

## **Usability Evaluation of the Academic Information System Using the Concurrent Think-Aloud, Webuse, and Sus Methods**

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### **ABSTRACT**

This research was motivated by the situation that the academic information system (SIKAD) Universitas Teknologi Indonesia (UTI) had never been tested for usability based on user responses. Apart from that, the flow that occurs in the UTI academic information system is not yet coherent. From the user's side, the information guide feature for using SIKAD UTI is not yet available. Based on this, the research aimed to: 1) describe the results of usability evaluation using the Concurrent Think-Aloud and Webuse methods on the Academic Information System of Indonesia Technology University; 2) describe recommendations for usability evaluation of the Concurrent Think-Aloud and Webuse method on the Academic Information System of the Indonesia Technology University; and 3) create a simulation of SIKAD UTI development and describe the test results using the System Usability Scale (SUS) method. The research method used a mix of qualitative and quantitative methods, so that data obtained is more comprehensive, valid, reliable, and objective. Usability evaluation data through the Concurrent Think-Aloud method was collected using an interview, usability evaluation through the Webuse method was collected using a questionnaire, and satisfaction data through the SUS method was collected using a questionnaire. The results of the development carried out in this research can be concluded as follows. (1) The SIKAD UTI evaluation results through the Concurrent Think-Aloud method showed that many navigation buttons did not function, inconsistent button features, disproportionate location/buttons position, and inappropriate color selection. Therefore, the evaluation results through the Concurrent Think-Aloud Method showed that SIKAD UTI needs to be improved. (2) The SIKAD UTI evaluation results through the Webuse method obtained an overall mean value of usability points, namely 0.23, in the range  $0.2 < x \leq 0.4$  with a usability level category of Poor, which means that it is necessary to improve the development of SIKAD UTI. (3) Based on the evaluation results, a SIKAD UTI development simulation was carried out, followed by a satisfaction test using SUS. The average score obtained after processing the assessment scores from respondents with an average value of 97.35, which shows that respondents were very satisfied using the results of the SIKAD UTI development simulation.

**Keywords:** Usability Evaluation, Webuse, System Usability Scale, Think Aloud.

### **1. INTRODUCTION**

In the current millennial era, the availability of easily accessible information systems is very necessary, one of which is in higher education (Ridha et al., 2015) revealed that the use of information technology in higher education needs to receive more attention, considering its role in managerial and other management decisions. The academic information system (SIKAD) was built to manage academic data and all student lecture administration activities. In line with Ridha, (Suryandani et al., 2017) revealed that an academic information system is a system created by humans to process data and information related to academics in an organization or educational institution, both formal and informal, from elementary to tertiary level. It means that an academic information system is an application that can facilitate the processing of data and information related to academic matters.

Universitas Teknologi Indonesia (UTI) Denpasar is one of the universities in Badung Regency, which is located on Jl. I Gusti Ngurah Rai, Nusa Dua No. 108. As a private university, UTI has a website-based Academic Information System (SIKAD). SIKAD was only created in 2021 as the first step for university management to change the procedures for accessing and providing information to students from manual methods to using website-based technological devices. The features provided for student users are academic. The academic feature has a submenu for

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details of thesis work, study report cards, exam plan cards, study plan cards, and Study Results Recapitulation.

As the interviews result conducted by researchers as lecturers at UTI with system managers, no measurements have been taken regarding evaluating the usability of academic information systems. The complaints found can be presented as follows. 1) Interface display. In the interface, some features should only be used for one page. 2) The plot that occurs is not yet coherent. The flow that is not yet coherent is found in Lecturer SIAKAD in the My Account Menu. There is a profile edit menu that includes the submenus for identity, address, and contact. In the address submenu, there is a problem: we cannot go to the identity submenu directly. 3) The information guide feature for using SIAKAD UTI is not yet available. There is no information guide displayed on SIAKAD or in the form of a guidebook. Based on the problems found in SIAKAD UTI, it is necessary to carry out an in-depth evaluation and further development to overcome them.

Based on the interface problems found in the SIAKAD UTI application, it has an impact on user discomfort and application functionality. The interview results with 5 students and 1 admin as SIAKAD users stated that the interface on SIAKAD caused discomfort for users. In terms of functionality, some features do not function optimally. So, in this research, the webuse method was used to test the Sakad UTI application interface in order to find the best solution to increase the user satisfaction level.

In this webuse evaluation, the evaluators will identify the difficulties that users may face when using the SIAKAD UTI application, and the evaluators will also evaluate all existing interfaces on the system, so that they comply with the specified usability standards. Webuse is an acronym for Web Usability Evaluation Tool. Webuse is a usability evaluation method that allows users to assess the usability of the site being evaluated. (Dewi et al., 2018) stated that based on usability evaluation criteria, namely: 1) content, 2) organization and readability, 3) navigation and links, 4) user interface design, and 5) performance and effectiveness. This webuse method produces accurate data because it uses evaluation steps, which are then converted into usability levels, so that website owners can easily find out the advantages and disadvantages of the website from the user's perspective (Chiew & Salim, 2003) Apart from evaluating the SIAKAD UTI website by involving evaluators, the evaluation was also carried out directly by involving users. An important aspect of method selection in this research is user involvement. Based on these aspects, user satisfaction responses after using the application were measured using the inquiry method. (Gupta, 2015) stated that the Questionnaire technique is a technique that measures user satisfaction level with a system by providing quantitative evaluation results. This technique is carried out by asking questions to collect user experience responses to a system. Among the many types of questionnaires that can measure user satisfaction and experience, the System Usability Scale (SUS) is a questionnaire that can be used to measure user satisfaction responses to the SIAKAD UTI application.

The system usability scale is a questionnaire method created in 1986 by John Brooke. The System Usability Scale questionnaire consists of ten statement items that provide a comprehensive view and are assessed subjectively in terms of usability. The System Usability Scale questionnaire aims to provide the user's subjective perception overview of the software usability level and with a questionnaire. (Brooke, 2013) states that users do not need a lot of time to fill out this questionnaire because the System Usability Scale questionnaire can be filled out in a fairly short time, around 25-30 minutes. The Usability Scale System has several advantages, including (1) It does not require complicated calculations and is relatively easy to use; (2) the SUS score is 0-100, so it is easy to use; (3) SUS is proven to be accurate and reliable even though it uses a small sample, and (4) SUS is provided free of charge, without additional costs (Firmansyah, 2021). Apart from that, the System Usability Scale has been applied effectively to various software or systems. Based on these advantages, the System Usability Scale questionnaire method will be used to measure user satisfaction responses to the SIAKAD application by giving 10 (ten) questions to each application user.

Apart from looking for user assessment scores using the System Usability Scale method to further increase effectiveness in evaluating and developing SIAKAD UTI in the future, this research also uses the Think-Aloud method to look for feedback from users about what users feel while using the SIAKAD application UTIs. (Pratama et al., 2019) states that Think-aloud is a method for testing a system that involves users by continuously verbalizing what users feel and think when using a system. Furthermore, (Nielsen & Madsen, 2012) revealed that verbalization from users allows observers to interpret parts of the interface that have problems. According to (Ericsson, 2006), there are two types of Think-Aloud: Concurrent Think Aloud (CTA) and Retrospective Think Aloud (RTA). (Peute et al., 2015) states that the Concurrent Think Aloud (CTA) technique is better than Retrospective Think Aloud (RTA).

Based on the explanation above, this evaluation research at SIAKAD UTI will use the webuse evaluation method by involving evaluators in the field of information systems. Then, to measure the level of satisfaction and experience

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in using the application, the System Usability Scale method was used by giving questionnaires to SIAKAD application users. Meanwhile, the Think-Aloud method is used to get responses or feedback from users directly. It is hoped that this evaluation and development results will be able to answer needs and improve the quality of academic services at UTI. Apart from that, the research findings also explain the weaknesses found after using the Think-Aloud, Webuse, and System Usability Scale evaluation methods. Therefore, the researchers intended to carry out study entitled "Usability Evaluation of the Indonesia Technology University Academic Information System (SIAKAD) Using the Concurrent Think-Aloud, Webuse, and System Usability Scale Methods."

The expected objectives to be achieved from this research are as follows. (1) To describe the results of Usability evaluation using the Concurrent Think Aloud and Webuse methods on the Academic Information System of the Indonesia Technology University (UTI). (2) To describe recommendations for the development of UTI's Academic Information System after evaluating usability using the Concurrent Think- Aloud and Webuse methods. (3) Developing a system in the form of a simulation based on the recommendations results for the UTI's Academic Information System development. (4) To describe the evaluation results of UTI Academic Information System simulation using the System Usability Scale (SUS) method

## 2. LITERATURE REVIEW

Andiputra & Tanamal, (2020) research entitled Usability analysis using the webuse method on the Kitabisa.com website. This research aims to measure the level of usability on the Kitabisa.com website. This research was conducted by taking a sample of 20 people and dividing usability categories in the WEBUSE method based on usability evaluation criteria, namely Content, Organization, and Readability, Navigation and Links, User Interface Design, Performance and Effectiveness. The test results for the four web use variables for the Kitabisa.com website were Good, with the highest variable being the Content, Organization, and Readability variables which got a score of 0.77, then the Performance and Effectiveness variable got a score of 0.76, while the Navigation and Links variable got a score of 0.75, and the lowest variable is user interface design which gets a score of 0.70. Even though you get good results, this number is close to 0.60, which means there is a display that is less attractive or difficult for users to understand.

Sulistiya et al., (2021) conducted research entitled Application of the Think Aloud Method to Evaluate Usability on the Website of the MNO City Education and Culture Office. The application of the Think Aloud Method to evaluate Usability on the MNO City Education and Culture Service Website is carried out by determining the criteria for 8 respondents and a task scenario which contains 7 steps that the user must take to complete a goal. The results of the scenario given to the user received 5 problems, namely the design appearance was less attractive, the use of unfamiliar terms, the navbar dropdown was too long, there were many and disorganized features, and the website flow was complicated. After the problems with the website were identified, recommendations were given in the form of improvements to the face-to-face design of the header and footer to make it attractive. Then improvements were made to the navbar combination and the use of terms used so that they can be generally understood. The three applications links are converted into a list and then a sidebar feature is added so that the content can be opened and closed. It is hoped that the recommendations made will make it easier for users to understand and use the MNO City Education and Culture Office website.

Based on the presentation of previous research results, it was found that various research results show that (1) the WEBUSE method can be used to measure website usability. The usability evaluation criteria are Content, Organization, and Readability, Navigation and Links, User Interface Design, Performance and Effectiveness. (2) Using the SUS method to evaluate websites at private universities in Palembang. These results show that the Bina Darma website can be used easily by users to obtain information services and support lecture activities. (3) The use of the Think Aloud method to evaluate usability on the MNO City Education and Culture Service website resulted in recommendations that are expected to make it easier for users to understand and use the MNO City Education and Culture Service website. Based on relevant research studies, in this study the use of the Webuse, SUS, and Think aloud methods was chosen to evaluate the usability of the academic information system at UTI. The difference between this research and previous research is that the product being evaluated is the UTI Academic Information System (SIAKAD).

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### 3. METHOD

The research methods used were mixed or combination methods. (Sugiyono, 2018) states that mixed methods are research methods that use a combination of two research methods at once, qualitative and quantitative, in research activity so that more comprehensive, valid, reliable, and objective data will be obtained. In the initial stage of this research, a system evaluation was carried out by collecting data based on the Think Aloud, Webuse, and System Usability Scale evaluations results. After carrying out the initial research, an analysis process is then carried out to determine recommendations for improvements to be made. The research recommendations results will become a reference for improvements, which will become data in the next phase of developing the UTI academic information system.

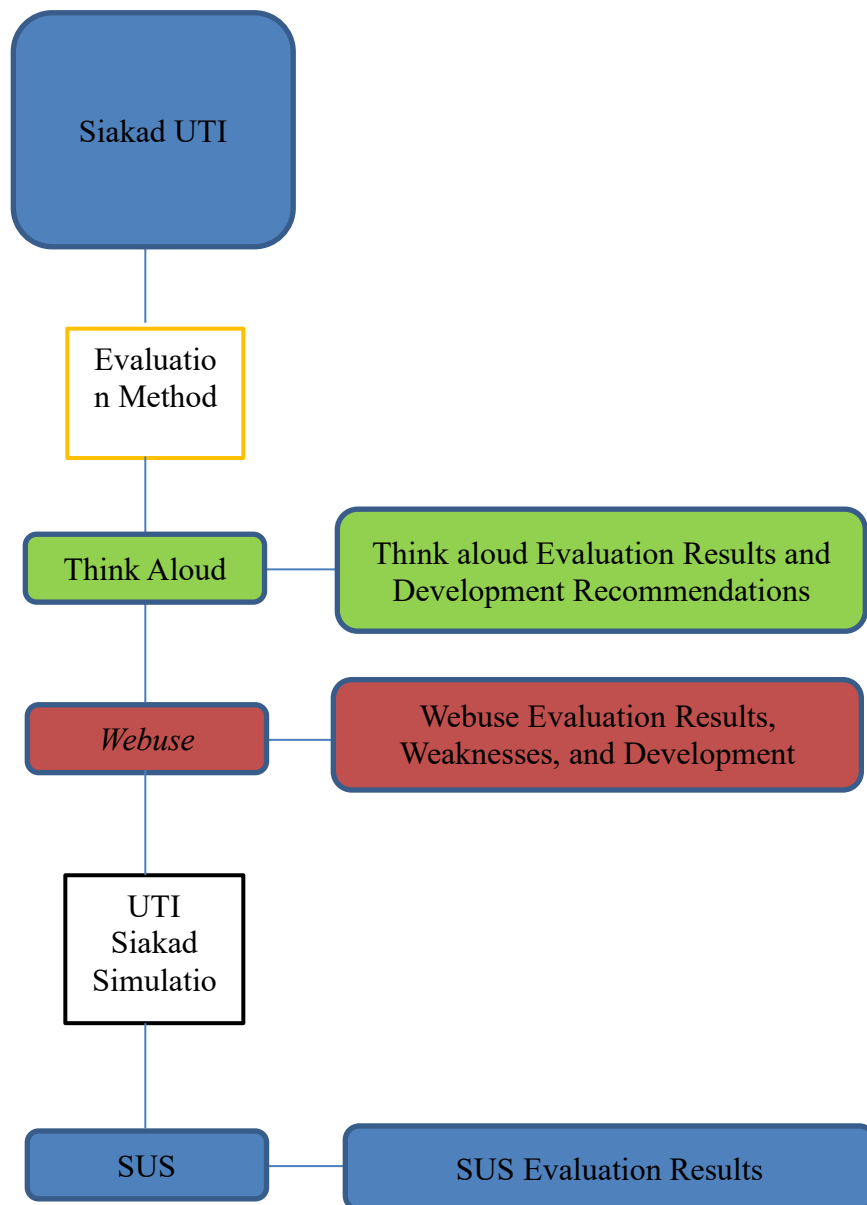


Figure 1. Research Procedure

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Based on Figure 1, the description of the research procedure is an evaluation of UTI's academic information system (SIKAD) using the Think Aloud, Webuse, and SUS methods. Evaluation is carried out using questions that have been prepared for each evaluation method. The analysis results obtained based on each method are used as the basis for recommendations for further development of SIKAD UTI.

### Concurrent Think Aloud Data Analysis Technique

CTA is a method for testing a system that involves users or end users by continuously verbalizing what users use. Before carrying out the test, a briefing will be given to the user, which will later be used as a guide for the user in carrying out their tasks. Users carry out tests based on the task scenario given. Users are asked to do this without thinking twice. Everything, such as what the user says during the evaluation, will be recorded using a recording device. Respondents who have carried out testing with a number of tasks will be shown a recording of what has been done. Based on these recordings, the researcher will provide stimulus with questions related to the task, so that respondents can verbalize the problems they have encountered when using the system.

### Webuse Data Analysis Techniques

In this method, respondents fill in all the questions in the questionnaire. Merit is used based on the user's answers to each question, then accumulated for each usability category. There are 5 answer choices from strongly disagree to strongly agree. Each answer has its own merit points. If the answer choice is strongly disagreed, then you get a merit of 0.00. If the answer choice is not agreed upon, then you get a merit of 0.25. If the answer choice is neutral, then you get a merit of 0.50. If the answer choice is affirmative, then you get a merit of 0.75. If the answer choice is strongly agreed upon, then you get a merit of 1.00. After the questionnaire answers are filled in, merit is accumulated based on usability categories, and usability points for each category are obtained from the average value of each category.

Table 1 The correlation between usability points and usability levels

Points, x	$0 \leq x \leq 0.2$	$0.2 < x \leq 0.4$	$0.4 < x \leq 0.6$	$0.6 < x \leq 0.8$	$0.8 < x \leq 1.0$
Usability levels	Bad	Poor	Moderate	Good	Excellent

Source: Chiew & Salim (2003)

### System Usability Scale (SUS) Data Analysis Technique

Data analysis techniques using the System Usability Scale (SUS) were carried out by filling in a questionnaire. Filling out this questionnaire is carried out after the SIKAD UTI user. Filling out the questionnaire is done using Google Forms.

## 4. RESULT

This research stage began with SIKAD UTI evaluation carried out using the Concurrent Think-Aloud and Webuse Methods. Data from the evaluation results of SIKAD UTI were used as the basis for developing the SIKAD UTI simulation and evaluated using the System Usability Scale (SUS) method to measure user satisfaction.

### Research results

#### SIKAD UTI Evaluation Results using the Concurrent Think-Aloud Method

Analysis was carried out using the Concurrent Think-Aloud method to obtain data on the SIKAD UTI evaluation results. This technique was carried out by testing SIKAD UTI, which involved five lecturers or end users with Masters (S2) educational background and were aged 30-50 years, 2 of whom were less advanced. The test results using the Concurrent Think-Aloud method are: (1) *Lecturer Dashboard* As many as 3 out of 5 respondents (60%) stated: In the Lecturer Dashboard section, SIKAD's writing looks less attractive; the Change Password and Log Out buttons are not in the correct position; the background color is too bright, and the conversation history is less detailed. (2) *Course Schedule* as many as 4 out of 5 respondents (80%) stated: the colors in the Lecture Schedule writing are too flashy, and the information on the lecture schedule is less detailed. (3) *Course Material* as many as 4 out of 5

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respondents (80%) stated: the Add button is not positioned correctly; the position of the semester and course search buttons are not correct; the search column is too far to the right, and the edit and delete buttons are too small. (4) Academic Supervisor Student as many as 3 out of 5 respondents (60%) stated: the placement of the entry button to display data is incorrect; the search button position is too right, and information on the study program and semester should not be filled in. (5) Final Project Guidance Students as many as 3 out of 5 respondents (60%) stated: the next page and search displays are too far to the right, and the display needs adjustment. (6) Course Questions as many as 5 out of 5 respondents (100%) stated: the page buttons are inconsistent with the rest of the menu; the position of the “Add” button is inconsistent; the edit question button is not available, and the search feature is not available. (7) Exams and Course Assignments as many as 3 out of 5 respondents (60%) stated: some buttons don't work, and appearance needs attention. (8) Confirmation of Student's Study Plan Card as many as 5 out of 5 respondents (100%) stated: the Study Plan Card print button cannot be used; the filter button does not work, and the status button does not work. (9) Student Semester Grades as many as 4 out of 5 respondents (80%) stated: the download button has problems, the “go” button on the Study Plan Card package is not working, and curriculum selection is too complicated. (10) Edit Profile & Change Password As many as 4 out of 5 respondents (80%) stated: too many tabs to click through, it is not easy to switch tabs to make edits, the address button does not work, inconsistent writing, there are many buttons for editing, and replacement of photos is limited. Based on **Error! Reference source not found.**, It can be presented that in SIAKAD UTI, many navigation buttons cannot function, inconsistent button features, disproportionate location/buttons position, and inappropriate color selection. Therefore, the evaluation results using the Concurrent Think Aloud Method showed that SIAKAD UTI needs to be improved.

**SIKAD UTI Evaluation Results using the Webuse Method**

The test using the Webuse method involved ten respondents, consisting of 3 lecturers who were quite proficient in using SIAKAD UTI and had a Masters (S2) educational background with ages 30-50 years, 2 staffs aged 30-40 years with Bachelor's degrees, of which one person was less than proficient in using SIAKAD UTI, as well as 5 UTI students with different majors aged 19-23 years, 3 of whom are less proficient in using SIAKAD. In this method, respondents fill in all the questions in the questionnaire. Merit is used based on the user's answers to each question, then accumulated for each usability category. There are 5 answer choices from strongly disagree to strongly agree. Each answer has its own merit points. If the answer choice is strongly disagreed, then you get a merit of 0.00. If the answer choice is not agreed upon, then you get a merit of 0.25. If the answer choice is neutral, then you get a merit of 0.50. If the answer choice is affirmative, then you get a merit of 0.75. If the answer choice is strongly agreed upon, then you get a merit of 1.00. After the questionnaire answers are filled in, merit is accumulated based on usability categories, and usability points for each category are obtained from the average value of each category. The results are presented in Table 3.

Table 3. Test Results using the Webuse Method

Responden	Pernyataan																							
	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6
R1	0,25	0,25	0	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0	0,5	0,25	0,75	0,25	0,25	0,25	0,25	0,25	0,25
R2	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,75	0,25	0,5	0,25	0,25	0,25	0,25	0	0
R3	0,25	0	0,25	0,5	0,25	0	0,25	0,25	0	0,25	0,25	0,25	0,25	0,25	0,25	0,75	0,25	0,75	0,25	0,25	0	0,25	0,25	0,25
R4	0,25	0,25	0	0,25	0,25	0	0	0,25	0,25	0	0	0,25	0	0	0	0,5	0,25	0,75	0,25	0	0,25	0	0,25	0,25
R5	0	0,25	0,25	0,5	0,5	0	0,25	0	0	0	0,5	0,25	0,25	0,25	0,5	0,25	0,75	0	0,25	0,25	0,25	0	0,25	0
R6	0	0	0,25	0,25	0,25	0,25	0,25	0,25	0	0	0,5	0	0,25	0,25	0,5	0,25	0,75	0,25	0,25	0	0,25	0,25	0	0,25
R7	0	0,25	0	0,25	0,5	0,25	0	0	0	0	0,25	0,25	0	0,25	0,5	0	0,75	0	0	0,25	0,25	0,25	0,25	0,25
R8	0	0,25	0,5	0,5	0,5	0	0	0	0,25	0	0,5	0,25	0,25	0,25	0,25	0,25	0,75	0,25	0	0	0,25	0	0,25	0,25
R9	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0	0,25	0,25	0,25	0,25	0,25	0	0,75	0,25	0,25	0,25	0,25	0,25	0,25	0,25
R10	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
Rerata point	0,14	0,2	0,2	0,31	0,31	0,15	0,18	0,18	0,15	0,1	0,3	0,23	0,2	0,2	0,48	0,2	0,73	0,2	0,18	0,18	0,23	0,18	0,18	0,18
Rerata kategori	0,216666667						0,1875						0,333333333						0,183333333					
Nilai rerata keseluruhan	0,230208333																							

Based on the data in Table 3, the testing results using the Webuse method showed that the overall mean usability point value is 0.23, which is in the range of  $0.2 < x \leq 0.4$  in the Poor usability level category (Chiew & Salim, 2003). In this research, the evaluation of web use usability is based on four categories, namely: A) Content, arrangement, and ease

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of reading; B) Navigation and link buttons; C) User interface design; and D) Performance and effectiveness. Based on these results, it is necessary to improve the SIAKAD UTI development.

## DISCUSSIONS

### SIKAD UTI Development Simulation Results

The simulation development technique in this research used the waterfall model, a model that provides a sequential and ordered software life flow approach. The stages of the waterfall model flow are analysis, design, coding, and testing (Rosa & Shalahuddin, 2016)

#### Analysis

Based on the evaluation results using the Concurrent Think-Aloud method, many navigation buttons do not function, inconsistent button features, disproportionate location/buttons position, and inappropriate color selection. Likewise, the evaluation results using the Webuse method showed that the overall mean usability point value is 0.23, which is in the range of 0.2<; Navigation and link buttons; User interface design; and Performance and effectiveness.

#### Design

At this stage, the SIAKAD UTI development simulation design includes Lecturer, Academic, and Profile Dashboards. The development simulation display design can be presented in Figure 2. The simulation display design for the development of the Akademika menu and sub-menu can be presented in Figure 2. Sub menu for academic courses taught is presented in Figure 3.

Logo Siakad	Header		Log Out
Foto Profile Dosen	Mata kuliah diampu dosen		
Dashboard Dosen			
Akademika	cari data		
Perkuliahan	isi data mata kuliah		
Jadwal Kuliah			
Mata Kuliah Diampu			
Presensi Mahasiswa			
Mahasiswa PA			
Mahasiswa Bimbingan			
E-Learning			
Krs			
Penilaian			
Profile Dosen			
footer			

Figure 2. Sub menu for academic courses taught

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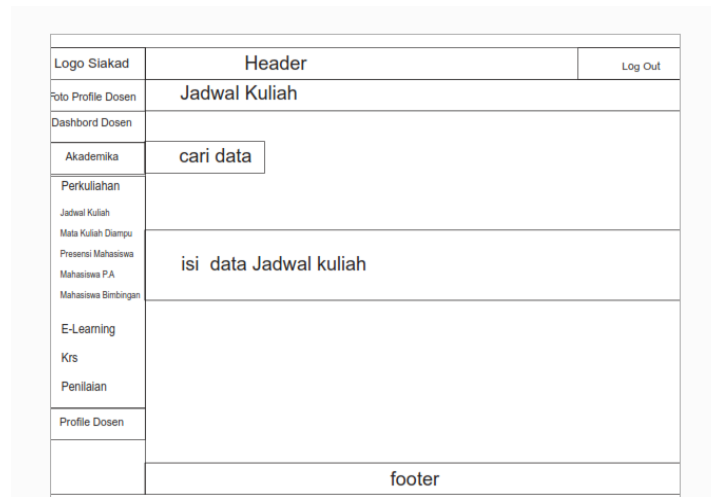


Figure 1 Sub-sub menu academic lecture schedule.

The homepage of the SIAKAD UTI development simulation design is dominated by dark slate-gray (code #343a40), slate-gray (code #454d55), slate-blue (code #3f6791), and white colors (code #fff). The Sour Sans Pro Family font is used in the development of SIAKAD UTI.

### Coding

At this stage, the design plans are realized to produce a SIAKAD UTI simulation. The simulation results for the SIAKAD UTI development can be presented in Figure 4.

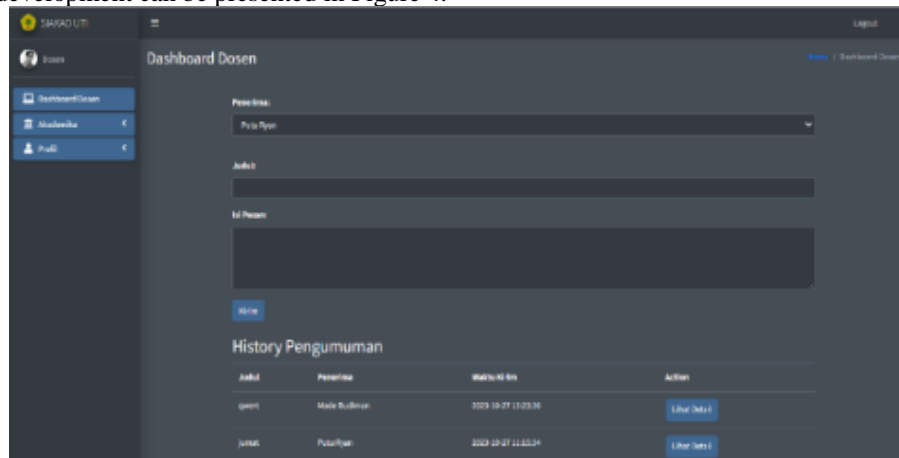


Figure 4. SIAKAD UTI Dashboard Results

Based on Figure 4 the simulation results can be explained as follows. (1) Lecturer *Dashboard* such as: changes made to the Lecturer Dashboard are moving the position of the SIAKAD text and adding a logo; the "Change password" button has been removed, and the logout button has been moved to the top right corner; added page description at the top right; the appearance and details of announcements and history have been changed to be more detailed, and the background color is changed to match. (2) Course Schedule such as: the color and position of the lecture schedule information have been changed to make it more attractive, the class schedule was changed, and information was added to make it more detailed, and the words "2022" are removed. (3) Course material such as: the add material position has been moved to the bottom, the semester and material search buttons were removed, course search has been moved to be closer, edit and delete icons replaced with text, download course material button added, and in the description,

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meeting details are added. (4) Academic Supervisor Student such as: the data entry display is changed automatically in the system, the search button is moved to the left, and the display of student data tables has been changed simply. (5) Final Project Guidance Students such as: the search button and page display changed, the detail view was changed, and supervisors were added, and exam status on details added. (6) Course Questions such as: the page display changed, customizable button placement, download question file, edit and delete question file buttons added, and search field added. (7) Exams and course assignments such as: the exam and assignment menu has been changed to one page, the menu display is simplified and changed, and collection notification and viewing results buttons have been added. (8) Study Plan Card confirmation such as: the Study Plan Card confirmation display has been changed to be simpler, the Study Plan Card print button on Lecturer is removed, process features and states are changed, and filter function changed. (9) Student Semester Grades such as: the student assessment display has been changed to be simpler, curriculum buttons and Study Plan Card packages changed, and an additional feature is "direct assessment based on courses taught by the lecturer." (10) Edit Profile and Change Password such as: the edit profile view has been changed to one page, which is simpler, and profile photo restrictions changed.

### Testing

This stage was tested on the results of the SIAKAD UTI development simulation. In this study, SUS measurements at SIAKAD UTI were carried out by asking for subjective perceptions/viewpoints from users regarding academic information systems by distributing questionnaires to respondents with a predetermined age range of 19-40 years, namely 50 people. (Sukma et al., 2023) The System Usability Scale (SUS) consists of 10 questions. A total of 50 respondents consisted of 5 lecturers with Masters (S2) educational background and were aged 30-50 years, of which 3 lecturers were quite proficient in using SIAKAD UTI, 4 staffs aged 30-40 years with undergraduate education, where one person was less skilled in using SIAKAD UTI, as well as 41 UTI students with different majors aged 19-23 years. The respondents filled out the SUS questionnaire after using the SIAKAD UTI development results. The results of the score data from respondents filling out the questionnaire are used to measure the user satisfaction level after the SIAKAD UTI development. The average score obtained after processing the assessment scores from respondents received an average value of 97.35, which is at grade A with the title Best Imaginable. From the scores obtained, it can be concluded that after developing the appearance and content, respondents were very satisfied with using the results of the SIAKAD UTI development simulation.

### 5. CONCLUSION

Based on this research results, the following conclusions are The SIAKAD UTI evaluation results using the Concurrent Think-Aloud method showed that in SIAKAD UTI, many navigation buttons did not function, inconsistent button features, disproportionate location/buttons position, and inappropriate color selection. Therefore, the evaluation results using the Concurrent Think-Aloud Method showed that SIAKAD UTI needs to be improved. The SIAKAD UTI evaluation results using the Webuse method showed that the overall mean value of usability points, namely 0.23, was in the range  $0.2 < x \leq 0.4$  with the usability level category being Poor, which means that it is necessary to improve the SIAKAD UTI development. Based on the evaluation results, a SIAKAD UTI development simulation was carried out, followed by a satisfaction test using the System Usability Scale (SUS). The average score obtained after processing the assessment scores from respondents received an average value of 97.35 (Best Imaginable), which shows that the respondents were very satisfied with using the results of the SIAKAD UTI development simulation.

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