



USABILITY OF UNIVERSITY WEBSITES FROM STUDENTS' PERSPECTIVE - A CASE STUDY

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Abstract. Internet provides a realm of resources with abundant information about anything for anyone to learn from. With massive increase in the number of Internet users, the educational websites have become an indispensable tool for public relations. The young generation of today uses Internet and social media so extensively that every educational organization is having its online presence felt, not only to attract a wider audience of prospective students but also to cater to the in-house students' needs and efficient working of the organization. In this post Covid era, students rely heavily on the Internet to get access to a magnitude of services that are provided by educational websites. The primary goal for effectiveness of a website is achieved by presenting relevant information efficiently. Websites have the potential to provide better communication between the society and educational institutions. Although web based public services play a crucial role in supporting the organization's success, but still there are many difficulties to use it effectively. The need for this research is to assess how well Universities connect with their stakeholders via the web channel in this digital world. This study is a maiden attempt to assess the usability issues of Punjabi University, Patiala web portal from the students' perspective. The scope of this study is the University, affiliated colleges and its students. The content analysis is done in terms of services provided by the university to affiliated college students. The objective of this study is to identify website usability problems and contribute towards improving its content which would enable the university to better utilize the potential of its web portal.

Keywords: university website, higher educational website, website usability, heuristic evaluation, Punjabi University Patiala, student services

1 Introduction

Higher education sector has the power to impact the world by shaping the future of students. In the area of higher education, students are considered as part of the digital native generation, who are skilled to dig the Internet and retrieve information by competently using

digital media. Internet is playing a crucial role in the decision-making process of potential students for selecting a university or college for higher education. Website is one of the most authentic sources of information about the organization. Educational organizations were one of the fore-runners in building websites. It was initially simply to have their presence felt online and later to provide a myriad of services to its stakeholders. The primary audience of educational websites is the academic staff and students, and the secondary audience is government, other organizations and general public. The aim of educational websites is to effectively present the academic offerings and opportunities, provide educational resources along with efficiently carrying out the admission and examination processes, degree distribution processes, research work and alumni connect establishment, etc. Websites are used for acquaintanceship, media campaign as well as carrying out routine tasks of the organization through stakeholder participation and user engagement.

International Organization of Standards Part 210 provides guidelines for human centered design to be used for interactive systems. ISO 9241-210:2019 is a standard that defines usability as “the extent to which a service, product or system could be used by its specified users to achieve specific goals, in a certain content of use, satisfactorily, efficiently and effectively”. Website usability is considered as an integral quality parameter in its evaluation. Web usability and web accessibility are equally important for human-computer interaction and add value to the product by enhancing user experience.

2 Review of Literature

A few number of research articles can be found about the role of Internet in the admission process of higher education institutions (HEI). HEIs use websites to advertise their distinctive and mission-specific qualities. Prospective students research websites to select from a crowded higher education marketplace. According to Saichaie & Morpew, empirical research shows use of HEI websites as marketing practice, communicating their mission and outcomes to expect from higher education. According to McDonough, since late 1960s organizations have used websites for recruitment and admission processes. Research has documented use of organization’s website images by students for communicating implicit and explicit messages. Images about architecture and landscape of HEIs shape impression of students about those organizations. Students also use HEI websites to get information about getting financial aid, scholarships, loans and off-campus employment and apply for it online.

Kurt Schimmel et.al. conducted an online survey on potential university students to explore the role of university web pages on their decision-making process and selection of university for higher studies. This decision was a precursor to their visiting the university campus. Their study emphasized the need for universities to maintain attractive, well understandable and readily navigable content on their websites.

A research conducted by Layla Hasan on nine university websites for evaluating the usability of those websites revealed that students gave first preference to content and

navigation and second preference to its design. Not much statistical difference was observed between students of different faculties while significant statistical difference was observed in the selection of content of the site being considered as the first preference by females and second preference by males. Regression analysis was done by Al-Kasasbeh et.al. to examine factors affecting user satisfaction for the success of web based systems. It concluded that e-satisfaction of web users was dependent on the website design, its navigation and personalization.

Hasim et. al. cited the importance of sustainability practices in higher education institutions. Universities have adopted sustainability in the area of administration, management, research and education. This contributes to the sustainability of the whole society. Sustainability practices are necessary for universities as efficiency needs to be improved while overcoming rising user expectations and increasing operating costs. In addition massive expansion in the higher education sector is emphasizing the need to extract most economic use of the facilities.

Alkindi and Bouazza reviewed literature on critical characteristics needed for structuring and organizing academic website content. They recommended useful points considering user needs that should be focused while designing websites. They suggested good website navigation and accessibility based on search and navigation system. The importance of controlled vocabulary, classification, faceted classification, thesauri and taxonomy has been discussed.

From the review of literature, several gaps emerged in theory, proving potential area of research. Although many techniques have been used to evaluate usability of commercial websites, but in general, few writers and researchers in the field of IT have worked in the area of usability testing of higher education websites. Website usability in the academic domain has not been focused in the research conducted in context to the Indian subcontinent. Most of the study done relates to usability of library websites. This study is an attempt to bridge the gap in literature on the basis of area of website usability and geographical context too.

3 Purpose of the Study

Critical observation of personal practice and watchful reading of literature led to the need to determine and integrate the performance measurement of the Punjabi University website. It is a large public university situated in Patiala district of the state of Punjab in India. It provides education in a large variety of disciplines. It has 3 Regional Centres, 8 Neighborhood Campuses, 13 Constituent Colleges and 268 affiliated colleges across Punjab. Although the current online platform of this university is doing a good job, but still there is always a scope of improvement. The university is obligated to deliver quality services to its stakeholders. Students and other stakeholders expect a seamless service from higher education institutions. Universities are life-long service providers to students and society. The most convenient way for a university to connect to its stakeholders is through a web channel that is a website. The

goal of a university is to constantly improve the experience of its students, staff and other stakeholders. This study tries to provide valuable insights for helping the university enhance the experience of stakeholders on the web platform.

4 Objective and Scope of the Study

The objective of this study was to assess the academic website usability of Punjabi University, Patiala (Punjab, India) from the students' perspective and its relation with satisfaction. Usability testing involves evaluating the usefulness of a product. Website usability testing involves evaluating various aspects of website usability by observing users accomplish their tasks. It is used to uncover errors and difficulties faced by users while completing their tasks. This study tries to bring out the issues that would enable the university to better utilize the potential of its web portal.

The research was conducted on internal stakeholders of colleges affiliated to Punjabi University namely administrative staff, faculty members and students. Most of the affiliated colleges of Punjabi University, Patiala belong to rural areas as Punjab is primarily an agrarian state. The literacy rate of Punjab is 75.84% and its rural population is 63.52%, according to the last Census report of 2011. It is imperative of consider the rural youth experience while analyzing the web platform usability of the institution under consideration. The student participants in this study were undergraduate students, enrolled after grade 12 and post graduate students, enrolled after graduation in affiliated colleges. Both categories of students were enrolled in three faculties namely Humanities, Science (Medical, Non Medical and Computer Science) and Commerce stream. The scope of this study is restricted to the student services provided by the above stated university to affiliated college students. The academic and administrative staff acts as middleman between the students and university in serving diverse students. This study would help the university in achieving its goal to continue improving the students' experience in accessing online services.

5 Research Methodology

The study adopted a heuristic research approach, which was proposed by Jakob Nielsen in 1994, for website usability testing compilation and formative evaluation. According to the literature surveyed, heuristic method is also the most widely used approach for identifying website usability problems. Figure 1 shows the procedure followed for evaluating the website of Punjabi University, Patiala (Punjab, India) for student services provided by them, from the perspective of affiliated college students.

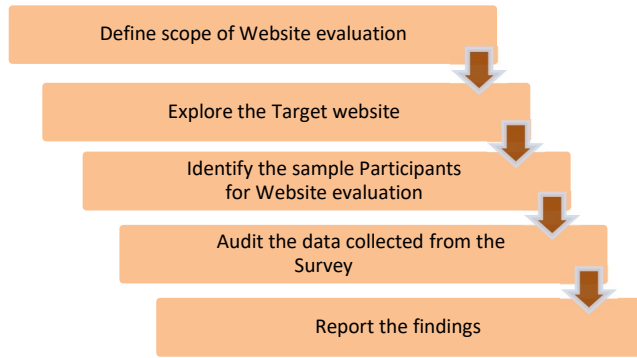


Figure 1. Procedure for Website Evaluation

A total of 225 participants were involved in this study. The respondents profile comprised of 25 staff members (20 teaching and 5 non teaching) and 200 students. The evaluation was done independently by all the raters to assess the expectations of the participants about the usability of the website. The participants reviewed the University website (www.punjabiuniversity.ac.in) manually by working on it and then they were asked to respond to a questionnaire provided to them. The questionnaire consisted of a number of questions based on the characteristics of the website. Each item was rated on the base of 5-point Likert Scale with '1 as Strongly Agree' and '5 as Strongly Disagree'. The characteristics adopted for heuristics included website information content, customization, navigation, user control and freedom, flexibility, ease of use and communication, system status visibility, error prevention, aesthetic design, user help to identify and recover from error and documentation and help feature. The first part of the questionnaire consisted of the demographic profile of the participants including age, gender and designation in colleges and duration of website usage. The second part of the questionnaire was used for research purpose. It consisted of 18 questions in all including 16 questions to assess the usability and 2 questions for enquiring about the overall satisfaction of website usage. It compared the expectations against the actual findings of the participants. The final section included the general feedback from the participants based on open ended question where the respondents were asked to enter any remarks which they feel useful for this research. Figure 2 shows the work experience of the sample affiliated college staff members for working on the Punjabi University website. Table 1 shows the demographic features of the sample students of affiliated college that participated in the survey.

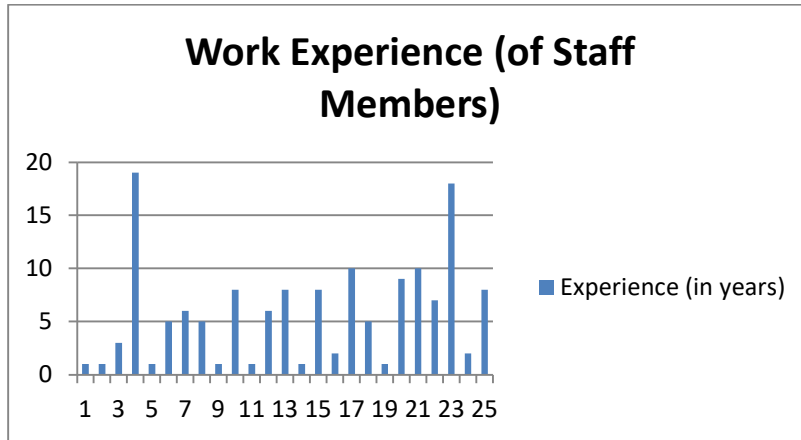


Figure 2. Work experience of Staff members in the University affiliated colleges

Parameter	Characteristic	Value	Percentage
Gender	Male	106	53
	Female	94	47
University website usage experience	< 1 year	58	29
	1-2 years	74	37
	> 2 years	68	34
Internet usage experience	< 1 year	25	12.5
	1-2 years	80	40
	> 2 years	95	47.5

Table 1. Demographic information related to student research participants

6 Findings and Analysis

This section presents the results and analyses them in light of usability of the website of Punjabi University from the affiliated college students’ perspective. Based on the questionnaire floated to the participants, the following key points have been gathered which need attention for enhancing the overall usability of the University website.

- Although the website has an easy-to-follow layout, but the key qualities of scan-ability and readability is somewhat compromised.
- The student enrolment procedure at the time of admission of new student is cumbersome for some rural youngsters.
- University registration number assignment work has been deputed to affiliated colleges, which at times leads to duplication or inconsistency.
- University does not send any record of Roll Number or University Registration Number to the students via email or phone number after online Registration of students on the portal.

- It is not fully user-friendly.
- Paper processes are still required from college end despite the online entry of entire data like online Admission and Registration on portal.
- Roll numbers need to be printed out before the Semester Examination at various Exam Centers.
- There is inconsistent commercial strategy at technical level like having multiple disconnected databases for various record keeping agencies like Registration branch, Examination branch, Degree section, etc. of the university. Although there is a link available for CMS (Content Management System) but there is no provision of single CMS available in the university to handle all updates start-to-end. If any update is to be done regarding any credentials of a student, then it has to be done manually by visiting different departments of the university administration block to get the task completed successfully.
- Complete automation of work has not been achieved on the web portal. Online payment collaboration of the university has been done with banks and this provision has been provided but still there is a need to submit the documents manually, in most cases, at the university after online fee payment.
- The complete annual time schedule for all tasks is not clearly defined and fixed by the university. This leads to skipping of important deadlines by students and staff, which imposes penalty in the form of late fees.
- The Examination website shows student records of only the last five years and the current session. Thus if a student or staff wants to get access to data related to fee deposition, etc before that, he or she is unable to do so.
- The examination form filling, internal assessment filling and external practical awards filling is done on separate website, whereas examination results are displayed on the main website.
- The result display system is also very out dated. All the results are displayed randomly, without any segregation of month and year. It is quite tedious to find result of a student with all results jumbled up and without any proper division.
- There is no provision of any email for students to post their general queries or problems and the contact numbers displayed on the website are generally always busy. Though there is an official email id to post Fee related queries.
- There is no single window system for carrying out all tasks related to university as there are multiple official web channels for data entry to the university like main university website (<http://punjabiversity.ac.in/>), online admission website (<https://pupadmissions.ac.in/>), staff and student dashboard (<https://pupexamination.ac.in/>), college or department dashboard (<https://gs.pupexamination.ac.in/>) and college information portal (<https://colleges.dpmpbi.org/college/index.php>), etc.

- The website lacks personalization capability. The content does not get tailored for individual visitor’s self identified personal data or location.
- No track-able enquiry procedures are available on the website. There are no integrated sign-up pages to collect information and revert with the required follow-up content.
- No Alumni database is available on the website.
- The website lacks a sound security mechanism. The internal users are not provided access to content relevant to them alone. Non availability of CMS leads to absence of hierarchical system with editable workflow through web for any published content.
- The website lacks Progressive forms or step-by-step forms, where information is fed in parts, with a progress bar to show the number of steps left. Also there are no Dynamic forms, which use pre-filled data based on previous visit to the website.
- There is no provision of Chatbot in the website to assist or add value to students’ and other stakeholders’ web experience.
- There is no link to the Blog post feature on the website to know about the good, bad and ugly.
- There is no provision of online prospectus availability of all affiliated colleges on the university website.
- No intuitive search facility or predictive search bar is available on the website to find information in an efficient and easy way.
- The website is not fully integrated with all common social media. The social media feeds are not readily available on the website to provide real-time information.
- There is no online provision of promoting the well being of stakeholders of the university through any mental or physical health activity.
- There is no online provision of any tie-ups of MOUs with other educational institutions for the academic growth of affiliated college students and staff.

Despite the above mentioned usability problems faced by affiliated college staff and students, the overall usability of Punjabi University, Patiala was found to be acceptable with scope of improvement. Table 2 tries to summarize the student services provided by Punjabi University, Patiala website to college students.

Serial No	Student Service	Appreciation	Shortcomings
1	Duplicate DMC and/or Degree	Fully online service. Duplicate DMC sent through post.	None
2	Transcript	Start to end online. No manual intervention.	
3	Migration (College to College)	Form available online.	Form needs to be submitted in University by hand.

4	Correction in DMC/ Degree	Fees can be submitted online	Form needs to be submitted in University manually
5	Confidential Result	Fees can be submitted online	It requires offline submission
6	RL Lower	-	Documents need to be submitted manually in the University.
7	Degree in Absentia	Fees can be submitted online	After 24 hours of fees submission, it is verified, then documents can be submitted offline and degree can be taken from University.
8	Result	Declared online. DMC sent to colleges	
9	Syllabus	Available online	
10	Directorate of Sports Important Notices	Available online (for Sports Wing selection). Data can be sent via mail.	
11	Student Startum (NSS)	NSS Camp form available online. Data can be sent via mail.	
12	Registration for Exam	Exam Form filled online and fees submitted online	Fees details are required to be verified offline after submission of all students.
13	Reappear apply	Completely online	
14	Re-evaluation apply	Not fully online. Student can apply online.	Student has to go to University after 3 months to know the result.
15	Fees status/ details	Can be checked online anytime	
16	Datesheet	Available online	
17	News/ Notices	Available online	
18	Gazette	Available online	
19	Merit List	Available online	
20	Exam Cutlist	Available online	
21	Internal Assessment	Filled online by College staff	Requires manual submission after attestation by staff and Principal.
22	External Awards	Filled online by College staff	Requires manual submission after attestation by staff and Principal.

Table 2. Online Student services for Punjabi University, Patiala affiliated college students.

One important observation is that the students from rural areas are not very affluent with the use of university websites. Although the university has tried to provide many student services online, which is a big step towards automation and better e governance, still the rural students are unable to fully utilize these facilities. They make a number of mistakes while filling forms, which is rectified through penalty fees. They either use cyber cafes for personal tasks dealing with university or rely on college staff for getting their online University work done. So the burden of college staff is increased many fold as they do the online work of students like filling registration and examination forms, applying for re-appear and re-evaluation, etc. Table 3 shows the satisfaction level of Punjabi University website according to the current research.

Level of Satisfaction	Number of Respondents	Percentage
Dissatisfied	22	10
Partially satisfied	50	22
Satisfied	86	38
Very Satisfied	45	20
Extremely Satisfied	22	10
Total	225	100%

Table 3. Overall Satisfaction Level of using the website

7 Suggestions

Based on this research certain prominent suggestions can be provided, which are as follows:

- The website must be updated regularly.
- It should be made more mobile friendly.
- The contact information of dealing persons must be clearly visible and time must be mentioned when they would be available for enquiry. Also their availability must be ensured.
- Data entered once should not be required to be reentered again.
- Important dates and deadlines for regular university tasks must be fixed and written evidently throughout the year for the convenience of all stakeholders.
- Impactful photos and website utilization manual related videos must be made available.
- Emails sent to university dealing personnel must be replied without fail.
- Regular website analysis must be done at university level to improve its performance.
- Social media integration must be improved.
- There should be a single window entry system for all university related task completion.

8 Conclusion

University websites act as a basic communication channel to connect to its stakeholders and the general public. A healthy communication between them contributes to better governance of the university. The universities are bound to optimize the online user experience and journey to fulfill their public relations function. They strive for constant digital development to ensure convenience of their stakeholders. Inclusive website is a university website that is fully accessible. Accessibility implies that the website is understandable and usable by everyone, irrespective of their age or ability.

This study focused on one section of the stakeholders of the university that is affiliated college staff and students, especially of rural areas. Inclusion of their expectations in the decision making process and design improvement of the web platform would add value to the university's good governance practices. Focusing on the legitimate expectations of these stakeholders and trying to build a healthy relationship with them would contribute towards transparency, which is a key factor for good governance.

The study showed that the overall usability level of Punjabi University, Patiala website was acceptable. However there are some weaknesses in the website in terms of performance. The purpose of the study was to help identify those weaknesses and usability problems as efficiently as possible and contribute to improving the website. Although this study was conducted on one university of Punjab (India), but its results could be used by universities of other countries as well. The data from this study provides valuable input to universities for upgrading their websites and taking them to the next level. The university administrators may use this study to satisfy the ever changing demands of the website users and improve their website usability. However, the findings of this study have some limitations. These issues have emerged from the website content by human validation and the results could be influenced by inadequate judgment. More accurate conclusion can be drawn from a wider view of the sample size. Confirmation of the findings could be provided by further assessment and complementary studies using other techniques could validate the data and strengthen overall conclusions.

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