Lecturers' Reasoning in Using Digital Technology: A Cognitive Approach in Learning Process

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Abstract - This research aims to investigate the reasoning of lecturers in using digital technology and its impact on cognitive approaches. Moreover, we find out the lecturer's use of digital technology in the learning process and determine the reasoning relationship between the use of digital technology and cognition. Problems occurred during the COVID-19 pandemic, where many lecturers needed to be stronger in digital mastering technology and low in its use. Some lecturers think that WhatsApp is online learning, where online learning requires interaction and not just sending news or subjects. Furthermore, many students feel pressured to be taught by lecturers like this, so several classes are closed because there are no students. This study used a mixed-method approach with 109 respondents. Data collection uses a questionnaire distributed through Google Forms, and the qualitative data uses interviews with eight respondents. The results show that 50.5% of respondents can use digital technology, and 49.5% must learn, practice, and receive digital technology training. Furthermore, this research implies that lecturers with critical thinking can quickly master digital technology and simultaneously teach fellow lecturers to use digital technology.

Keywords: Lecturers' Reasoning, Digital Technology, Lecturers' Cognitive, Learning Process

1. Introduction

The lecturer's background contributes greatly to reasoning and subsequent actions during teaching. The background can be personal, professional, and social [1]. Lecturer reasoning is individual thinking that produces conclusions representing reality or as a rational point of view derived from previous knowledge and describes a person's cognitive abilities [2].

Furthermore, Delany & Golding (2014) indicated that reasoning is very important in teaching activities and cognition because lecturers reason broadly to draw logical and analytical conclusions to make decisions. There are two types of reasoning, intuitive and analytical, necessary for the teacher to reach logical conclusions. Both have a significant relationship in learning to develop knowledge of educational content about understanding the teaching profession [3]. In teaching, lecturers obtain valuable information about their environment through intuitive reasoning [4]. Lecturers also use evidence to arrive at logical conclusions and help in unusual situations. Using digital reasoning technology enables pedagogical change to go online. The use of digital technology in transforming learning can change learners' knowledge and abilities [5]. Digital reasoning is at the forefront of transformation that emulates the learner and applies it to the context of the learning process.

On the other hand, the infrastructure in academic institutions has been implemented adequately. By using digital technology, online learning can be realized [6]. The presence of digital technology fascinates human life, and even it is addictive. Online learning life using digital technology since the COVID-19 pandemic offers certain cognitive benefits, but lecturers must restructure how they teach, read, think, and share information with students and other lecturers to collaborate on learning [6].

The intensive use of digital devices is confusing because lecturers must think deeply and continue developing due to changes in learning. These implications have great potential for teaching and management that must meet learners' needs with a commitment to penetrate analytical thinking that cannot be compromised in the existential challenges that face-to-face learning does not exist [7]. The difficulty for lecturers in applying digital technology is to receive continuous training in line with digital technology development. Reflections on learning can be shown in student learning outcomes or how the lecturer teaches [8]. During the COVID-19 crisis, learning changed by using digital technology. Leading technology can solve problems increasingly, finding their way to the learning process's top sequences.

The problems during the COVID-19 pandemic, the sudden change from face-to-face to online learning without adequate preparation, resulted in a much stuttering digital technology. It happened until entering the new academic year of 2021-2022, and there was no revolutionary movement from the lecturers to change to online [9]. Moreover, many lecturers give students assignments via the WhatsApp group message application, and work is collected in the afternoon, and lecturers can attend. Giving assignments via WhatsApp group

messages does not mean wrong, but not right because it is not a medium for learning [10]. Another problem is zoom, which consumes many data packets not for learning but for chatting. Thus, there is no interaction between learning, discussion, and explanation [11]. These are the main problem of lecturer reasoning in online learning.

The previous research by Santos-Trigo et al. (2015) states that incorporating digital technology in learning materials can encourage and expand discussions between students and lecturers outside of online classes. Technological reasoning is used to reflect on ideas or problems in learning materials and review or consult online resources. Morin et al. (2013) reveal the ability to build dynamic assignment models to analyze learning material and configure and connect with digital technology. Thus, digital technology expands learning reasoning in a cognitive approach, and lecturers can combine digital technology with this learning.

Harris, J & Philips (2018) indicate that lecturer knowledge is expanded and transformed when effectively incorporating educational technology into teaching. In practice, lecturers use digital tools and resources to access and understand teaching context and materials, facilitate student learning, or reflect on their students' teaching and learn not using digital technology. Knowledge of pedagogical content and technological pedagogical content can change the basis of educational planning.

Yavuz & Atar (2015) revealed that a lecturer's reasoning in solving problems is described with a high level of proficiency so that the lecturer's cognitive in solving problems and teaching skills can show the difference between structured and unstructured problems. Thus, cognitive problem-solving lecturers reviewed the good quality learning material discussed with students.

Another research by Mercer, Hennessy, & Warwick (2019) demonstrated the impact of digital technology on student self-efficacy, self-direction, motivation, feedback, and preferences. However, lecturers experience guidance on reasoning, decision-making, and problem-solving in digital technology. It is because some lecturers need help using digital technology. More than that, lecturers must train themselves and continue to try the use of digital technology [3]

The development of lecturer reasoning and digital technology improves online learning interactions between lecturers and students and increases collaboration, reasoning, and academic achievement. Using digital technology to support lecturers' and students' thinking directly impacts online pedagogy, which can result in positive learning [12].

This research concluded that the cognitive approach in lecturer reasoning is important in using digital technology as digital cognitive technology has broad reasoning, which is needed in online learning to ask questions and discuss and collaborate with other lecturers or lecturers in the learning process.

2. Theoretical Review

Cognitive learning is derived from knowledge which is the heart of learning. Lecturers provide learning information in a changeable environment. Lecturers store learning information regularly in long-term memory to convey it to students well [13]. Learning using digital technology aims to reveal the mechanisms underlying the acquisition and storage of knowledge. Knowledge storage mechanisms can be understood as information transformation. Therefore, information processing theory is central to cognitive learning [14].

Understanding cognitive processes have developed the processing ability of the delivery of learning. Differences in strategy, scope, context, and reasoning in teaching become part of the cognitive. The use of digital technology requires knowledge, abilities, and skills [15].

In teaching online, lecturers must process information by analyzing, manipulating, using, and remembering the information. Cognitive development is gradual, not organized into distinct stages. Thus, the lecturers' cognition must elaborate on the knowledge obtained, focusing on learning to make decisions using their reasoning [16]; [17]. Also, information processing in cognitive decisions makes decisions about the use of digital technology prepared by the institution and determines the amount of institutional support for the lecturer [18]; [13]. In making decisions using digital technology, the lecturer cognition works to have commitment, solve digital technology problems, and ask if problems are using digital technology for institutional members who understand digital technology [19].

The use of online technology in teaching and the intensive use of digital devices suggests confusion where certain cognitive skills are acquired. In contrast, deep thinking skills do not develop due to changes in online learners' brains' neural circuits and have enormous potential implications for teaching [20]. Therefore, lecturers must be committed to being capable and skilled, and knowledgeable in digital technology. Institutions can suspect lecturers who have difficulty using digital technology, It is a digital divide that raises reflections that not only read and learn but also seek sources of information, share information with students and other educators, collaborate, and decide on the use of digital technology that the institution has established (Gibson, 2001); (Schneider & Stern, 2010).

In online learning, lecturers, and students experience optimal digital technology, The key is how the cognitive processes of lecturers and students are at a deeper level so that they are optimally involved in critical

and creative thinking, make conclusions in learning, transfer knowledge to new learning situations and build new knowledge during the innovative learning process (Zheng, 2018). Therefore, it relates to personalization guidelines with digital technology concerning cognitive processing that focuses on learning under the institution's guidelines.

During the COVID-19 pandemic, educational technology led to education using digital technology as the main function and job support. Technology for lecturers has a function that connects, organizes in the community, communicates, and shares material as ideas needed in teaching. Another function is to make lecturers more independent by focusing on online teaching. Lecturer reasoning in using technology was developed with lecturers, other educators, and technology trainers to continue online learning [6]. The purpose of using digital technology is to facilitate learning with contextual conditions in the activities and decisions of the lecturer's frame of mind [21], Adequate understanding of the use of digital technology is clarified in cognition that can create inert knowledge by promoting authentic learning, for example, understanding the basics of online learning by sharing content that is created, explained, and distributed to students and other teachers by collaborating between lecturers and students, or other students and educators [5].

3. Methodology

This research uses a mixed-methods approach useful for several unifying steps in the evaluation process. Mixed-methods research is a methodology that involves collecting, analyzing, and integrating quantitative and qualitative research into a single study to determine the lecturers 'reasoning in using digital technology and its implication on lecturers' cognitive approach in the learning process.

The study used 102 lecturers as respondents of several lecturers who work in tertiary institutions in Tangerang City, Banten, Indonesia. The questionnaires were distributed on Google Forms on WhatsApp, WhatsApp Group, Facebook, and E-mail from October 2020 - February 2021. Moreover, interviews were conducted in February 2021 with ten respondents who worked closely with the researchers and were conducted via WhatsApp video call.

The research data were taken from the literature review, observation, and questionnaires that the author developed [22]. The questionnaire measurements were analyzed using SPSS version 24 by showing the frequencies of each questionnaire variable. A series of works have been carried out to collect research data. The related literature was reviewed, and a questionnaire was developed and observed by the authors.

3.1 Ethical Considerations

This study considers research ethics a set of principles that guide research design and fully support a research code of ethics. Moreover, we adhere to a research code of ethics when collecting respondents' data that focuses on human-involved research [23]. Its main purpose is to protect research respondents' rights and maintain scientific integrity. These principles ensure that participation in studies is voluntary, informed, and safe for research subjects. The respondents in this study were voluntary, meaning that research subjects were free to participate without any pressure or coercion and could withdraw or leave the study at any time without feeling obligated to continue [24]. As researchers, we explain to participants that there are no negative consequences or repercussions for refusing to participate, and researchers respect their decisions without trying to change their minds.
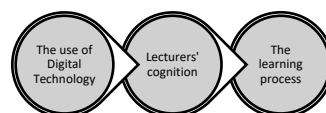
3.2 Research Framework

Figure 1. Research Framework

The flow of this research started from the research framework on lecturer reasoning in digital technology, the researchers referred to lecturers 'cognition after knowing the lecturers' reasoning in using digital technology to conduct the learning process.
a. Research Questions
   1. What do the lecturers' reasoning for using digital technology?
   2. What is the impact on a cognitive approach?
   3. How do the lecturers use digital technology in the learning process?

b. Hypothesis

There are three hypotheses for this research. In this study, we express three hypotheses in which the three hypotheses are between the independent and dependent variables, as well as the frequency of the dependent variable that uses technology in its cognition to participate the best in predicting the dependent variable on the learning process.

H1: There is a statistically significant relationship between the frequency-independent variable of lecturers in using digital technology

H2: There is a statistically significant relationship between a frequency-independent variable of lecturers' cognition in the learning process.

H3: There is the dependent variable frequency of lecturers using technology in their cognitions in participating the best in predicting the dependent variable to the learning process.

3.3 Data Analysis

The research used seven questions for each dimension. It was analyzed using frequency to find the most used dimensions for independence in the statistical testing significance of the relationship between lecturers' reasoning in using digital technology and lecturers' cognition approach in the learning process. First, to find the data's reliability and correlation to obtain the next step procedure. In analyzing the data, this research needs to find their reliability and correlation. Reliability and correlation are shown in table 1.

Table 1. Descriptive Statistics Reliability and Correlation of Lecturers in Using Digital Technology and Lecturers' Cognition in Learning Process

No	Variable	Reliability	Correlation		
			Lecturers role (reasoning)	Lecturers Cognition Approach	Learning Process
1	Lecturers in Using Digital Tech	0.727	1	0.051	0.711
2	Lecturers Cognition	0.696	0.051	1	0.739
3	Learning Process	0.768	0.711	0.739	1

Source: Data Process

The measure for reliability and correlation showed that lecturers' reliability and questionnaires and percent value in using digital technology, lecturers' cognition, and impact the learning process. They showed that the reliability and correlations of questionnaires are valid.

4. Result And Discussion
4.1 Result

After obtaining the reliability and validity of the variables, it shows the frequency of lecturers' frequency of using digital technology and the frequency of lecturers' cognition approach in the learning process. The results of the descriptive statistics of frequency are shown in Table 2.

Table 2. Descriptive Statistics of Frequency of Lecturers in Using Digital Technology and Lecturers' Cognition in the Learning Process

No	Variable	Means	Std. Dev.	Freq.	Percentage
	Lecturers in Using Digital Technology				
1	Skilled	3.40	4.00	70	68.6
2	Knowledge	3.40	4.00	62	60.8
3	Capable	3.43	4.00	56	54.9
4	Collaboration	3.48	4.00	56	54.9
5	Communication	3.45	4.00	56	54.9
6	Use in daily life	3.40	3.59	51	50
7	Training	3.32	3.00	49	48
	Lecturers' Cognition in the Learning Process				
1	Courageous	3.55	4.00	65	63.8
2	Be Professional	3.49	4.00	64	62.7

3	Overcome the Problem	3.41	4.00	63	61.8
4	Positive Attitude	3.26	3.00	49	48
5	Responsible	3.29	3.00	48	47.1
6	Motivation	3.24	3.00	45	44.1
7	Can Adopt	3.11	3.00	38	37.3

Source: Data Process

4.1.1 Lecturers in Using Digital Technology

The processed data in table 2 shows that the first frequency is skilled and 70 respondents (68.6%), and a mean is 3.63, and Std. Dev. 4.00. It shows that 70 (68.8%) lecturers said using digital technology in the learning process for the lecturers is a must. In interviews held with lecturers, it was emphasized that digital technology is very important, and lecturers must have skills in digital technology to continue teaching at the institution. Ertmer (2015) described that lecturer reasoning in digital technology skills supports online learning. Online learning innovations rooted in the Internet allow change for the better, and learners can find information in the source. Morin et al. (2013) indicated that the function of digital technology skills uses the human brain for new changes and finds information and communicates that learning can be done without face to face. Reasoning in the digital skills of technology in the 21st century must have a strong argument for teaching to lead to the development and digital fluency in future education.

The second frequency is knowledge 62 (60.8%), a mean of 3.40, and Std. Dev. 4.00. Sixty-two respondents agree that using digital technology needs skills. The interview stated that lecturers must have the knowledge, creative and innovative skills in digital learning in which lecturers must think critically in teaching and solve problems. Bergdahl, Nour, & Fors (2020) revealed that digital technology is centered on information, media, and technology skills, including information literacy, media literacy, and digital technology literacy. Morin et al. (2013) determined that the frameworks complement reasoning systems and consider standards, assessments, curricula, professional development teaching, and a capable learning environment.

The third frequency is capable with 56 respondents (54.9%), which means 3.43 and Std. Dev. 4.00. It means that 56 respondents agree that the lecturers should be capable of using digital technology. The interview revealed that institutions require lecturers to use digital technology that enables learning during the COVID-19 pandemic using the Internet. If the lecturers cannot use digital technology, the lecturer must learn and train using digital technology. According to Olofsson et al. (2020) lecturers must be able to use digital technology for online teaching, and lecturers must be able to adapt digital technology. They can find learning sources, share learning content, understand the use of learning technology, and understand information delivery to the learning platform. Moreover, Harris & Phillips (2018) indicated that lecturers should have digital competence that applies reflective reasoning understanding to developing adequate digital technology. So that in teaching practice, lecturers can integrate digital learning with lecturers' digital competencies.

The fourth frequency is a collaboration with 56 respondents (54.9%) which means 3.48 and Std. Dev. 4.00. It means 56 respondents agree on the collaboration. The interview with the respondents explained that online learning requires lecturers and students, university students or lecturers, and other educators to collaborate to achieve online learning. However, there are many obstacles to collaborating, such as giving clear instructions and ways to collaborate. Le, Janseen, & Wubbles (2018) stated that many lecturers and students need to demonstrate effective collaborative methods. The problem is the need for collaborative skills between lecturers and students or students and students. Besides that in collaborating, many students have a ride, meaning that the student does not work but participates in the group and does not contribute suggestions, so the competency status becomes weak. Chiriac & Granström (2012) described that their research focuses on a lack of understanding of the meaning of collaboration, which helps lecturers promote enjoyable collaborative learning experiences so that many lecturers and students prefer working individually. By collaborating, learners and teachers get greater input and knowledge.

The fifth frequency is communication with 56 respondents (54.9%) which means 3.45 and Std. Dev. 4.00. The interview with the respondents stated that lecturers should communicate clearly and in detail to emerge the students' concentration. Weheba & El Kader (2007) stated that lecturers must apply basic communication concepts such as passion in communicating, understanding the students as individuals, thinking critically, and being challenged to deliver learning in different ways from different perspectives to inspire students. Black, (2015) described that online education encourages teachers to involve students in various forms of communication with emotional communication skills, understand students individually, have a critical way of thinking by conveying learning with different and fun perspectives, and students can enjoy the learning. Thus the delivery of online learning is achieved and the lecturers can sharpen lecturers reasoning in communication.

The sixth frequency is using digital technology in daily life with 51 respondents (50%), which means 3.40 and Std. Dev 3.59. In the interview, the respondents mentioned that institutions require lecturers to use digital technology in teaching. Because during the COVID-19 pandemic, learning was carried out by digital

technology. Clark Wilson, Robust, & Thomas, (2020) stated that technological progress and capabilities would continue to drive learning change, such as creating learning content and facilitating learning. Dillenborg (2016) indicated that institutions must switch to a digital approach as a created and developed technology. Dillenborg (2016) indicated that institutions must switch to a digital approach as a created and developed technology. Therefore, digital technology diverts the way of thinking accustomed to buying books and reading them in libraries. They are currently switching to digital technology that makes it easy and not burdensome to carry everywhere.

The seventh frequency is training 49 respondents (48%) with means of 3.32 and Std. Dev. 3.00. The interview with the respondents elaborated that the institution involves lecturers in reviewing and refining the existing base of skills and knowledge and extending it to the subject. Hubbard (2018) described that increasing the technology integration in online teaching and learning requires a process to be important because technology permeates lecturers' and students' daily lives and other fields of education. Fallon (2020) stated that digital technology skills for lecturers are strengthened by training and professional development and require lecturers to assimilate into a culture of constant change. It then describes the processes and resources available to warn that online learning is changing rapidly. Moreover, A professional lecturer must have training that involves developing skills and knowledge. Increasing technology integration in teaching is an important process in digital technology, where learning arrangements are carried out online.

4.1.2 Lecturers Cognition in Learning Process

Table 2 shows the highest frequency of lecturers' cognition in the learning process is courageous 65 respondents (63.8%) with means of 3.55 and Std. Dev. 4.00. The respondents stated that courage accompanies building a strong attitude and motivation in the learning process in the interview. Klahr (1988) revealed that lecturers must be firm and motivated in building the courage to convince students to accept learning. The influence of internal and external factors affects the cognition and reasoning of learners and teachers. Tennyson & Volk (2015) described that institutions must undertake major changes in learning from traditional to online to identify student-centered development of pedagogy aimed at delivering instruction that harnesses the power of synchronous and asynchronous learning. In building the cognition of lecturers and students, internal or external motivation and self-efficacy are needed to achieve learning. Therefore, courage becomes an important factor in building learning motivation.

The second frequency is professional, with 64 respondents (62.7%) with means of 3.49 and Std. Dev. 4.00. The interview with the respondents showed that professionalism helps lecturers in teaching in which cognitive, social, and emotional aspects can develop lecturers to be more confident, capable, and skilled. Malm (2009); Pella (2015) argued that professional lecturers challenge in higher education. The personal disposition of professional learning is to promote conflict literacy, self-awareness, empathy, leadership, and collaborative skills concerning cognitive, social, and emotional aspects of human development. Moreover, the competence and quality of lecturers are the starting points in teaching.

Thu (2018) states that the capacity of lecturers at universities must be in-depth. In addition to teaching, lecturers can encourage other lecturers and students to improve their abilities, assess their scientific research abilities, and provide training guidance on community services about education.

The third frequency is to overcome problem 63 (61.8%) with means 3.41 and Std. Dev. 4.00. When the interview was done the respondents stated that lecturers aim to solve problems students face in learning with a high failure rate. Lecturers can improve teaching methods by analyzing the existing problem and showing difficulty level in learning. Eng, Li, & Julaihi (2013) revealed that lecturers might provide remedies and provide learning direction in improving student failure rates as the students rely heavily on lecture notes. Teaching repeatedly, and the lecturer providing a detailed explanation will make students understand the lesson's subject matter. In addition, lecturers can also give assignments and exercises to drill student knowledge. Hailikari et al. (2007) explored that students' prior knowledge is different and affects achievement, so teaching differs from one student to another. Lecturers will solve problems that occur to students, and the learning outcomes achieved are measured optimally.

The fourth frequency is a positive attitude. The lecturers must have positive attitudes. It showed the frequency is 49 (48%) with means of 3.26 and Std. Dev. 3.00. The interview with the respondents indicated that lecturers' positive attitude affects student performance, which will trigger and motivate students to study harder and think positively in facing life.

Mardiana (2020) stated that a positive attitude is shown by being able, skilled, and knowledgeable in the subject it teaches. Besides that, the lecturers stimulate the development of the attitude of lecturers and students, and the attitudes give satisfactory results and are acceptable in the community. Moreover, Hammer, Peer, & Babad (2018) claimed that a positive attitude is a responsibility, contributes actively, and develops oneself so that one is knowledgeable, capable, and skilled can be practiced properly.

The fifth frequency is responsible for 48 (47.1%) with means of 3.29 and Std. Dev. 3.00. In the interview with the lecturers, respondents described that lecturers are responsible and have a role in teaching and encouraging teaching strategies to be accepted by students. Burroughs-Lange, (2006) mentioned that the focus is on the nature of learning, perceptions of students, and a sense of responsibility towards students in their field of professional knowledge, and can be demonstrated in the form of feedback from the environment created by lecturers and students. Frederiksen (1984) stated that lecturer proficiency is a form of teaching responsibility. Besides, lecturers can teach problem management and build student creativity in learning. These responsibilities are structured and can be practiced to develop their abilities and skills in the lesson's subject.

The sixth frequency is the motivation of 45 respondents (44.1%) with a mean of 3.24 and Std. Dev. 3.00. The interview with the respondents revealed that lecturers motivate students to develop their knowledge, abilities, and skills in learning. Hubbard (2018) explained that motivation is an important factor closely related to several educational variables such as student motivation, educational reform, teaching practices, psychological fulfillment, and teacher welfare. Schneider & Stern (2010) mentioned that lecturer motivation is shown from the potential and perspective of lecturers in developing learning that can foster student achievement.

The seventh frequency is the adoption of digital technology by 38 respondents (37.3%) with a mean of 3.11 and Std. Dev. 3.00. Several respondents stated that lecturers must be able to adopt technology into learning. Not all lecturers can adopt technology, some have to practice, and many even quit because they feel difficulties and are not tech-savvy. Pantić & Wubbels (2010) explained that technology adoption is a process of dynamic transition between lecturers and the benefits they receive. Many lecturers are reluctant to effectively adopt the benefits of technology in teaching due to the complexity of using technology and teaching subjects. Clark Wilson, Robutt, & Thomas (2020) stated that the technology adoption process runs slowly and creates new problems for learning. Lecturers must be committed to using technology to make teaching easier, especially during the COVID-19 pandemic.

The tendency to leave technology adoption is identified in the learning process. Therefore, lecturers need training so that the cognition process of technology adoption can align with the lecturers' reasoning [25].

The relationship between lecturers' reasoning in digital technology and lecturer cognition is a sustainable program. Cognitive development from lecturers' reasoning in digital technology can increase collaboration, good reasoning, and academic achievement as the desired result [26]. This study shows the relationship between lecturer reasoning in digital technology and lecturer cognition in Table 3.

Table 3. The relationship between Lecturers' Reasoning in using Digital Technologies and Lecturers Cognition

R	R Squared	Change Statistics	
		F Change	Sig. F Change
0.711	0.505	102.001	0.000

Source: Data Process

The relationship between lecturer reasoning in digital technology and lecturer cognition shows that R 0.711 and R Squared 0.505 with F-Change 102.111 and Sig. F. Change 0.000. The relationship between lecturers' reasoning in the use of digital technology and lecturers' cognition is 0.505, meaning that from 109 lecturers as respondents, 50.5% of lecturers can use digital technology, which has an impact on lecturers' cognition. As many as 49.5% have difficulties using digital technology. In addition, it was also shown that F-Change 102,000> 0.005 and Sig. F-change 0.000 <0.005. It shows that Ho is rejected and Ha is accepted. Moreover, the relationship between lecturer reasoning in using digital technology and lecturer cognition is accepted.

According to Bergdahl, Nour, & Fors (2020), It takes a long time to become capable of digital technology; after all, lecturers must practice digital technology. Moreover, not all lecturers can think about technology because many lecturers ignore their abilities and skills in technology. The relationship of 50.5% shows a quite good reasoning for the use of digital technology. Chiriac & Granström (2012) stated that the relationship between lecturer reasoning in digital technology and lecturer cognition could improve class interactions between lecturers and students, seeking increased collaboration, reasoning, and academic achievement as the desired outcome. Moreover, Schneider & Stern (2010) indicated that digital technology could support classroom dialogue and thoughts that occasionally emerge to produce positive results that directly impact pedagogy and online learning practice.

4.2 Discussion

Lecturers' reasoning in using technology provides opportunities for digital life, and lecturers are also assisted with a more comfortable life. Furthermore, developing educational technology during the COVID-19 pandemic provides a blueprint for educators and lecturers to develop educational products. The design of digital technology for learning at the tertiary level is based on behavior, abilities, reasoning, and skills that produce online teaching knowledge [21]. The behavior of lecturers who ignore their abilities and skills in teaching delivery will be a big problem, and they might stop teaching. According to Dillenbourg (2016), traditional class from the past to the 20th century shows that lecturers are on the platform and students are seekers of knowledge, so it is stated that lecturers are the source of all wisdom and source of knowledge. Ennis-Cole & Lawhon (2012) argued that the rise of the Internet and source search engines such as Google were places of knowledge other than libraries in the millennium. Pella (2015) explained that online knowledge, abilities, and skills lecturer reasoning in using digital technology as a mental activity using intuition and analysis in information processing. The lecturer's reasoning shows his broad-based logic and can draw logical and analytical conclusions to make online learning decisions.

The use of digital technology in learning encourages and expands discussion between students and teachers, even outside the classroom. The ideas reflected in the course may be consulted with lecturers or other educators or searched for online sources. Lecturer reasoning in reflecting on digital technology raises the ability and skill to analyze learning models among students and configure and relate to learning [27]. Characterizing the way digital technology is used extends logical reasoning in problem-solving approaches. The information obtained is important for lecturers and students and frames incorporating technology in the learning environment [28].

Lecturers who have digital technology skills can teach using their knowledge and abilities. On the other hand, the collaboration of lecturers-students, student-students, and other lecturers-student-educators will increase the knowledge and discussion needed in learning. Therefore, transactional and interactional communication is needed to achieve the desired learning. Lecturers and students who use digital technology daily can make online learning easier. Lecturers who need to improve in digital technology can train or get training from institutions. After all, the lecturer can take other courses in digital technology to support online teaching [29].

Lecturers who dare to decide to use digital technology will develop into professional lecturers. Lecturer professionalism in learning in the 21st century is highly needed because the institution will only accept lecturers with strong digital technology abilities. In addition, lecturers must also solve problems in the classroom related to digital technology or other online classes (Bawden, 2008). Thus the lecturer has a positive attitude in handling online learning, which can be proven in e-documents for faculty administration purposes [30], [31]. Furthermore, lecturers are responsible for all events in or outside of online classes.

However, not all students can learn using digital technology in online classes, so lecturers can provide motivation and provide sufficient opportunities for students to repeat online learning. Therefore, students will not be stressed or depressed being taught by the lecturer. Students enjoy online learning [32]. It must be underlined that lecturers must adopt digital technology and digital literacy so that the difficulties encountered in online learning can be avoided and problems can be resolved [33], [34].

Lecturers need to develop critical thinking skills to fulfill the expectations and needs of their profession. The relationship between critical thinking skills, which refers to the reasoning of lecturers and student behavior in learning, leads to positive online learning [35].

Empowerment of cognitive skills has an important role in increasing the reasoning capacity of active lecturers who control learners' cognitive processes [36], [37]. Lecturers with cognitive skills can be improved by implementing learning strategies involving high-level thinking and reasoning [38]. Therefore, a well-integrated lecturer's reasoning and cognition approach leads to constructive learning and accommodates these skills.

5. Conclusion

Digital knowledge of technology for online teaching is needed. That knowledge and lecturers' reasoning must achieve this knowledge and the ability and skills to use digital technology. Thus, lecturers must sharpen their reasoning, especially in using digital technology. In this COVID-19 pandemic, learning uses digital technology, and all lecturers must be able to use digital technology. If they need to improve in digital technology, lecturers can practice or get training personally or from institutions. The relationship between lecturer reasoning and cognition must be improved so that lecturers and students can study seriously and enjoy learning. In this study, the relationship between lecturer reasoning and lecturer cognition is 50%, and further research is hoped to continue.

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