

THE LECTURERS' PERCEPTION OF THE IMPLEMENTATION OF
ICT FOR CONDUCTING ONLINE LEARNING
DURING COVID-19 PANDEMIC

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Abstract

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*covid-19 pandemic,
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During the Covid-19 pandemic, integrating information and communication technology (ICT) in the education sector was inevitable. The use of technology was expected to replace face-to-face instruction with online learning. However, not all educators were ready to use ICT for their instruction. Thus, this study aimed to determine the lecturers' perception of the implementation of online learning and the problems they faced during the Covid-19 pandemic. The subjects of the research were the lecturers at STKIP Agama Hindu Singaraja. There were 40 lecturers involved in this study. They were selected using the saturated sampling technique. The researcher collected the data through a questionnaire. The questionnaire results were analyzed quantitatively using descriptive statistics. Then, the total score of the questionnaire result was classified using a category based on the theoretical ideal reference assessment formula. The finding showed that, in general, the lecturers had a positive perception of the use of ICT for online learning during the Covid-19. Besides, this study also found some problems the lecturers faced in implementing online learning. Thus, this study concluded that the lecturers believed that using ICT for online learning was the best option they had during the Covid-19 pandemic, even though they should face various challenges in delivering the instruction through online learning.

Abstrak

Kata Kunci:

*pandemi Covid-19,
teknologi informasi
dan komunikasi,
persepsi dosen,
pembelajaran dalam
jaringan*

Di tengah pandemi Covid-19, integrasi teknologi informasi dan komunikasi (TIK) di bidang pendidikan menjadi keniscayaan. Penggunaan teknologi diharapkan dapat menggantikan pembelajaran tatap muka menjadi pembelajaran online. Namun, tidak semua pendidik siap menggunakan TIK untuk pembelajaran mereka. Untuk itu, penelitian ini bertujuan untuk mengetahui persepsi dosen terhadap pelaksanaan pembelajaran online dan permasalahan yang mereka hadapi selama pandemi Covid-19. Subyek penelitian ini adalah para dosen di STKIP Agama Hindu Singaraja. Terdapat 40 dosen yang terlibat dalam penelitian ini. Mereka dipilih dengan menggunakan teknik sampling jenuh. Peneliti mengumpulkan data melalui kuesioner dan hasil kuesioner dianalisis secara kuantitatif dengan menggunakan statistik deskriptif. Kemudian, skor total hasil kuesioner diklasifikasikan menggunakan kategori berdasarkan rumus penilaian acuan ideal teoritik.

Temuan penelitian ini menunjukkan bahwa secara umum para dosen memiliki persepsi positif terhadap pemanfaatan TIK untuk pembelajaran online di masa pandemi Covid-19. Selain itu, penelitian ini juga menemukan bahwa ada beberapa kendala yang dihadapi dosen dalam melaksanakan pembelajaran online. Dengan demikian, penelitian ini menyimpulkan bahwa para dosen percaya bahwa penggunaan TIK untuk pembelajaran online adalah pilihan terbaik yang mereka miliki selama pandemi Covid-19 meskipun mereka harus menghadapi berbagai tantangan dalam menyampaikan pengajaran melalui pembelajaran online.

INTRODUCTION

Information Communication Technology (ICT) is a technical, technological, and engineering management technique used to handle information, application, financial, and culture (Blok et al., 2020; Ekuobase & Olutayo, 2016; Pradhan et al., 2018). Many types of applications used in the classroom are improved and enhanced the better quality and the efficiency in teaching and learning process (Bohak Adam & Metljak, 2022; Piper et al., 2016; Wang & Tahir, 2020). Teaching through ICT also requires an instructional model that can determine the effectiveness of the learning process (Keller & von der Gracht, 2014; Kozlova & Pikhart, 2021; Mynaříková & Novotný, 2021). These have become a basic requirement and an important part of the educational process, especially during a pandemic (Eisenhardt, 2021; Misut & Pokorny, 2015; Suduc et al., 2011). Even though ICT is required to be used as a means to facilitate teachers in teaching students, which was emphasized by the Minister of Education and Culture specifically during the pandemic, there were still not many educators in schools and universities who applied ICT for the students, particularly at STKIP Hindus Singaraja.

Similar phenomena were stated in the texts. According to Looi et al. (2022), ICT is still weakly applied in education. She added that the initial problem was that the infrastructure supporting ICT implementation was still uneven. Therefore, infrastructure needs to be improved because, without the support of adequate infrastructure, ICT in education will not be implemented properly (Ghavifekr et al., 2006; Prasetyanto et al., 2022; Siddiquah & Salim, 2017).

According to Lee et al. (2021), ICT or Information Communication Technology is still lacking. It is still lacking in the field of education that might be related to teachers' ability to master ICT application (Hu et al., 2021; Lee et al., 2021; Ziemba, 2021). Teachers also play an important role in the development of ICT in the field of education, where in the field of education ICT is seen as a significant role in the learning process, especially in universities to improve the quality and also the efficiency in teaching and learning process (Ramírez-Rueda et al., 2021; Văidean & Achim, 2022; Yieng & Saat, 2013). Through ICT or Information Communication Technology, the technology was expected to increase the quality of the learning process (Champa et al., 2019; Duță & Martínez-Rivera, 2015; Gómez-Fernández & Mediavilla, 2021)

In teaching implementation through ICT, it has been noted that ICT implementation at the university is still lacking. There are several obstacles faced by universities in the process of improving the quality of education, one of which is the use of ICT, which is not yet established and well supported by policymakers at the university level and has not been explored much in the management of teaching and learning activities in class colleges. The development of the world of education makes teachers have to be creative in producing and innovating in new teaching techniques and methods (Dwiono et al., 2018).

Teaching implementation through ICT during pandemics needs to be improved, considering everything is carried out online. Theoretically, ICT is very important in improving education quality and maintaining teaching effectiveness (Jokhan et al., 2022). One of the crucial factors that affects the success of ICT in education is the perception of the users (Scherer et al., 2021; Ventouris et al., 2021).

Some previous studies have conducted to investigate the teachers' and lecturers' perceptions on the implementation of online learning. Suryani and Tripalupi (2021) conducted a study to identify the teachers' perception at SMA N 1 Sawan and found that the teachers had positive perception on the implementation of online learning. Similar study was also done by Anggianita et al. (2020) who identified teachers' perception on online learning from two

aspects, the impacts of online learning on students' achievement, and the problems in implementing online learning. They found that the teachers believed online learning is not appropriate for elementary students.

In higher education level, the study that was conducted by Sri et al. (2021) found that the lecturers felt that online learning was not interesting for students. Besides, another study on lecturers' perception also conducted by Khaerati et al. (2021) and found that the lecturers faced some problems in implementing online learning.

The previous studies on the teachers' and lecturers' perceptions focused on the problems faced by the teachers and lecturers in implementing online learning. Different from the previous studies, this study investigated the lecturers' perception on online learning based on the Technology Acceptance Model (TAM) theory. TAM theory was used to get a more comprehensive results compared to the previous studies.

The present study was investigated the teacher's perception of the implementation of teaching through ICT for the students at STKIP Hindu Religion Singaraja. The university was selected because there were two reasons. First, this university has good quality of the facility of ICT, and for the second reason, this university was accessible. This research was focused solely on the perception of lecturers of STKIP Hindu Religion Singaraja in using ICT for teaching and the challenge faced by the lecturers of STKIP Hindu Religion Singaraja in using ICT for teaching.

METHOD

This study is survey research, a study that aims to collect data about the characteristics of a group (Fraenkel et al., 2012). A questionnaire based on the Technology Acceptance Model (TAM) theory by Davis et al. (1989) collected data about the lecturers' perception of ICT use in online learning during the Covid-19 pandemic.

This study was done at STKIP Agama Hindu Singaraja. There were 40 lecturers involved in this study. Those lecturers were selected using the saturated

sampling technique. It means that all lecturers were selected as the respondents of the study. The questionnaire results were quantified and analyzed quantitatively using descriptive statistics using SPSS 20.0 for windows. Then, the questionnaire result was classified using a category based on the theoretical ideal reference assessment formula by Nurkencana and Sunartana (see Table 1).

Table 1: The Theoretical Ideal Reference Assessment Criteria

No	Interval	Category
1	$(MI + 1.5 SDI) < X$	Very Positive (VP)
2	$(MI + 0.5 SDI) \leq X < (MI + 1.5 SDI)$	Positive (P)
3	$(MI - 0.5 SDI) \leq X < (MI + 0.5 SDI)$	Slightly Positive (SP)
4	$(MI - 1.5 SDI) \leq X < (MI - 0.5 SDI)$	Negative (N)
5	$X < (MI - 1.5 SDI)$	Very negative (VN)

Note:

$MI = \frac{1}{2}$ (ideal maximum score + ideal minimum score)

$SDI = \frac{1}{6}$ (ideal maximum score - ideal minimum score)

FINDING AND DISCUSSION

This study aimed to identify lecturers' perceptions on the implementation of ICT to conduct online learning and the problems faced by the lecturers in using ICT during the Covid-19 pandemic. Thus, this section will be started with the questionnaire results to identify the lecturers' responses for each item of the questionnaire, followed by the frequency of the questionnaire scores, the result of descriptive statistics, and the identification of lecturers' perception in general based on the total score of the questionnaire. The followings are the details of the findings.

The lecturers' responses for each item of the questionnaire

Based on the questionnaire results as shown in Figure 1, most or even all the lecturers believed that ICT is very helpful to improve students' achievement and more effective than teaching through conventional method. In addition, they also felt that it increases teaching and learning quality, improves their creativity and innovation in teaching, provides more opportunities to explore other resources from the internet, and creates a fun and interesting instructional process. However, some lecturers also believed that ICT often conflicted with the pedagogical issues, and they also found some difficulties in using ICT for online learning.

Table 2: The lecturers' responses for each item of the questionnaire

Statement	5	4	3	2	1
ICT is very helpful to improve students' achievement.	40	-	-	-	-
ICT helps me to increase the teaching quality.	36	4	-	-	-
ICT is very important in the teaching and learning process.	35	5	-	-	-
ICT can replace my role as a teacher.	27	-	3	-	10
I use ICT for teaching everyday	25	5	2	-	3
Teaching using ICT is more effective than teaching using the conventional method	26	-	5	-	6
ICT makes the teaching and learning process easier	30	-	5	-	5
By using ICT, I can transfer information rapidly	25	-	5	2	8
Teaching using ICT changes the social and cultural conditions of the students' learning process	21	4	5	2	8
ICT increases the interactivity and communication between teachers and their students.	20	10	5	-	5
ICT is often conflicted with pedagogical issues in the classroom.	25	5	-	-	5
ICT can improve my creativity and innovation in teaching	30	10			
Teaching using ICT media gives me the opportunity to conduct interesting and enjoyable learning activities,	30	5	-	-	5
ICT can be used as curriculum materials	35	5	-	-	-
ICT is more effective than printed books	40	-	-	-	-
ICT offers educational values in learning	34	7	-	-	-
The students believe that it is easier to understand the material when they learn using ICT	27	3	5	5	-
It is difficult to integrate ICT into my teaching style	5	5	5	5	20
ICT gives a greater opportunity to access information from the internet	30	10	-	-	-
My students enjoy learning through ICT	21	4	5	5	5

Note:

5= Strongly Agree 4= Agree 3= Neutral 2= Disagree 1= Strongly Disagree

The frequency of the questionnaire scores

To determine the lecturers' perception, the researcher quantified the result of the questionnaire. The researcher converts the lecturers' statements into numbers

to quantify the questionnaire result. Strongly agree was converted to 5, agree to 4, neutral to 3, disagree to 2, and strongly disagree to 1. However, when the statement was negative, the conversion was done the other way around. When all the questionnaire results had been converted, the researcher calculated the total score of the questionnaire and categorized the score based on the criteria that were developed using the theoretical ideal reference assessment formula by Nurkencana and Sunartana (Nurkencana & Sunartana, 1992) (see Table 1). Since the number of the items in the questionnaire was 20, the highest score for each item was 5, and the minimum score for each item was 1, the maximum score for the questionnaire was 100, and the minimum score was 20. Those scores can be converted into an interval based on the formula, as shown in Table 3.

Table 3: The Criteria for Lecturers' Perception

No	Interval	Category
1	$80 < X$	Very Positive (VP)
2	$67 \leq X < 80$	Positive (P)
3	$53 \leq X < 67$	Neutral (N)
4	$40 \leq X < 53$	Negative (Ng)
5	$X < 40$	Very negative (VN)

Based on the criteria in Table 2, most teachers reacted very positively to the implementation of ICT during the pandemic situation. There were 15% of respondents had a negative perception towards the implementation of ICT, there were some factors that affected the negative perception of the implementation of ICT. The first factor was the ability of the teacher to learn how to use some applications; they stated that ICT was not appropriate for the old teacher who had a low ability to learn something new. The low ability to use technology made them feel difficulties accessing the information and the material. The second factor was the limited facilities for online teaching such as PC, internet Signal, and their PC/Mobile Phone for online classroom application. There were some issues faced by both teachers and students, such as the inconsistency of the internet signal it changes the social and cultural conditions of students learning process.

Moreover, 1 (2.5 %) respondents had a neutral perception of ICT implementation, and she stated that the ICT has its own positive and negative

effects on the user. Therefore there was 7.5 % of respondents had positive perceptions, and there were 75 % of respondents had very positive perceptions towards the implementation of ICT. They stated that ICT helps them to increase their ability in the teaching process. The teacher can design appropriate materials based on students' conditions by the unlimited sources. The ICT can help the teacher provide sources and references from another teacher or university to create interesting materials. It can allow the teacher to modify the materials depending on their student's ability level. Overall, ICT allowed the teachers to conduct interesting and enjoyable learning activities. The detailed results can be seen in Table 3 below.

Table 4: The Score Frequency of the Questionnaire Results

Score	Frequency	%	Category
47.00	3	7.5	Negative
49.00	1	2.5	Negative
50.00	1	2.5	Negative
63.00	1	2.5	Negative
65.00	1	2.5	Neutral
66.00	1	2.5	Positive
68.00	2	5.0	Positive
80.00	2	5.0	Very Positive
82.00	1	2.5	Very Positive
85.00	1	2.5	Very Positive
87.00	1	2.5	Very Positive
92.00	2	5.0	Very Positive
93.00	2	5.0	Very Positive
95.00	1	2.5	Very Positive
97.00	5	12.5	Very Positive
98.00	5	12.5	Very Positive
99.00	5	12.5	Very Positive
100.00	5	12.5	Very Positive

Descriptive Statistics

The researcher analysed the data using descriptive statistics to identify the central tendency of the data. Based on the descriptive statistic results as shown in Table 4, the median as the value separating the higher half from the lower half of the data was 96.00. Based on the criteria in Table 3, 96.00 is categorized into a very positive perception. Besides, the mode value or the value that appears most often in a set of data values shows 97.00, which means most respondents had a very positive perception about ICT implementation. In addition, the mean score, or the average of the data, is a measure of the central tendency of a probability

distribution along median and mode. Based on the results of the questionnaire, the mean of the table shows that common respondent has a very positive perception (85.47), and the last, the range as the difference between the lowest (47.00) and highest values (100) was 53.00.

Table 5: The Result of Descriptive Statistics

Mean	85.4750
Median	96.0000
Mode	97.00 ^a
Std. Deviation	1.80640E1
Variance	326.307
Range	53.00
Minimum	47.00
Maximum	100.00
Sum	3419.00

This study found that all lecturers agree that technology is important and positively impacts learning outcomes. Empirically, the opinion expressed by the lecturer is in line with the results of previous studies, which found that the application of technology can improve student learning outcomes (Alsahli et al., 2019; Comi et al., 2017; Duță & Martínez-Rivera, 2015; Simões et al., 2022). This is due to the ability of technology to increase student learning motivation and make the learning process more interesting and fun (Amjah, 2014; Borgonovi & Pokropek, 2021; Wardoyo et al., 2021; Yakovleva & Goltsova, 2016). As educators, from these findings, it can be conveyed that lecturers have understood the importance of technology in the learning process.

Although ICT has a very important role in the learning process, some lecturers still think that technology cannot replace the teacher's position. Technology cannot replace various aspects, especially social interactions between teachers and students (Carrillo, 2012; Joseph, 2012; Miniawi & Brenjekjy, 2015; Samra, 2013). The emotional bond between teachers and students who meet face to face still has an important role in the learning process and will indirectly affect student learning outcomes (Commodari, 2013; Kang et al., 2021). Therefore, some lecturers do not use technology every day in their learning. Although most still believe that learning will be more effective if done by implementing ICT.

The use of ICT in the learning process is also influenced by the ability of lecturers to use ICT (Blok et al., 2020). This study found that some lecturers argued that technology made the learning process more difficult. Using technology in the learning process can make it difficult for teachers and students if they are not ready to use it (Commodari, 2013; Kang et al., 2021). Moreover, the Covid-19 pandemic requires teachers to teach using ICT without being accompanied by careful preparation to build the ability of teachers and students to learn to use ICT (Amri et al., 2021; Scherer et al., 2021).

In addition, another thing that is also a common obstacle that complicates the implementation of ICT in the learning process is the lack of supporting facilities and infrastructure (Chandrasiri & Weerakoon, 2021; K. H. Looi, 2021; Noori, 2021). If the supporting facilities are not available, then the implementation of ICT will not make it possible to carry out. Cases of unavailability of supporting facilities for ICT implementation are experienced by many teachers and students in developing countries, such as Indonesia (Hossain, 2021; Munastiwi & Puryono, 2021). When supporting facilities are not maximally available, the learning process using ICT, especially online learning, will experience many obstacles. One example is the difficulty of getting an internet network (Muthuprasad et al., 2021). With the difficulty of obtaining a stable internet connection, many teachers experience problems in the online learning process. As found in this study, several lecturers felt they could not convey information quickly through ICT-based learning. This is generally due to difficulties in obtaining a stable internet network.

Furthermore, from a social and cultural perspective, this study found that most lecturers believed that the application of ICT in the learning process changed the social and cultural relationships of students' learning. Several studies found that during online learning during the Covid-19 pandemic, many students did not pay attention to their teachers while teaching. Many of them turn off the camera and do other activities during the teaching and learning process (Bedenlier et al., 2021; Schwenck & Pryor, 2021). However, the positive thing found in this study was that learning using ICT increased teacher-student interaction. This is also

supported by several previous research results, which also found that online learning can make students more active in the learning process (Kozlova & Pikhart, 2021; Palomino, 2017). This is because students feel more comfortable expressing their opinions online than directly in front of their teachers (Bohak Adam & Metljak, 2022; Keller & von der Gracht, 2014).

This study also confirms that most lecturers experience problems in the learning process using ICT, especially during the COVID-19 pandemic. This finding is in line with the results of previous research, which also found that many problems were experienced by teachers in the learning process using ICT during the Covid-19 pandemic (Al-Mawee et al. 2021; Karattuthodi et al., 2022; Maqableh & Alia, 2021). The main problem is building student learning motivation (Kalmar et al., 2022; Lorenza & Carter, 2021). Although several studies have proven that technology can increase students' learning motivation, when the technology is not used optimally and only changes face-to-face classes into virtual classes dominated by a lecture approach, such technology will not be able to increase students' learning motivation.

To carry out learning that can motivate students to learn, teachers' creativity must design learning so that it becomes more interesting. Therefore, from the questionnaire results, it was found that all lecturers felt that using ICT made them more creative. Because if they are not creative in designing learning and using various technologies, students will get bored easily. For this reason, the lecturers strive to develop the ability to use ICT to design learning. Thus, most of the lecturers stated that they had the opportunity to carry out interesting learning by implementing ICT. Although, for some lecturers, this is difficult for them, especially for lecturers who experience problems in using ICT. Therefore, all lecturers agree that ICT can be used as one of the materials included in the curriculum. Because of this, teachers and students will be better prepared to learn to use ICT.

Compared to learning that only uses printed books as teaching materials, the lecturers agree that ICT is better. With ICT, students can obtain teaching materials from various sources in various forms, such as audio, image, video, and even

interactive video (Apuke & Iyendo, 2018; Dalipi et al., 2022). With these advantages, all lecturers also agree that the use of ICT will provide its value for the learning process compared to traditional learning that does not use technology. With the use of ICT, which allows the delivery of material to be carried out with various types of media, most lecturers agree that students can understand the material being studied if it is delivered by integrating ICT.

However, the obstacles experienced by the lecturers are adapting the use of ICT to their teaching style. This is a problem that many teachers experience in implementing ICT, especially fully online ones. Because before the Covid-19 pandemic, teachers were used to teach with a face-to-face approach. When it comes to changing to an online approach, many find it difficult to adapt. Because it is still in the process of adjustment, some lecturers say that students cannot fully enjoy the online learning process. Many students experience the main obstacle in obtaining a stable internet connection which makes learning ineffective and makes students feel bored studying.

Although there are various obstacles faced by students and lecturers in the learning process using ICT, especially during the Covid-19 pandemic, in general, from the results of this study, it was found that lecturers had a positive perception of the implementation of ICT in the learning process (Lee et al., 2021; Yieng & Saat, 2013). However, to realize effective learning by implementing ICT, various efforts are needed to improve the quality of learning by using ICT. These efforts include increasing the readiness and ability of lecturers to use ICT in the learning process. This includes developing various types of learning media and assessment instruments using various technologies. Thus, the maximum benefit from ICT implementation in the learning process will be obtained by having good readiness and ability to use ICT.

CONCLUSION

Based on the results of the data analysis that has been presented previously, several points can be concluded from this research. First, lecturers at STKIP Hinduism Singaraja have a positive perception of ICT use. This shows that the

lecturers support the process of implementing learning using ICT. Second, although, in general, the lecturers support the implementation of learning using ICT, some lecturers still experience problems in using ICT. Third, efforts are needed to improve the readiness and ability of lecturers to implement ICT in the learning process. Based on these findings, it is recommended to policymakers, especially the leadership of STKIP Hinduism Singaraja and the government, namely the Ministry of Education and Culture, to conduct training for lecturers to implement ICT in the learning process. In addition to training, supporting facilities are also very much needed, especially the availability of a stable internet connection. This research is limited only to see lecturers' perception in ICT implementation, so to complete this research, further research is needed that examines the relationship between lecturers' perceptions and the quality of learning with ICT implementation. This is very important to determine whether lecturers' perception is also balanced with the implementation of learning that integrates effective ICT to improve student achievement.

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