) Simple and readable text, and 4) current resources. And the least important features on a university site were 1) The site's purpose statement, 2) History of excellence, 3) Business and Interests, and 4) Link to the region's weather. It also highlighted the fields that students require and don't require on the university website. Explores the information-seeking methods that the web users commonly use. And how easy it is for them to find information online; this study gathers the data from 48 students and concludes that the most searched item on the university is the Online course registration. And most students preferred to use hyperlinks instead of using search capability provided on the website. The most liked attributes in a website were, 1-Simple layout, 2) Useful information, 3) Easy to follow menu options, 4) Good use of graphics and color, 5) Simple yet comprehensive menu, 6) Well organized information, 7) Easy transition between pages, 8) Easy navigation, 9) Visually appealing, 10) User friendly and the least liked attributes were, 1) Outdated links, 2) Incomplete and outdated information, 3) Difficult search option, 4) Confusing menus, 5) Information overload on pages, 6) Inability to find information, 7) Cluttered and disorganized information, 8- Slow download-time, 9) Small fonts, 10) Not very intuitive. In this study, we will look

at some usability standards and see how many websites follow these standards. We will also devise some methods to score and compare different websites and measure their scores according to their categories as defined by the Higher Education Commission. We intend to provide some insight into the issues relating to low website credibility, error rates, usability issues, and user trust over the websites. Our objectives can be divided as, 1) Provide some insight into the general usability problems that the websites have. These problems can be seen by creating some empirical methods to test and compare the usability scores of different websites 2) Perform a heuristic evaluation on the websites and measure in which phases the websites fail. 3) See how university categories relate to usability standards and Heuristic Evaluations. 4) Get User feedback based on the student's reviews about their university website. 1.3 Approach. This study uses a list of websites of HEC recognized universities and compares websites with 10 basic usability standards which are nearly used by every site to make it more usable and simpler as possible. These include things like Breadcrumbs and Search Capability. We gave a score out of 10 based on if the site has followed this standard or not. Every site will get a score out of 10 points.

The rest of the paper is structured as follows. In section 2 some preliminaries are explained that are required for an understanding of the problem under discussion.

TABLE 1. Usability standards used for the evaluation of university websites.

No	Standard
1	See if Breadcrumbs are available on websites internal pages.
2	Does the Hyperlink color change when it is clicked?
3	Does the university logo redirect to the home page?
4	Are All text links blue? (or any shade of blue).
5	Is Website Search Capability provided on the home page?
6	Are all text links underlined?
7	Does the website not require horizontal scrolling in the browser?
8	Is there a Home or Return button available in the internal pages? (Image or a text link)
9	Is Splash Page not being used for the website
10	How well the website has been optimized for the search queries (Search Engine Optimized)

We also used the Heuristic Evaluation method to identify the usability problems with the university websites [34]. It was performed on about 150 websites. the scores are given in the appendices table. We performed a couple more evaluations and combined our results to get the overall score for each evaluation, for example, to get the score for Visibility of System status, we combined the scores of color link change, bread crumbs and performed another evaluation If navigation showed on which page the user is, and we combined the score of these evaluations into one. We did this for all 10 evaluations performed on the websites. and generated a single score to represent each Evaluation.

TABLE 2 Heuristics used for evaluation of university websites.

No	Heuristic Evaluation
1	Visibility of System Status
2	Match Between system and the real world
3	User control and freedom
4	Consistency and standards
5	Error prevention
6	Recognition rather than recall
7	Flexibility and efficiency of use
8	Aesthetic and minimalist design
9	Help users recognize, diagnose, and recover from errors
10	Help and Documentation

Secondly, we gathered feedback from university students. We used Google forms to conduct get feedback. We gathered responses from students from different universities. And asked as many students as we could. we kept the survey short and asked 6 questions. These 6 questions were based on the usability related issues that we faced in our testing phase.

TABLE 3 User feedback questions.

No	Questions
1	How often do you visit your university website?
2	What was your main method of finding the information on the website?
3	How easy it is to find the information you are looking for?
4	What tools do you use to find information on the website?
5	Rate your university website out of 10?
6	Your overall experience with the university website?

3. RESEARCH METHODOLOGY

3.1. Manual Testing

In the manual testing phase, we will use a set of 10 usability standards and give scores based on that. We will mention how each usability standard was measured and how the score was given based on what conditions and reasons. After that, we will perform a Heuristic Evaluation on the websites. There are a total of 10 usability standards that were mentioned in Table 1. Based on these, we will give scores to the websites. The table with full results is added in appendices at the end of the paper. For Heuristic Evaluation, we created a question table. Each evaluation represents an average of more than one test performed. For example, the Visibility of System status represents the average score of 3 tests that we performed on the site. It includes, the 1- If site has Breadcrumbs, 2- If the link color changes on click and 3- If the navigation shows the user on which page he is.

3.1.1 Breadcrumbs

Breadcrumb is a secondary navigation scheme that is used to help users to find their location through the website and reveals the location of the user on a website or web application. Not only on the web but also the other platforms we use this technique to find out or trace back to the original location in the environment. Websites with a large amount of data would usually use breadcrumbs to manage the data hierarchically. The idea of breadcrumbs is mostly made its best use for large websites that have large data and pages arranged hierarchically. It is useless to use breadcrumbs in single-level

websites with no grouping and hierarchy. A University website contains a lot of pages; a user can easily be lost in navigation. So, breadcrumbs are important on these websites. The breadcrumbs provide efficiency and easiness for the users. The users can more easily navigate to higher-level pages from deep downlinks. This is used as a secondary way of navigation. The user does not need to do more clicks to navigate to higher-level pages. Breadcrumbs have been a usability standard for a long time. The sites with complex architectures use breadcrumbs to simplify their navigation and make better user experience. Now we will observe how much this standard is followed by the university sites.

TABLE 4. Statistics for breadcrumbs used.

Category	Websites with Breadcrumbs	Websites without Breadcrumbs
Agriculture/Veterinary	1	5
Art & Design	2	0
Business Education	2	10
Computer Science & IT	3	4
Engineering and Technology	6	8
General (Large)	7	10
General (Medium)	3	12
General (Small)	8	15
Medical	4	9

Figure 1: Percentage of breadcrumbs used in University websites.

3.1.2 Redirecting to the home page by Clicking on the Website Logo

This has been an industry standard for a very long time. Users will mostly expect something to happen by clicking on the logo. Usually, any semantic that represent a lot of information would include a hyperlink which will redirect to its details. The University's logo is also a word. And it represents the university so it should redirect to its page. Users will expect the logo to redirect to the home page, even before they look for a home button they will try to click on the logo to redirect. The developers add this link to make browsing the website a little easier. When designing a website, people will use either this redirection or by adding a home button somewhere on the website. But adding the link is also very important otherwise it is just wasted potential. Sites like, google, yahoo, Bing, Facebook, twitter follow this standard.

TABLE 5 Home link statistics for University

Category	Websites with Home Link	Websites without Home Link
Agriculture/Veterinary	5	1
Art & Design	1	1
Business Education	11	1
Computer Science & IT	5	2
Engineering and Technology	13	1
General (Large)	15	2
General (Medium)	12	3
General (Small)	17	6
Medical	10	3

Figure 2: Percentage of Home Link in University websites.

TABLE 6. Statistics of search capability in Web

Category	Websites with Search	Websites without Search
Agriculture/Veterinary	2	4
Art & Design	0	2
Business Education	6	6
Computer Science & IT	3	4
Engineering and Technology	12	2
General (Large)	9	8
General (Medium)	10	5
General (Small)	10	13

3.1.3 Search Capability

Searching has been a very efficient and time-saving method to perform a quick finding result which consists on a different type of action known as its capabilities, it can use to get keyword, title, or a number of a certain paragraph, article, page, section or book. It allows you to search for a term or number within a particular data field such as the number of papers, paper abstracts, author name, date of publication, meeting time, index terms, etc. An Advanced Search option form allows you to enter more than one term and

perform Boolean logic in search. It also can browse the technology papers category linking from broader categories to more specific ones. Search results can also be displayed by the relevancy set by the search parameters of the department. Search results can also link to the abstracts of each Technical paper, allowing you to choose which document is best to download for your usage to some extent and the search engine should handle empty queries gracefully. Sites like Hipmunk, ShopStyle, PadMapper, Wayback Archive, ZocDoc, Rent the Runway, Twitter, skype, NYmag.com perform the searching capabilities which help millions find their desire results.

The developers have added more features in search capability for the easiness of user which are, Concept matching uses to build conceptual understanding for content and ranked search results by relevance to the user's query at the moment. Automatic Summarization adds value to searching results by dynamically building and displaying summaries for each returned document, making it easier for users to identify the right document before they click to view it. With the help of the new Auto Recommend feature, it automatically builds hyperlinks between related documents based on its conceptual understanding of content, eliminating manual linking and maintenance. Direct Link Search Results feature takes users directly to the relevant section of a document, even extremely long documents, and large PDFs.

Figure 3: Percentage of Search Capability in University websites.

TABLE 7 Statistics of Splash page in a web

Category	Websites with Splash Page	Websites without Splash Page
Agriculture/Veterinary	5	1
Art & Design	1	1
Business Education	11	1
Computer Science & IT	6	1
Engineering and Technology	13	1
General (Large)	14	3
General (Medium)	13	2
General (Small)	21	2
Medical	12	1

3.1.4 Splash Pages

Splash pages just like a splash screen provide an insight into what your website is about and how will it be engaging its clients or users. Splash pages' load at the start of the website when users enter the address of the site in the browser. They are usually to attract visitors and get more traffic so usually made visually more attractive and eye-catching. Companies usually use splash pages to advertise their new products and get user's attention towards their new products.

The search engine looks at the text of the page to index it properly, the search engine will not be able to index these

pages so the value of the website degrades. Even if the page is indexable or contains no flash content, it can be a parasite for page value by a search engine.

TABLE 8. Statistics of Horizontal Scrolling

Category	Websites with Horizontal Scrolling	Websites without Horizontal Scrolling
Agriculture/Veterinary	1	5
Art & Design	2	0
Business Education	5	7
Computer Science & IT	3	4
Engineering and Technology	4	10
General (Large)	7	10
General (Medium)	6	9
General (Small)	11	12
Medical	6	7

Splash pages are very heavy for traffic because they provide high quality, eye-catching content to the visitors so use more data and take more time to load. So the user has to wait for it to completely download before doing any processing further. This is what frustrates the users and they try to avoid such sites. Ultimately in the loss of traffic to the website. Studies have shown that there is higher percentage of visitors who just leave the website after seeing the splash page than opening a standard webpage.

People may think that splash pages are beautiful but most of the users just ignore the splash pages and move on to the next one if the skip link is provided

or just bounce back (leave the website), so minimizing the site's value.

Figure 4: Percentage of Splash Pages on University websites.

3.1.5 Horizontal Scrolling

Web pages are supposed to contain many images, graphs, videos, etc. But the webpage is being viewed on a computer screen and not viewed as a printed page. Computer screens can have a wide range of screen sizes. Smartphones are also used to browse over the internet. A common mistake in website design is to increase the page width outside of the computer screen, which causes a horizontal scrollbar to appear in browser navigation. Any scrollbar itself degrades the user experience of the website. But if you have two scrollbars. The viewer will be scrolling more than reading information from the page. Vertical scrollbars are the norm, but having a horizontal scrollbar unless it is necessary is not good from a usability point of view [18].

But to make webpages adjust automatically to screen sizes. Which can be achieved by defining media queries for different screens sizes. which can become a hassle easily. But since the release of bootstrap, It has become a norm. and from a design perspective, we should keep in mind the

negative impacts of horizontal scrolling on a user.

Figure 5: Percentage of horizontal scrolling in university websites.

3.2 User Feedback

We conducted an online survey of university students and gathered information about how they use the university site. The survey was conducted using google forms. We created a form and asked students to fill the form, we gathered responses from students from different universities. And asked as many students as we could from different universities. we gathered responses from 20 different universities. we kept the survey short and asked 5 questions. These 5 questions were based on the usability related issues that we faced in our testing phase. The results are given below.

3.2.1 How often do students visit the university website?

This question represents ease of access of information on the website. Universities have noticeboards that contain all the required information a student would need for ongoing events and etc. the websites are rarely updated on new notice. So, this question represents how many times students would visit their university website.

Figure 6. Statistics for the Student visits on University websites.

From this user data, we can see that 50% of the students use this site once a month

or less. 24.6% or more used the website 1 to 3 days a week. 13% used it daily and 11.6% used it 4-6 days a week. More than 50% of the students preferred not to use the website for information. It represents that the information they are looking for is probably not available on the site. Or it is harder to reach than other sources. It represents usability issues on the website. And that students prefer other methods to get the information they are looking for.

3.2.2 What was your main method of finding the information on the website?

This question relates to how the students prefer to navigate between the internal pages of the site. How do they find information related to the university, courses, related departments, and any new notices and updates that they are seeking from the university? There are 2 main methods of navigation between the internal pages of the website. One is the Search Facility and the other is Navigation. Navigation can include breadcrumbs, navigational bars, and many other related schemes. But these all methods rely on hyperlinks and how these links are represented to the user.

Figure 7. Statistics for Information retrieval

As we can see from this graph. Most

users preferred to use Links or navigation rather than using the search facility. But as we can see the importance of both options. 27.5% of students used the search facility, whereas 20.3% of the students used navigation and hyperlinks. 42% used other methods, and 10.1% said that they did not use the website. This represents why hyperlinks are important, and also why search facility on the website is a must.

3.2.3 How easy it is to find the information you are looking for?

This question represents how easily the students can find the information they are searching for on the website. If a website has a good design, the information can be found easily, if a website has a poor design, the information will be harder to find. The most important aspect that allows users to find information over the website is related to the navigation scheme of the website. Search Engine Optimization also plays an important role here. Most students use a search engine to find information as we will see from our other question.

Figure 8. Statistics for information-seeking behavior

The graph shows promising results. About 55.1% of the students find it easy to find information on the website. It does represent that university websites

follow a good navigational scheme. 17.4% of students found it easy only 14.5% of students found it hard and 11.6% of students found it very hard to find information on the website.

3.2.4 What tools did you use to find information on the website?

This question is similar to question 2 of this survey, but we included an option Google (or another search engine) to see the importance of Search Engine optimization separately. Search Engines are one of the easiest ways to find information. A search engine optimized site will display its links higher than sites. So, when a student may search for courses for a specific university. If the university site is not in the top 10 results of the search engine. It will give a negative impact on the website on the student. Which is a major reason for the low student population on the university website?

This graph clearly shows that most students prefer to use a search engine rather than any other option everyone uses search engines nowadays. 44.9% of students used the search engine to find information on the website. 29% used navigational scheme, 18.8% of students used Site's search functionality and about 10% of users used other methods for finding information

Figure 9. Statistics for tools used to find information on the website.

3.2.5 Rate your university website out of 10?

University website rating taken from students relates to if the students like the website or not. Usability has a positive relation with attractiveness, helpfulness, efficiency, and learnability [2]. And the students will rate the website relating to one of the mentioned relations. The students' scores can also be biased towards their university.

Figure 10: Statistics for Ratings of the University websites

From the graph, we can see that the most selected rating for a university was 7 or 8. Which implies that the students liked the way their university site is. 18.8% of the students voted 7. 14.5% voted 8. 13% voted 5, 10.1% voted 9. Overall 36.1% of the score was 5 or below 5. While 67% of the score was above 5 ratings.

4. CONCLUSION

Usability is one of the major factors that determine the project's worth. University sites hardly follow any usability standards. Most university sites of Pakistan failed in Heuristic Evaluation of the websites. We defined 10 usability standards to measure the usability of the sites. We found that most sites did not follow any standards. The sites that scored the least in

following the 10 usability standards belonged to the categories of Agriculture/Veterinary, Medical, or General (Small) category. Computer Science & IT universities with Engineering & Technology university sites performed better than other categories.

We have very different results with Heuristic Evaluations, though worst scores were given to university sites belonging to Agriculture/Veterinary, Business Education, Engineering & Technology, and General (Small) Categories.

User feedback was also very interesting the 50% of the students hardly used the university site. 42% of students would use site navigation and 27% of students would use the search functionality of the website. 55% of students found it easy to use the website whereas 11% found it very hard to use. And 42% of the students used google to search for university-related material.

Our evaluations conclude that university sites are not well designed. Even though some sites have very simple designs, but these sites do not have the complete the requirements that a student needs, and the sites which meet the student requirements mostly have a complex design. User feedback shows that most students refrained from using the university website and preferred external sources. The websites followed some usability standards thoroughly, for example not using splash pages, but some standards were completely ignored, for example, changing link color once it is clicked. Hardly any site had that functionality. In Heuristic Evaluations, we observed that

most sites did not provide any FAQ section or a Help/Documentation section. This part was completely ignored by the websites.

Overall, the university sites need to improve their usability experience to bring more student audiences to their sites and help provide the necessary information the students are looking for.

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