

Development of a Final Project Guidance Service Model for Students through a Mobile Application

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Abstract

The implementation of the final project mentoring service model for students through a mobile application is designed to facilitate the final project mentoring process for students, thereby increasing the number of students who complete their studies on time. The objectives of this research are (1) to analyze the needs for a final project guidance service model for students through a mobile application; (2) to design a final project guidance service model for students through a mobile application; (3) to build a final project guidance service model for students through a mobile application; (4) to determine the validity of the final project guidance service model for students through a mobile application; (5) to determine the practicality of the final project guidance service model for students through a mobile application; (6) to determine the effectiveness of the final project guidance service model for students through a mobile application; and (7) to determine the results of the system testing of the final project guidance service model for students through a mobile application. The type of research is Research & Development. (R&D). Data collection techniques used interview, observation, and questionnaire methods. Data analysis techniques used validity analysis, practicality analysis, and effectiveness analysis. System testing techniques used were black box and user acceptance testing. The results of this study indicate that the model of thesis supervision services for students through this mobile application is feasible to use, making the thesis supervision process for students more efficient and effective.

Keywords: Final Project Supervision, Mobile, User Acceptance Testing.



INTRODUCTION

The completion of research for the preparation of a thesis or final project for students is one of the requirements to obtain a graduation degree at a university. A thesis is one of the scientific works based on the conclusions of field research or observation, compiled and developed by students as researchers. The research is conducted according to a topic that encompasses the study program undertaken as a final assignment, compiled during the final stage of formal studies (Ramadhani et al., 2022). Based on the initial survey conducted on the Information Systems Study Program at the Faculty of Science and Technology, UIN Alauddin Makassar, it was found that there are obstacles in the mentoring process. This is because, on average, the lecturers have other commitments (fulfilling the Tri Dharma of higher education or holding positions of responsibility) that limit the time they can spend on-site. Another obstacle faced by students is the relatively high cost of printing thesis drafts (Putra & Arkan, 2017). Every time there is a revision from the supervising lecturer, the student is required to reprint it and submit it back to the supervising lecturer during the supervision process.

To address these constraints, a solution was created using technology for supervising students' final projects through a mobile application. The application created allows supervisors to provide assistance and feedback anytime and anywhere, enabling students to work on their tasks according to the time and schedule that are most suitable for both parties. The application also allows supervisors and students to communicate in real-time and continuously, speeding up response times and avoiding delays in supervision. Several studies conducted on online thesis supervision, including research (Amnah et al., 2022) produced an Android-based thesis guidance application. The research (Saputra et al., 2022) resulted in an online final project guidance information system application based on a website. The subsequent research conducted (Putra & Arkan, 2017) designed and built an Android application guidance system to be used by lecturers and students.

Finally, the implementation of the final project mentoring service model through this mobile application is expected to provide ease in the mentoring process, thereby increasing the number of students who complete their studies on time.

METHOD

This research uses the research and development (R&D) method. This research involves lecturers and students in the Information Systems Study Program at the Faculty of Science and



Technology, UIN Alauddin Makassar. The data collection instrument used is an observation sheet regarding the stages of mobile application development until the application can be accessed by users. Data collection techniques were carried out as follows: (1) Qualitative data were collected through interviews, focus group discussions, and participatory observations during the needs analysis and prototype testing stages; (2) Quantitative data were collected through questionnaires distributed during the prototype testing and application evaluation stages. The data from the distributed questionnaires were collected and then analyzed using the Likert scale.

RESULT

Results of the Needs Analysis for the Student Thesis Guidance Application Service Model through a Mobile Application can be seen in Table 1.

Table 1. Results of the Needs Analysis for the Student Thesis Guidance Application Service Model through a Mobile Application by Students

No.	Aspect	Percentage (%)
1	Functional Requirements	96,25
2	Non-Functional Requirements	93,13
3	Usability	92,5
4	Efficient	96,25
5	Communication	96,25
6	Technology Preference	93,75
7	User Experience	92,5
8	Satisfaction	98,75
Average		94,92

Table 1 shows the research results where students are very enthusiastic about the existence of the thesis guidance application. The application that has been created not only provides information and guidance but also facilitates users, namely students, in communicating with their supervisors and managing the thesis writing process.



Table 2. Results of the Analysis of the Need for a Final Project Supervision Service Model for Students through a Mobile Application by Lecturers

No.	Aspect	Percentage (%)
1	Functional Requirements	96,67
2	Non-Functional Requirements	85
3	Usability	90
4	Efficient	100
5	Communication	100
6	Technology Preference	85
7	User Experience	90
8	Satisfaction	95
Average		92,71

Table 2 presents the results of the needs analysis for a final project supervision service model for students through a mobile application based on the perspective of lecturers. The analysis results show that lecturers strongly support the development of a mobile application to assist in the final project guidance process for students.

Results of the Analysis of the Design Model for Student Thesis Guidance Services through a Mobile Application by IT Experts can be seen in Table 3.

Table 3. Results of the Analysis of the Design Model for Student Thesis Guidance Services through a Mobile Application by IT Experts

No.	Aspect	Percentage (%)
1	Fungsional	92,5
2	Usability	100
3	Aesthetics	90
4	Compatibility	90
5	Security	97,5
Average		94



Table 3 presents the results of the IT experts' analysis of the mobile application model designed to provide thesis guidance services to students. The analysis results indicate that the application design is rated very good.

Results of the Analysis of Developing a Mobile Application Model for Student Final Project Guidance Services can be seen in Table 4.

Table 4. Results of the Analysis of Developing a Mobile Application Model for Student Final Project Guidance Services

No.	Aspect	Percentage (%)
1	Performance	87,5
2	Security	95
3	User Interface	92,5
4	Ease of Integration	92,5
5	Technical Support	92,5
Average		92

Table 4 presents the results of the analysis on the development of a mobile application model designed to provide thesis guidance services for students. The analysis results show that the application has been very well designed to meet user needs and functions effectively.

Results of the Validity Analysis of the Final Project Guidance Service Model through a Mobile Application can be seen in Table 5 and Table 6.

Table 5. Results of the Validity Analysis of the Final Project Guidance Service Model through a Mobile Application by Students

No.	Aspect	Percentage (%)
1	Content Validation	97,5
2	Construct Validity	96,88
3	Validity of Use	95,63
4	Technical Validity	87,5
5	User Satisfaction	96,25
Average		94,75



Table 6. Results of the Validity Analysis of the Student Final Project Guidance Service Model through a Mobile Application by lecturers

No.	Aspect	Percentage (%)
1	Content Validation	100
2	Construct Validity	95
3	Validity of Use	95
4	Technical Validity	88
5	User Satisfaction	95
Average		95

Table 6 presents the results of the validity analysis of the final project guidance service model for students through a mobile application, as assessed by the lecturers. The analysis results show that overall, the application model is considered highly valid, with an average percentage reaching 95%.

Results of the Analysis of the Practicality of the Thesis Guidance Service Model for Students through a Mobile Application can be seen in Table 7 and Table 8.

Table 7 Results of the Analysis of the Practicality of the Thesis Guidance Service Model for Students through a Mobile Application by Students

No.	Aspect	Percentage (%)
1	Usability	93,13
2	Efficiency	92,5
3	Flexibility	98,75
4	Reliability	97,5
5	Technical Support	96,25
Average		95,63

Table 7 presents the results of the analysis regarding the practicality of the thesis guidance service model through a mobile application, which was directly assessed by the student users. The analysis results show that overall, students rate this application as very practical, with an average percentage reaching 95.63%. The application is considered very easy to use, efficient in helping



complete tasks, flexible in accommodating various student needs, reliable in its functions, and supported by good technical services.

Table 8 Results of the Analysis of the Practicality of the Thesis Guidance Service Model for Students through a Mobile Application by Lectures

No.	Aspect	Percentage (%)
1	Usability	98
2	Efficiency	88
3	Flexibility	95
4	Reliability	95
5	Technical Support	90
Average		93

Table 8 presents the analysis results regarding the practicality of the final thesis guidance service model through a mobile application as assessed by the lecturers. The analysis results indicate that the service model evaluated by the lecturers is considered very practical with an average rating of 93%.

Results of the Analysis of the Effectiveness of the Final Project Supervision Service Model for Students through a Mobile Application can be seen in Table 9 and Table 10.

Table 9. Results of the Analysis of the Effectiveness of the Final Project Supervision Service Model for Students through a Mobile Application by Students

	N	Minimum	Maximum	Mean	Std.Deviation
Ngain	20	.74	1.00	.8674	.08386
Percentage	20	74.07	100.00	86.7386	8.38563
Valid N (listwise)	20				

Table 9 displaying the results of descriptive statistical calculations using SPSS for N-Gain data. The average N-Gain value of 0.8674 indicates that overall, the thesis supervision application for students through the mobile application falls into the high category. Based on these results,



the thesis supervision service model for students through the mobile application can be considered very effective.

Table 10. Results of the Analysis of the Effectiveness of the Final Project Supervision Service Model for Students through a Mobile Application by Lectures

	N	Minimum	Maximum	Mean	Std.Deviation
Ngain	5	.76	.92	.8503	.05905
percentage	5	76.19	92.31	85.0303	5.90489
Valid N (listwise)	5				

Table 10 is the result of the SPSS effectiveness analysis calculation, displaying the output from the descriptive analysis. The analysis results show that the application falls into the high category, meaning that the application is considered effective in the process of supervising students' final projects.

Results of User Acceptance Testing (UAT) by IT experts can be seen in Table 11.

Table 11. Results of User Acceptance Testing (UAT) by IT experts

No.	Aspect	Percentage (%)
1	Functionality	100,0
2	Performance	90
3	Security	95,0
4	Compatibility	95,0
5	User experience	92,5
Average		95

Table 11 presents the results of the User Acceptance Testing (UAT) conducted by IT experts. The testing results show that overall, the system achieved a very good success rate with an average score of 95%. Therefore, the developed system is very good and ready to be used.

Results of User Acceptance Testing (UAT) by students can be seen in Table 12.



Table 12. Results of User Acceptance Testing (UAT) by students

No.	Aspect	Percentage (%)
1	Functionality	91,88
2	Performance	96,88
3	Security	97,5
4	Compatibility	93,13
5	User experience	93,75
Average		94,63

Table 12 presents the results of the User Acceptance Testing (UAT) conducted by students. The test results show that overall, the system tested by the students received a very good score, with an average of 94.63%. This means that the system developed is very good at meeting various tested aspects, such as functionality, performance, security, compatibility, and user experience.

Results of User Acceptance Testing (UAT) by lectures can be seen in Table 13.

Table 13. Results of User Acceptance Testing (UAT) by lectures

No.	Aspect	Percentage (%)
1	Functionality	85
2	Performance	97,5
3	Security	92,5
4	Compatibility	90
5	User experience	95
Average		92

Tabel 13 presents the results of the User Acceptance Testing (UAT) conducted by the lecturers. The UAT results indicate that the system is ready for use.



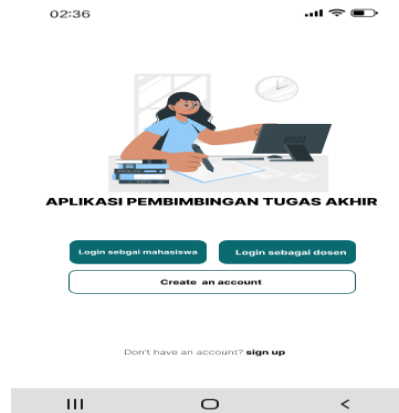


Figure 1. The appearance of the page before logging in as a lecturer or student

Figure 1 is the initial display of the mobile-based thesis guidance application designed to assist in the thesis guidance process. In this view, users are presented with the option to log in as a supervisor or a student. There are two main buttons, namely "Login as student" and "Login as lecturer." In addition, there is also an option to create a new account for users who do not have an account yet. This interface is designed to be simple and intuitive, allowing users to easily understand the purpose of this application and choose the option that suits their role.

DISCUSSION

This research aims to address the challenges often faced by students in the thesis guidance process, such as limited face-to-face meeting time with supervisors and difficulties in accessing guidance materials. The proposed solution is to develop a mobile application that allows students to consult with their supervisors in real-time, access guidance materials anytime and anywhere, and track the progress of their thesis. The research results indicate that this application has the potential to improve the quality and efficiency of the thesis supervision process.

Validation, practicality, and effectiveness testing of the thesis guidance application have been conducted, and the results indicate that the thesis guidance service model for students through this mobile application is considered valid, practical, and effective. This is in line with several previous studies that have been conducted.

The Application of the Waterfall Method in the Development of a Web-Based Thesis Guidance Process Monitoring Information System in the Computer Science Department at the University of Lampung (Septiawan et al., 2022). The research results indicate that the web-based



thesis supervision process monitoring information system has been successfully developed and has undergone functional and non-functional testing. The thesis supervision process monitoring information system can assist students and supervising lecturers in monitoring the thesis supervision process.

Website-Based Thesis Guidance and Scheduling Application (Wiratama et al., 2022). This research aims to assist in the process of thesis guidance and scheduling, as well as the dissemination of thesis exam schedules. It also aims to help supervisors monitor the thesis guidance process and facilitate the processing of other data. The results from the trials and analysis yielded a web-based thesis guidance and scheduling application, with the hope that this application can help and simplify the management of student data undergoing thesis guidance and exams effectively and efficiently, as well as assist in schedule preparation and the dissemination of thesis exam schedules.

Next, Designing an Online Thesis Guidance Information System with the SCRUM Framework (Roji et al., 2023). This research aims to create an online thesis guidance information system (SIBIMO) that allows students to propose thesis titles, interact with supervisors, and manage seminar and defense stages through a designed user interface. The research results show that the developed application is effective and efficient in thesis supervision.

CONCLUSION

The results of this research successfully confirm the success of developing a thesis guidance service model for students through a mobile application. The application that has been specifically designed and developed to facilitate this guidance process has undergone a validation phase and has been declared to meet the established standards. This shows that the application has successfully achieved the initial research objective, which is to create an effective tool to support the final project mentoring process for students.

In addition to being valid, this application has also proven to be practical and efficient in its use. The features integrated into this application have been designed in such a way that they can facilitate both students and supervising lecturers in carrying out their respective tasks. With the presence of this application, the process of communication and coordination between students and supervising lecturers becomes smoother and more effective, thereby improving the quality of the final thesis results.



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