
LEVEL OF STUDENT METACOGNITION THINKING DURING LECTURES IN THE COVID-19 PANDEMIC PERIOD

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Abstrak:

Selama pandemi perkuliahan dilaksanakan secara online, hal ini mengakibatkan adanya kecenderungan mahasiswa menjadi tidak serius menghadiri perkuliahan. Tidak adanya pengawasan langsung dari dosen menjadi salah satu penyebab hal tersebut bisa terjadi. Dengan demikian peneliti berasumsi bahwa tingkat metakognisi mahasiswa yang melaksanakan perkuliahan secara online juga akan menurun. Oleh karena itu tujuan dari penelitian ini adalah untuk menganalisis level metakognisi mahasiswa selama perkuliahan online yang telah dilaksanakan. Peneliti menggunakan pendekatan penelitian deskriptif kualitatif dengan metode survei. Subjek penelitian adalah 120 mahasiswa yang telah mengikuti kuliah online minimal 8 kali pertemuan atau 2 bulan. Hasil penelitian menunjukkan bahwa 83 mahasiswa berada pada tingkat metakognisi terendah (*Tacit Use*). Sedangkan siswa yang berada pada level metakognisi tertinggi sebanyak 2 siswa (*Reflective Use*). Dengan demikian peneliti dapat menyimpulkan bahwa tingkat metakogni mahasiswa selama perkuliahan online masih sangat rendah.

Abstract:

During pandemics, lectures conducted online tend to make students not serious about attending lectures. The absence of direct supervision from lecturers is one of the reasons why this can occur. Thus, the researchers assume that the level of metacognition students who carry out lectures online is still low. Therefore, the purpose of this study is to analyze the level of metacognition of students during online lectures that have been carried out. Researchers used a qualitative-descriptive research approach with survey methods. Research subjects were 120 students who had taken online courses for at least 8 meetings or 2 months. The results showed that 83 students were at the lowest metacognition level (*Tacit Use*). While students who are at the highest level of metacognition are 2 students (*Reflective Use*). Thus, the researcher can conclude that the metaphorical level of students during online lectures is still very low.

Keywords:

Metacognition, Online Learning, Self-Reflection

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INTRODUCTION

In the last 3 months, the COVID-19 Pandemic has swept the world including Indonesia, Indonesia, causing devastating damage humans and affecting social sectors of

the country like the education and the way in which teaching and learning is conducted. This pandemic has changed the overall order and system that already existed, including the Education system (Gunawan et al., 2020). In the past 3 months, no less than 4 ministerial regulations have been issued by the Ministry of Education and Culture related to the teaching and learning process during the pandemic (Hidayati et al., 2020). This does not include regulations issued by each region's relevant education office. The number of these changes certainly have a direct effect on student acceptance of the lessons given (Mauluda et al., 2020). One of the most debated regulations being the online and regular learning process (Pei & Wu, 2019).

It cannot be denied that during this pandemic period the teaching and learning process must be carried out online (Liu, 2019). This is to comply with COVID-19 handling procedures, namely carrying out social distancing. In the online-based learning process, one important aspect that must be possessed by students is the ability to learn independently (Casey & Hallissy, 2014). Distance or online learning requires students to carry out learning activities such as finding information/materials or doing assignments independently because it is done from each home. This of course eventually causes problems, where according to Merina Pratiwi (2020) most students in Indonesia are not ready to study independently. The mindset of students is still largely dependent on "bribes" from the teacher. This is supported by research studies of Mumpuni & Nurpratiwiningsih (2018) and Rohendi & Dulpaja (2013) where the implementation of student-centered based learning is still very difficult to apply considering that the critical thinking skills of students in Indonesia are still very low.

Associated with the ability to think critically, in fact, the low ability is not only found in students in schools but also students in universities. The need for human resources who have critical thinking skills is currently very high (Naug et al., 2016). The development of the world and the many problems that have just been born require creative innovations in. In finding solutions and innovations to solve the problems that currently arise. According to Düzeyler İn İn et al. (2018) critical thinking skills can be trained and shaped. In forming critical thinking patterns, one important aspect that is developed is the ability to reflect/evaluate themselves (Mahmudul Haque, 2019); (Tzohar-Rozen & Kramarski, 2014). In evaluating this self, there is one important way of thinking to be owned by someone, namely the ability of metacognition (Efklides, 2014). As a preliminary study, researchers provide surveys related to student knowledge about metacognitive thinking. The survey results can be seen in the graphic image as follows.

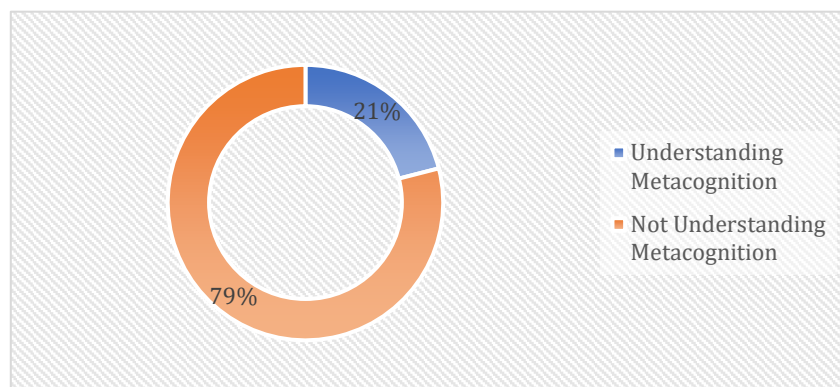


Figure 1. Metacognition Knowledge Survey Results

Based on Figure 1 above, 79% of students do not have knowledge about metacognition. While students who have metacognition knowledge are only 12%. The number of students who were respondents was 50 students. Based on preliminary results, it can be concluded that most students do not have the knowledge related to thinking metacognition. Aside from the foothold research above, there have been many studies examining the ability to think metacognition. In a research by Desoete (2019), metacognition abilities of a person are often seen in people who think slow accurate (Valencia-Vallejo et al., 2019); (Cera et al., 2014). Also according to the results of a study Van Der Horst & Albertyn (2018), metacognition learning abilities are needed to train students deeper and critical thinking in looking at a problem. According to psychologist Swartz & Perkins in Berizzi et al (2017), in metacognition, there are several different levels for each person. Because the experience and information that enters the human brain are different, this causes every human being to have a different level of metacognition (Binti Abu Bakar, 2019); (Esterhuysen & Stanz, 2014). Especially during the current pandemic, the condition of the learning process that changes suddenly and drastically is likely to cause changes in the metacognition process undertaken by students. Online learning experiences and carried out independently at home are likely to influence the metacognition process undertaken by students. Thus, the purpose of this study is to classify the level of metacognition of students during learning in the COVID-19 pandemic era. Researchers want to see which level of metacognition has been done by students. From the results of this study, it is expected that lecturers as educators can develop student metacognition abilities that are still low.

RESEARCH METHOD

This study uses a qualitative-descriptive approach with survey methods. This type of approach was chosen by researchers in order to achieve the research objectives to classify the cognitive level of students during online lectures (Creswell, 2012). In the process of collecting data, the researchers used the metacognition test questions which were converted in the Google form format. The conversion of this instrument is an

adaptation of the lecture process that must be carried out online during the COVID-19 pandemic. In this study, the research subjects were 120 students who had conducted online lectures for at least 2 months or 8 meetings. The whole subject is chosen randomly without any specific criteria (random sampling). This is done so that the existence of the subject can represent the whole student.

The research procedure began with the implementation of lectures online. After that, the researchers gave a metacognition test as an evaluation material for lectures. The results of the work of these students are then classified using the metacognitive level indicator triggered by Swartz & Perkins in Berizzi et al (2017) as follows.

Table 1. Indicators of Metacognition Levels

Level	Indicator	Description Indicator
Level 1	<i>Tacit Use</i>	Types of thinking related to decision making without thinking about the decision. In this case, students apply strategies or skills without specific awareness or through trial and error and origin in solving problems
Level 2	<i>Aware Use</i>	Types of thinking related to student awareness about what and why students do these thoughts. In this case, the student realizes that he must use a problem-solving step by giving an explanation of the reasons for choosing that step.
Level 3	<i>Strategic Use</i>	The type of thinking related to the individual's arrangement in the process of thinking consciously by using specific strategies that can improve the accuracy of his thinking. In this case, students are aware and able to select specific strategies or skills to solve problems.
Level 4	<i>Reflective Use</i>	The type of thought that is related to the reflection of an individual in his thought process before and after or even during the process by considering the continuation and improvement of the results of his thought. In this case, students realize and correct mistakes made in problem-solving steps.

After the work was classified according to the indicators above, the researcher then conducted a descriptive analysis at each level. The researcher also provided a literature review comparison to strengthen the results of the researchers' analysis.

To strengthen the results of research data, researchers conducted a research data triangulation method. This method of triangulation began to be used in qualitative research as a way to improve the measurement of validity and strengthen the credibility of research findings by comparing them with a variety of different approaches. Because it uses terminology and methods similar to positivistic (quantitative) paradigm models, such as measurement and validity. According to Norman K. Denkin in Klosterman (2017) one of the triangulations that can be done is the theory triangulation. Because the final results of qualitative research in the form of an information formulation or thesis statement. The information is then compared with the perspective of the theory that is relevant to avoid the individual researcher bias over the findings or conclusions produced. In addition, triangulation of theories can increase the depth of understanding provided that

researchers are able to explore theoretical knowledge in depth on the results of data analysis that has been obtained. This stage is recognized to be the most difficult because researchers are required to have expert judgment when comparing their findings with certain perspectives, even more so if the comparison shows much different results. Researchers compare research data with relevant theories. The relevant theory is then used as a support and comparison of the researcher analysis.

RESULTS AND DISCUSSION

After the data collection process is done through the end of semester examination activities, data on the results of the work of all subjects have been collected. After an examination using a metacognition level indicator, the results of the subject's work were then grouped into 4 levels. Here are the results of tabulated data on the amount of each level of subject metacognition.

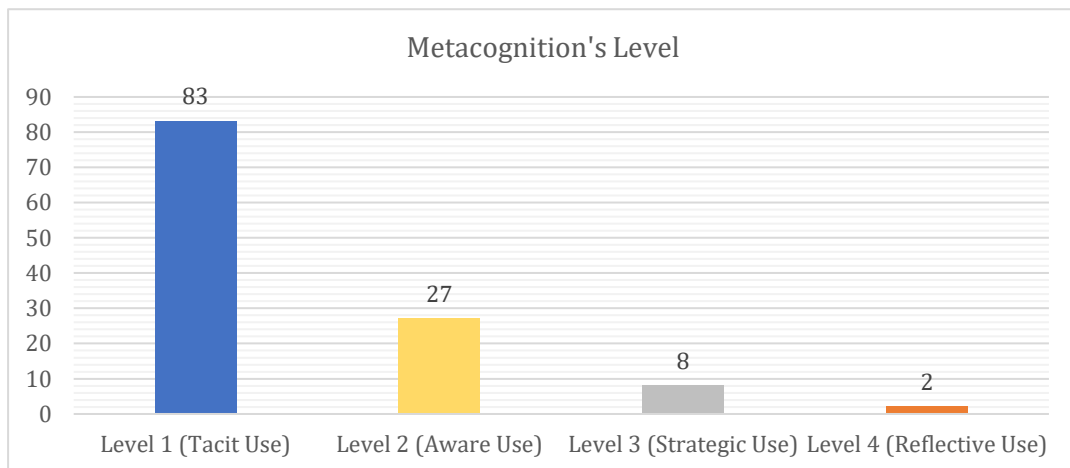


Figure 1. Data Subject Metacognition Levels for Research Subjects

Based on Figure 1, most research subjects are at the Tacit Use (Level 1) metacognition level, which is 83 students. The number of subjects at this level of metacognition is more than half of all research subjects. For the Aware Use level (Level 2), the number of subjects at this level is 27 people. Not too far away, there are 8 subjects that are at the Strategic Use (Level 3) metacognition level. While from the overall research subjects, only 2 subjects were at the level of Reflective Use (Level 4) as the highest level in the metacognitive thinking process. At a glance in Figure 1 above, we can conclude that most of the metacognition abilities of research subjects are still low. To deepen the results of this study, researchers conducted in-depth analysis and literature studies at each level

Tacit Use Level's

The number of research subjects at the Tacit Use metacognition level was 83 subjects. This Tacit Use level is an impulsive thought process that does not think long in its decision making (Tzohar-Rozen & Kramarski, 2014). Research subjects at this level tend

not to have specific strategies to solve problems or make decisions. In accordance with the results of the study Cera et al (2014), most students who were given a metacognition test were at level 1. Psychologically this is the result of someone not being able to process a problem deeply. Most humans tend to think short and not do an in-depth analysis of decision making or solutions to problems (Adiarto, 2017). Following is a snippet of an answer to one of the research subjects at this level of metacognition:

Table 2. Pieces of Subject Answers at the Tacit Use Metacognition Level

Metacognition Questions	Discussion	Subject Answers	Discussion
What is the biggest regret you feel after attending lectures during a pandemic?	The purpose of the above questions is as an evaluation material for students, students are expected to be able to reflect on themselves and correct mistakes that might have been made before	No regrets that I feel.	The answer to this subject shows that the research subjects answered without understanding the purpose of the question given.
		Rather I am grateful after attending this lecture.	In this sentence, the subject also seems not to think deeply about the question given before answering the question.
		Because I followed this lecture well, I gained far more knowledge about this quantitative research method.	Because of the misunderstanding that the subject claimed at the beginning, the subject's answer does not match the purpose the question was given.

Source: Research Data

Based on table 2 above, it appears that subjects at this level do not really think deeply before answering questions. Even the answers of the subjects did not seem to fit the purpose of the metacognition question given. According to Duangnamol et al (2018) subjects at the Tacit Use level of metacognition tend to just answer a question. Furthermore, according to Morphew et al (2020) the style of thinking that underlies the birth of the Tacit Use metacognition pattern is the impulsive thinking style. When a person is at this level of metacognition, it is very unlikely that any self-improvement or self-reflection will take place. This can result in the birth of an egoistic human where one tends not to listen easily to others (Dunn et al., 2019); (Lindelauf et al., 2018). When a person fosters an egoistic nature within himself, then indirectly someone will assume that the whole mindset is a truth. The next result is the formation of a mindset that is "closed" (close mind) and is not easy to live in the social world.

Aware Use Level's

The number of research subjects at the Aware Use metacognition level was 27 subjects. This level of Aware Use is a thought process that starts to think of several stages or steps to decide on something or a suitable solution (Lai et al., 2015); (Maullyda et al., 2020). Research subjects at this level are beginning to realize that to solve a problem, they need a strategy and the reasons why to use that strategy. In accordance with the results of the research by Jabusch (2016), that someone who is at the level of metacognition Aware Use will think of the reasons for choosing a strategy as a step in solving problems. Psychologically this subject has begun to have deep thoughts in determining the completion strategy (Trenado et al., 2018); (Pourdavood et al., 2015). Indirectly, this level of Aware Use metacognition does not focus on the problem given, but rather on what strategies are chosen to solve the problem. The following is a snippet of an answer to one of the research subjects at the level of metacognition Aware Use:

Table 3. Pieces of Subject Answers at the Aware Use Metacognition Level

Metacognition Questions	Discussion	Subject Answers	Discussion
What is the biggest regret you feel after attending lectures during a pandemic?	The purpose of the above questions is as an evaluation material for students, students are expected to be able to reflect on themselves and correct mistakes that might have been made before	There is no biggest regret because in my opinion there is nothing to regret.	The answer to this subject shows that the research subjects answered without understanding the purpose of the question given.
		what is needed is to continually improve and be grateful.	In this sentence, the subject begins to look at the element of metacognition because the subject begins to realize that mistakes made so far need to be corrected.
		with hope what I have learned in this course is a blessing and can be useful in the future.	The subject begins to look thinking about what you want to achieve in the future. The sentence above also shows that the subject wants to utilize the knowledge provided for additional knowledge in the future. Although the answers are still not according to the purpose of this metacognition question given.

Source: Research Data

Based on Table 3 above, it appears that subjects at this level may not think too deeply about the questions given because the subject's answers are still not appropriate. However, research subjects began to think of solutions and reasons why choosing strategies to solve these problems. According to Mohammadi et al (2015) subjects at the level of metacognition Aware Use tend to think of answers to questions. Furthermore according to Soliemanifar et al (2015) the style of thinking that underlies the birth of the Aware Use metacognition pattern is the pragmatic thinking style. When a person is at this level of metacognition, there is a possibility that repairs or self-reflection will begin. It is very necessary to give birth to answers or correct solutions (unthinkable) in solving problems (Adiarto, 2017). In the social world of society, one should think deeply about the right solution and strategy for a problem. In the context of metacognition according to Van Der Horst & Albertyn (2018) one indicator of achieving one's metacognition thinking is to think about the reasons for choosing a strategy. This is also seen in the answers of research subjects at the level of Aware Use.

Strategic Use Level's

The number of research subjects at this level of Strategic Use metacognition is 8 subjects. Strategic Use Level is a thought process that begins to select a number of strategies that might be used to solve a problem (Ray & Ray, 2012). Research subjects at the level not only realize that in solving problems there needs to be a strategy but at this level, the subject begins to choose which strategy is the most appropriate. In accordance with the results of research Vinney et al (2018) that someone who is at the level of metacognition Strategic Use will try to think of the most appropriate strategy and in accordance with the conditions of the problem at hand. Not only that, but subjects at this level also tend to be more in analyzing a problem or question. In the realm of psychology, the process of selecting this strategy indicates that the subject already has a lot of information/memory in his brain (Purnamawati & Saliruddin, 2017); (Leonard, 2016). The existence of many strategies possessed by someone can indicate that the subject has broad insight. According to Efklides (2014) someone who has broad insight tends to have good self-reflection abilities so that the possibility is at a fairly high level of metacognition. The following snippet of the answer to one of the research subjects at the level of Strategic Use metacognition:

Table 4. Pieces of Subject's Answers at the Strategic Use Metacognition Level

Metacognition Questions	Discussion	Subject Answers	Discussion
What is the biggest regret you feel after attending lectures during a pandemic?	The purpose of the above questions is as an evaluation material for students, students are expected to be able to reflect on themselves and	The biggest regret that I feel right now is that I didn't make the most of my lecture time, by asking everything I	The answers of the subjects at this level of metacognition are in accordance with the questions given. From the sentence above, the research subject can begin

correct mistakes that might have been made before	didn't understand and mastered.	to mention the mistakes that have been previously made.
	But with the material that you have given inshaaAllah for the future, I will study on my own and if there is an opportunity I personally want to explore by asking questions or consulting with the related father or lecturer.	Even in this sentence the research subject can also mention the positive things that were obtained. This shows that the subject can have a lot of recorded information on the brain and can call the information to answer questions.
	Because in some subjects including quantitative research methods I feel I have not mastered it thoroughly and thoroughly.	Subjects have begun to see the usefulness of lectures in general (Wide View). This shows that the research subject's thinking is deeper than the previous level.

Source: Research Data

Based on table 4 above, it appears that subjects at this level begin to think deeply about the questions that are given. The subject starts to think about the problems and the benefits that have been done before. According to Desoete (2019) subjects at the level of Strategic Use metacognition tend to start selecting information that is owned to solve the problem or question given. Furthermore, according to Naug et al (2016) the thinking style underlying the birth of the Strategic Use metacognition pattern is the theoretical thinking style. When a person is at this level of metacognition, there is a possibility that repairs or self-reflection will begin. It is very necessary to give birth to answers or correct solutions (thinkable) in solving problems (Tzohar-Rozen & Kramarski, 2014). Someone who is at this level of metacognition tends to take longer to make a decision. In the context of metacognition according to Cera et al (2014) one indicator of achieving one's metacognition thinking is to think about the reasons for choosing a strategy. This is also seen in the answers of research subjects at the Strategic Use level.

Reflective Use Level's

The number of research subjects at the level of Reflective Use metacognition is 2 subjects. Reflective Use Level is an information processing process that involves many considerations related to what must be prepared, what is being done, and what has been produced (Jabusch, 2016). Research subjects at this level do deep thinking related to the questions given. In accordance with the results of research Adiarto (2017) that someone who is at the stage of reflective metacognition can think of the preparations that must be done before working on or facing something. In addition, the person will also project the results of the actions or answers he gives for the future. Not only that, but subjects at this level also tend to be more in analyzing a problem or question. In the realm of psychology, the process of consideration and projection requires a large and extensive source of information (memory) (Soliemanifar et al., 2015); (Borelli & Cacciari, 2019). These considerations can be made by the subject because the subject has a lot of information choices in his brain. Besides the ability to project/predict the consequences of actions taken is also evidence that the subject has a lot of experience on a problem. According to Ray & Ray (2012) someone who has broad insight tends to have a good self-reflection ability so that the possibility of being at a reflective metacognition level is quite high. The following snippet of an answer to one of the research subjects at the level of Reflective Use metacognition:

Table 5. Pieces of subject's answers at the level of Reflective Use metacognition

Metacognition Questions	Discussion	Subject Answers	Discussion
What is the biggest regret you feel after attending lectures during a pandemic?	The purpose of the above questions is as an evaluation material for students, students are expected to be able to reflect on themselves and correct mistakes that might have been made before	My biggest regret is not being able to meet directly with the lecturer in lectures. So that in discussions about lecture material can not be done or carried out properly, asking freely can not	The answers of the subjects at this level of metacognition are in accordance with the questions given. From the sentence above, the research subject can begin to mention the mistakes that have been previously made. Even in this sentence the research subject can also mention the positive things that were obtained. This shows that the subject can have a lot of recorded information on the brain and can call the information to answer questions.
		so I feel that the	Subjects have begun to see

material I got is not enough to compile or produce a quantitative research result, and cannot thoroughly investigate the quantitative research method. the usefulness of lectures in general (Wide View). This shows that the research subject's thinking is deeper than the previous level.

Source: Research Data

Based on table 5, it appears that subjects at this level begin to think deeply about the questions that are given. The subject starts to think about the problems and the benefits that have been done before. According to Vinney et al (2018) subjects at the level of Reflective Use, metacognition tends to start thinking about whether the strategies used to solve problems are correct or still wrong. Furthermore according to Jabusch (2016) the style of thinking that underlies the birth of the Reflective Use metacognition pattern is the reflective thinking style. When a person is at this level of metacognition, there is a possibility that repairs or self-reflection will begin. It is very necessary to give birth to answers or correct solutions in solving problems (Morphew et al., 2020). Someone who is at this level of metacognition tends to take longer to make a decision. In the context of metacognition according to Pratiwi (2020) one indicator of achieving one's metacognition thinking is to think about the reasons for choosing a strategy. This is also seen in the answers of research subjects at the level of Reflective Use.

CONCLUSION

Based on the results of the research conducted, it can be concluded as follows: (a) Most students are still at the lowest metacognition level, namely the Tacit Use metacognition level of 83 students, where subjects who are at this level of metacognition are not right in answering the metacognition questions given. There are still many students who are at a low level of metacognition (Tacit Use), making it difficult to get reflective activities on students. Because it is difficult to implement reflective activities in learning, students are not used to correcting themselves. This will ultimately impact on developing selfishness and not listening to criticism to others. In the development of long-term students, individuals who find it difficult to discuss, cooperate and socialize (close mind) will be born. (b) After that, there are 27 students who are at the Aware Use metacognition level, where subjects at this level of metacognition have begun to realize that there is a need for strategies to be able to answer questions well. (c) For a higher level of metacognition namely Strategic Use, there are 8 subjects, where subjects at this level of metacognition begin to select which strategies are appropriate to be able to answer the questions given. At least students should be at this level of metacognition to be a good person. Because students begin to be able to self-correct and correct mistakes that have

resulted in thinking. (d) Whereas the least metacognition level is Reflective Use metacognition level, where there are 2 research subjects who begin to rethink whether the strategy given is correct or not. At this level of metacognition, the subject tends to reflect mistakes that have been made before. Seeing the number of students who are at this level of metacognition is very small. Then the researchers concluded that there was a need to improve students' metacognitive thinking skills carried out by lecturers. Efforts to increase the level of metacognition can be done in various ways, can be through habituation in learning, can be through learning activities, or integrated guidance directly to several students.

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