MATHEMATICS EDUCATION STUDENT PERCEPTIONS OF ONLINE LEARNING FOR IT-BASED DATA ANALYSIS COURSES THAT ARE INTEGRATED WITH CHARACTER VALUES

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Abstract

The learning held is expected to be an inspiration for students and to integrate character values. However, due to the Covid-19 pandemic, students have various perceptions of the implementation of lectures and related aspects. Therefore, the purpose of this study was to describe students' perceptions of the implementation of online learning at the Islamic University of Riau. This study uses a quantitative descriptive approach. Students' perceptions of the implementation of learning are carried out by giving a questionnaire that refers to three components, namely: lecturer competence, learning process components, and infrastructure components. Data was collected using an online questionnaire using Google Form which was distributed to 117 students of the IT-Based Statistical Data Analysis course by purposive random sampling. The results showed that the competence component of the lecturers obtained the highest level of perception, namely 85.16%, the facilities and infrastructure components as much as 84.55%, and the learning process component as much as 80.16%. This shows that the success of learning according to student perceptions is largely determined by the competence of the lecturer, while the facilities and infrastructure, as well as the learning process, support the success of all related components. In general, it can be concluded that students' perceptions of the implementation of online lectures in the IT-Based Data Analysis course at the Islamic University of Riau gave a positive response with a perception rate of 83.29%.

Keywords: Covid-19, learning, mathematics, online, perceptions

Abstrak

Pembelajaran yang diselenggarakan diharapkan mampu menjadi inspirasi bagi mahasiswa dan terintegrasi nilai karakter. Namun demikian, karena adanya pandemic Covid-19, mahasiswa memiliki beragam persepsi terhadap penyelenggaraan perkuliahan dan aspek yang berkaitan. Oleh karena itu, tujuan dari penelitian ini yaitu untuk mendeskripsikan persepsi mahasiwa terhadap penyelenggaraan pembelajaran secara online di Universitas Islam Riau. Penelitian ini menggunakan pendekatan deskriptif kuantitatif. Persepsi mahasiwa terhadap pelaksanaan pembelajaran dilakukan dengan cara memberikan angket yang mengacu pada tiga komponen yaitu: kompetensi dosen, komponen proses pembelajaran dan komponen sarana prasarana. Data dikumpulkan menggunakan angket secara online dengan Google Form yang didistribusikan kepada 117 mahasiswa yang menempuh mata kuliah Analisis Data Statistik Berbasis IT secara purposive random sampling. Hasil penelitian menunjukkan bahwa pada komponen kompetensi dosen diperoleh tingkat persepsi yang paling banyak yaitu sebanyak 85,16%, komponen sarana dan prasarana sebanyak 84,55%, dan komponen proses pembelajaran sebanyak 80,16%. Hal ini menunjukkan bahwa keberhasilan pembelajaran menurut persepsi mahasiwa paling banyak ditentukan oleh kompetensi dosen, sedangkan sarana dan prasana serta proses pembelajaran mendukung keberhasilan dari semua komponen yang terkait. Secara umum dapat disimpulkan bahwa persepsi mahasiwa terhadap pelaksanaan perkuliahan secara daring pada mata kuliah Analisis Data Berbasis IT di Universitas Islam Riau memberikan respon positif dengan tingkat persepsi sebesar 83,29%.

Kata kunci: Covid-19, daring, matematika, pembelajaran, persepsi

INTRODUCTION

The learning process is a process of interaction between educators and students in the classroom. Learning can be seen from two sides, namely (1) learning as an organized system of several components, including the existence of goals, media, class management, evaluation, and learning feedback; and (2) learning as a process of teacher activities starting from the planning stage, implementation of learning activities, evaluation to the follow-up process carried out to achieve the learning objectives that have been set (Faizah, 2017).

Learning activities can be interpreted as a series of activities that aim to obtain changes in mindset and skills as well as agile attitudes in responding to various problems. Therefore, in principle, the learning process can not only be seen as a process of interaction between educators and students, but the learning process has an understanding, namely as a system consisting of various components that interact and are connected to redundancy (Andrian, 2017). In addition to achieving the learning objectives that have been set, another benefit of the learning process is to gain individual knowledge and experience (Supriadi, 2015).

However, currently, the learning process has changed due to the Covid-19 pandemic. The Covid-19 virus is a type of virus that is easily and quickly transmitted to humans and endangers human lives when exposed to the virus (Tyaningsih et al., 2021). On January 30, 2021, WHO declared that all countries were experiencing a global health emergency. This causes everyone in the world to stay at home or what is called a lockdown (Sohrabi et al., 2020).

Various sectors were affected by this pandemic, initially in the economic and health sectors but over time the education sector was affected, including elementary, junior high, high school to undergraduate (Damanhuri, 2020; Susilawati et al., 2020; Zhang & Ma, 2020). Related to this, the Minister of National Education issued a policy that starting April 17, 2020, learning activities were carried out online, as many as 91.3 percent of students throughout the country did not carry out the learning process at school (UNESCO, 2020). Around 45 million students in Indonesia who were affected by learning activities that were usually carried out face-to-face are now being transferred online (Batmang et al., 2021).

The Covid-19 pandemic that is still ongoing today requires students and lecturers to conduct lectures from home as a solution to problems in the implementation of learning

activities. Online learning is defined as a process of interaction between teachers and students who are woven into a network of electronic devices (Nabila, 2020). In practice, online learning requires the internet with stable connectivity, accessibility, and flexibility to bring up various interactions in the learning process.

The online learning system utilizes technological facilities in the form of platforms and applications that allow distance learning activities to be carried out. Various applications and platforms are used during the online learning process, including Google Classroom, Google Meet, Zoom, Edmodo, and others. With this change in the learning system, several things are things that are of concern to lecturers and students, ranging from understanding technology to using applications during online learning activities, motivation, and students during the learning process, as well as adequate facilities before the learning process started.

One of the courses whose learning process is done online is the IT-Based Data Analysis course which is one of the elective courses at the Islamic University of Riau which consists of 3 credits. This course aims to facilitate students in researching their final project or thesis. In addition, so that students know how to use Microsoft Excel and SPSS when processing data obtained by students. However, in the learning process, the lecturer does not only focus on the theory being taught, but the lecturer must also be able to provide character values to students.

In online lecture activities, lecturers are required to be able to find the right learning model and still apply character values. Character values are one of the basic values that must be applied by lecturers in lecture activities (Ikawati et al., 2018). This statement is corroborated by previous research, namely (Pertiwi & Marsigit, 2017) that the character values applied in the learning process can shape the potential of students. So that students will be more moral and noble. Even though the learning process is done online, lecturers still have to apply character values.

Several previous studies have shown that the learning process is still less effective. Several problems arise, including poor internet network connection, inadequate facilities and infrastructure, and the lack of preparation of learning materials to be delivered (Basar, 2021). Another inhibiting factor in online learning activities is the lack of ability of educators in mastering technology, to the busyness of parents who cannot accompany their children's learning process (Lailatussaadah et al., 2020; Putria et al., 2020). Another impact of the

implementation of online learning activities is a decrease in student interest and motivation (Cahyani et al., 2020; Gumanti & Teza, 2021). Based on research conducted by (Damayanthi, 2020) It is known that as many as 25.3% of students strongly disagree if the online learning system is applied permanently if the Covid-19 pandemic ends.

Some difficulties were also experienced by mathematics education students when taking IT-based statistical data analysis courses. This is due to changes in learning conditions that are not normal and sudden so that many students have not been able to adapt and interact properly using existing technological facilities. From some of these problems, perceptions will arise from students regarding the implementation of lecture activities related to all aspects. Therefore, this study aims to describe students' perceptions of the implementation of online learning at the Islamic University of Riau.

METHODS

The research method used in this research is descriptive quantitative. Quantitative descriptive method research is conducted to describe a phenomenon or a description of an event whose data usually consists of numbers that are analyzed by following per under statistical procedures (Sugiyono, 2015). The population used in this study were all students of the Islamic University of Riau who took IT-based statistical data analysis courses with a total sample of 117 students. The sampling technique in this study used a purposive random sampling technique. Purposive random sampling is a sampling technique whose criteria have been determined by the researcher, who had previously gone through a process of consideration.

The research instrument used is a non-test instrument in the form of a questionnaire or perception questionnaire distributed through Google Form. The components contained in the questionnaire contain student perceptions which refer to three components, namely: lecturer competence, learning process components, and components of learning support facilities. The questionnaire consists of 35 statements consisting of 12 statements of lecturer competency components, 13 statements of learning process components, and 10 statements of infrastructure components.

The data obtained were then analyzed according to indicators and processed with questionnaire data using Microsoft Excel. The data obtained by the researcher is presented

in the form of a diagram so that it can be seen from the assessment of students' perceptions of each component of the implementation of learning that has been carried out online.

RESULTS AND DISCUSSION

The results showed that students' perceptions of the online learning process gave a positive response. To measure students' perceptions of online learning in this IT-based data analysis course is divided into three components, namely lecturer competence, infrastructure, and learning processes. The following table shows all the results for each component.

Table 1. Results of Each Component

Component	Rating Score	Maximum Score	Percentage
Lecturer Competence	4783	5616	85,16%
Infrastructure	3957	4680	84,55%
Learning Process	4877	6084	80,16%
Score	13617	16380	83,29%

From the table above, it can be seen that students gave a positive response to the online learning process. It can be seen that the component of lecturer competence has a percentage of 85.16%, the component of facilities and infrastructure is 84.55% and the learning process has a percentage of 80.16%. So the overall percentage of the 3 components described is 83.29%. The following is a diagram of all the percentages of the 3 components of the percentage of students towards the online learning process.
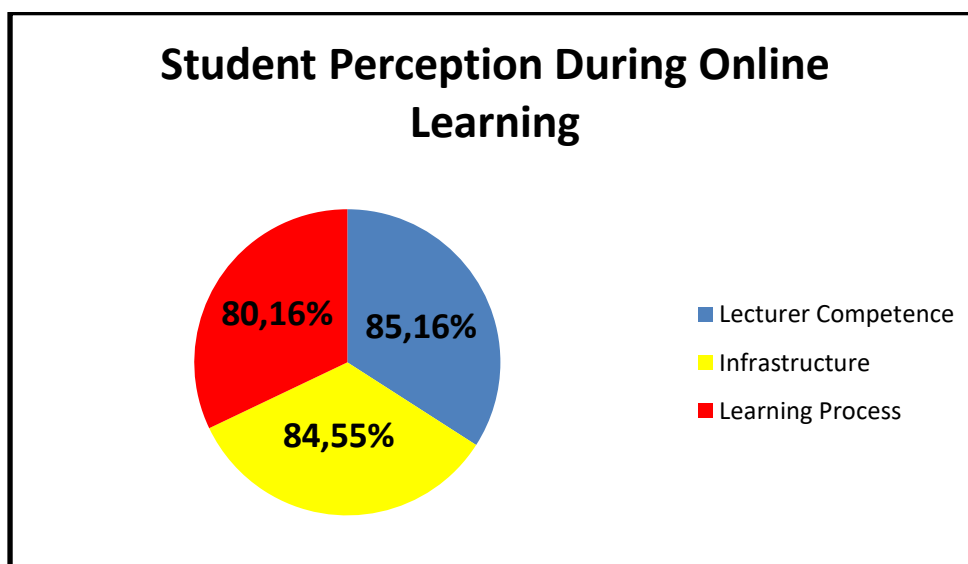
Figure 1. Percentage of 3 Components

From Figure 1 it can be seen that the percentage of lecturers' competence is very high. In the learning process during the COVID-19 pandemic, the competence of lecturers is very important. In a relatively long time, lecturers must be able to carry out online lecture activities

efficiently. For lecturers, this is an opportunity as well as a challenge in the learning process. Because with the online learning process, lecturers are required to be able to understand how to use applications related to the learning process. Lecturers not only have to understand one application but also have to understand various applications during the online learning process.

On the other hand, lecturers can improve their skills and expertise through various webinars with free or paid channels. The Covid-19 pandemic, will provide new experiences for lecturers and add insight to lecturers about online learning media that can be used. However, as a lecturer, 4 competencies must be possessed, namely pedagogic competence, personality competence, social competence, and professional competence.

Pedagogic competence is the ability of lecturers on how lecturers manage the learning process so that students can understand the learning being taught. In addition, lecturers must also be able to evaluate students in learning activities, so that the learning process can run well (Suripah et al., 2021). Personal competence and social competence are two interrelated competencies. Because the lecturer is an educator. As a lecturer, you must have a positive attitude towards students and appreciate that the relationship between lecturers and students, fellow lecturers, and student guardians can run well (Nurdiyah et al., 2018). Furthermore, the competencies that must be possessed by lecturers are professional. As a lecturer, not only is he able to understand what is being researched, but the lecturer must also be able to develop from what has been researched (Prasetio et al., 2017).

In addition to the component of lecturer competence, based on Figure 1, it can be seen that the component of facilities and infrastructure has a fairly high percentage. Facilities and infrastructure are important components in the implementation of online learning activities, this is because when online learning activities cannot be separated from the use of technology (Sadikin & Hamidah, 2020). Technological facilities are needed during online learning activities because technology facilities are an important aspect that supports the success of learning activities. Technological facilities can be alternative learning for students during the application of the distance learning model (Baist et al., 2019; Novilanti & Suripah, 2021). For example, the use of learning systems management applications such as Edmodo, Google Classroom, (Muhardi et al., 2020; Susanti & Suripah, 2021), as well as Video Conference

applications such as Zoom, Google Meet, and others (Sajaril et al., 2020). The use of applications in online learning systems requires a balance of available resources, namely human resources who will operate the application and the availability of electronic devices to support learning activities (Ratnawati & Vivianti, 2020).

Given that facilities and infrastructure are important components to support the success of online learning activities, the availability of facilities and infrastructure must be paid more attention to by following the standards of learning objectives. With the change in the current learning system, both lecturers and students must have the readiness of facilities to support learning activities, this is because the availability of facilities will greatly support the learning process (Fatmawati et al., 2019). Based on the results obtained, it is known that some students already have the facilities and infrastructure needed during online learning activities. However, there are still some students who experience problems in terms of facilities and infrastructure during online learning activities.

Based on the results obtained in a questionnaire of 117 responses, as many as 4.62% stated that they still had difficulty accessing the learning applications used by lecturers. This is caused by the problem of internet access that is not smooth and the electronic devices owned by students are still inadequate. This obstacle becomes an urgency when learning online because the facilities and infrastructure are still inadequate (Sari et al., 2020), thus causing the thinking mechanism of students to be disturbed in learning activities.

The government has made several efforts to meet the needs of facilities and infrastructure during online learning activities, one of which is by providing quotas for educators and students to support online learning activities to be more optimal. In this regard, a good education management information system is needed as a means of supporting the learning process and of course adequate electronic devices (Basar, 2021). Ideally in an online learning system, both educators and students pay attention to the availability of facilities and infrastructure to facilitate online learning activities.

Based on Figure 1, the components of the learning process also have a fairly high percentage. The learning process is an interactive activity between lecturers and students in the classroom. During the Covid-19 pandemic, the learning process was shifted to online using electronic devices such as smartphones, laptops, or computers. Learning media used to support online learning activities are in the form of virtual classroom services such as Google

Classroom, Google Meet, Edmodo, Zoom (Nartiningrum & Nugroho, 2020; Okmawati, 2020; Purnawarman et al., 2016) and other apps like WhatsApp (Djamdjuri & Kamilah, 2020).

The use of digital technology in the online learning process provides opportunities for students and lecturers to hold lecture activities in different places, but can interact directly (synchronously) and indirectly (asynchronously) (Budiani, 2021). In the implementation of the online learning process, adequate facilities are needed to access learning applications that are commonly used by lecturers for lectures.

The implementation of online lectures has several obstacles experienced by students. As explained in the research results (Wiryanto, 2020), constraints experienced during the online learning process include; (1) difficulty in understanding, (2) internet connection is not supported, (3) hampered in collecting assignments, (4) requires a high internet quota, (5) feels bored because the learning system is struggling with assignments. From some of these difficulties, more interaction between teachers and lecturers is needed so that the learning process becomes more effective.

The online learning conducted for the IT-based statistical data analysis course at the Mathematics Education Study Program at the Islamic University of Riau prioritizes the application of a separate learning product, namely the "CERDAS UIR SYSTEM" to facilitate easy access for students. However, in the implementation of online learning activities, there are still some obstacles, including some students who cannot play an active role during the online learning process. This can be seen from the results of the questionnaire, namely 4.11% of 117 students stated that they did not play an active role and were only silent during the online learning process. In addition, 3.78% of the 117 students stated that they had difficulty understanding the material because the lecturer immediately started the learning process without explaining the purpose of the lecture first.

Online learning has several challenges, this is because lecturers and students cannot interact directly and carry out the learning process in different places. Therefore, lecturers cannot supervise students during learning activities. So it is possible, for students who are serious in listening to the lecturer's explanation during the learning process can understand correctly. Some research results show that many students have difficulty understanding the learning material given by the lecturer (Argaheni, 2020; Basar, 2021; Haryadi & Selviani,

2021). To overcome this, lecturers need to make teaching materials that can be easily understood by students and encourage students to be more active in the learning process, and ask questions if there is a material that cannot be understood.

The online learning process system is implemented using the internet as a support for online interaction between students and lecturers. Lecturers can be creative in designing teaching materials that can be obtained easily by students through an application. The condition of meeting lecturers and students in different locations, can avoid direct physical contact and is one of the social distancing measures that can prevent the spread of Covid-19 (Pratomo, 2020).

CONCLUSION

The online learning process is the main thing that must be done today. Using information technology applications during the Covid 19 pandemic is the right solution in the learning process. Using applications in the online learning process can make it easier for lecturers and students to understand IT-based data analysis courses. Based on the aspect of lecturer competence, infrastructure and learning processes at the Islamic University of Riau gave a positive response with an assessment of 83.29%, with the value of each component which includes the component of lecturer competence of 85.16%, the infrastructure component of 84.55 and the component the learning process is 80.16%. This value indicates the success of the learning process in IT-based analysis courses. However, during the online learning process, some problems occur such as student limitations on hardware completeness and internet network constraints. Therefore, alternatives are needed such as lecturers providing learning videos via Youtube or sent via Whatsapp so that students can access the videos at any time.

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