Informatics Education Students' Perceptions of the Use of Edlink LMS in Data Structure Courses

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Abstract
This study aims to determine Informatics Education student's perceptions of using the EdLink Learning management system (LMS) in the Data Structures course. The research employs a mix method approach, combining quantitative and qualitative data collection throughused questionnaires and interviews with students who have used EdLink during lectures. The results indicate that most students find EdLink facilitates access to learning materials, enhances communication with lecturers, and supports independent learning. However, some challenges challenges were identified include technical issues and limited interactive features. These findings are expected to provide valauable input for the further development of EdLink LMS to better support data Structures learning.

Keywords: *Student perception, EdLink LMS, data structures, online learning, informatics Education*

INTRODUCTION

The development of information technology has brought about major changes in the world of education, especially in the implementation of online learning. Learning Management System (LMS) is the main platform that facilitates the online teaching and learning process with features that support interaction, distribution of materials, and learning evaluation (UAD, 2021). LMS allows learning flexibility that can be accessed anytime and anywhere, thus supporting more independent and effective learning.(Susanti & R., 2022).

. In Indonesia, the EdLink LMS developed by Sevima has begun to be widely used in universities as a digital learning solution integrated with the campus academic system.(Darwanto & Khasanah & Muhammadiyah Kotabumi, 2021).Edlink offers easy integration with the Academic Information System (Siakad) which makes it easier for lecturers and students to manage academic administration online (Mahendra et al., 2023). The use of EdLink is also supported by features such as online quizzes, digital attendance, and discussion forums that increase student interaction and involvement in the learning process (Kebritchi et al., 2017).

Various previous studies have shown that the use of LMS can improve learning effectiveness, facilitate communication between lecturers and students, and support independent learning (Rahmayanti et al., 2020). LMS has also been shown to increase student learning motivation and provide easy access to various learning materials (Al-Fraihat et al., 2020). However, most studies still focus on popular LMS such as Moodle or Google Classroom, while studies on student perceptions of EdLink LMS, especially in the context of Data Structure courses in the Informatics Education study program, are still very limited.

EdLink offers superior features such as online quizzes, digital attendance, discussion forums, and integration with the Academic Information System (Siakad) which allows easy access to materials and online management of academic administration (Mahendra et al., 2023). These features are believed to be able to improve the quality of learning, but their implementation also faces various technical obstacles and user adaptation that need to be studied further.(Wijaya & Anggraini, 2023). Research by(Sari & Rahmawati, 2022)highlights the importance of technical support and training for LMS users to optimize platform utilization.

The scientific novelty of this study lies in the focus of the analysis of Informatics Education students' perceptions of the use of EdLink LMS in Data Structure courses, which have not been studied in depth. By combining aspects of ease of access, learning independence, Effectiveness of use and satisfaction and expectations from using EdLink. This study is expected to provide new contributions to the development and

optimization of EdLink LMS in the Indonesian higher education environment.

The main problem raised in this study is how do Informatics Education students perceive the use of LMS EdLink in data structure courses? This question is important to answer the extent to which LMS EdLink can meet learning needs and what obstacles need to be fixed (Rakasimin, n.d.). This study also aims to identify factors that influence student learning independence and the effectiveness of learning through LMS EdLink(Kurniati & Santoso, 2022).

This study aims to identify and analyze students' perceptions regarding ease of access, features, and effectiveness of use, as well as learning independence during the use of EdLink LMS in the Data Structure learning process. The results of the study are expected to be the basis for recommendations for LMS developers and educational institutions in improving the quality of online learning.(Putra & Dewi, 2023).

Thus, this research is also expected to provide a comprehensive empirical picture of the implementation of EdLink LMS which can be a reference for other universities in adopting digital learning technology effectively and efficiently.(Hidayat & Sari, 2021).

METHOD

This study uses mixed methods with a quantitative approach as the main focus and supported by a qualitative approach to gain a more comprehensive understanding of student perceptions of the use of EdLink LMS in Data Structure courses. The combination of these two approaches is believed to provide more complete, valid, and reliable data than using only one method.(*Creswell*, 20 C.E.)(Judge Nasution et al., 2024)

The subjects of the study were 4th semester students of the Informatics Education Study Program who were taking the Data Structure course and using the EdLink LMS as a learning medium. The study population included all 4th semester students who met the criteria. Sampling was carried out using simple random sampling to ensure that each member of the population had an equal chance of being selected as a respondent. The sample taken was 15 students, considering representativeness and limited time and resources.

The main data collection technique was a closed questionnaire distributed online to 15 4th semester students. This questionnaire used a Likert scale to measure students' perceptions of ease of use, benefits, obstacles, and the effectiveness of EdLink LMS in learning. No validity and reliability tests were conducted on the instrument due to sample limitations and focus on initial descriptions. In addition, the researcher conducted brief online interviews with 5 purposely selected students to obtain more in-depth qualitative data regarding their experiences using EdLink LMS.

The quantitative data collection tool is a closed questionnaire based on a Likert scale, while qualitative data is collected through semi-structured interviews. The questionnaire contains statements related to the aspects being studied, while interviews are used to explore students' subjective experiences in more detail.

Quantitative data analysis techniques use descriptive statistical analysis, namely calculating the frequency, percentage, and average score of respondents' answers to the questionnaire. Qualitative data from the interview results were analyzed thematically by identifying the main themes that emerged from student experiences. The results of quantitative and qualitative analysis were then interpreted in an integrated manner to provide a comprehensive picture of student perceptions of the use of EdLink LMS.

This study uses concurrent triangulation in a mixed methods design, where quantitative and qualitative data are collected simultaneously and complement each other to strengthen the research results.(*Creswell*, 20 C.E.).

This research flow shows the stages starting from problem formulation, preparation and distribution of online questionnaires to 15 students, conducting in-depth interviews with 5 selected students, analyzing quantitative and qualitative data separately, and integrating the results for final reporting.

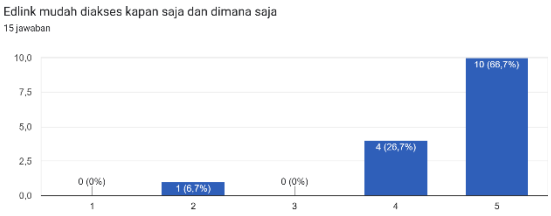
RESULTS AND DISCUSSION

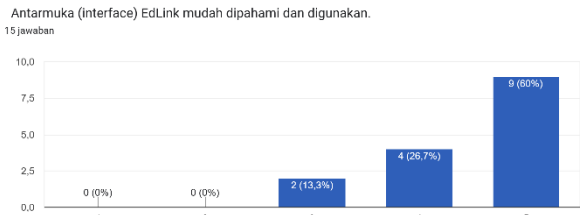
This study found that Informatics Education students' perceptions of the use of EdLink LMS

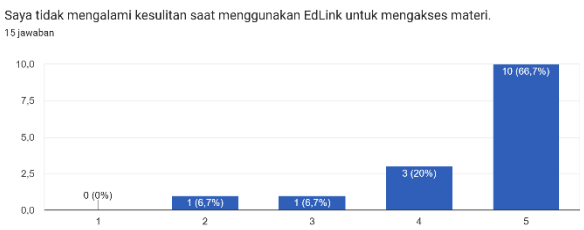
in the Data Structures course were very positive, especially in terms of ease of use, learning independence, effectiveness of use, and satisfaction and expectations for the platform.

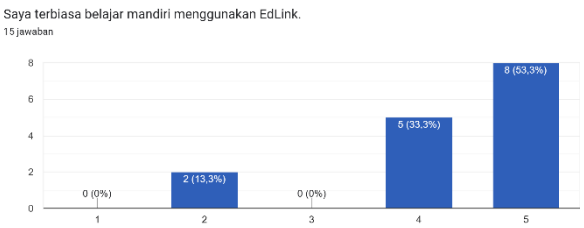
1. **Aspects of User Convenience**

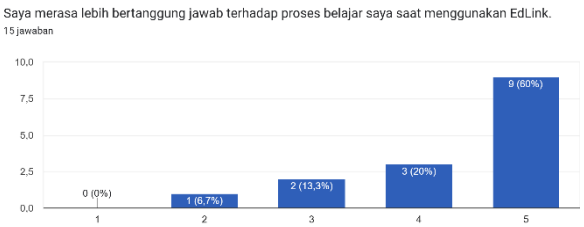
   The majority of students stated that EdLink is easy to access anytime and anywhere, with an interface that is easy to understand and use. As many as 66.7% of students strongly agree that EdLink is easy to access, and 60% strongly agree that the LMS interface is easy to use. This shows that EdLink provides high accessibility and user-friendliness, which makes it easy for students to access learning materials and complete assignments without technical barriers.

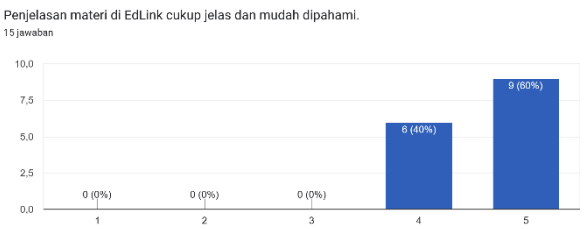


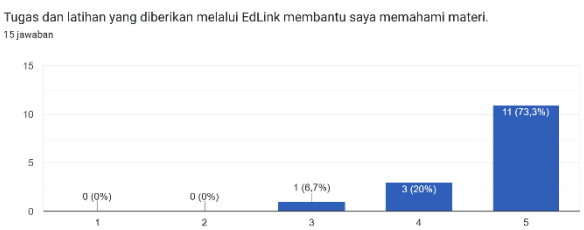










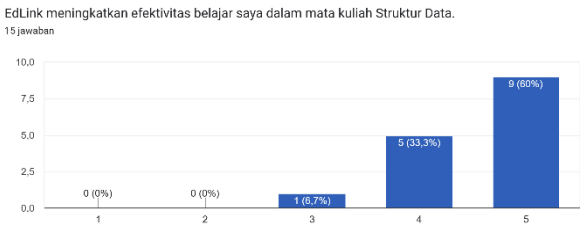


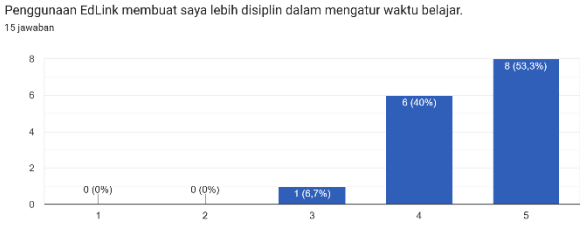
2. **Aspects of Learning Independence**

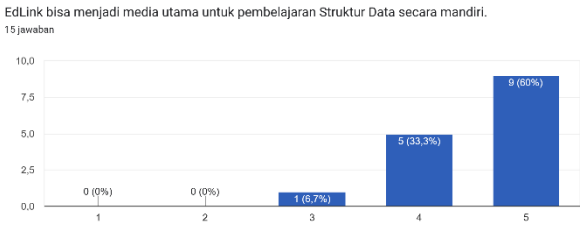
   EdLink facilitates students to learn independently without having to meet face to face, with 66.7% of students strongly agreeing that this platform facilitates independent learning. In addition, 60% of students feel more responsible for their learning process when using EdLink. This shows that this LMS is able to increase student learning independence, which is an important factor in online learning and blended learning.

3. User Effectiveness Aspects

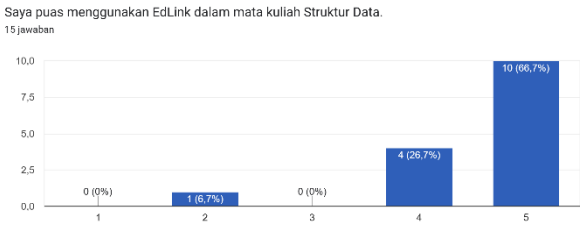
   As many as 60% of students stated that EdLink increased their learning effectiveness in Data Structures courses, and helped them become more disciplined in managing their study time. EdLink is also considered an effective primary medium for independent learning of Data Structures.

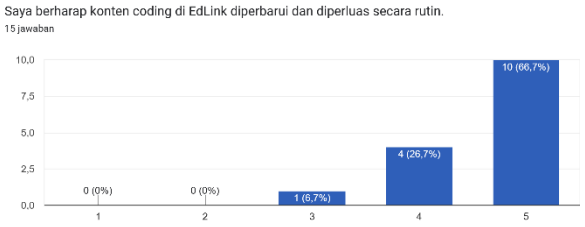






4. Aspects of Satisfaction and Expectations
   Most students (66.7%) were satisfied with using EdLink and hoped that the learning content, especially coding content, would be updated and expanded regularly, which indicates a need for dynamic content development that is relevant to the development of learning materials.





This finding can be explained by the Adaptive Structuration Theory which emphasizes the importance of user adaptation to technology in order to maximize its benefits in the context of learning. The ease of access and intuitive interface allow students to quickly master the EdLink LMS, thereby increasing their independence and learning effectiveness.

The phenomenon of increasing learning independence is also supported by the results of other studies showing that the use of EdLink LMS significantly increases students' learning independence with an influence of 60% on this variable. This is because EdLink provides various features that support independent learning such as complete materials, assignments, quizzes, and discussion forums that can be accessed at any time.

The positive trend in the effectiveness of EdLink usage is also in line with the flipped classroom learning model implemented in several institutions, where students study the material independently before class and use face-to-face for discussion and application of the material. EdLink LMS supports this model with comprehensive features and easy-to-access material integration.

Comparison with other studies shows consistent results. For example, research at STIK Bina Husada shows that 88% of students have a good perception of the use of EdLink as an online learning medium. Research at Tanjungpura University also informs the ease of use and effectiveness of EdLink in supporting blended learning although lecturer-student interaction needs to be improved.

The results of this study confirm the hypothesis that the use of EdLink LMS in Data Structure courses provides positive perceptions for students, increases ease of access, learning independence, learning effectiveness, and user satisfaction. Thus, EdLink is effective as an online learning medium and blended learning in the context of informatics education.

CONCLUSION

Based on the research results, it can be concluded that the EdLink LMS is very effective for use in Data Structure courses for Informatics Education students. The use of EdLink has been proven to increase the ease of access to learning materials, so that students can learn anytime and anywhere without technical constraints. In addition, EdLink supports independent learning

by facilitating students to organize their learning process independently and responsibly. Learning effectiveness also increases, as seen from students' ability to understand the material and manage their study time more disciplined. The level of student satisfaction with EdLink is high, although they expect learning content, especially coding material, to be updated regularly so that it is always relevant to scientific developments. Overall, these findings strengthen the hypothesis that the EdLink LMS can be an effective and efficient online learning and blended learning media in improving the quality of the teaching and learning process in Data Structure courses.

SUGGESTION

Based on the results of this study, it is recommended for further research that the development of EdLink LMS be focused on improving interactive features that can strengthen communication between lecturers and students, such as more responsive discussion forums and real-time collaboration features. In addition, periodic evaluation of learning content is needed to keep it up-to-date and in accordance with the development of Data Structure material and student needs.

Further research can also broaden the scope by involving student samples from various study programs or institutions to obtain a more comprehensive picture of the effectiveness of EdLink LMS.

The obstacles that need to be considered are limited internet access and differences in technological capabilities among students that can affect the optimal use of LMS. Therefore, there needs to be adequate technical support and infrastructure as well as training for LMS users so that these obstacles can be minimized and learning outcomes can be maximized.

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