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Research Article

Redesigning the SKK Website Using User-Centered Design and WEBUSE for Enhanced Usability

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A B S T R A C T

The Student Credit System (SKK) website plays a crucial role in managing students' extracurricular activities. However, usability issues in its previous design, such as inconsistent color schemes, confusing document uploads, unclear information tables, and unintuitive workflows, hindered user experience. This study aims to enhance usability and user satisfaction through a redesign using the User-Centered Design (UCD) method. The UCD methodology follows four structured stages: Specify the Context of Use, Specify User and Organization Requirements, Produce Design Solutions, and Evaluate Design Against User Requirements. To assess usability improvements, an evaluation was conducted using Website Usability Evaluation (WEBUSE), measuring four key aspects: Content, Organization, and Readability, Navigation and Links, User Interface Design, and Performance and Effectiveness. The results indicate substantial improvements. Usability scores increased from 0.45 to 0.93 for Content Organization, and Readability, 0.46 to 0.92 for Navigation and Links, 0.39 to 0.97 for User Interface Design, and 0.62 to 0.91 for Performance and Effectiveness, all reaching excellent usability levels. User feedback confirmed a more intuitive, visually cohesive, and user-friendly experience, enhancing accessibility and efficiency in managing SKK activities. In conclusion, applying UCD effectively enhances usability, validated by WEBUSE evaluation and user feedback. Despite these improvements, the study is currently limited to a Figma-based prototype, requiring further development for full implementation and real-world validation.

1. INTRODUCTION

Web-based academic services are essential in higher education institutions, supporting student activity tracking, administrative processes, and overall academic management. At Institut Teknologi Nasional Bandung (Itenas), the Student Credit System (SKK) website is designed to assist students in recording extracurricular activities, calculating credit points, and generating reports. However, the system faces significant usability challenges, impacting efficiency and user satisfaction. Initial observations reveal complex navigation structures, an unintuitive activity input system, and a lack of transparency in credit point calculations, leading to difficulties for students and administrators in managing academic records effectively.

Usability issues in academic web portals are a well-documented challenge. Studies have shown that poor navigation, cluttered interfaces, and confusing workflows negatively impact user engagement and system effectiveness [1]–[3]. Academic management platforms must not only provide accurate and structured data but also ensure a seamless user experience to encourage student adoption and utilization. Prior research highlights usability concerns, yet many studies focus solely on system evaluation rather than structured redesign efforts [4], [5]. As a result, while problems are identified, solutions remain largely unexplored or inadequately tested.

To improve academic service platforms, researchers have employed different usability evaluation and design approaches. *Website Usability Evaluation* (WEBUSE) has been widely used to measure readability, navigation efficiency, content clarity, and system performance in academic websites [6], [7]. This method provides quantitative insights into user experience but lacks a framework for guiding iterative improvements. Meanwhile, *User-Centered Design* (UCD) has gained attention as an effective

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approach for enhancing digital platforms by aligning them with user needs and behaviors [8], [9]. Unlike traditional usability evaluations, UCD integrates user feedback in iterative design cycles, making it a more practical approach for refining complex systems [10]–[13]. However, despite the proven benefits of both methods, few studies have combined WEBUSE for structured usability assessment and UCD for iterative redesign in academic web applications [14], [15].

Several studies have explored usability evaluations in university web portals, reporting that students often struggle with inefficient workflows and disorganized content [16]–[19]. However, these studies typically stop at assessment and do not offer structured solutions to enhance usability. Additionally, previous research has largely focused on general university portals rather than specialized academic management systems like SKK. This creates a gap in understanding how usability improvements impact the effectiveness of credit-based academic tracking systems.

This study aims to bridge the gap between usability evaluation and iterative system improvement by conducting a comprehensive usability analysis of the SKK website using the WEBUSE method to identify key usability challenges. The findings from this evaluation will serve as the foundation for applying UCD method, ensuring that the system is refined iteratively based on user feedback. By comparing usability metrics before and after the redesign, this research seeks to measure the effectiveness of the proposed improvements. Additionally, the study aims to provide a structured framework for enhancing academic management platforms through an integrated evaluation-redesign cycle, offering practical insights that can be applied to similar systems in higher education institutions. Through this approach, the SKK website is expected to achieve higher usability, improved user experience, and better alignment with student and administrative needs.
By combining WEBUSE for systematic usability assessment and UCD for iterative design, this research offers a practical, user-driven approach to enhancing academic service platforms, ensuring that the SKK website meets both functional and usability expectations.

2. METHOD

This study adopts a User-Centered Design (UCD) method combined with the Website Usability Evaluation (WEBUSE) evaluation. The research stages are systematically structured to produce a redesigned interface and user experience for the SKK website that aligns with user needs which can be seen in Figure 1.

2.1. Initial Observation

An initial observation was conducted to identify the current state of the SKK website in terms of functionality and usage patterns. The observation took place at Institut Teknologi Nasional, involving lecturers, active students, and the Information and Communication Technology - Technical Service Unit (UPT-TIK) as the developer. The findings were used to map the initial problems of the system.

2.2. Literature Review

A literature review was carried out to strengthen theoretical foundation regarding the UCD method and WEBUSE evaluation. References were retrieved using Harzing's Publish or Perish with search engines such as Google Scholar, Semantic Google Scholar, and OpenAlex. The selection criteria included publications within the period of 2018–2023.

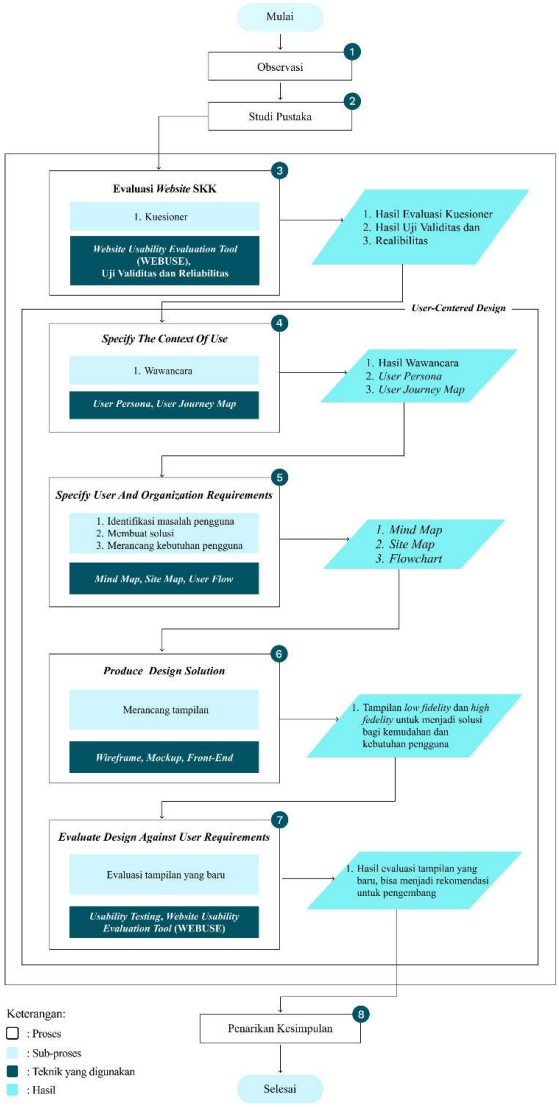

Figure 1. Research Workflow

2.3. Initial Evaluation of the SKK Website

The initial evaluation was performed using the WEBUSE evaluation, which assesses four aspects: Content, Organization and Readability, Navigation and Links, User Interface Design, and Performance and Effectiveness. Data collection was conducted through a questionnaire distributed to active Itenas students, with the number of respondents determined using Slovin's formula. The collected data were tested for validity and reliability before being analyzed.

2.4. Specify the Context of Use

The context of use was analyzed to understand the characteristics, goals, tasks, and environment of SKK website users. Data were collected through in-depth interviews to identify user pain points and goals. The results of this stage were visualized in the form of user personas and user journey maps.

2.5. Specify User and Organization Requirements

User needs were identified based on the user persona and user journey map analyses. Identified issues were translated into system requirements, which were then organized into mind maps, site maps, and flowcharts as the basis for solution design.

2.6. Product Design Solutions

The design solution was developed according to the identified user needs. This stage involved creating wireframes, mockups, and front-end designs for the SKK website, following the Eight Golden Rules of Interface Design.

2.7. Evaluate Design Against User Requirements

The proposed design was re-evaluated to assess its usability. Scenario testing was conducted using the Useberry tool, involving active students as evaluators. Subsequently, the WEBUSE evaluation was redistributed to measure the satisfaction and effectiveness of the redesigned solution. The results served as the basis for drawing conclusions on how well the design met user's needs.

Usability data is collected through questionnaire and task-based testing with students and academic staff. The following questions were used to identify user needs and challenges, as outlined in Table 1.

Table 1. Interview Questions on the Usability Aspect

ID	WEBUSE	Usability	Questions
Content, Organization, and Readability			
W1	Content	Effectivity	The SKK website provides the latest information I require.
W2	Content	Efficiency	I can easily locate the information I need on the SKK website.
W3	Organization	Efficiency	The content on the SKK website is well-structured and systematically organized.
W4	Readability	Efficiency	The content on the SKK website is easy to read and comprehend.
W5	Readability	Efficiency	I find the language used on the SKK website to be clear and familiar.
W6	Organization	Efficiency	I do not need to scroll horizontally to read the content on the SKK website.
Navigation and Links			
W7	Navigation	Efficiency	I can easily determine my current position or identify which page I am on.
W8	Navigation	Efficiency	The presence of icon labels enhances my understanding of their functions.
W9	Links	Efficiency	I can effortlessly navigate the SKK website by accessing links or returning to the previous page.
W10	Links	Efficiency	The links on the SKK website are well-maintained and regularly updated.
W11	Navigation	User Satisfaction	While browsing the SKK website, new windows do not open excessively.
W12	Links	Efficiency	Links and menus are consistently placed and making them easy to recognize.
User Interface Design			
W13	User Interface Design	User Satisfaction	The user interface design of this website is visually appealing.
W14	User Interface Design	User Satisfaction	I feel comfortable with the color scheme used on this website.
W15	User Interface Design	User Satisfaction	This website does not contain distracting features such as blinking text or repetitive animations.
W16	User Interface Design	User Satisfaction	The website maintains a consistent look and feels across all pages.
W17	User Interface Design	User Satisfaction	This website does not contain an excessive number of advertisements.
W18	User Interface Design	User Satisfaction	The website's design is intuitive and easy for users to learn and understand.
Performance and Effectiveness			
W19	Performance	User Satisfaction	I do not have to wait too long for a page to load.
W20	Effectiveness	Efficiency	I can easily distinguish between visited and unvisited links.
W21	Performance	User Satisfaction	I can access this website almost at any time.
W22	Performance	User Satisfaction	The SKK website responds to my actions as expected.
W23	Performance	Effectivity	I can use the SKK website efficiently without wasting time, effort, or cost.
W24	Effectiveness	Effectivity	The SKK website consistently provides clear and useful information.

The questionnaire consisted of 24 items categorized into four main usability dimensions:

- Content, Organization, and Readability (Items W1–W6)
  This dimension aims to gather user perceptions regarding the relevance, currency, and clarity of website content; the ease of locating required information; the logical structure and organization of materials; the readability of text; and the appropriateness of the language used. It also examines layout considerations, such as minimizing the need for horizontal scrolling.
- Navigation and Links (Items W7–W12)
  This section explores users' experiences with navigating the website, including the clarity of icon labels, the reliability and consistency of links and menus, the ease of returning to previous pages, and the avoidance of excessive pop-up windows.
- User Interface Design (Items W13–W18)
  This dimension addresses user impressions of the website's visual presentation, including the attractiveness of the interface, comfort with the chosen color scheme, consistency of layout across pages, and the absence of distracting elements or intrusive advertisements. It also captures the perceived intuitiveness and learnability of the design.
- Performance and Effectiveness (Items W19–W24)
  This section focuses on aspects such as page loading time, system responsiveness, accessibility, and the ability of the website to provide clear and useful information.

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The items were formulated to capture both functional and experiential aspects of website usage, ensuring a comprehensive understanding of user needs. Responses to these items served as a primary data source for diagnosing usability issues and informing the subsequent stages of the User-Centered Design process.

3. RESULT AND DISCUSSION

This section presents the results of the redesign process of the SKK (Student Credit System) website using the UCD method and WEBUSE evaluation. The discussion is structured according to the four core stages of UCD: (1) Specify the Context of Use, (2) Specify User and Organization Requirements, (3) Produce Design Solutions, and (4) Evaluate Design Against User Requirements.

Each stage elaborates on how user data was gathered, interpreted, and transformed into actionable insights to improve the interface and functionality of the SKK website. This approach ensures that the final design is grounded in users' real-world experiences and organizational goals.

The evaluation process integrates both qualitative data (e.g., interviews, user personas, and journey maps) and quantitative assessments using the WEBUSE evaluation. The results are discussed in depth to highlight how each stage of the UCD method contributes to solving usability problems, enhancing user satisfaction, and aligning the platform with institutional identity and user expectations.

3.1. Specify the Context of Use

In this stage, a contextual inquiry was conducted to understand the real-world environment in which the SKK Itenas website is utilized. This includes identifying who the users are, their tasks, goals, usage environment, and any constraints they face. The purpose of this activity is to ensure that the design aligns with user needs and organizational objectives.

3.1.1. System Background

The SKK is an institutional platform developed by Itenas to record and assess students' participation in co-curricular and extracurricular activities. The system supports the evaluation of soft skill competencies, in line with national graduation requirements, where each student is expected to accumulate at least 1000 points, equivalent to 20 SKK credits. The system has become critical for students to track their progress and for lecturers to validate student-submitted activities.

The SKK website comprises six main features that facilitate the recording and management of student activities. The Login feature (F1) serves as the entry point, allowing users to access the system by entering their username and password. Once logged in, users are directed to the Activity List feature (F2), which displays a comprehensive list of previously submitted activities, including details such as activity name, location, organizer, role, points, and status. To submit a new activity, users can utilize the Add Activity feature (F3), which enables them to input various structured data fields, including student ID, activity category, and organizer details. If modifications are needed, the Edit Activity feature (F4) allows users to update activities, specifically those conducted within the Itenas campus. The SKK Point Recap feature (F5) displays accumulated points based on approved activities submitted by the user. Lastly, the Edit Profile feature (F6) allows users to update their personal information stored in the system. Each feature is designed to streamline the user experience and support the accurate tracking of extracurricular achievements in accordance with the SKK requirements.

3.1.2. User Groups

There are two primary user groups of the SKK website:

- Students who use the platform to log their participation in activities, upload supporting documents (e.g., certificates), and monitor their SKK points.
- Lecturers, who use the platform to review and approve student-submitted activities to validate their SKK credit eligibility.

3.1.3. User Environment

Users access the SKK website via personal digital devices, including laptops, tablets, and smartphones. The environment is mostly asynchronous and remote, meaning users interact with the system from various locations (e.g., home, campus, dormitory) without real-time assistance. Both lecturers and students are generally familiar with online systems, but usability issues within the SKK website interface have hindered the efficiency and effectiveness of their interactions.

3.1.4. User Tasks

The SKK website serves two main user groups: students and lecturers, each with specific tasks based on their roles within the system. For students, the primary tasks include logging into the platform, submitting new activities they have participated in, uploading supporting documents such as certificates as proof of participation, checking their accumulated SKK points, and logging out of the system. These tasks are designed to help students track and manage their extracurricular achievements in alignment with Itenas' graduation requirements.

Lecturers, on the other hand, are responsible for managing the verification process of student submissions. Their core tasks consist of logging into the system, reviewing the activities submitted by their assigned students, approving or rejecting these submissions based on institutional criteria, and finally, logging out. These tasks are essential for ensuring that student activities are validated appropriately and that SKK point allocations are accurate and consistent with the established guidelines.

3.1.5. Interview and Survey Summary

To contextualize user needs and identify potential problems, structured interviews were conducted with six students from various departments. The interviews focused on their experiences, difficulties, expectations, and suggestions for improvement. The questions covered topics such as system navigation, visual appearance, input processes, clarity of SKK point information, and responsiveness of the interface.

3.2. Specify User and Organization Requirements

At this stage, the identification of user requirements aimed to define the various needs and expectations that users have for the redesigned SKK website. These requirements were derived from previously identified user problems, user personas, and user journey maps.

3.2.1. Identification of User Problems

The problems encountered by users while using the SKK website were diverse, ranging from issues with user experience to problems with the user interface. A detailed list of these problems is presented in Table 2.

Table 2. User Problems Mapping

Problem ID	User Issues
MP1	The activity data entry feature is confusing, particularly regarding the data input process and the selection of activity categories.
MP2	The upload feature is problematic, with a confusing workflow, unclear icon design, and poorly organized layout.
MP3	SKK credit points should be displayed immediately after an activity is submitted.
MP4	The upload feature would be more efficient if integrated directly into the activity data entry process.
MP5	Difficulty in filling in activity data due to redundant input fields, such as the organizer's information field.
MP6	The lack of helper information (e.g., pop-ups or tooltips) for each input field makes the data entry process more difficult.
MP7	Users struggle to find notification or approval status for submitted activities.
MP8	Scrolling through the activity list is inconvenient, as the "Add Activity" button becomes hidden.
MP9	Table design is confusing—table headers lack clarity due to low color contrast, and the amount of information displayed is overwhelming.
MP10	The SKK website's appearance resembles that of other campus portals and does not reflect Itenas' branding (e.g., inconsistent colors, no logo, and unappealing images).
MP11	Excessive whitespace remains in certain sections, such as the activity data entry form

3.2.2. Identification of User Requirements

User requirements were formulated based on the mapping between user problems and persona data. These requirements, summarized in Table 3.

Table 3. User Requirements Mapping

Requirement ID	User Requirements	Related User Problems
KP1	Users require a streamlined workflow and a clear interface design for entering activity data.	MP1, MP5, MP6
KP2	Users require a simplified workflow and improved visual clarity for the activity upload feature.	MP2, MP4
KP3	Users require SKK credit points to be displayed immediately after an activity has been submitted.	MP3
KP4	Users require notifications regarding the approval status of submitted activities.	MP7
KP5	Users require improved readability and clarity in the presentation of summary tables containing activity data.	MP8, MP9
KP6	Users require the SKK website to reflect the visual identity of Itenas (logo, fonts, icons, layout, etc.).	MP10
KP7	Users require an optimized layout with minimal unnecessary whitespace.	MP11

3.2.3. Ideas and Solutions

The ideas and solutions were formulated based on the mapping between user problems and user requirements, ensuring that the redesigned SKK website effectively addresses user needs. The complete ideas and solutions are presented in Table 4.

Table 4. User Requirements Problem Solution Mapping

Problem ID	Proposed Ideas	Related User Problems	Related User Requirements
ID1	Improve the workflow of the activity data entry form by arranging input fields in a logical sequence: start with general information, then select the activity category group, followed by the activity type, and finally enter details according to the chosen type. Display scoring criteria per category to help students select the correct category. Minimize whitespace and apply background highlighting to make input sections more visually distinct.	MP1, MP5, MP6	KP1
ID2	Integrate the document upload process into the activity data entry workflow. Redesign the layout and replace upload icons with more representative symbols to improve clarity and recognition.	MP2, MP4	KP2
ID3	Modify the SKK credit points calculation	MP3, MP7	KP3, KP4

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Problem ID	Proposed Ideas	Related User Problems	Related User Requirements
	workflow so that points are displayed immediately after an activity is submitted.		
ID4	Implement a notification box (message-style pop-up) for approval status of submitted activities, and provide a help center section with SKK-related guidance and information.	MP8, MP9	KP5, KP6
ID5	Redesign the overall visual appearance of the SKK website, including the login page, activity list, SKK points display, and user profile pages, ensuring the use of appropriate branding elements such as logo, fonts, icons, layout, tables, color schemes, and buttons.	MP10, MP11	KP7

3.2.4. *Mind Mapping*

Following the identification of user problems and requirements, a mind mapping process was conducted to visualize the relationship between these elements and potential design solutions.

Furthermore, the identified user problems, requirements, and proposed ideas are also mapped against six core features of the SKK website: F1 - user authentication and profile management, F2 - activity submission and data entry, F3 - document upload and evidence management, F4 - SKK points calculation and tracking, F5 - activity approval and notification system, and F6 - information display with consistent institutional branding. The mapping ca be seen in Figure 2.

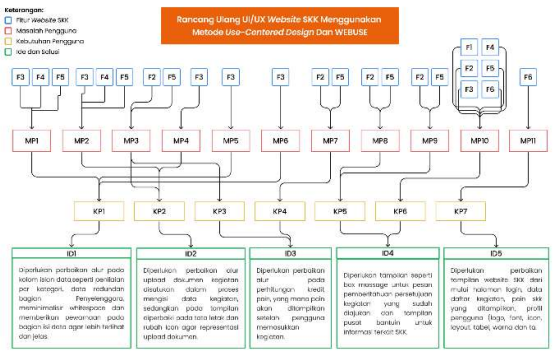

Figure 2. Mind Map of SKK Website Problems, Requirements, and Solutions

3.3. *Produce Design Solutions*

After identifying the problems and analyzing user needs, the next stage is to produce a concrete design solution in the form of a new user interface for the SKK website. This phase aims to transform the ideas and proposed solutions into an effective, efficient, and user-friendly interface design.

3.3.1. *Wireframe*

Wireframes are low-fidelity visual representations that serve as the basic structural blueprint of the interface. They help designers organize information layout and navigation clearly and simply, without distraction from complex visual elements. The example of wireframe can be seen in Figure 3.

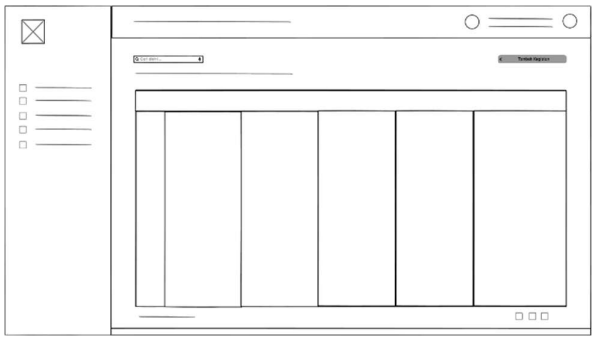

Figure 3. Wireframe of SKK Website

The SKK website wireframes include essential pages for user-friendly navigation and activity management. The Login Page authenticates users via NRP and password, with an optional "Remember Me" feature. Upon login, the Dashboard Page displays a sidebar menu, submitted activities, search functionality, and notifications. Users can submit new activities on the Add Activity Page, modify them via the Edit Activity Page, or view details on the View Activity Page. The Score Summary Page tracks approved SKK points, while the Personal Data Pages enabled profile updates. Finally, the Help Center Page provides guidelines on SKK rules and system usage, ensuring efficient user support.

3.3.2. *Mockup*

The mockup serves as a visual representation of the product design, offering a clearer and more tangible depiction of the system. It functions as a communication tool between users and the system, ensuring alignment with user needs and expectations. The design adheres to the Eight Golden Rules of Interface Design by Schneiderman, emphasizing usability principles such as consistency, informative feedback, and user control. By applying these guidelines, the mockup enhances intuitiveness and optimizes the user's experience. The visual representation of the system mockup is shown in Figure 4.

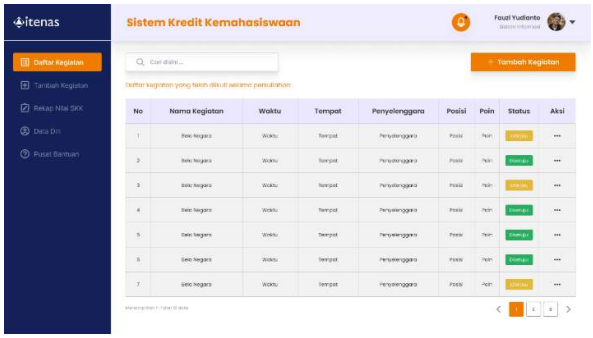

Figure 4. Mockup of Webs SKK Dashboard

The mockup employs a clean, structured material design approach, utilizing an institutional blue color scheme that conveys professionalism while maintaining visual calmness appropriate for an academic context. Its layout strategically divides the screen into a left navigation panel and main content area, optimizing workflow efficiency through clear visual hierarchy. The activity table adopts a minimalist yet informative design, presenting essential data columns in a logically organized manner. The interface demonstrates strong consistency in color patterns and typography while simplifying interactive elements (such as action buttons and navigation menus) to ensure usability without compromising functionality. Cognitive design principles are evident through effective information chunking and visual emphasis on key elements, resulting in an optimal balance between professional aesthetics and an intuitive user experience for managing student activities. Attention to negative space and typographic contrast further enhances content legibility, adhering to modern web accessibility standards while maintaining institutional identity.

3.4. Evaluate Design Againts User Requirement

The redesigned SKK dashboard interface was evaluated through usability testing involving six participants (five evaluators and one excluded due to unavailability), following the WEBUSE evaluation to assess usability across four key dimensions: Content, Organization, and Readability; Navigation and Links; Design User Interface; and Performance and Effectiveness.

3.4.1. Usability Testing

Usability testing serves as an essential evaluation technique that directly incorporates user perspectives, as it systematically assesses a system's effectiveness, efficiency, and satisfaction through real user interactions [20]. This approach aligns with ISO 9241-11's definition of usability as "the extent to which specified users can use a system to achieve specified goals" while emphasizing user experience as the core metric [21], [22]. The method proves particularly valuable for academic systems like SKK, where interface intuitiveness directly impacts student productivity and institutional workflow efficiency.

Effectiveness

The usability testing achieved a 100% task completion rate across all nine scenarios (login, activity management, data viewing/editing, and logout) with six participants. This exceeds the 80% benchmark for "highly effective" systems according to established standards, confirming the interface successfully supports user tasks without usability barriers. The consistent performance across diverse academic disciplines demonstrates universal applicability within the university context. To calculate effectiveness, Equation 1 can be used.

$$Effectiveness = \left(\frac{Successful\ Tasks}{Total\ Task\ Attempt}\right) x\ 100\% \quad (1)$$

Efficiency

The system's efficiency was quantitatively assessed by measuring task completion times across all test scenarios. Time-based efficiency analysis revealed an average rate of 0.0381 goals per second, calculated using the inverse time method (1/t) for each completed task. The results showed significant variation in completion times depending on task complexity: simple view operations (e.g., checking SKK points) were executed substantially faster than data modification tasks (e.g., editing activities). Notably, the 100% success rate in all time-measured tasks confirmed that the efficiency metrics accurately reflect actual performance, without distortion due to failures. The calculated efficiency score of 0.0381 goals/second indicates that users typically complete each system operation in approximately 26.3 seconds (1/0.0381), demonstrating the interface's responsiveness to user needs. These findings suggest that while the system handles basic operations with high efficiency, more complex functions benefit from additional optimization opportunities to reduce completion times. To calculate efficiency, Equation 2 can be used.

$$Efficiency = \frac{\sum_{j=1}^{R}\left(\sum_{i=1}^{N}\frac{n_{ij}}{t_{ij}}\right)}{NxR} \quad (2)$$

where:

- R = total number of test scenario
- N = total number of participants
- n_{ij} = 1 if task j succeded for participant i, else 0
- t_{ij} = time taken (s)

3.4.2. WEBUSE Evaluation

The systematic usability evaluation, conducted using the WEBUSE evaluation, yielded significant improvements across all measured dimensions.

Content Organization and Readability

Achieved a score of 0.92 (Excellent), representing a 104% enhancement from the baseline measurement of 0.45. This substantial improvement indicates superior information architecture and content structuring.

Navigation and Links

Scored 0.92 (Excellent), demonstrating a 100% increase from the initial 0.46 assessment. The refined navigation schema now provides a more intuitive wayfinding experience and reduces cognitive load.

Design Interface

Attained the highest score of 0.93 (Excellent), reflecting a remarkable 138% progression from the previous 0.39 evaluation. The current implementation exhibits enhanced visual consistency and adherence to design principles.

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Performance and Effectiveness

Achieved a score of 0.89 (Excellent), marking a 44% improvement from the 0.62 baseline. The optimized system demonstrates measurable gains in operational efficiency and task completion rates. Table 5 presents a comparative evaluation of pre- and post-redesign usability metrics, revealing significant enhancements across all measured dimensions, as systematically quantified through the WEBUSE.

Table 5. The comparative score of pre and post-redesign

Evaluation Dimension	Pre-Redesign Score	Post-Redesign Score	Improvement Score
Content Organization & Readability	0,45	0,92	+0,47
Navigation & Links	0,46	0,92	+0,46
Design User Interface	0,39	0,93	+0,54
Performance & Effectiveness	0,62	0,89	+0,27

Figure 5 demonstrates that the redesign process successfully enhanced system quality across all usability dimensions. According to the WEBUSE evaluation, all previous "Needs Improvement" categories now meet "Excellent" standards

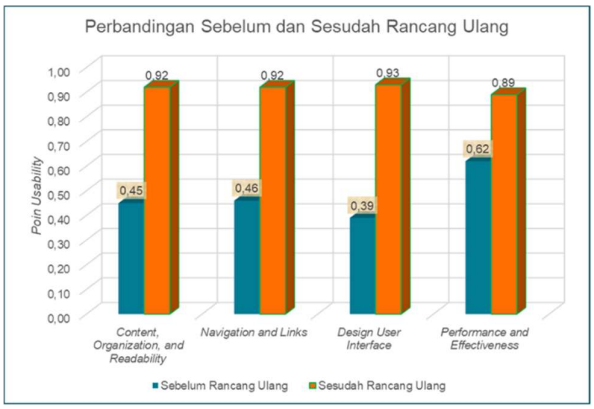

Figure 5. WEBUSE Result of SKK Website Before and After Improvement

The most substantial enhancements occurred in interface design, followed by improvements in content structure and navigation efficiency. This transformation not only resolved initially identified usability issues but also established new, consistent performance benchmarks across all evaluation aspects. These results validate the effectiveness of the implemented redesign approach in creating optimal user experience.

4. CONCLUSION

This study demonstrates that the systematic redesign of the SKK system has successfully enhanced usability across all evaluated dimensions, with all WEBUSE evaluations (content, organization, and readability, navigation and links, user interface design, and performance and effectiveness) achieving an "Excellent" rating with scores of≥ 0.80. The most significant improvements were observed in User Interface Design (+138%) and Content, Organization, and Readability (+104%), effectively addressing critical pain points identified in pre-redesign evaluations and establishing intuitive workflows for core functions, such as activity submission and data editing. These findings validate the WEBUSE evaluation for educational system evaluation while providing a practical model for usability-driven redesign in institutional contexts. The results confirm the SKK system's readiness for deployment and suggest adoptable strategies for similar academic platforms, including prioritizing interface consistency, streamlining navigation paths, and implementing iterative usability testing. However, the short-term evaluation period necessitates longitudinal studies, and the exclusively academic user base requires broader verification for generalizability. Future work should explore AI-enhanced personalization to further optimize the user experience.

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