Exploring the User Experience of E-Thesis System: An Evaluation Using UX Honeycomb Method

Wahyu Hariyanto, Ach.Nizam Rifqi, and Fakhris Khusnu Reza

Abstract— This research article discusses the evaluation of the e-thesis information system in the Library and Information Science program at UIN Maulana Malik Ibrahim Malang. The background of this research is that the system is relatively new and is supported by several preliminary surveys conducted among users, most of whom are unfamiliar with the use of this e-thesis application system. The research population was taken from all students of the Library and Information Science Department in the 2018 and 2019 academic years, with a research sample of 50 students. The honeycomb method was used as the analysis tool for the evaluation, which emphasizes how UX can go beyond just usability aspects for users. The assessment aspects in the honeycomb method include useful, usable, desirable, findable, accessible, credible, and valuable. The research results showed that the overall average value of the e-thesis information system was 4.10, indicating that the e-thesis system is considered good in terms of its use. The highest score of 4.23 was found in the useful aspect, indicating that students agreed that the e-thesis information system could solve user problems and meet their needs. The lowest score of 3.93 was found in the accessible aspect, which needs improvement for future development of the information system. Indicators that need attention for improvement include less appealing design and the need to enhance capabilities. Suggested improvements include visual design, an advance search button, display of two thesis advisors, UI refresh, minimizing errors, and detailed schedule display on the homepage. Improving the existing features according to the research conducted can have a wide impact on the use of the information system and can be used continuously without errors.

Index Terms— Honeycomb model; User experience (UX); Usability; User research

Wahyu Hariyanto is with Perpustakaan dan Ilmu Informasi UIN Maulana Malik Ibrahim Malang, Indonesia. Email: wahyuhariyanto@uin-malang.ac.id

Ach.Nizam Rifqi, was with Perpustakaan dan Ilmu Informasi UIN Maulana Malik Ibrahim Malang, Indonesia. Email: nizamrifqi@uin-malang.ac.id

Fakhris Khusnu Reza Mahfud is with Perpustakaan dan Ilmu Informasi UIN Maulana Malik Ibrahim Malang, Indonesia. Email: fakhriskrm7@uin-malang.ac.id

I. INTRODUCTION

The Covid-19 pandemic has brought about changes in human life and behavior in various fields. The education sector has been one of the most affected sectors due to the pandemic [1]. There are no in-person learning activities at schools and universities because everyone is encouraged to work from home in order to minimize the spread of the Covid-19 virus. Students and teachers carry out learning activities by utilizing technology such as virtual meetings, virtual classrooms, and social media. Information technology serves as a means of learning, while information systems act as the brain in distance learning [2]. Various universities have started developing information systems that are used to support academic activities, including e-learning for the learning process. In addition, new information systems are emerging that are used to facilitate virtual interactions without the need for direct face-to-face activities.

After the pandemic subsides, many teachers still use technology to facilitate academic activities, such as using e-learning for teaching and learning, using online correspondence system, thesis information system, and academic information system. One of the innovations used by the Department of Library and Information Science at UIN Maulana Malik Ibrahim Malang is to create a thesis information system or commonly known as e-thesis. E-thesis is an information system that accommodates interaction between teachers and students in making a thesis or final project. The process in e-thesis includes submission of the supervising teacher, submission of the title, consultation with the supervising teacher and examiner, proposal seminar, results seminar, thesis examination, examination schedule information, and thesis validation signature [3]. The purpose of creating e-thesis is to facilitate monitoring of students who are working on their thesis, supervision with the teacher, assessment, and signature on the validation form.

The implementation of E-thesis has been running well and can be used to meet user needs. However, to fulfill the effective user experience aspect, further research can be conducted. User experience or UX plays an important role in information system development. The purpose of this study is to identify obstacles in the

utilization of E-thesis systems for improvement. The method used in this study is the UX honeycomb, which has seven evaluation aspects. The evaluation aspects in the honeycomb method include useful, usable, desirable, findable, accessible, credible, valuable [4]. The sample used consisted of 50 respondents with the requirement of final semester students who have interacted with E-thesis systems.

The research using the UX honeycomb method has been conducted [5], resulting in a good category for four aspects of UX. Similar studies [6] [7] were carried out to further improve user-friendliness. The current research aims to evaluate the user experience of the e-thesis information system using the UX honeycomb method.

II. RESEARCH METHODOLOGY

The research method in this case serves as a reference for data collection and analysis to answer the research problem. In the context of the Evaluation of the e-Thesis System in the Library and Information Science Study Program Using the UX Honeycomb Method, a descriptive quantitative research type is used. Descriptive quantitative research is "research conducted to describe a population or sample in general or specific terms that are descriptive with simple statistical analysis [8]." In this research, the evaluation results based on the questionnaire data will be described and analyzed.

The research is conducted in the Library and Information Science Study Program of UIN Maulana Malik Ibrahim Malang, with a time frame of March to June 2022. The population in this study is students of the Library and Information Science Study Program at UIN Maulana Malik Ibrahim Malang from 2018 and 2019. The sampling technique used is simple random sampling with specific criteria given to those who have used the e-thesis system before, resulting in a sample of 50 students.

III. RESULTS AND DISCUSSION

The results of the conducted research can be presented in Table 1.

Table 1. Research Results

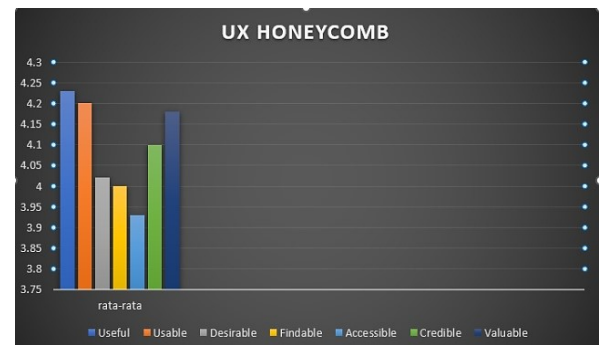| Aspect	Average	Category
Useful	4,23	Agree
Usable	4,20	Agree
Desirable	4,02	Agree
Findable	4,00	Agree
Accessible	3,93	Hesitate
Credible	4.10	Agree
Valuable	4,18	Agree
Average	**4,10**	**Good Category**

Fig. 1. Graph of the results of UX Honeycomb aspect calculation

The aspect of "useful" means that the e-thesis system is considered beneficial and able to solve the problems experienced by its users. This aspect is divided into two indicators: the e-thesis information system can solve user problems and is in line with user needs. These results are shown by questionnaire data with a score percentage of 4.23. The results indicate that the majority of users agree that the e-thesis system can fulfill their needs in their work. These findings are supported by research from [9] [10] that yielded the highest value for the "useful" indicator.

The "usable" aspect refers to the ease of use. In relation to the use of e-thesis, this is divided into two indicator statements: the e-thesis information system can solve user problems and is in line with user needs. From the questionnaire results, a score percentage of 4.20 was obtained, which means that in its implementation, the e-thesis system can solve what is needed by users in their work. The results obtained from the usable aspect are in line with research [11] that found that the usable aspect is crucial in ensuring an effective and efficient BI dashboard.

The "desirable" aspect refers to the aesthetics of a product related to attractiveness and ease of interpretation. In the desirable aspect, there are two indicators, namely, the e-thesis information system is enjoyable to use and the interface color combination is appropriate. The questionnaire results showed a score percentage of 4.02, indicating that users agree that the e-thesis information system is enjoyable to use, and the interface color combination is appropriate.

The findable aspect refers to the ease of finding various buttons and clear navigation. In addition, this aspect is also related to the time required to access the features needed by users. The findable aspect in the questionnaire is divided into three statement indicators, namely clear interaction with the e-thesis information system, appropriate placement of buttons and

navigation, and having a good response time. The results showed by the questionnaire data with a percentage score of 4.00. The findable aspect is in the agree category, meaning that students agree that the e-thesis information system has clear interaction, appropriate placement of buttons and navigation, and a good response time.

The accessible aspect refers to the friendliness of a system when used by all users, whether they are physically normal or have disabilities. In the accessible aspect, there is an indicator that the e-thesis information system has a good design and more capabilities. The results showed by the questionnaire data with a percentage score of 3.93. The accessible aspect is in the uncertain category, meaning that students are uncertain in assessing whether the e-thesis information system has a good design and more capabilities.

In the credible aspect, there is an indicator that the e-thesis information system can provide trust in the security of personal data. The results showed by the questionnaire data with a percentage score of 4.10. The credible aspect is in the agree category, meaning that students agree that the e-thesis information system can provide trust in the security of personal data.

In the valuable aspect, there are two indicators, namely that the e-thesis information system is enjoyable to use and the combination of interface colors is appropriate. The results showed by the questionnaire data with a percentage score of 4.18. The valuable aspect is in the agree category, meaning that students agree that the e-thesis information system is enjoyable to use and the combination of interface colors is appropriate. This is supported by research [12] stating that the value provided has been felt by users.

The overall average score of all respondent answers shows a score of 4.10 or can be said that all students agree that the e-thesis information system is in the good category. This result is in line with research [13] stating that the e-thesis information system is in the good category in terms of usefulness, and can solve user problems and meet user needs. The highest score is in the useful aspect, which indicates that students agree that the e-thesis information system can solve user problems and meet user needs. The lowest score is in the accessible aspect, which needs improvement for the development of the e-thesis information system in the future. Indicators that need attention for improvement include less attractive design and the need to improve capabilities. Findings on system improvements are supported by research [14] stating that the system design needs improvement. This is also supported by research [15] stating that it still needs to be improved and redesigned in the next development phase.

IV. CONCLUSION

Based on the results of the study, it can be concluded that the overall average score of the e-thesis information system is 4.10. Students agree that the e-thesis information system is in the good category. Additionally, the suggested improvements need to be implemented properly and according to user needs in order to further enhance the quality of the e-thesis information system. An attractive user interface design will facilitate users in using the e-thesis information system, especially in navigation and accessing desired information. The presence of an advanced search button will facilitate users in finding specific information that meets their needs. Clear and easily accessible displays of second thesis supervisors will also facilitate users in communicating and interacting with their thesis supervisors.

Regular UI refreshing is also important to maintain the suitability between the display and user needs. In this regard, the e-thesis information system can take feedback from users to improve the display and existing features. Minimizing errors should also be a priority in developing the e-thesis information system, so that users can use the system smoothly without technical problems.

Furthermore, a detailed schedule displayed on the homepage can facilitate users in monitoring their schedules and making better plans. Therefore, these improvements can increase the use of the e-thesis information system widely and facilitate users in completing their tasks more effectively. The hope for further research is a comparison of User Experience testing with other methods that can provide a more holistic view of user experiences with the e-thesis information system.

REFERENCES

[1] M. Siahaan, "Dampak Pandemi Covid-19 Terhadap Dunia Pendidikan," no. 1, 2020.

[2] S. Shodiq, "Peran Sistem Informasi dan Teknologi Informasi terhadap Proses Pembelajaran di Masa Pandemi Covid-19," Jukasi, vol. 8, no. 1, hlm. 17, Mar 2021, doi: 10.19184/jukasi.v8i1.23968.

[3] R. Mahara dan B. Basrul, "PERANCANGAN INTERFACE APLIKASI E-SKRIPSI BERBASIS ANDROID," CJ, vol. 2, no. 2, hlm. 141, Jan 2019, doi: 10.22373/cj.v2i2.4074.

[4] P. Morville dan P. Sullenger, "Ambient findability: libraries, serials, and the internet of things," The serials librarian, vol. 58, no. 1–4, hlm. 33–38, 2010.

[5] P. Suseta, R. I. Rokhmawati, dan K. C. Brata, "Evaluasi Pengalaman Pengguna pada Aplikasi E-Commerce Tapp Market Menggunakan Parameter UX Honeycomb," Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer e-ISSN, vol. 2548, hlm. 964X, 2019.

[6] A. A. Syahidi dan H. Tolle, "Evaluation of User Experience in Translator Applications (Banjar-Indonesian and Indonesian-Banjar) Based on Mobile Augmented Reality Technology using the UX Honeycomb Method," Journal of Games, Game Art, and Gamification, vol. 6, no. 1, hlm. 7–13, 2021.

[7] A. A. Syahidi, J. Joniriadi, N. H. Waworuntu, S. Subandi, dan K. Kiyokawa, "Tour Experience with Interactive Map Simulation based on Mobile Augmented Reality for Tourist Attractions in Banjarmasin City," The IJICS (International Journal of Informatics and Computer Science), vol. 6, no. 1, hlm. 22–31, 2022.

[8] Arikunto, S., Prosedur penelitian: Suatu pendekatan praktik. Jakarta: Rineka Cipta, 2010.

[9] A. Prasida, S. H. Wijoyo, dan R. I. Rokhmawati, "Evaluasi User Experience Pada Website Progate. Com Menggunakan Indikator UX Honeycomb," Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer e-ISSN, vol. 2548, hlm. 964X, 2021.

[10] R. Rahmadiansyah, R. I. Rokhmawati, dan H. M. Az-Zahra, "Evaluasi User Experience Pada Aplikasi Programming HUB Menggunakan Indikator UX Honeycomb," Jurnal

Pengembangan Teknologi Informasi dan Ilmu Komputer e-ISSN, vol. 2548, hlm. 964X.

[11] Campos , Fábio dan Salgado,Ana Carolina, "A Framework for Evaluating the Usability of Business Intelligence," International Journal of Human-Computer Interaction, vol. 36, no. 3, hlm. 236–253, 2020, doi: 10.1080/10447318.2019.1645811.

[12] R. Sukma, H. M. Az-zahra, dan M. T. Ananta, "Evaluasi perbandingan ranking antara proposed value dan perceived value terhadap e-commerce berdasarkan model UX Honeycomb," Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer e-ISSN, vol. 2548, hlm. 964X, 2018.

[13] Abdullah, Nor Hazana, Shiratuddin, Norshuhada, dan Shamsuddin, Nurul Nadia, "Evaluating the Usability of E-Thesis Submission System: A Case Study of Universiti Teknologi Malaysia," Advanced Science Letters, vol. 23, no. 7, hlm. 6297–6301, 2017, doi: 10.1166/asl.2017.9602.

[14] Choi, Woojin, Ji, Soo-Yeon, dan Yeom, Jae-Seung, "A Usability Study of a Health Information System for Senior Citizens: Design Recommendations for Patient-Centered Approach and Improved Navigation," International Journal of Human-Computer Interaction, vol. 31, no. 11, hlm. 753–764, 2015.

[15] I. N. Isnainiyah, A. Zaidiah, Y. Yulnelly, dan Y. Widiastiwi, "Desirable and Usefulness Aspects Analysis of Web-based Data Portal using UX Honeycomb," The IJICS (International Journal of Informatics and Computer Science), vol. 5, no. 2, hlm. 160