Usability Research and Tests need for improving NOVA Student Portal Application

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Introduction

The NOVA Student Portal is a critical tool for students to access academic records, register for courses, manage financial aid, and communicate with faculty. However, many students experience difficulties navigating the portal due to unclear design, usability issues, and lack of intuitive functionality. These challenges can lead to frustration, inefficiency, and even missed deadlines, negatively impacting students' academic experiences.

To address these concerns, usability studies could be conducted to identify challenges students face with the dashboard. Based on the findings, recommendations can guide the development of a more user-friendly, accessible, and efficient portal. With student feedback and analysis, the dashboard could be updated or improved gradually, depending on available technology and funding. These improvements would help the platform better support students and instructors. As Kahu and Nelson (2017) note, a student dashboard is "an educational interface...within which the individual student experiences their education" (p.7).

The current Learning Portal has several navigation issues that hinder the student experience. Its outdated design and structure make it hard to find essential resources quickly. To improve usability and support student success, the school should prioritize a portal redesign focused on the following areas:

1. Streamlining navigation menus to reduce confusion and improve access to key features such as assignments, grades, and announcements

- Navigating through modules and task assignments

- Finding announcements easily

- Moving between modules, assignments, grades, and upcoming tasks

- Viewing assignment due dates clearly

- Understanding assignment content

- Studying in the groups

- Accessing emails within the learning management system

- Navigating to the email system from the platform

- Registering for classes

- Registering for programs or certifications

2. Improving consistency in page layouts so students don't have to relearn how to navigate each section.

These areas during usability studies will help identify difficulties and improve the overall user experience, making the platform more intuitive, efficient, and user-friendly.

Improving usability will boost student satisfaction, increase efficiency, and reduce errors in key tasks like course registration. Usability studies are essential to identify system issues and guide the development of better digital tools for students, instructors, and staff. Abuhlfaia and Khaled (2018) note that while e-learning is now standard in higher education, many studies criticize its effectiveness and failure to meet user expectations.

Discussion

How portal interface serves academics

A well-designed student interface is essential for engagement, communication, and an improved student experience, leading to better academic outcomes and a stronger sense of community. It encourages participation, questions, and interaction with course materials. Modern portals help students stay involved, connect with faculty, and access resources and support, while enabling timely feedback and a more dynamic learning environment

Educational programs influence student achievement, but a key missing link is the "mediating mechanism" that explains how institutional actions affect outcomes (Kahu & Nelson, 2017). Student dashboards serve as part of this mechanism, shaping behavioral and cognitive engagement among students, faculty, and institutions. Designed well, dashboards can boost academic performance, retention, and timely graduation by promoting engagement, community, and personalized learning experiences.

Learning dashboards are designed to streamline administrative tasks and improve communication between students, faculty, and staff. As educational interfaces, they reflect the complex interactions between students and institutions (Kahu & Nelson, 2017). Centralized systems allow easy access to academic records, schedules, and important updates, supporting data-driven decisions and better planning.

Dashboards also foster community by helping students connect, stay informed, and engage with campus events and organizations. To meet the needs of digital learners, colleges must invest in user-friendly, mobile-accessible interfaces that adapt to evolving technology and student lifestyles.

Need for Usability Research

Studies emphasize the importance of university student portals, typically powered by Learning Management Systems (LMS). These portals manage user interactions and instructional content. To improve performance, updates or modifications to the LMS should be explored. Enhancing the system benefits students, teachers, and guardians.

Since LMS platforms deliver assignment instructions, their design depends on portal features.

Interviewing instructors and instructional designers can help identify gaps and suggest improvements for more effective content delivery. Per Kate Moran, 2019 Goals of Usability Testing vary by study and include:

- Identify problems in the product or service

- Uncovering opportunities to improve

- Learning about users behavior and preferences

Student portals store and track comprehensive data from first access, serving as a hub for grades, performance, attendance, and teacher feedback. More than a database, the portal supports students throughout their academic journey, highlighting the need for a user-centered design that boosts engagement, motivation, and communication among students, educators, and guardians (Aryaman et al., 2024). This study stresses the need for a modern, interactive, and easy-to-use portal that not only displays data but also enhances learning and supports academic success. A well-designed, intuitive interface ensures accessibility for all users, making it a key element of tech-driven education. Usability - defined by clarity, ease of use, aesthetics, and accessibility - is essential to a system's effectiveness.

Types of Usability Tests in practice

Running a usability test for a college portal involves assessing how well students, faculty, and staff navigate and use the system. According to Kate Moran (Nielsen Norman Group, 2019), several types of usability testing can be applied:

- Quantitative

- Qualitative

  - Remote (moderated or unmoderated)

  - In-person (moderated or unmoderated)

Usability tests aim to identify "pain points" in user paths, optimizing the portal to meet diverse user needs. Qualitative analysis is key for understanding system efficiency issues, while quantitative analysis helps track page visits. In our case, qualitative tests (surveys, interviews, focus groups, and observations) will identify navigation challenges for students and instructors.

The research starts with user surveys, interviews, and observations to understand interactions. Test questions should focus on navigation, accessibility, responsiveness, and completing tasks like registration, accessing grades, and communicating with faculty. Observation-based usability testing, where users perform real tasks, is particularly effective. This includes task-based testing, such as enrolling in a class or submitting assignments, with actions and errors recorded (Fox, 1998).

Usability Test process

Usability testing gathers direct feedback to evaluate user experience, efficiency, and satisfaction. Methods include think-aloud protocols, heuristic evaluations, and questionnaires. It's essential to recruit real users-students, instructors, and staff-who can provide meaningful insights into using the college portal.

Observation-based usability testing is highly effective, with a moderator watching users

complete tasks and noting where they struggle (Interaction Design Foundation, 2021). Think-aloud protocols and audio recording reveal users' thought processes. After tasks, brief surveys or interviews capture user feedback. Tasks should reflect real actions, like signing in or registering for classes (Fox, 1998).

User Stories combine tasks into clear, goal-oriented paths from the user's perspective, helping testers focus on specific features during usability testing (Thomas, 2024). They describe what a user needs to accomplish, guiding how the interface is used to achieve that goal. As users follow the story, moderators observe or interview them to identify any "pain points."

Moderators take detailed notes on user behavior, including difficulties and emotional responses, which are essential for usability analysis. These insights help ensure the product aligns with user needs and supports development teams in improving functionality (Fox, 1998)

Usability tests can be conducted in a classroom, where participants use the application and note any problems on sticky notes. These notes are placed under the corresponding task on a whiteboard, visually linking issues to specific steps. For example, Image 1 shows how each task is paired with notes describing user challenges or emotional reactions—called "pain points" (Gibbons, 2021).

This method offers a clear, organized view of where users struggle and works well for both individual and group testing. After the session, notes are grouped by task, and users may be interviewed or surveyed to further explain their experiences. This helps identify key areas for improvement.
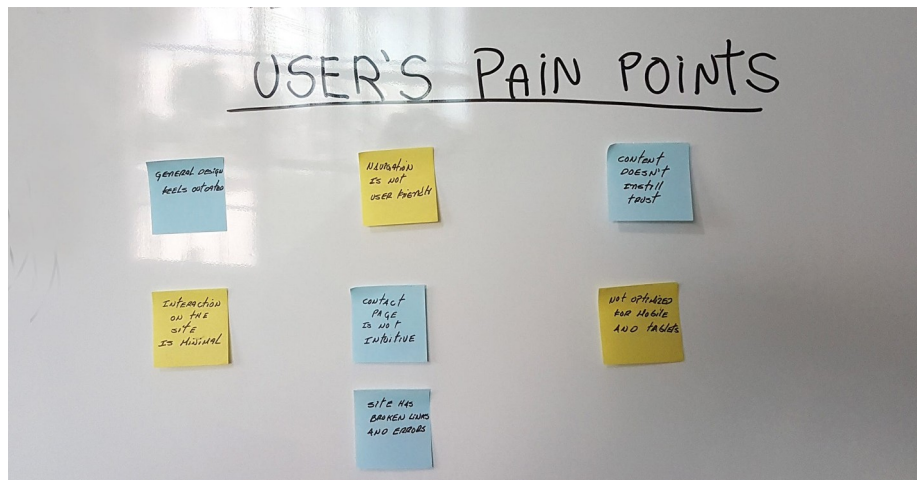
Img. 1 User's "Pain points"

Grouping pain points under specific tasks helps identify patterns and recurring issues, making it easier to categorize problems and prioritize solutions. This organized approach supports team collaboration and ensures all user concerns are documented and addressed.

Tests can be either moderated or unmoderated. In unmoderated sessions, screen recordings and audio are captured using recording tools. User analysts then review the videos, transcribe the audio, and organize the data for further analysis.

Usability Analysis

User Analysts collect user feedback and organize notes to identify common issues that make tasks difficult. These findings are visualized in a User Journey Map, which highlights problem areas discovered during usability testing (see Image 2).

The User Journey is a visual representation of the user's experience, showing their path through

the system, including key actions, decisions, and touchpoints. It highlights both positive and negative moments, helping teams quickly spot pain points and areas for improvement (Gibbons, 2021). This visual tool offers clear insights for enhancing usability and the overall user experience.
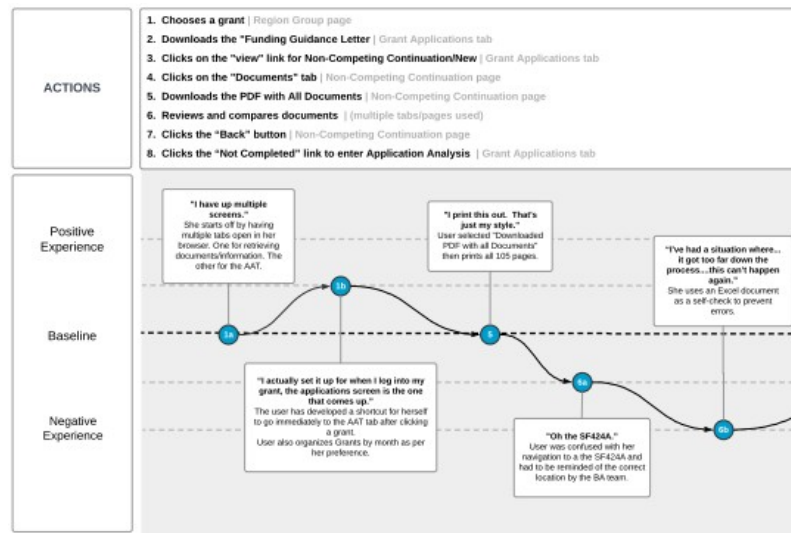

Image 2. User Journey example.

Usability research identifies areas for improvement in a digital system by gathering user feedback through interviews, surveys, observations, and usability tests. The Usability Analyst organizes and analyzes this data, documenting findings with tools like journey maps, affinity diagrams, and task flow breakdowns. These materials help pinpoint "pain points" where users struggle or feel confused (Gibbons, 2021).

After collecting data, usability experts often conduct a heuristic evaluation, reviewing the interface based on UX principles such as clarity, efficiency, and error prevention. The findings are compiled into a report, where User Experience Designers provide recommendations for improvement, such as simplifying navigation, optimizing for mobile, enhancing search functionality, or streamlining login processes.

Design Strategy and Documentation

Once the Usability Analyst delivers the report, the UX Designer reviews the findings to understand user challenges and recommendations. They prioritize issues by impact and feasibility, then begin creating design solutions, such as wireframes, prototypes, or updated user flows.

A Design Strategy is then established, focusing on the best approaches for improving the system. For learning portals, two main paths should be considered:

1. Full replacement of the Learning Management System (LMS):
   This approach involves switching to a completely new platform that may offer better user experience, modern features, and improved performance. It requires a major investment of time and resources but may be worthwhile if the current system has too many limitations.

2. Targeted design enhancements to improve specific sections:
   This strategy focuses on making usability improvements within the existing system. It's a more gradual approach that allows for focused updates without a full system overhaul.

After selecting a second scenario, the UX Design team develops a design enhancement plan based on usability findings. Designers identify specific user problems and create solutions, translating research insights into actionable design changes.

To present findings and solutions, designers document the usability problems and proposed design suggestions in a table (Table 1). This table serves as a central reference for analysts, designers, developers, and stakeholders, ensuring alignment across the team.

Table view:

- Clearly define each usability issue
- Propose thoughtful, research-backed design solutions
- Track which issues have been addressed and which are still pending
- Prioritize updates based on the severity and impact of each problem

This format makes it easier for teams across departments, like developers, stakeholders, and project managers, to stay aligned. It supports a smooth, collaborative process and ensures usability issues are not overlooked as the system evolves.

Pain Point	Suggested solution
1. It takes too long to return to a previously opened modal, requiring excessive scrolling from the top of the page.	Add an anchor in the code to return the user to the same location they were previously.
2. It takes time to navigate between assignments and grades.	Keep all materials related to the assignment on the same page.
3. Scrolling after login takes too much time.	Open pages in the relevant modal

Table 1. Example of the table with pain point and solution provided.

The table can be updated with a third column for images or sketches that illustrate the problem and design solution, making it easier for others to understand the planned changes.

Additional materials, such as page flows, UI layouts, and prototypes, can be created to visualize the design and share progress in digital presentations. The UX Designer ensures that all changes align with core UX principles: clarity, efficiency, and reducing user friction. They may conduct further usability testing on new designs to validate improvements before handing off to developers.

Throughout, the designer collaborates with cross-functional teams to ensure a smoother, user-friendly final product. Continuous testing and refinement can help ensure the portal remains efficient and user-friendly for the college community.

Methods of Usability Research by other educational institutions

Usability testing is crucial for improving educational digital tools like LMS, student portals, and registration systems. Many colleges and universities conduct studies to better understand how students, instructors, and administrators interact with these platforms. Educational institutions that want to improve their digital platforms can build on this research by:

- Studying usability reports from similar institutions

- Running small pilot tests with students and faculty

- Creating a system for collecting ongoing feedback

- Working with UX designers to turn findings into real improvements

Investing in usability testing allows colleges and universities to create systems that are more supportive and less frustrating, helping users focus on learning instead of struggling with technology. Usability testing includes qualitative methods, such as think-aloud protocols and interviews, to understand user experiences, and quantitative methods, like questionnaires and task completion measures, to assess user performance and satisfaction (Moran, 2019).

One method for conducting usability studies is the mapping method, which outlines criteria for inclusion and exclusion and reviews multiple studies on Learning Management Systems (LMS). Abuhlfaia (2018) highlights the scope of e-learning and usability research, focusing on usability attributes, measurement methods, and participant levels. The study uses tables and charts to illustrate findings and offers recommendations for portal improvements (Rosmasari et al., 2018), emphasizing the role of UI/UX experts in identifying usability issues with academic portals.

Educational platforms must accommodate users with varying technical skills. If students or instructors struggle with a system, it can result in missed deadlines, poor communication, and increased stress. Therefore, usability testing is essential in schools, colleges, and universities.

Some common goals of usability testing in educational institutions include:

- Making course content easy to find and access

- Improving how students register for classes or certifications

- Simplifying assignment submissions and feedback

- Helping users communicate through email or discussion boards

- Ensuring the system works well on different devices (especially mobile)

- Supporting accessibility for users with disabilities

Conclusion

Addressing usability issues is crucial for improving the portal and enhancing the user experience. By resolving UX problems, educational institutions can help students succeed academically and prepare them for their careers. A user-friendly dashboard also simplifies tasks for teachers and staff, allowing them to focus on providing quality education and support. The refined framework emphasizes key factors like self-efficacy, emotions, belonging, and well-being, which influence student engagement and success (Kahu & Nelson, 2017).

This paper outlined methods for conducting usability studies and provided guidance on the next steps for improving the college portal, ensuring a more efficient and supportive educational experience.

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Appendix

Table 1 illustrates a User Story with Acceptance Criteria. The User Story defines a feature from the user's perspective, offering a clear description of their needs to ensure the development team aligns with the user's goals.

Student: Mary Smith	As a student, I want to log in to the portal, so that I can find my course, locate the related assignment in the module, read the assignment, work on it, and submit the completed assignment.
	Acceptance Criteria: 1. The student can log in to the portal successfully. 2. The student can easily find the relevant course. 3. The student can locate the related

	assignment within the module. 4. The student can read the assignment instructions clearly. 5. The student can work on the assignment within the portal or download necessary resources.