

## Usability evaluation and user-centered redesign of an academic journal platform

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### Abstract

Academic journal platforms play an important role in supporting scientific publication and information accessibility in higher education. However, many academic journal platforms still experience usability issues related to navigation, interface consistency, visual design, and task efficiency, which may negatively affect user experience and system effectiveness. This study aims to evaluate and redesign the usability of an academic journal platform in the Faculty of Engineering, Universitas Diponegoro, using a User-Centered Design (UCD) approach. Usability evaluation was conducted using Maze Usability Testing and Heuristic Evaluation, involving 20 students and alumni and 8 evaluators comprising teaching staff and UI/UX experts. The evaluation focused on five usability aspects, namely learnability, efficiency, memorability, errors, and satisfaction. The findings identified several major usability problems, particularly in interface consistency, navigation structure, information density, and feature accessibility. Based on these findings, a redesigned prototype was developed and re-evaluated using the same usability methods. The results showed significant improvements in usability across all evaluated aspects. Learnability increased from 53.2% to 93.6%, while the average task completion time decreased from 56.3 seconds to 11.3 seconds. In addition, the severity rating for memorability, errors, and satisfaction decreased from major and minor usability problem categories to cosmetic problem categories after redesign implementation. These findings indicate that the proposed redesign successfully improved usability, task efficiency, and overall user experience of the academic journal platform. The study also demonstrates the effectiveness of combining Maze Usability Testing, Heuristic Evaluation, and UCD approaches to enhance the usability of academic information systems.

**Keywords:** Usability evaluation; User-centered design; Heuristic evaluation; Maze usability testing; Academic journal platform

### 1. Introduction

Academic journal platforms have become essential components of higher education institutions in supporting scientific publication, knowledge dissemination, and digital access to scholarly information. These platforms are widely used by students, researchers, lecturers, and the public to access academic articles, submit manuscripts, and manage publication processes. As the number of users and digital interactions continues to increase, usability has become an important factor affecting the effectiveness, accessibility, and overall user experience of academic journal systems [1], [2]. University learning life is certainly familiar with websites such as Google Scholar, jurnal.id, ScienceDirect, and others, where these websites serve as repositories for and search engines of articles, theses, and research results that can be used as references for course learning and research. This website is frequently accessed by students, lecturers, and the public who need scientific references.

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The academic journal platform in the Faculty of Engineering, Universitas Diponegoro, has 1,252,688 total visitors as of February 17, 2023, and 1,823,342 articles downloaded by visitors, a considerable number. This platform is accessed not only by domestic users but also by users from various countries. Given the high number of visitors to the academic journal platform, it certainly needs a good, comfortable, effective, and efficient User Interface (UI), as well as tools, icons, buttons, and fonts that are easier to understand for visitors and users, especially academic communities and general users utilizing the scientific journal platform.

Usability plays a significant role in determining how easily users can learn, navigate, and interact with digital systems. Poor usability may reduce task efficiency, increase user confusion, and negatively affect user satisfaction and system acceptance. On academic journal platforms, usability issues may hinder users' ability to search for articles, navigate menus, upload manuscripts, and access publication information efficiently. Previous studies have shown that interface consistency, navigation clarity, information organization, and visual hierarchy strongly influence user experience and system performance in web-based platforms [3], [4].

Despite the increasing adoption of digital journal management systems in universities, many academic journal platforms still face usability challenges. Several academic journal platforms continue to use outdated interface structures, inconsistent visual elements, complex navigation flows, and dense information layouts that reduce accessibility and interaction efficiency. In addition, previous usability studies have predominantly focused on e-commerce systems, mobile applications, and commercial websites, while studies specifically evaluating academic journal management platforms remain limited [4], [5]. Furthermore, few studies have integrated task-based usability testing and heuristic evaluation within a comprehensive User-Centered Design (UCD) framework to improve academic journal platforms.

A preliminary study on user satisfaction with the academic journal platform involved 67 respondents from the academic community, namely students, lecturers, and alumni from various scientific backgrounds. Initial results showed that most respondents were new users or users with low access frequency, making first-time usage experience and navigation ease important factors in website development. Additionally, most respondents accessed the system via laptop or desktop (74.6%), while the rest used smartphones (25.4%).

Based on the preliminary questionnaire results, several usability problems were identified in the Academic journal platform. Most users perceived the interface design as visually unattractive and lacking a satisfying user experience. In addition, the layout and organization between pages and website sections were considered poorly structured, making navigation difficult for users. The system was also reported to frequently experience page loading errors, which negatively affected user comfort and trust in the platform. Furthermore, several icons and visual elements were found to be unclear and difficult to understand, thereby reducing navigation clarity and interaction efficiency. Users also highlighted inconsistent color schemes and visual designs that were not suitable for prolonged use, as well as inefficient journal access processes. Overall, respondents expected a more modern visual appearance, improved navigation structure, and better system stability.

Based on the preliminary study results, it is concluded that development and feature refinement are needed for the Academic journal platform to enable both returning and new users to experience a more efficient, easy-to-understand experience. Therefore, a more comprehensive usability testing phase is required to identify user interface and experience issues in depth as the basis for website improvement design.

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## 2. Research Methodology

This research uses the User-Centered Design (UCD) approach as the main framework for designing and evaluating usability improvements on the Academic journal platform. This approach places users at the center of all development stages, ensuring solutions effectively meet user needs. The research involves two respondent groups tailored to the usability evaluation methods. Maze Usability Testing involved 20 respondents, including undergraduate and postgraduate students and alumni. Heuristic Evaluation was conducted by eight evaluators: five experts in interface and user experience, and three teaching staff experienced in web-based scientific publication systems. The research flow based on the User-Centered Design approach is as follows:

- Understand the context of use: this stage involves a preliminary study of the Academic journal platform website, problem formulation, and research objectives.
- Specify User Requirements: This stage designs the current Academic Journal platform website. Data collection follows using two usability testing methods: Maze Usability Testing and Heuristic Evaluation to identify issues

in five usability aspects (satisfaction, learnability, errors, efficiency, memorability) and pain points. Table 1 lists the tasks in this research, and Table 2 lists heuristic evaluation indicators with codes.

**Table 1** MAZE Usability Testing Task

| No | Code | Task           | Description                                 |
|----|------|----------------|---|
| 1  | T-1  | Register       | Respondents asked to register a new account |
| 2  | T-2  | Login          | Respondents asked to login with new account |
| 3  | T-3  | Editorial Team | Find editorial team page                    |
| 4  | T-4  | Search         | Try searching/browsing                      |
| 5  | T-5  | View Journal   | View journal                                |
| 6  | T-6  | Upload Journal | Try uploading journal                       |
| 7  | T-7  | Authors        | Find authors page                           |

**Table 2** Heuristic Evaluation Indicators

| Code | Indicator  |
|------|--|
| I-1  | Visibility of system status                          |
| I-2  | Match Between system & Real world                    |
| I-3  | User Control & Freedom                               |
| I-4  | Consistency & Standards                              |
| I-5  | Error Prevention                                     |
| I-6  | Recognition Rather Than Recall                       |
| I-7  | Flexibility & Efficiency of Use                      |
| I-8  | Aesthetic & Minimalist Design                        |
| I-9  | Help Users Recognise, Diagnose & Recover from Errors |
| I-10 | Help & Documentation                                 |

- Recommendations for Improvement: Provide UI improvement points for the Academic journal platform website, focusing on usability and pain points.
- Evaluate Against Requirements: Collect data using the same methods on the improved website for comparison with the original.

All User-Centered Design stages are analyzed to produce conclusions and further development recommendations to improve the quality of the Academic journal platform.

### 3. Results and discussion

#### 3.1. Specify User Requirements

Data collection begins with specifying user requirements for the Academic journal platform as a web-based academic journal management and publication platform. User needs identification uses usability testing to evaluate system performance, find usage barriers, and provide a strong basis for interface and experience improvements.

### 3.2. Maze Usability Testing

Maze Usability Testing requires respondents to complete tasks to assess speed and errors. Conducted with 20 respondents, results are in Table 3. Direct success: percentage completed via expected path. Indirect success: via unexpected path. Mission unfinished: ended on wrong screen. Misclick rate: average off-hotspot clicks. Average duration: time to complete task.

**Table 3** Overall Results MAZE Usability Testing

| Task | Direct Success | Persentase direct success | Indirect Success Rate | Persentase indirect success | Mission Unfinished | Persentase mission unfinished | Misclick rate | Average duration (second) |
|------|----------------|---------------------------|-----------------------|-----------------------------|--------------------|-------------------------------|---------------|---------------------------|
| T-1  | 7              | 35%                       | 5                     | 25%                         | 8                  | 40%                           | 63.50%        | 115.9                     |
| T-2  | 13             | 65%                       | 6                     | 30%                         | 1                  | 5%                            | 37.70%        | 15.3                      |
| T-3  | 5              | 24%                       | 8                     | 40%                         | 7                  | 36%                           | 65.30%        | 70.6                      |
| T-4  | 2              | 10%                       | 17                    | 85%                         | 1                  | 5%                            | 37.60%        | 21.1                      |
| T-5  | 8              | 40%                       | 9                     | 45%                         | 3                  | 15%                           | 53.50%        | 45.9                      |
| T-6  | 0              | 0%                        | 15                    | 75%                         | 5                  | 25%                           | 39.80%        | 57.1                      |
| T-7  | 6              | 30%                       | 7                     | 35%                         | 7                  | 35%                           | 46.70%        | 68.2                      |

**Table 4** Maze Usability Score (MAUS) Results

| Task         | Mission Usability Score (MIUS) | Category |
|--------------|--------------------------------|----------|
| T-1          | 44                             | Poor     |
| T-2          | 77                             | Moderate |
| T-3          | 44                             | Poor     |
| T-4          | 53                             | Moderate |
| T-5          | 42                             | Poor     |
| T-6          | 32                             | Poor     |
| T-7          | 39                             | Poor     |
| Average MIUS | 47.29                          | Poor     |

The test results indicate performance variations across tasks. Several tasks exhibit low direct success rates, high misclick rates, and relatively long completion times. These findings suggest that the navigation, information structure, and interface clarity are not yet optimal for new or unfamiliar users. The Mission Usability Score (MIUS) and Maze Usability Score (MAUS) calculations show that five of seven tasks fall into the poor category, two into the moderate category, and none into the good category. The average MAUS value of 47.29 indicates that the website's usability level is still low, highlighting the need for improvements, particularly in visual design, navigation, and ease of use.

### 3.3. Heuristic Evaluation Website

Heuristic Evaluation is a usability testing method that assigns ratings to ten heuristic indicators and is complemented by in-depth interviews with seven evaluators, consisting of two teaching staff (TS) and five experts (E) with expertise in UI/UX. Table 5 presents the results of the severity rating calculation.

**Table 5** Severity Rating Teaching Staff and Expert

| Name                   | I-1 | I-2 | I-3 | I-4 | I-5 | I-6 | I-7 | I-8 | I-9 | I-10 |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Evaluator 1TS          | 0   | 2   | 0   | 2   | 0   | 3   | 2   | 3   | 0   | 3    |
| Evaluator 2TS          | 1   | 0   | 1   | 0   | 0   | 0   | 2   | 0   | 1   | 0    |
| Evaluator 3TS          | 0   | 2   | 2   | 1   | 3   | 1   | 2   | 2   | 1   | 2    |
| Evaluator 1A           | 4   | 3   | 2   | 4   | 4   | 3   | 3   | 4   | 3   | 3    |
| Evaluator 2A           | 3   | 3   | 3   | 4   | 2   | 4   | 4   | 4   | 2   | 4    |
| Evaluator 3A           | 4   | 3   | 3   | 4   | 3   | 4   | 4   | 4   | 3   | 4    |
| Evaluator 4A           | 3   | 3   | 3   | 4   | 2   | 4   | 4   | 3   | 2   | 4    |
| Evaluator 5A           | 3   | 3   | 4   | 4   | 2   | 3   | 4   | 4   | 3   | 3    |
| <i>Severity Rating</i> | 2.3 | 2.4 | 2.3 | 2.9 | 2.0 | 2.8 | 3.1 | 3.0 | 1.9 | 2.9  |
| <i>Average</i>         | 2.5 |     |     |     |     |     |     |     |     |      |

The severity rating results in Table 5 show that no usability catastrophe was identified. However, indicators I-4, I-6, I-7, I-8, and I-10, with an average score of 2.5, fall into the major usability problems category, indicating that improvements to the website are necessary. The remaining indicators are classified as minor usability problems. These findings suggest that most issues are high priority for improvement before further system development. Key indicators requiring attention include design consistency, flexibility of use, and visibility into system status.

### 3.4. Usability Aspects

#### 3.4.1. Learnability

Learnability is a measure of how easily users can complete tasks when using a website or application for the first time [6]. This aspect is evaluated using MAZE Usability Testing through the Direct Success, Indirect Success, and total task metrics. The data were collected from 20 respondents who participated in the MAZE Usability Testing [7].

**Table 6** Learnability MAZE Usability Testing

| Task        | Direct Success | Percentage success | direct | Indirect Success | Percentage success | indirect | Score |
|-------------|----------------|--------------------|--------|------------------|--------------------|----------|-------|
| T-1         | 7              | 35%                | 5      | 25%              | 47.5%              |          |       |
| T-2         | 13             | 65%                | 6      | 30%              | 80.0%              |          |       |
| T-3         | 5              | 24%                | 8      | 40%              | 45.0%              |          |       |
| T-4         | 2              | 10%                | 17     | 85%              | 52.5%              |          |       |
| T-5         | 8              | 40%                | 9      | 45%              | 62.5%              |          |       |
| T-6         | 0              | 0%                 | 15     | 75%              | 37.5%              |          |       |
| T-7         | 6              | 30%                | 7      | 35%              | 47.5%              |          |       |
| Total Score | 53.2%          |                    |        |                  |                    |          |       |

The learnability results from the MAZE Usability Testing indicate that respondents made many errors due to confusion, unfamiliarity, and difficulties in completing the assigned tasks. These difficulties were caused by the interface design of the Academic journal platform, which has not yet been optimal in terms of functionality, placement, and clarity of purpose, making it less suitable for users who are not familiar with the website. Of the seven tasks given, only Task 2 achieved a satisfactory result, while the others require improvements and design updates to make the website easier to use.

### 3.4.2. Efficiency

Efficiency is an aspect that measures how quickly users can complete tasks after learning to use a website or application [6]. This aspect was evaluated using MAZE Usability Testing through the average duration metric based on data from 20 respondents.

**Table 7** Efficiency MAZE Usability Testing

| <b>Task</b>          | <b>average duration (second)</b> |
|----------------------|----------------------------------|
| T-1                  | 115.9                            |
| T-2                  | 15.3                             |
| T-3                  | 70.6                             |
| T-4                  | 21.1                             |
| T-5                  | 45.9                             |
| T-6                  | 57.1                             |
| T-7                  | 68.2                             |
| <i>Average total</i> | 56.3                             |

The results show that Task 1 (Register), Task 3 (Editorial Team), and Task 7 (Authors) required an average completion time of more than 60 seconds, indicating that many respondents experienced difficulties while completing these tasks. Meanwhile, Task 5 (View Journal) and Task 6 (Upload Journal) were within an acceptable time range but still require improvement to make task completion easier for users. These findings provide a basis for improving the user interface of the Academic journal platform so that users can complete tasks more efficiently.

### 3.4.3. Memorability

Memorability is an aspect that measures how easily users can reuse a website or application after they have previously explored it [2]. This aspect was evaluated using the Heuristic Evaluation results from teaching staff and experts on the indicators of visibility of system status, user control and freedom, consistency and standards, and flexibility and efficiency of use, as presented in Table 8.

**Table 8** Memorability Heuristic Evaluation

| <b>Name</b>                           | <b>Visibility of System Status</b> | <b>User Control &amp; Freedom</b> | <b>Consistency &amp; Standards</b> | <b>Flexibility &amp; Efficiency of Use</b> |
|---------------------------------------|------------------------------------|-----------------------------------|------------------------------------|--|
| Teaching Staff                        |                                    |                                   |                                    |  |
| Evaluator 1TS                         | 0                                  | 0                                 | 2                                  | 2  |
| Evaluator 2TS                         | 1                                  | 1                                 | 0                                  | 2  |
| Evaluator 3TS                         | 0                                  | 2                                 | 1                                  | 2  |
| Expert                                |                                    |                                   |                                    |  |
| Evaluator 1A                          | 4                                  | 2                                 | 4                                  | 3  |
| Evaluator 2A                          | 3                                  | 3                                 | 4                                  | 4  |
| Evaluator 3A                          | 4                                  | 3                                 | 4                                  | 4  |
| Evaluator 4A                          | 3                                  | 3                                 | 4                                  | 4  |
| Evaluator 5A                          | 3                                  | 4                                 | 4                                  | 4  |
| <i>Severity Rating Teaching Staff</i> | 0,3                                | 1,0*                              | 1,0*                               | 2,0**                                      |
| <i>Severity Rating Expert</i>         | 3,4***                             | 3,0***                            | 4,0****                            | 3,8****                                    |

|                                |        |       |        |        |
|--------------------------------|--------|-------|--------|--------|
| <i>Overall Severity Rating</i> | 2,3**  | 2,3** | 2,9*** | 3,1*** |
| <i>Average</i>                 | 2,6*** |       |        |        |

\*\*\*: Usability Catastrophe (3,5 - 4); \*\*: Major Usability Problem (2,5 - 3,4); \*: Minor Usability Problem (1,5 - 2,4) \*: Cosmetic (0,5-1,4); No Stars: No Problem (0 - 0.4)

The combined average score from teaching staff and experts is 2.6, which falls into the major usability problem category, indicating the need for improvements in memorability. The main priorities are the indicators of consistency and standards, as well as flexibility and efficiency of use. Consistency and standards relate to writing conventions, icons, and commands across pages. Based on expert interviews, inconsistencies were found across pages, including differences in fonts, mixed language usage, inconsistent subtitle placement, and the absence of certain menus on some pages. Flexibility and efficiency of use relate to how effectively and efficiently users can interact with the website. Evaluators suggested providing bilingual options (Indonesian and English) to facilitate navigation of the Academic journal platform. They also emphasized the need for a simpler design and reducing repetitive buttons.

### 3.5. Errors

Errors refer to the extent to which users make mistakes, how severe those mistakes are, and how easily they can recover from them [6]. This aspect was assessed using the Heuristic Evaluation results from teaching staff and experts on the indicators of Error Prevention, Help Users Recognize, Diagnose, and Recover from Errors, and Help and Documentation, as shown in Table 9.

**Table 9** Errors Heuristic Evaluation

| <b>Name</b>                           | <b>Error Prevention</b> | <b>Help User Recognise Diagnose, &amp; Recover from Errors</b> | <b>Help &amp; Documentation</b> |
|---------------------------------------|-------------------------|--|---------------------------------|
| <b>Teaching Staff</b>                 |                         |  |                                 |
| Evaluator 1TS                         | 0                       | 0  | 3                               |
| Evaluator 2TS                         | 0                       | 1  | 0                               |
| Evaluator 3TS                         | 3                       | 1  | 2                               |
| <b>Expert</b>                         |                         |  |                                 |
| Evaluator 1A                          | 4                       | 3  | 4                               |
| Evaluator 2A                          | 2                       | 2  | 4                               |
| Evaluator 3A                          | 3                       | 3  | 4                               |
| Evaluator 4A                          | 2                       | 2  | 3                               |
| Evaluator 5A                          | 2                       | 3  | 4                               |
| <i>Severity Rating Teaching Staff</i> | 1,0*                    | 0,7*   | 1,7**                           |
| <i>Severity Rating Expert</i>         | 2,6***                  | 2,6***   | 3,8****                         |
| <i>Overall Severity Rating</i>        | 2,0**                   | 1,9**  | 3,0***                          |
| <i>Average</i>                        | 2,3**                   |  |                                 |

\*\*\*: Usability Catastrophe (3,5 - 4); \*\*: Major Usability Problem (2,5 - 3,4); \*: Minor Usability Problem (1,5 - 2,4) \*: Cosmetic (0,5-1,4); No Stars: No Problem (0 - 0.4)

The combined average score is 2.3, which falls into the category of a minor usability problem. Although this aspect is not a top priority, improvements are still recommended. The main priority within this aspect is the Help and Documentation indicator. Based on interviews, evaluators suggested adding a help button for website navigation and providing an emergency contact that users can reach. They also recommended including tutorials, such as guidance for journal submission.

### 3.6. Satisfaction

Satisfaction measures the level of user comfort and satisfaction when interacting with a website or application design [6]. This aspect was evaluated using the Heuristic Evaluation results from teaching staff and experts on the indicators of Match between System and the Real World, Recognition Rather than Recall, and Aesthetic and Minimalist Design, as presented in Table 10.

**Table 10** Satisfactions Heuristic Evaluation

| Name                                  | <i>Match between System &amp; Real world</i> | <i>Recognition Rather than Recall</i> | <i>Aesthetic &amp; Minimalist Design</i> |
|---------------------------------------|--|---------------------------------------|--|
| Teaching Staff                        |  |                                       |  |
| Evaluator 1TS                         | 2  | 3                                     | 3  |
| Evaluator 2TS                         | 0  | 0                                     | 0  |
| Evaluator 3TS                         | 2  | 1                                     | 2  |
| Expert                                |  |                                       |  |
| Evaluator 1A                          | 3  | 3                                     | 4  |
| Evaluator 2A                          | 3  | 4                                     | 4  |
| Evaluator 3A                          | 3  | 4                                     | 4  |
| Evaluator 4A                          | 3  | 4                                     | 3  |
| Evaluator 5A                          | 3  | 3                                     | 4  |
| <i>Severity Rating Teaching Staff</i> | 1,3*   | 1,3*                                  | 1,7**                                    |
| <i>Severity Rating Expert</i>         | 3,0***                                       | 3,6****                               | 3,8****                                  |
| <i>Overall Severity Rating</i>        | 2,4**  | 2,8***                                | 3,0***                                   |
| <i>Average</i>                        | 2,71***                                      |                                       |  |

\*\*\*\*: Usability Catastrophe (3,5 - 4); \*\*\*: Major Usability Problem (2,5 - 3,4); \*\*: Minor Usability Problem (1,5 - 2,4) \*: Cosmetic (0,5-1,4); No Stars: No Problem (0 - 0.4)

The combined average score is 2.7, which falls into the major usability problem category, indicating a need for improvement in the satisfaction aspect. The main priorities are the indicators of "Recognition Rather than Recall" and "Aesthetic and Minimalist Design." Recognition Rather than Recall relates to a design that helps users easily understand and adapt to the interface. Based on evaluator interviews, many fonts were still considered too small, and the color combinations were not well aligned. Some evaluators also noted that many tools were not properly highlighted and appeared confusing, and several commands were repetitive. Aesthetic and Minimalist Design relates to presenting relevant information in a visually appealing and minimal manner. Evaluators stated that the homepage appeared too dense and recommended simplifying the content to focus only on essential information. Several pages were also considered overly crowded, indicating the need for design updates.

### 3.7. Recommendation Improvement

The improvements focus on user complaints and pain points identified from the MAZE Usability Testing and Heuristic Evaluation results. This redesign prototype focuses only on the interface design and does not include system implementation. The following are the proposed improvement points for the Academic journal platform website.

**Table 11** Recommended Points for Improvement

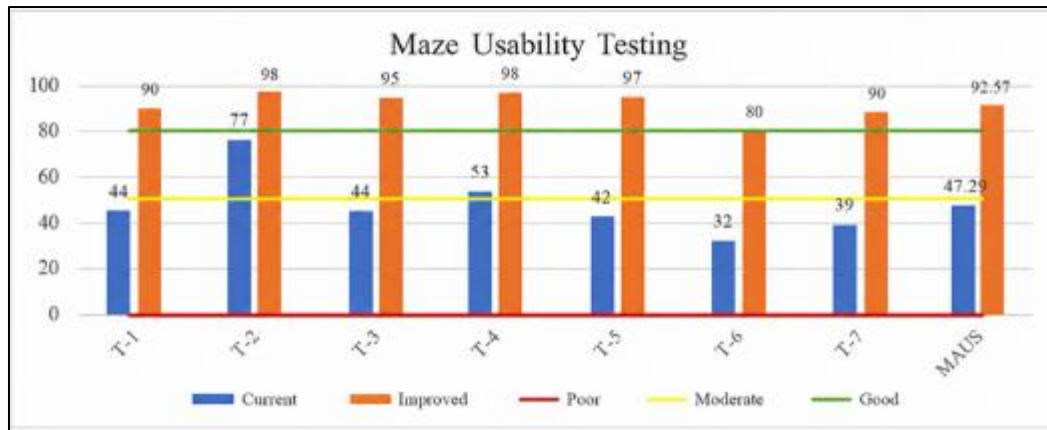
| Pain Points   | Page             | Points of Improvement   |
|---|------------------|---|
| <p>Old-fashioned headers and page titles</p> <p>There are 2 "Login" features on the main page</p> <p>Small size of "Seach contents"</p> <p>Fill in the main page of the website that is too full and does not highlight important features</p> <p>Register pages that are not so highlighted in commands and things that are not required to be entered</p> <p>Login pages that don't provide show password features</p> <p>Pages like "about", "pop" and "submission" that have too many paragraphs and sentences and no drop-downs</p> <p>Authors and tittles pages that do not have search content, making it difficult for users to find their destination</p> <p>Icons from the submenu that are still incorrect</p> <p>Lack of guidance for new users</p> <p>No language selection and some paragraph sections with inconsistent language</p> | Home Page        | <p>Changing headers and titles to uniform (Repairs <i>pain points 1</i>)[6]</p> <p>Eliminating one of the login features, the login feature used is the one in the upper right (Repairs <i>pain points 2</i>) [8]</p> <p>Add a choice of 2 languages, namely Indonesian and English (Repairs <i>pain point 12</i>) [9] [10]</p> <p>Zoom in and center features <i>Search content</i> and add to be <i>search title</i> and <i>search authors</i> (Repairs <i>pain point 3</i>) [11]</p> <p>Placing <i>Articles</i> at the top and removing less relevant sections on the main page (Repairs <i>pain point 5</i>)</p> <p>Adding <i>guideline</i> and <i>shortcut</i> others are <i>current articles</i>, <i>archive</i>, <i>upload journal</i>, <i>journal template</i>, <i>statistics</i>, and <i>notifications</i> (Repairs <i>pain point 11</i>) [12]</p> |
|   | Register         | <p>Dividing the register form into 4 parts (Repairs <i>pain point 6</i>) [13].</p> <p>Highlighting password needs (Repairs <i>pain point 6</i>)</p> <p>Added a <i>fill later feature</i> to fill in biodata that is not required to be filled in (Repairs <i>pain point 6</i>)</p>  |
|   | Login            | <p>Improvements to the Academic journal platform website are</p> <p>Added show and <i>hide password</i> features (Repairs <i>pain point 7</i>) [8]</p>  |
|   | Upload Journal   | <p>Added a drop-down feature for each paragraph sub-heading (Repairs <i>pain point 8</i>) [14].</p> <p>Highlight <i>file</i> formats and tell them that they must be eligible</p>   |
|   | Journal Issue    | <p>Added <i>search content feature</i> in each section (Repairs <i>pain point 9</i>)</p> <p>Add filter features in sections <i>search</i> and <i>current articles</i> [15]</p> <p>Added a <i>drop-down</i> feature in the <i>authors index</i> section (Repairs <i>pain point 8</i>)</p>  |
|   | People In Charge | Makes all sections on a single page and adds a <i>drop-down</i> feature (Repairs <i>Pain Point 8</i> )  |
|   | About Us         | Make the <i>drop-down</i> feature (Repairs <i>Pain Point 8</i> )  |
|   | Profile          | <p>Fix and merge icon features (Repairs <i>pain point 10</i>)</p> <p>Added drop-downs and added features and created titles (Repairs <i>pain point 8</i>)</p>   |
|   | Guideline        | Added a <i>section of the guideline</i> (Repairs <i>pain point 11</i> ) [12]  |

### 3.8. Evaluate Against Requirement

#### 3.8.1. Maze Usability Testing

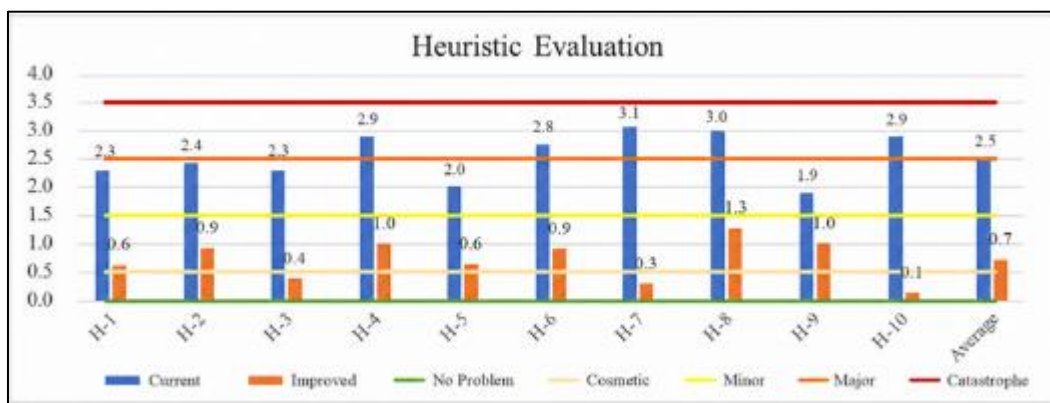
Figure 1 shows that respondents performed the assigned tasks more effectively on the improved version of the Academic journal platform website. The current version had no tasks with a Mission Usability Score (MIUS) above 80, and five out of seven tasks were categorized as poor. In contrast, all tasks on the redesigned website achieved a MIUS above 80, indicating that the website is rated as good.

The Maze Usability Testing (MAUS) results also show a significant improvement between the current website and the redesigned version in terms of direct success, indirect success, mission unfinished, misclick rate, and average duration. These findings indicate that the redesigned website performs better than the previous version, particularly in terms of learnability and efficiency.



**Figure 1** Comparative Recap of Maze Usability Testing

### 3.8.2. Heuristic Evaluation



**Figure 2** Heuristic Evaluation Comparative Recapitulation

Based on the recapitulation results, it can be seen that the teaching staff and experts, while navigating the current and improved versions of the Academic journal platform website, considered the improved version to be better than the current or pre-improvement version. In the current or pre-improvement Academic journal platform Website, 5 out of 10 indicators were categorized as major problems (2.5–3.5), while the other 5 indicators were categorized as minor problems (1.5–2.5). Meanwhile, in the improved website, no indicators fell into the minor problem category (1.5–2.5); 7 out of 10 indicators were categorized as cosmetic problems (0.5–1.5), and the remaining 3 indicators were categorized as no problem (as seen in Figure 2).

The Average Severity Rating results also showed a significant decrease between the current website and the improved website across all 10 indicators in this heuristic evaluation. These findings indicate that, based on the data, the improved website performs better than the current or pre-improvement website in terms of memorability, errors, and user satisfaction.

### 3.8.3. Usability Aspects

The following is a recapitulation of the 5 usability aspects before and after the evaluation was conducted.

Based on Table 12, it can be seen that all usability principles of the Academic journal platform Website experienced significant improvements after the evaluation and redesign process were conducted. In the learnability aspect, the total score increased from 53.2% to 93.6%, indicating that users were able to understand and use the website more easily after the redesign was implemented. In the efficiency aspect, the average task completion duration decreased from 56.3 seconds to 11.3 seconds, showing that users were able to complete tasks more quickly and efficiently.

In addition, the memorability aspect showed a decrease in the severity rating from 2.6 (Major) to 0.6 (Cosmetic), which means that the improved website became easier for users to remember and understand. In the errors aspect, the severity rating also decreased from 2.3 (Minor) to 0.6 (Cosmetic), indicating that user errors and system-related

problems were successfully minimized after the improvements were made. Furthermore, the satisfaction aspect experienced a decrease in the severity rating from 2.7 (Major) to 1.0 (Cosmetic), leading to the conclusion that user satisfaction and comfort with the website increased significantly.

**Table 12** Differences in usability principles before and after evaluation

| Usability Principle | Indicator        | Before      | After        |
|---------------------|------------------|-------------|--------------|
| Learnability        | Total Score      | 53.2%       | 93.6%        |
| Efficiency          | Average duration | 56.3        | 11.3         |
| Memorability        | Average SR       | 2.6 (Major) | 0.6 (Cosmic) |
| Errors              |                  | 2.3 (Minor) | 0.6 (Cosmic) |
| Satisfaction        |                  | 2.7 (Major) | 1.0 (Cosmic) |

Overall, the evaluation results indicate that the improved Academic journal platform Website has a better level of usability compared to the website before the improvements. The redesign successfully enhanced ease of use, efficiency, comfort, and overall user experience when using the website.

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#### 4. Conclusion

Based on the research conducted, the majority of academic journal platform users utilize the website to search for journals, search for authors, and upload journals. From the usability testing conducted using Maze Usability Testing and Heuristic Evaluation, several pain points and recommendations were identified from the perspectives of respondents and informants (teaching staff and experts) to improve the website. Therefore, a redesign was carried out to address the identified pain points and implement the suggested improvements.

This study also produced a redesign prototype for the user interface design, which was evaluated using the User-Centered Design approach and tested through usability testing. The redesign improvements on the Academic journal platform Website addressed several user pain points, such as adding features to improve user efficiency, implementing a consistent design, adding language options, and eliminating duplicate or less relevant features. The usability testing results showed improvements across the five usability aspects, indicating that the redesigned website performed better than the pre-improvement website.

Based on the results of this study, it can be concluded that the overall usability level across the five usability aspects of the improved Academic journal platform Website is better than that of the website before the improvements. Therefore, it can be concluded that the improved Academic journal platform Website is more comfortable, easier to use, and more efficient for users.

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#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

No Conflict of interest to be disclosed

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