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Student Perceptions of Online-Based Learning During the Covid 19 Pandemic

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Abstract: *Learning in a network or online is the best solution taken to avoid the spread of the corona virus during the covid 19 pandemic. The objectives of the research are (1) to obtain an appropriate instrument to be used to measure student perceptions, (b) to describe student perceptions in terms of Interactivity, Independence, Accessbillity and Enrichment aspects. The form of the research is descriptive qualitative. The research was conducted at FKIP Untan Pontianak, Mathematics Education Study Program from September to November 2021, involving 90 students who attend lectures for at least 3 semesters for the 2021/2022 academic year. Data collection tools are closed questionnaires and open questionnaires and interview sheets. The data analysis technique uses an interactive model. The result of this research is the mean of the Interactivity Aspects of students who strongly agree and agree is 64.38 %, disagree and disagree is 68.8%. The average aspect of independence of students who stated strongly agree and agree was 56.5%, disagreed and disagreed was 29.6%. The average accessibility aspect of students who strongly agree and agree is 41.2%, disagree and disagree by 58.45%. The average enrichment aspect of students who strongly agree and agree is 91.05%, disagree and disagree is 8.04%. The conclusions of the research are (a) The instrument for measuring student perceptions of onlin e-based learning in terms of the validity of panelists' suitability, item validity, panelist suitability reliability and item reliability is classified as feasible, (b) Student perceptions of online learning in terms of Interactivity, Independence and Enrichment aspects are classified as positive, (c) students' perceptions of online learning in terms of accessibility aspects are classified as negative, (d) student perceptions of the Interactivity aspect, active items providing input or responding to group presentation results in online lectures are classified as negative, (e) Perceptions of the Independence aspect Items are more diligent in studying in online lectures compared to face-to-face lectures is classified as negative. Perceptions of the Accessbillity aspect, the item did not experience difficulties in understanding lecture material online and lectures were still carried out online even though the Covid situation was normal and was classified as negative.*

Keywords*: Online learning, Perception, Covid 19 Pandemic*

Abstrak: Pembelajaran dalam jaringan atau daring merupakan solusi terbaik yang ditempuh untuk menghindari penyebaran virus corona pada masa pandemi covid 19. Tujuan penelitian adalah (1) memperoleh instrument yang layak dipergunakan untuk mengukur persepsi mahasiswa, (b) Mendeskripsikan persepsi mahasiswa ditinjau dari aspek *Interactivity, Indepedency, Accesbillity* dan aspek *Enrichment.* Bentuk penelitian adalah deskriptif kualitatif. Penelitian dilakukan di FKIP Untan Pontianak Program Studi Pendidikan Matematika pada bulan September sampai dengan November 2021 yang melibatkan 90 mahasiswa yang mengikuti perkuliahan minimal 3 semester tahun ajaran 2021/2022 . Alat pengumpul data adalah angket tertutup dan kuesioner terbuka serta lembar wawancara. Teknik analisis data menggunakan model interaktif. Hasil penelitian adalah rerata Aspek *Interactivity* mahasiswa yang menyatakan sangat setuju dan setuju sebesar 64,38%, kurang setuju dan tidak setuju sebesar 68 ,8 %. Rerata aspek *Indepedency* mahasiswa yang menyatakan sangat setuju dan setuju sebesar 56 ,5 %, kura ng setuju dan tidak setuju sebesar 29,6%. Rerata Aspek *Accesbillity* mahasiswa yang menyatakan sangat setuju dan setuju sebesar 41,2%, kurang setuju dan tidak setuju sebesar 58,45%. Rerata Aspek *Enrichment* mahasiswa yang menyatakan sangat setuju dan setuju sebesar 91,05%, kurang setuju dan tidak setuju sebesar 8,04%. Kesimpulan penelitian adalah (a) Instrumen untuk mengukur persepsi mahasiswa terhadap pembelajaran berbasis online ditinjau dari validitas keksesuaian panelis, validitas item, reliabilitas kesesuaian panelis dan reliabilitas item tergolong layak, (b) Persepsi mahasiswa terhadap pembelajaran daring ditinjau pada aspek *Interactivity, Indepedency dan Enrichment* tergolong positif , (c) Persepsi mahasiswa terhadap pembelajaran daring ditinjau pada aspek *Accesbillity* tergolong negative, (d) Persepsi mahasiswa aspek *Interactivity,* item aktif memberikan masukan atau menanggapi hasil

presentasi kelompok dalam perkuliahan online tergolong negatif, (e) Persepsi aspek *Indepedency* Item lebih rajin belajar dalam perkuliahan online dibandingkan kuliah tatap muka tergolong negatif. Persepsi aspek *Accesbillity*, item tidak mengalami kesulitan dalam memahami materi kuliah secara online dan perkuliahan tetap dilakukan secara online meskipun situasi covid sudah normal tergolong negatif.
Kata kunci: Pembelajaran Online, Persepsi, Pandemi Covid 19

INTRODUCTION

Online or online learning is the best solution to avoid the spread of the corona virus during the covid 19 pandemic. Online learning is ICT-based online learning by utilizing various electronic media that are connected to the internet network. Since entering the era of the industrial revolution 4.0, it is necessary to improve education and learning that can build and form a creative, innovative and competitive generation that can optimally utilize the use of technology as a medium of education and learning in the context of forming superior human resources (Lase, 2019); (Amaliyah, 2019). The implementation of online or online learning certainly requires the competence or ability of teachers and students related to the use of various electronic devices such as computers, gadgets, cellphones as learning aids as well as available facilities and infrastructure so that the online learning process can be effective and run smoothly (Hendrastomo, 2008); (Yuniarti & Hartati, 2020).

Several studies conclude the impact of online learning, such as research conducted (Suni Astini, 2020); (Astini, Sari, 2020) concluded that the direct impact felt by students using online learning could result in higher costs than before, difficulty interacting with lecturers, frequent one-way communication. (Safarati, 2021); (Anggianita et al., 2020); (Asih et al., 2021) concluded that the impact of online learning, including the availability of inadequate facilities and infrastructure, due to differences in the learning atmosphere in the classroom and learning outside the classroom or home, contributed to the decline in students' learning motivation. Both teachers and students feel burdened by spending funds for internet quotas. Distracted by the problem of substandard signaling and limited monitoring of children's development in learning.

This research is considered important in the implementation of online-based learning at FKIP Tanjungpura University, especially the mathematics study program. The results of the study provide an overview of the effectiveness of online learning in relation to student perceptions of the implementation of online learning during covid 19 (Dona Fitriawan, 2022); (Sulistyowati & Fitriawan, 2022). The procedure for developing perception instruments can be used as a reference for lecturers, educators and students in constructing items relevant to aspects and indicators to measure student perceptions. The instruments produced in this study can be used to explore student perceptions by mathematics educators in schools or used for broader research. By knowing students' perceptions of online lectures, it can be seen the weaknesses and strengths of learning that they do during the covid 19 pandemic. This can be used as a basis for developing more innovative and varied online/online-based learning

programs or lectures in the future by hope that the quality of the process and student learning outcomes will increase (Fitriawan et al., 2021); (Fitriawan & Wardah, 2021).

Based on some of the results of these studies, it shows various different impacts due to the implementation of online learning. This condition was also felt by researchers when online lectures took place. Facts that occur include difficulty in explaining quickly and in detail concepts related to mathematical content, considering that mathematics uses a lot of symbols, formulas or formulas. If it is presented in full on learning media (powerpoint) it will reduce students' creativity in reasoning. In addition, student activities cannot be detected directly. It is difficult to direct students to conduct discussions and ask questions, only certain students are actively responding to the stimuli given by the lecturer. Decreased student interest in completing their learning tasks according to (Sourial et al., 2018); (Fitriawan et al., 2021). Based on this phenomenon, it is necessary to study more deeply the students' interpretation of the implementation of online learning based on their experience of situations, events and information and even the results of their thoughts on the facts of online learning.

Student perceptions of online based on the characteristics proposed by (Rusman, 2011); (Rusman, 2015) namely Interactivity, related to the availability of a more intense communication arena, either directly or indirectly. Independence is related to student-centered activities. Accessbillity is related to the ease of accessing learning resources through the internet. Enrichment related to the development of lecture materials presented in learning activities, presentation of enrichment materials, the use of information technology devices.

METHODS

This study will describe students' perceptions of online-based learning. Therefore, the appropriate form of research is descriptive qualitative. This type of qualitative descriptive research is a research method that utilizes qualitative data and is described descriptively. This type of qualitative descriptive research is often used to analyze social events, phenomena, or circumstances. The research was conducted at FKIP Untan Pontianak, Mathematics Education Study Program in September to November 2021, involving 90 students attending lectures for at least 3 semesters for the 2021/2022 academic year. Data collection techniques used are indirect communication techniques and direct communication. While the data collection tools to obtain perception data are closed questionnaires and open questionnaires and interview sheets.

The data analysis model is descriptive analysis. (Sugiyono, 2017), states that the descriptive method is a problem-solving procedure that is investigated by describing or describing the current state of the subject/object of research based on the facts that appear and as they are. The data analysis technique uses an interactive model. According to Miles, et al in (Sadikin & Hamidah, 2020), that activities in qualitative data analysis are carried out interactively and take place continuously and thoroughly so that the data is saturated. Activities in data analysis are data reduction, data display and conclusion/verification data.

The instrument to measure students' perceptions of online learning is a perception questionnaire. The formula used to determine the validity of the expert suitability is the Aiken formula in (Riana, 2014) that is:

$$V = \frac{\sum ni\,|\,i - r\,|}{N(t-1)}$$

The results of the assessment of the validity of the instrument by the panelists obtained 12 items were declared valid. Meanwhile, to determine the reliability of the suitability of the panelists, the Hoyt formula in (Djaali & Muljono, 2008) that is:

$$r_{kk} = \frac{RJK_p - RJK_e}{RJK_p}$$

The results of the calculation through the Hoyt formula, obtained the reliability coefficient of the suitability of the panelist perception instrument of r = 0.786. This shows that the consistency of the assessment results between panelists is high. The results of the Product Moment test analysis (data converted), obtained 12 items which were declared to meet the valid criteria, namely items number 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13. These items have the value of the correlation coefficient is greater than r(0.05) = 0.245. Meanwhile, to determine the level of reliability of the questionnaire, it was analyzed using Alpha-Cronbach in (Anastasi & Urbina, 2007).

$$r_{ii} = \frac{k}{k-1}\left[1 - \frac{\sum s^2}{S_t^2}\right]$$

The results of the analysis obtained that the perception instrument reliability coefficient of 0.789 was high.

RESULT AND DISCUSSION

Research Result

The perception data was collected through the distribution of questionnaires involving 90 students of the Mathematics Education Study Program, FKIP Untan Pontianak who had attended online lectures for at least 3 semesters.

The results of the descriptive analysis of the perception questionnaire data that became the research data were obtained as follows.

Table 1. Summary of Perception Questionnaire Result Data.

No	Aspect	Propotition	SS	S	KS	TS
1	*Interactivity*	Saya aktif bertanya disaat perkuliahan online berlangsung	6,67%	48,9%	44,4%	0%
		Saya malu mengeluarkan pendapat ketika dosen mengajukan masalah terkait materi perkuliahan online	2,22%	51,1%	40%	66,7%
		Saya aktif memberikan masukan atau menanggapi hasil presentasi kelompok dalam perkuliahan online	44,4%	40%	55,5%	0%
Rerata persentase			17,76%	46,6%	46,6%	22,2%
2	*Indepedency*	Saya lebih rajin belajar dalam perkuliahan online dibandingkan kuliah tatap muka	0%	33,3%	55,5%	11,1%
		Saya lebih disiplin menyelesaikan tugas-tugas yang diberikan dosen dalam perkuliahan online	31,1%	48,9%	20%	0%
		Saya mengirim tugas tepat waktu	35,5%	62,2%	2,22%	0%
Rerata persentase			22,2%	34,3%	25,9%	3,7%

3	*Accesbillity*	Saya dapat mengakses materi kuliah kapan saja	22,2%	66,6%	11,1%	0%
		Saya tidak mengalami kesulitan dalam memahami materi kuliah secara online	2,22%	17,7%	75,5%	4,44%
		Saya setuju perkuliahan dilakukan secara online meskipun situasi covid sudah normal	8,89%	6,66%	64,4%	20%
Rerata persentase			11,1%	30,12%	50,3%	8,15%
4	*Enrichment*	Pendalaman materi saya dapatkan melalui perangkat teknologi informasi seperti you tube, video dan sumber lain	62,2%	35,5%	2,22%	0%
		Saya termotivasi untuk menerapkan materi perkuliahan online ke dalam dunia nyata.	15,5%	75,5%	8,89%	0%
		Saya lebih senang berdiskusi dengan teman ketika mengalami kesulitan dalam perkuliahan online	51,1%	35,5%	13,3%	0%
		Rerata persentase	42,9%	48,5%	8,04%	0%

Discussion

Perception is the way a person or individual perceives, interprets, interprets, concludes and reacts to an object obtained through the process of sensing, organizing, and interpreting objects. Perception in this study refers to the characteristics stated (Rusman, 2011) namely Interactivity, Independence, Accessbillity, and Enrichment. Interactivity aspect descriptive data can be seen in the following table.

Table 2. Summary of descriptive data aspects of Interactivity.

No	Aspect	Propotition	SS	S	KS	TS
1	*Interactivity*	Saya aktif bertanya disaat perkuliahan online berlangsung	6,67%	48,9%	44,4%	0%
		Saya malu mengeluarkan pendapat ketika dosen mengajukan masalah terkait materi perkuliahan online	2,22%	51,1%	40%	6,7%
		Saya aktif memberikan masukan atau menanggapi hasil presentasikelompok dalam perkuliahan online	4,4%	40%	55,5%	0%
Rerata persentase			4,44%	46,7%	46,6%	2,2%

Student perceptions of the Interactivity component include three statements, namely the activity of students asking questions when attending online lectures, the willingness and ability to express opinions on problems posed by lecturers and student activities providing input, ideas from group presentations. The role of the lecturer as a facilitator, mediator and motivator provides broad opportunities for students to interact with each other. Therefore, online learning is expected to provide a wider space for interaction between lecturers and students and between students and students to ask each other questions, express opinions and respond to each other's results of discussions presented about lecture material.

Perceptions of student activity in asking questions when attending online lectures, students who agreed and strongly agreed were 55.57%, students who stated less agree and disagreed were 44.43%. In line with research results (Yuniarti & Hartati, 2020), where 57% of students said they were more active in asking face-to-face classes than online learning. This shows that 43% of students are not actively asking questions in online lectures. While the research findings (Ratnawati & Vivianti, 2020), that the opportunity to ask and discuss got a percentage of 87%. Students are embarrassed to express opinions when lecturers pose problems related to online lecture materials,

53.3% agree and strongly agree, 46.7% students state less and disagree. Questions about student activity in providing input or responding to group presentations in online lectures, 44.4% of students agreed and strongly agreed, while 55.5% disagreed. The results of interviews with several mathematics education students, obtained information that students were less active in responding to group percentage results because they felt ashamed and lacked confidence and were less motivated to pay attention to the presentation group's explanations. Motivation can influence what we learn, how we learn, and when we choose to learn. It can be concluded that the Interactivity aspect was received positively by students. Snippets of student comments written in the open questionnaire are in the following table.

Table 3. Questionnaire on the Interactivity Aspect.

I was less active during lectures, because I was often shy about asking questions or expressing opinions, and I also didn't know how to solve this problem, while being active in class was one of the points of assessment. I hope that the pandemic will end soon so that face-to-face lectures can be held.
In taking online lectures, I am quite active in answering questions from lecturers and I am very satisfied, but if I answer questions my friends are less active. And if I have difficulty, friends are willing to explain it to me again, so that I can understand.

The perceived characteristics of the Independence component are a description of the individual's independence and responsibility for their learning tasks. The results of data descriptions related to independence are represented by three student statements, namely statements of diligent study in online lectures, discipline in completing assignments, and punctuality in sending assignments. Student perceptions of the independence component are summarized in the following table.

Table 4. Summary of descriptive data on aspects of independence.

Indepedency	Saya lebih rajin belajar dalam perkuliahan online dibandingkan kuliah tatap muka	15%	33,3%	40,6%	11,1%
	Saya lebih disiplin menyelesaikan tugas-tugas yang diberikan dosen dalam perkuliahan online	31,1%	48,9%	20%	0%
	Saya mengirim tugas tepat waktu	35,5%	62,2%	2,22%	0%
Rerata persentase		27,2%	48,1%	20,9%	3,7%

The element of independence is closely related to independence. Independence in learning is important in exploring every aspect to be studied. The aspect of concern in independence is to focus more on what must be learned and be able to answer or do the tasks given well. Online learning fosters student independence in learning. This is in line with the research results (Hidayat et al., 2020), in online learning the level of independence from others in learning is relatively high. The study also concluded that students still have enough confidence and responsibility to study online. The habit of studying offline where students have direct contact makes them unable to be replaced online.

Aspects of independence are indicated by the statement that they prefer to learn through online rather than face-to-face learning, discipline in completing assignments and timely delivery of the assignments. Through table 2, it is obtained information that students prefer face-

to-face lectures by 66.6%, students who liked online lectures by 33.4%. The results of interviews with several students related to the reasons for preferring face-to-face learning that face-to-face learning can directly interact with lecturers and other students. More comfortable communicating and more motivated to express opinions because they can directly see the lecturer's response. Study (Hadi, 2020), analyzed student responses related to online lectures after 3 months of online learning and found that students had negative perceptions related to online learning activities which were considered boring and boring. More disciplined questions complete the tasks given by the lecturer in online lectures. As many as 80% agreed and strongly agreed and 20% said they did not agree. Sending assignments on time is 87.7%. This fact shows that although students prefer face-to-face learning, in online learning students are disciplined in doing assignments and sending them on time. In general, the average related to the element of student independence in online learning is satisfactory. This is indicated by the mean strongly agree and agree at 28.25%, the average perception of disagree and disagree is 14.8%. In general, it can be concluded that independence is received positively by most students.

The next item is related to the element of Accessibility, namely the ease of accessing learning resources through the internet network compared to the distribution of learning resources in conventional learning. A summary of descriptive data is in the following table.

Table 5. Summary of descriptive data aspects of Accessbillity.

Accesbillity	Saya dapat mengakses materi kuliah kapan saja	22,2%	66,6%	11,1%	0%
	Saya tidak mengalami kesulitan dalam memahami materi kuliah secara online	2,22%	17,7%	75,5%	4,44%
	Saya setuju perkuliahan dilakukan secara online meskipun situasi covid sudah normal	8,89%	6,66%	64,4%	20%
Rerata persentase		11,1%	30,12%	50,3%	8,15%

Based on the table above, information obtained from 88.8% of students stated that they agreed to be able to access lecture materials anytime and anywhere. 19.9% agreed that they did not understand the difficulty of understanding the material and as many as 15.6% of students agreed and strongly agreed that the next lecture would be held online even though the pandemic was over. Based on this information, the convenience felt by students in online learning is the ease of accessing lecture materials. Learning resources are not only limited to print media, but many sources can be accessed through online media. Difficulty understanding the material through online learning is still high. Furthermore, the implementation of online learning is not expected by students. This is in line with the conclusion of (Ningsih, 2020) that 93.5% prefer offline learning to online learning. This is mostly due to the limitations of students to provide internet quota continuously, understanding of the material is not optimal and limited interaction. In general, it can be concluded that the Accessbillity aspect is received negatively by

most students. A snippet of the results of an open questionnaire related to student perceptions of the implementation of the next lecture.

Table 6. Student Perception

My advice in the future, if the situation is normal, it is better to hold face-to-face learning because interacting directly is more effective and efficient.

Constraints experienced by students when taking online lectures are due to an unstable network. The following is an excerpt of student perceptions regarding this matter.

Table 7. Obstacles in participating in online lectures.

My opinion is from the student's point of view that students experience some difficulties with online lectures such as difficulty understanding the material, the ability to express opinions, and other obstacles
The delivery of lecture material cannot be clearly and easily understood by me when studying online, because sometimes my network or the lecturer concerned often experiences problems, making it difficult for me to understand lectures easily. The solution is to hold face-to-face lectures but by maintaining health protocols.

Perception related to enrichment is an activity of deepening material obtained through information technology tools and applying the material to the real world. Enrichment elements can also be obtained from sharing among students to solve a problem.

Table 8. Summary of descriptive data aspects of Enrichment

Enrichment	Pendalaman materi saya dapatkan melalui perangkat teknologi informasi seperti you tube, video d an s umb er lain	62,2%	35,5%	2,22%	0%
	Saya termotivasi untuk menerapkan materi p erk uliahan online ke dalam dunia nyata.	15,5%	75,5%	8,89%	0%
	Saya lebih senang berdiskusi dengan teman ketika mengalami kesulitan dalam perkuliahan online	51,1%	35,5%	13,3%	0%
Rerata persentase		42,9%	48,5%	8,04%	0%

The task of the lecturer as a learning facilitator is obliged to help facilitate all student needs in achieving learning success and maximizing student potential. The provision of enrichment material is intended for students who are relatively fast in completing their learning tasks in order to optimize the development of their interests, talents, and skills (Sugihartono, 2012). Items get material through information technology tools, students strongly agree and agree amounted to 97.7%, while students who do not agree and disagree are 2.3%. The deepening of the material can be done through group study, independent study, enriching reading references that can be obtained from technology and information media. Students are also expected to take advantage of learning resources in the physical environment and combined with digital learning resources. Digital technology is an enriching learning infrastructure but interaction with the physical environment is a rich learning resource. In search of

learning resources, lecturers need to direct students regarding material updates that can support lecture materials. Snippets of student perceptions regarding the deepening of the material are presented in the following table.

Table 9. Deepening of Student Material

Menurut saya, dosen perlu memberi arahan kepada mahasiswanya untuk mencari referensi yang tepercaya agar mahasiswa lebih mudah mendapatkan informasi tambahan tentang perkuliahan.
Saya mencari materi terkait perkuliahan melalui google. saya memperlajari dengan cara mencermati kesamaan dan kelebihan kontennya.

The second Enrichment indicator is to apply what has been obtained from online learning into the real or contextual world. 91% of students agree and strongly agree with this statement, while 9% of students who disagree and disagree. This situation shows that most students are motivated to strengthen themselves or their level of mastery in depth to the material presented and are also motivated to apply it in everyday life. Acording to (Muslich, 2011), learning is carried out in an authentic context, namely learning directed at the achievement of skills in the context of real life or in a natural environment, providing opportunities for students to do assignments and providing meaningful experiences, carried out through group work, discussions, providing opportunities to create a sense of togetherness, work together, and understand each other in depth Learning is carried out actively, creatively, productively, fun and emphasizes cooperation.

The next statement is that they prefer to discuss with friends when experiencing difficulties in online lectures as much as 86.6% and as many as 13.4% state that they do not agree and disagree. The culture of students to work together in solving a problem has been built in online learning. Lecturers need to motivate students to achieve goals through new inspirations by providing online discussion forums via Instagram, Facebook or WhatsApp groups. In accordance with the demands of 21st century learning, in Presidential Regulation Number 87 of 2017, that the learning process is oriented towards strengthening the character of students who internalize the main values of Strengthening Character Education (PPK), namely religiosity, nationalism, independence, mutual cooperation and integrity in every activity. learning. In general, the Enrichment aspect was received positively by most of the students as shown in the following table.

Table 10. Positive acceptance of the Enrichment Aspect.

In participating in online lectures, I try to contact friends to invite discussions when I have difficulty in doing assignments from the lecturer and I am grateful that my friends are cooperative and willing to explain together to discuss various tasks.

CONCLUSION

From the results of research and discussion, it is concluded that: 1) The feasibility of the instrument to measure student perceptions of online-based learning in terms of

the validity of the suitability of the panelists, the validity of the items, the reliability of the suitability of the panelists and the reliability of the items are classified as feasible; 2) Student perceptions of online learning in terms of Interactivity, Independence and Enrichment aspects are classified as positive; 3) Student perceptions of online learning in terms of accessibility are classified as negative; 4) Student perceptions of the Interactivity aspect, active items providing input or responding to group presentation results in online lectures are classified as negative; 5) Perception of the aspect of Independence Items are more diligent in studying online than face-to-face lectures are classified as negative; 6) Perception of the Accessibility aspect, the item did not experience difficulties in understanding lecture material online and lectures were still carried out online even though the Covid 19 situation was normal and classified as negative; 7) Constraints experienced in online lectures related to internet networks that are less supportive are often obstacles.

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