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The Effectiveness of Using Besmart E-Learning on the Ease of Learning for Science Education Students at UNY

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ABSTRACT

Besmart UNY is a platform developed by UNY to increase the intention to use information systems in learning. This study aims to (1) determine the effectiveness of using besmart e-learning for the ease of lectures for UNY Science Education students, (2) find out the advantages and disadvantages of using besmart e-learning in UNY Science Education student lectures, (3) how to overcome weaknesses or problems in the use of learning media through besmart. This research is a qualitative research with a survey research method. The subjects of this research were Science Education students at UNY undergraduate level in 2019, 2020, 2021 and 2022 who were selected using a selection technique of 70 students. The results of this study are (1) besmart is effectively used in science education student lectures at UNY, (2) its advantages are facilitating the learning process, learning is more effective while its weaknesses are frequent errors, changes in appearance so that sometimes data or assignments that have been collected are lost, and difficult in looking for classes, (3) how to overcome weaknesses, namely improving the besmart system, adding and developing features.

INTRODUCTION

According to Aziz et al (2013), the learning system is one of the factors that influences graduation competency. With the development of information and communication technology, the transformation of learning systems has developed quite rapidly, bringing significant changes to the advancement of the education world. Along with this development, many changes have occurred in learning systems. Conventional learning systems represent an ineffectiveness because with the changing times, information exchange has become fast and instant, so institutions that use this traditional system will be left behind by the increasingly

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rapid development of technology. With this increasingly rapid technological development, many educational institutions have begun to abandon conventional learning and shift to e-learning-based education.

In the era of information and communication technology, e-learning can be conducted anywhere, saving time, money, and effort. E-learning is one form of information technology applied in the field of education in the form of a website that can be accessed anywhere and anytime without spatial and temporal limitations (Oktarika, 2015:18). According to Nugraheni & Dina (2017), e-learning is capable of increasing students' interest in learning. Students stated that they feel happier and more comfortable with the learning conducted. The enjoyable aspects include non-monotonous learning, varied learning resources offered, and ease of access. According to Sanaky (2013) & Pohan (2020), the advantages of online learning for students are as follows: (1) Students can easily use learning materials without spatial and temporal limitations, (2) support for direct (synchronous) and indirect (asynchronous) communication, (3) modular learning materials, manuals, text, images, sound, video, animation in multimedia format, (4) educational paradigm oriented toward learning, with the assumption that every student wants to learn to the best of their ability.

Besmart is an online-based learning media used to support the online learning process at UNY (Yogyakarta State University). Besmart UNY is implemented using Moodle LMS. Moodle (Modular Object Oriented Dynamic Learning Environment) is software for creating web-based course materials. Several features for learning activities supported by e-learning with Moodle LMS include materials, assignments/quizzes, discussion forums, chat, and video conferencing (Rizal & Walidain, 2019). With E-Learning Besmart UNY, lecturers can manage course materials, upload lecture materials, assign student tasks, receive student work, process student records, interact with students and other lecturers through discussion forums, chat, and video conferencing. On the other hand, students can also access information and materials for learning, interact with fellow students and lecturers, complete course assignments, work on assignments/quizzes, and view the success of learning outcomes (Pangestu, 2020).

Based on this background, research was conducted on the effectiveness of using Besmart e-learning on the ease of learning for Science Education students at UNY. There was previous research by Rama Faiz Pangestu (2020) entitled "The Effect Of Utilizing Besmart E-Learning As A Learning Media On The Learning Interest Of Educational Technology Students," which focused on the learning interest of Educational Technology students. Whereas the research we are conducting will focus on the ease of learning for Science Education students at

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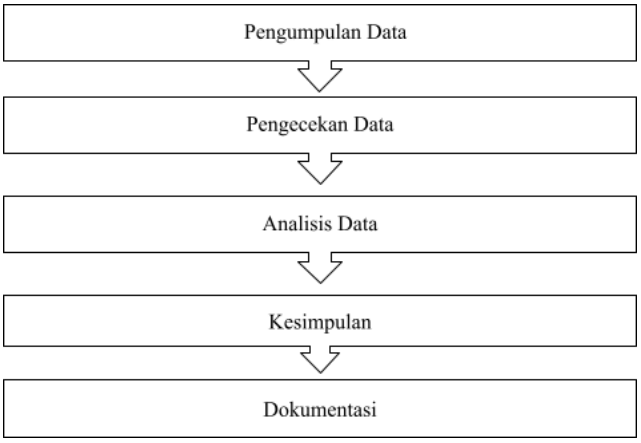
UNY. This research needs to be conducted to determine the extent of the effectiveness of using Besmart e-learning on the ease of learning for Science Education students at UNY, the advantages and disadvantages of using Besmart learning media in lectures for Science Education students at UNY, as well as ways to overcome the weaknesses or problems in using learning media through Besmart.

METHODS

The type of research used in this study employs qualitative research with a survey research method using instruments in the form of questionnaire completion and interviews. The research subjects are undergraduate Science Education students at UNY from the 2019, 2020, 2021, and 2022 cohorts with a sample of 70 students, and the research object is the effectiveness of using BESMART learning media on the ease of learning for Science Education students at UNY. This research was conducted in the Science Education study program at UNY from May to July 2023. The research procedures used in this study include



Picture 1. Work Procedure

RESULTS AND DISCUSSION

System Quality Evaluation Results

According to Delone & McLean (2003), the indicators for evaluating E-Learning System Quality include ease of use, ease of learning, access speed, system reliability, flexibility, usefulness of system features and functions, and security. When averaged according to the criteria (strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)) as follows:

- Number of questionnaire items: 15

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- Number of respondents: 70
- Minimum value: 1,050
- Maximum value: 5,250
- Range: 4,200
- Interval: (4,200/5) = 840
- Ideal Score for Information Quality: 5,250
- Actual Score for Information Quality: 4,547

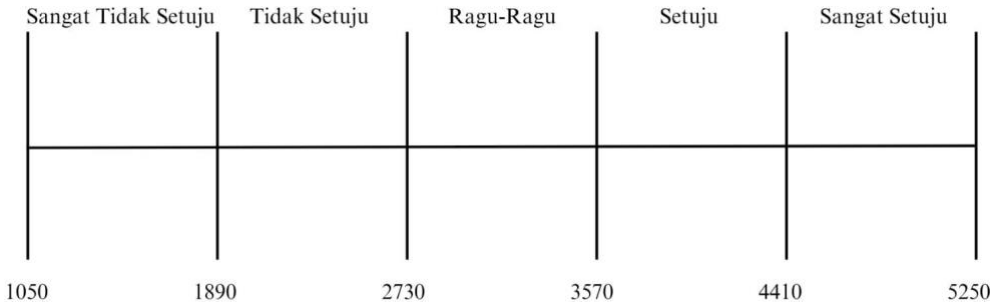

Figure 2. System Quality Interval Range

The average System Quality evaluation obtained a score of 4,547. This value falls within the interval range of 4,410-5,250. These results indicate that System Quality received a "strongly agree" rating or can be considered very good.

Information Quality Evaluation Results

According to Delone & McLean (2003), the indicator for evaluating E-Learning Information Quality is format. When averaged according to the criteria (strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)) as follows:

- Number of questionnaire items: 1
- Number of respondents: 70
- Minimum value: 70
- Maximum value: 350
- Range: 280
- Interval: (280/5) = 56
- Ideal Score for Information Quality: 350
- Actual Score for Information Quality: 302

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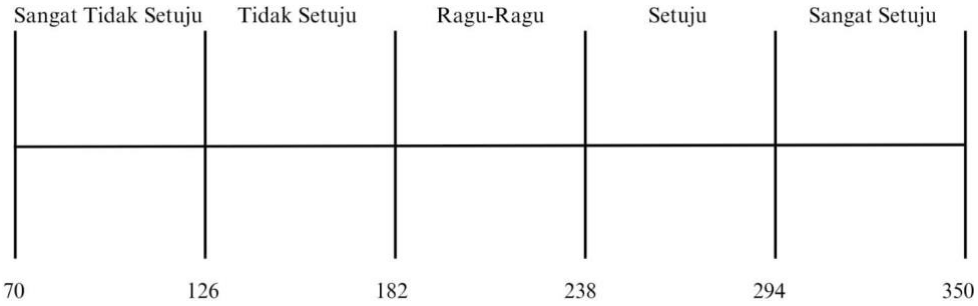

Figure 3. Information Quality Interval Range

The average Information Quality evaluation obtained a score of 302. This value falls within the interval range of 294-350. These results indicate that System Quality received a "strongly agree" rating or can be considered very good.

Service Quality Evaluation Results

According to Delone & McLean (2003), the indicator for evaluating E-Learning Service Quality is response speed. When averaged according to the criteria (strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)) as follows:

- Number of questionnaire items: 1
- Number of respondents: 70
- Minimum value: 70
- Maximum value: 350
- Range: 280
- Interval: (280/5) = 56
- Ideal Score for Information Quality: 350
- Actual Score for Information Quality: 282

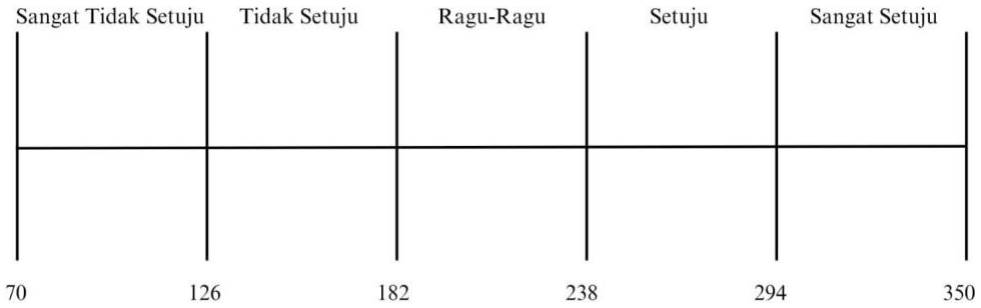

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Figure 4. Service Quality Interval Range

The average Information Quality evaluation obtained a score of 282. This value falls within the interval range of 238-294. These results indicate that System Quality received an "agree" rating or can be considered good.

User Quality Evaluation Results

According to Delone & McLean (2003), the indicators for evaluating User Quality include efficiency, effectiveness, and user satisfaction. When averaged according to the criteria (strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)) as follows:

- Number of questionnaire items: 8
- Number of respondents: 70
- Minimum value: 560
- Maximum value: 2,800
- Range: 2,240
- Interval: (2,240/5) = 448
- Ideal Score for Information Quality: 2,800
- Actual Score for Information Quality: 2,373

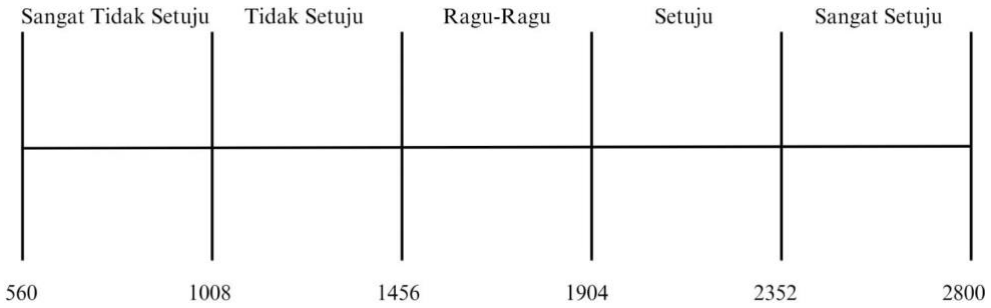

Figure 5. User Quality Interval Range

The average user satisfaction quality evaluation obtained a score of 2,373. This value falls within the interval range of 2,352-2,800. These results indicate that user satisfaction quality received a "strongly agree" rating or can be considered very good.

Discussion

System Quality Discussion

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System quality in the Besmart e-learning system relates to the features within the system and system performance. In this study, there were 70 respondents who provided opinions regarding the 7 indicators prepared in the questionnaire. According to Delone & McLean (2003), in measuring system quality, we used several indicators including ease of use, ease of learning, ease of access, system reliability, flexibility, feature usefulness, and security. System quality is a measure of an information system that focuses on the results of interaction between users and the system. System quality attributes such as equipment availability, equipment reliability, ease of use, and response time are factors that determine why an information system is used or not. Nielsen (2000) believes that there are several usability principles, specific to the online environment, particularly navigation, response time, reliability, and content. According to various publications, there are four dimensions of system quality, namely navigation, ease of use, response time, and security. McKinney et al. (2002) argue that there are three aspects of system quality: access, usability, and navigation. Based on the survey results, it is known that the average of all system quality indicators shows a very good assessment. Besmart has a system that is easy to learn and use, so students can easily use Besmart for lecture activities. In addition, the Besmart system can be used anytime and anywhere according to students' needs.

Information Quality Discussion

In the second assessment aspect, the indicator used to evaluate information quality in this E-learning system is format. Based on the survey results, it is known that the average assessment of the information quality of the Besmart system shows very good results. The Besmart learning media can present information, especially lecture materials, in a clear and easy-to-read format, so students can easily understand the information conveyed by lecturers.

The Seddon Model (1997) shows that information quality has a significant positive effect on user satisfaction with information systems. Information quality referred to in this study is users' perception of the quality of information generated by the internet used by students to obtain the information they need. Information quality is the level of relevant, up-to-date, secure, and well-designed information on a website (Liu and Arnett, 2000).

Service Quality Discussion

In the third assessment aspect, the indicator used to evaluate service quality in this E-learning system is Besmart's response speed in processing user requests. Based on the survey results, it is known that the average assessment of Besmart's

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response speed in processing user requests is good. Besmart has good response speed, so students can easily open Besmart when it is being used for lecture purposes.

Service quality (Parasuraman, 2000) is based on a comparison between what should be offered and what is offered. Specifically, companies with high service levels develop two information systems that are very important for improving their service capabilities.

User Satisfaction Quality Discussion

The fourth assessment aspect is user quality. Satisfaction is a consideration of a product or service that provides a pleasant level regarding the fulfillment of user desires at a lower or upper level (Oliver, 1997). User satisfaction is the response and feedback felt by users after conducting E-learning. The following are indicators for measuring user satisfaction: efficiency, effectiveness, and user satisfaction (Delone & McLean, 2003). Based on the survey results, it is known that the average assessment of the user satisfaction aspect is very good.

Based on the survey results, Besmart is considered effective in supporting Science Education students' lectures. However, there are several issues that need attention from Besmart developers. One of them is that when Besmart is used by many people simultaneously, errors or system downtime often occur. In addition, interface changes sometimes cause loss of data or assignments that have already been submitted. Students also experience difficulties in searching for courses within the Besmart system. To address these problems, it is hoped that Besmart developers can upgrade the system to make it more stable and consider adding features that can facilitate the use of Besmart in the future. For example, the use of semester options and course instructor options in the course search feature. Thus, the effectiveness of using Besmart e-learning in supporting Science Education students' lectures at UNY can be improved.

CONCLUSION

Contains Based on the research results, it can be concluded that Besmart is effectively used in lectures for Science Education students at UNY because students feel it is easier to conduct their studies. The advantages of using Besmart e-learning in lectures for Science Education students at UNY are facilitating the learning process and making the use of time in the learning process more efficient. Meanwhile, the disadvantages of using Besmart e-learning in lectures for Science Education students at UNY include frequent errors when opening pages, interface

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changes that can result in loss of data or assignments that have been submitted, as well as difficulties in finding classes. To overcome the weaknesses or problems in using learning media through Besmart, several steps can be taken including improving the Besmart network system to reduce system errors and support smoother learning. Additionally, adding and developing features on Besmart, such as adding course search options with semester and course instructor choices, would make it easier for students to find the required classes.

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