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Lecturer's Teaching Strategy in Improving Higher- Order Thinking Ability of Islamic Education Students

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ABSTRACT

Lecture activities as processes and requirements exist, following academic rules and curriculum in a study program. It suggests how much basic knowledge students are required to have. The aim is to help students cope with the growing growth of science and technology. For this, Mamou's thinking ability achieves the educational goal, which is for students able to solve problems with high levels of thinking. The research aims to find out and analyze the lecturers' strategy used in increasing the efficacy of higher-order thinking, as well as the inhibitor and support factors in increasing higher-order ability. The study involves qualitative methods. The subjects were lecturers of the study program for Islamic education. The data collection techniques used in this study are observation, interviews, and documentation. The data-analysis techniques used are data reduction, data display, and verification. The results show the lecturers' strategy used in perpetuating students' ability to higher-order thinking with active learning strategies, incubation, suspected problems, and BBL. While the retard factors of a student's low thinking ability are lack of reading and the way lecturers should always guide students. As for the supporting factors are Internet access, library, and curiosity.

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1. INTRODUCTION

Weaknesses in the college process are due to a lack of effort in developing students' thinking ability, while every learning process requires mastering the entire course. It is a mistaken view, for all subjects expect to provide students with community outreach (Nugroho et al., 2020). So, a current paradigm shift of thought is necessary to improve students' thinking ability, especially in the Education and Teacher Training areas that will eventually lead to further generations (Rozi & Hanum, 2019; Warsah et al., 2021). College activities as processes and requirements follow the academic rules and curriculum programs. For that, the quality of education is determined by the quality of the graduates of the institution of education. It suggests how much resistance and skill are needed to win global rivalries. To win the global competition

of good quality education must be known by driving up a rise in student thinking ability (Herry Maurits Summampouw, n.d.; Karolina, 2018). Student ability, learning style, learning materials are factors to be achieved depending on the condition of each element involved (Erfan & Ratu, 2018; Syawahid, 2015; Warsah & Nashori, 2021).

These are essential elements to achieve maximum learning results. The general boredom of the college process, particularly with regard to the education of Islam, is due to a routine that is carried out in a monotonous way. Thus, boredom can be caused by first, the lack of interest in learning Islamic religious education and the resulting disfavor, resulting in a lapse in focus. Second, there are too many class hours that are not in accordance with the students' conditions. Third, uncomfortable neighborhood. Fourth, anxiety from within. Fifth, too many tasks. Sixth, learn according to wish (Wahyuni, 2018). Thinking ability is a basic thing that students are required to have. This ability is a provision in the face of the growing scientific and technological developments in today's era. For this reason it is capable of achieving education's goal that students will be able to solve problems with higher-level thinking (Dwijananti & Yulianti, 2010).

Following fadlan's research, that's important and emphasized in high-level cognitive college. Students were invited to reason, work together, exchange ideas, and communicate ideas openly and thus be able to explore knowledge in greater detail (Fadlan, 2010). After conducting a preliminary interview with one of the lecturers of the Islamic religious education study program, it is found that students' thinking ability can be seen from discussion indicators to be said to be dominated by students with more thinking ability (Interview, Siswanto 2019).

The results of research done by Tri Widodo and Sri Kadarwati in 2013, with higher-order thinking based on problem-solving to project the results-oriented student character, the result is to bring forth by applying learning that stressed higher-order thinking on chemical subjects, can have a positive effect on students. Such as being able to team up, student interaction, teacher interaction with a student, solving complicated issues, perseverance, responsibility, discipline, meticulousness, and openness. The indirect application of HOT-based learning can increase student learning results (Widodo & Kadarwati, 2013).

It is possible to identify parallels and variations between the ratifications made by different researchers based on the aforementioned research, yet, the same equation applies when taking into account the current temperature, location, and topic of the study. Problems in students' character development are connected to widodo studies. On the other hand, this essay focuses on how professors foster students' hot talent development. For their second piece of research, Dadang Darlan, Leni Permana, and Mutya Oktariani investigated the topic of economics teachers' competence and the challenges they faced in developing HOTS instruments in 2020. The study's findings indicate that teachers still lack the necessary skills to effectively formulate problems based on students' cognitive levels. Only 12% of educators surveyed actually create their own questions and conduct their own analyses; the remaining 88% rely solely on memorization for cognitive levels. The given information is from Dahlan et al. (2020).

Through the above research, the differences and similarities with this study are that Widodo focuses on teachers' competency in building up a HOTS Question, while this article focuses on lecturers' strategy in improving students' Higher-order Thinking Skills. For this reason, it can be understood that HOT-based learning is indeed very important. Failure to ensure the quality of graduates must remain heightened so that graduates in an educational institution can contribute and competitively compete globally.

2. METHODS

This research is field research with a qualitative descriptive method approach (Hamilton & Finley, 2019; Smith & Smith, 2018). Qualitative research is a descriptive study in the form of written or spoken words from people and observed behavior, and It will report in expository form. This study uses qualitative methods through observation, interviews, and document review(Ciesielska et al., 2018; Knox

& Burkard, 2009; Owen, 2014). The study subjects were lecturers of the Islamic Religious Education Study Program who randomly selected from several professions within the State Islamic College.

Research subjects are parties who are used as samples in a study. The role of research subjects who provide responses and information related to data needed by researchers. The subject of this research was carried out in the 2019/2020 academic year courses in the even semester for sixth-semester students with a total of 12 lecturers. This is following the determination of informants using a technique commonly used in qualitative research, purpose sampling, where the instructions for several people as informants in addition to the interests of completeness and accuracy of information, are intended to conduct cross-checks on the results of the information provided(Suharsimi Arikunto, 1998) In terms of qualitative data analysis, Miles, Huberman, and Saldana suggest that activities in qualitative data analysis are carried out interactively and take place continuously until they are complete so that the data is of type. Activities in terms of data analysis are data reduction, presentation, and data verification (Huberman & Miles, 2002; Owen, 2014).

3. FINDINGS AND DISCUSSION

3.1 Higher-Order Thinking Ability

3.1.1 Understanding Higher Order Thinking Ability

a. Creative Thinking

The ability to produce something new or a combination of several things becomes a modification of a renewable work (Baihaqi, 2016). Creative thinking is a thinking process to produce various kinds of possible answers. In this case, there will be many ideas that can be obtained in creative thinking, especially in problem-solving (Simorangkir, 2016; Siswono, 2010).

b. Critical Thinking

A thinking process, that leads to an issue or problem of concern. Not rejection, but formulating the best solution to complex personal problems, discussing in deliberation, analyzing assumptions, and the quality of the methods used scientifically in testing hypotheses (Kusnawa, 2011). Critical thinking is a conscious and active process in thinking about things in-depth, asking questions, finding information that fits the object rather than receiving information from other people (Heryandi, 2018; Santoso & Sos, 2015). In other words, testing the truth of an argument and assessing ideas (Lisnawati & Makarim, 2017)

c. Problem-solving

In improving students' higher-order thinking skills, lecturers must help them think and solve problems with high-level thinking skills (Wahid & Karimah, 2018). What is meant by problem-solving? Is it transferring existing knowledge and skills to answer unanswered questions or difficult situations? Problem-solving is a lesson using real-world problems used as an object for students to learn about critical thinking and problem-solving skills and to acquire knowledge and concepts from courses and subjects essentially (Azizah et al., 2015; Wulandari et al., 2020). In problem-solving, there are several component indicators. These indicators must exist in every student. These are problem identification, curiosity, thoroughness, and decision evaluation(Ardiyanti, 2016; Shanti et al., 2017). Problem-solving is the method taken to identify data in that it is related to the real world as facts that use because of the presence of various kinds of problems that will use in the learning process.

d. Decision-Making

The decision can succeed or fail, so it is necessary to use a strategy that starts from the goal-setting stage and information data collection followed by the generation of solutions in the form of alternatives or choices that are considered feasible, as well as a proper comparison(Ridwan Abdullah Sani, 2019). For this reason, decision-making is a step that must be chosen and taken followed by a solution in the form of choices that will use in making decisions by comparing the choices.

e. Evaluate

Assessment activity is the program carried out is running well or not(Depdiknas, n.d.; Sari, 2021; Siswono, 2010). Evaluation thinking skills are also a person's ability to judgments about conditions,

ideas, materials, and values in a matter (Syafa'ah & Handayani, 2015). Evaluating is an assessment process based on pre-determined criteria and standards as a benchmark. In this evaluation activity checking and criticizing process is needed (Sucipto, 2017).

f. Think logically

A thinking process that uses reason permanently without changing according to existing rules to conclude. This logical thinking focuses on understanding, application ability, analytical ability, synthesis ability, and evaluation ability (Pamungkas et al., 2017). The logical thinking ability is a person's security to solve problems with a strong foundation of truth from existing procedures. An important part of logical thinking is laying the basis for the truth of each problem-solving procedure (Syawahid, 2015). Logical thinking ability has an important role in understanding and learning abstract material(Purwanto, 2012). Following are the characteristics of logical thinking:

1) Confusion of Thinking
   Students can determine the steps systematically in solving the problem from the beginning of planning to get to a conclusion.
2) Arguing Ability
   Students' reason logically following the facts from the available information related to the problem planning steps and problem-solving taken.
3) Drawing Conclusion
   Students can conclude an existing problem based on the completion steps that have been taken(Andriawan, 2014). It can be concluded that logical thinking is a thinking process on a basis for the validity of the data. Logical thinking can be done by following a predetermined procedure.

g. Metacognitive Thinking

Metacognitive means a science about learning itself or knowledge about learning itself (Sumampouw, 2011). Metacognition can be said "thinking about thinking" it will be efficient if it's used in solving problems. So metacognitive is an awareness of oneself in the form of cognitive, how it can work by itself, and how to manage it (Murtianto & Harun, 2014). In everyday life, analytical thinking, creativity, needs practice, and intelligence is needed. Meanwhile, metacognitive thinking is also part of higher-order thinking (Widodo & Kadarwati, 2013). Metacognition is divided into two main sub-components, knowledge of cognition and regulation of cognition. Cognition refers to thinking ability, which has three components: declarative, procedural, and conditional knowledge, while regulation of cognition has three components: planning, monitoring, and evaluation. Evaluation refers to assessing the product and process of learning regulation (Syafa'ah & Handayani, 2015). Based on the understanding above, metacognitive thinking is learning about learning itself or learning about how our cognitive abilities use properly with appropriate steps

h. Reflective Thinking

A process of thinking by responding to a problem with internal data information, being able to explain what has been done to solve the mask, and communicating ideas with symbols instead of related images or objects. For that reason, this thinking can not only solve the problem but also reveal the process (Nasriadi1, 2016). The characteristics of reflective thinking ability consist of several activities, such as; observing, reflecting, collecting data, considering moral principles, making estimates, considering moral principles, making estimates consider strategies and actions (Nindiasari et al., 2014). While the steps of reflective thinking carried out by individuals are as follows:

1) Individuals feel there is a problem
2) Individuals localize and limit understanding of the problem
3) Individuals find the relationship between the problem and formulate hypotheses regarding problem-solving based on the knowledge they already have
4) Individuals evaluate the hypothesis, whether to accept or reject it
5) The individual applies the problem-solving with the chosen method, and then the result is whether he accepts or rejects the conclusion (Fuady, 2017).

i. Synthesis

In synthetic thinking, students must be guided by the steps that exist so that the results obtained from cognitive learning follow the path. The steps in the synthesis are activities such as comparing, managing, compiling, and combining some information that will use to build a product as information(Jonner, 2008). The ability to synthesize, evaluate and apply is determined from several factors such as models, methods, approaches, and learning strategies(Mustapa, 2014).

j. Complex analysis

Complex thinking skills are a type of understanding that requires basic thinking and has characteristics according to various possible answers and judgments from participants and the placement of meaning in a situation(Panjaitan, 2011). It means that in complex thinking students need basic thinking skills. Students require thinking about the little things that allow the idea or information to be obtained

k. System Analysis

The ability to think systematically is the ability to analyze a problem systematically, procedure, steps, sequence, or planning that is appropriate, efficient, and effective.

3.1.2 The Characteristics of Higher Order Thinking

The main characteristics of higher-order thinking are when a person can think critically and think creatively. Students can solve high-level questions, which in their completion use high-level skills, students able to think at high levels(Erfan & Ratu, 2018). The characteristics that are part of higher-order thinking are critical and creative thinking (Wahid & Karimah, 2018). The forms of observations that identify students with creative potential are as follows (Slameto, 2003):

a. Have a high enough desire
b. Open-minded
c. Resourceful
d. Desire to discover and research
e. Prefer to Difficult tasks
f. Tend to seek more extensive and satisfying answers
g. Passionate and active in doing tasks
h. Think flexibility
i. Be more active by giving and answering a lot of questions
j. Expertise in making analysis and synthesis
k. Have the spirit to ask
l. Have passion in researching something
m. Have good abstraction skills
n. Have a fairly broad reading background

3.2 Use of Learning Strategies in Improving Higher Order Thinking Ability

Before discussing the various strategies used in thinking ability improvement activities, the lecturers have done these steps.(Warsah, 2020). It is because lecturers have a significant position in higher education as organizers of adult learning (andragogy) the steps are as follows:

a. Create a learning design
b. Prepare learning tools and media
c. Implement active learning strategies
d. Conduct various kinds of evaluations regarding the learning process and outcomes (Abidin, 2005)

In conducting lecture activities, the procurement of a variety of teaching skills is also necessary for a lecturer, including the following:

a. Preparation for lessons or lectures
b. Implementation
c. Feedback (Rooijakkers, 2008)

Based on the results of the study, the lecturer's strategy in improving students' higher-order thinking abilities is to use strategies that lead to the thinking skills of Islamic religious education students:

3.2.1 Inquiry Learning Strategy

In conducting learning, the lecturer chose the inquiry learning strategy as the strategy that was deemed appropriate. The results of the interview conducted by Mrs. Bakti explained that:

> *Using this strategy, I hope that students will play an active role in lecture activities. Because before you implemented this strategy, students were only loyal spectators in lecture activities. Not infrequently students when given an assignment do not know the reason for not understanding the meaning of the assignment without any questions.*

The inquiry learning strategy is a series of activities that involve all student activities as a whole to search and investigate in a structured, logical, analytical way so that students can formulate their research(Anggareni et al., 2013; Warsah & Nuzuar, 2018, 2018). The following are characteristics of learning through open inquiry:

a. Formulate a problem
b. Develop and formulate hypotheses
c. Design and carry out activities to test hypotheses
d. Drawing conclusions (Ridwan Abdullah Sani, 2019).

3.2.2 Active Learning Strategy

In improving students' thinking skills, lecturers also use active learning strategies to make students have better thinking skills than they currently have. Students will show their abilities by developing and expressing their ideas. It is in line with the opinion of Mr. Abdul Rahman as a lecturer in Islamic education:

> *To improve the critical abilities of students in the Islamic religious education program, He taught students to think about their career in the future.*

In this learning strategy, the lecturer seeks to improve students' thinking skills. The application of this strategy makes students play an active role in every learning activity. An active learning strategy is a learning process that emphasizes good or bad grades and politeness that can be measured using reason. An active learning strategy can also be said as a plan from several activity designs using methods and the use of media that are arranged to achieve the previously planned goals (Al Masjid, 2016).

3.2.3 Problem Solving

Almost every lecturer applies this strategy. It is because, in problem-solving, students will learn to be more creative and independent in solving all existing problems. The solution in question is everything that is a problem for students in the learning process, either in planning or evaluating. It is in line with Mr. Deri's opinion regarding the problem-solving strategy as follows:

> *Learning by using problem-solving learning strategies will help students to hone their abilities, and when students will be directly involved in the teaching process, students can practice and not just theory. Students will also understand the world of work so they can prepare and solve problems that may arise.*

The same answer regarding problem-solving was conveyed by Mrs. Karliana as follows:

Because learning refers to problem-solving, students indirectly learn to make decisions. They are given problems; they go straight to the field and they make decisions from the problems they get.

There will be many obstacles that will be experienced by students if students are not trained in the lecture process regarding problem-solving. This problem arises because students only understand the theory, while in practice students are still confused. With the steps of problem-solving learning strategies, students will get used to themselves to solve the problems they experience. In the form of the problem-solving activity itself, a lecturer gives assignments or demands to go directly to the field to obtain and solve problems.

3.2.4 Brain Based Learning

Brain-based learning is a learning strategy that is quite effective in improving students' thinking skills. As expressed by Mrs. Bakti:

"*Improving students' logical thinking skills, mothers usually use brain-based learning.*"

The same answer was also conveyed by Mrs. Eka as follows:

"Requires students to cite journals and books as references in every assignment. In addition, the use of brain-based learning strategies will help students manage overall brain performance."

This strategy activates the students' left and right brain work. For this reason, learning does not focus on the delivery of lecturers but is student-centered. For this reason, in this BBL, there will be a learning environment that challenges thinking skills, a fun learning environment, and an active learning situation for students. This strategy activates the right and left brain work of students. Where learning does not focus on the delivery of lecturers but is student-centered. For this reason, BBL will later create a learning environment that challenges thinking skills, a fun learning environment, and an active learning situation.(Al'Azzy et al., 2013). Implement this strategy with the following steps (Rosidah, 2018):

a) Student orientation on problems
b) Organizing students in learning activities
c) There is guidance in both individual and group investigations
d) Student' work is presented in a developed way
e) Analysis and evaluation of problem-solving

Based on the results of the interview above, regarding the learning strategy, it was found that the strategy used by this Islamic religious education lecturer used a strategy that directed students to be active. In making students active, students' abilities can be improved. Students are required to search, find and manage information from various sources which conclusions with predetermined criteria. This effort made students accustomed to knowing their environment, so they can reflect on the surrounding environment. So that this learning is not said to be monotonous and has a direct effect on students by experiencing it directly by doing mini-research. The strategies above help students to find their identity through learning activities. With a good strategy, students will be able to compete with global competitors, especially Islamic religious education is a very important education for every Muslim individual.

3.3 Supporting and Inhibiting Factors of Lecturers in Implementing Strategies to Improve Higher Order Thinking Ability

3.3.1 Inhibiting Factor

The inhibiting factors or obstacles to the implementation of strategies in improving the HOT abilities of PAI students are as follows:

a. Low Student Thinking Ability

One of the reasons for this low thinking ability is that students are not accustomed to using their thinking skills so far. Students tend to be complacent with their comfort zone. It is in line with the statement of Mr. Deri as follows:

> *I think these students are less accustomed to thinking because when they only tend to imitate each other even if there are duties other students only copy their friends' tasks. It is the sort of thing that causes them to collapse if we're not firm with them and blow up a new blow.*

This skill is called lower-order thinking. It is this low student's thinking ability that causes the professor to seek full effort to change into higher-order thinking or higher thinking (Hayikaleng et al., 2016; Lewis & Smith, 1993; Tikhonova & Kudinova, 2015). This lower-order thinking was found at elementary - to middle-school levels that left most students without adequate thinking ability. It can be seen by Ari's team test and Pisa that place the lowest rating point. Thus it is understandable that our country can accomplish only the basic level issues that have been used often as tests and are unable to carry out the high levels of tests (Ridwan Abdullah Sani, 2019). Out of the homes above it was discovered that students were not accustomed to using their thinking abilities. They want only an instant result, so they tend not to feel the need to complete a task in the process.

b. Reading less

It's unfortunate about the underused students in reading books or journals. The university has given the tools and infrastructure. Reading is not a difficult activity, but with the lack of literature, it often becomes insecure when presenting his paper. In line with Mrs. Bakti's answer:

> *Indeed, the ability within the student is in their interest, if they intend to change themselves for the better by obtaining information by reading.*

Reading is said to be important in gaining knowledge. Even more so in the region education institutions should read taboo to implement. Advancing increasingly sophisticated educational technologies call for us to engage in reading. With readouts in technology such as phones, laptops, and so forth felt to be effective and accessible to students. Because of the sophistication of technology, it can find a lot of information and reliable sources to process a sense and data intact and correct (SP Christina, 2019). From the foregoing, it is known that a student's reading activity is limited. It is a vast bridge of science available to us from all over the media, but by choosing the right source information.

c. Lecturers always guide the student

To train students with ideas teachers should always guide students in meetings. This guidance may be performed by teaching, conferencing students according to professional competence, and consulting students who do need more guidance. It is equivalent to the results of the interview with Mrs. Karliana as follows:

> *In the learning process, it should be students with the initiative to do things that are their duty. But here lecturers must always direct students in every college activity.*

At university learning process should students be required to be active and creative to achieve the purpose of learning. Because making students a center student is expected to increase the overall learning result of the hard skills and the soft skills (Huriah, 2018). The supporting factors are seen in the implementation of strategies to improve the higher-order thinking abilities of PAI students. The internet network in the form of hotspot or wifi provided by the university has helped students to access information for free. And students use it to find and do the assignments given by the lecturer. It is equivalent to Mr. Deri's explanation as follows:

> *As we know, our campus internet service is free. So that students can use it optimally in obtaining the information they need. With free internet services through the portal.*

Internet service facilities are better than before if all internet service facilities use properly, it will have a positive impact on the development of knowledge or information obtained by students. There are many benefits from internet services. For this reason, the internet impacts information services, including access to scientific information that is readily available. It will contribute to the development of college teaching and research.

As a source of study, the library services are fully functional. Libraries are a resource that is part of an institution to optimize the learning process with various archived service functions (such as media services, training, and consultation for learning). As a learning resource center, the library provides a service for supporting a college process for each study program. It is in line with Mrs. Karliana's answer as follows:

> *The library is a highly functional college service. The library has a lot of information. The campus library has thoroughly inadequate students to find references from various books. Not only that, the library provides scientific work as a research reference that could serve as a guide for students*.

The library serves many information and knowledge such as books or e-books that we can find in almost any educational institution (Prastowo, 2018). For that, college literacy materials have provided adequate libraries, and good tools and infrastructure serve students with comfort in searching for knowledge or even information that is factual. Libraries as learning resources have also provided information on the development of science and technology used down through the ages. With the flow of time, the general information source of printing documents, we can now meet in digital form. So, the library on campus has provided ease with accessible e-library on the applications provided.

The curiosity that students have about new things is great. For this reason, lecturers can introduce various kinds of media and strategies that do not seem monotonous. For this reason, by introducing new products, students can increase their abilities. The introduction of new media can foster student motivation to know more about the latest media used in education. It is equivalent to Mr. Deri's statement as follows:

> *Using variations in learning can increase student interest in participating in learning. These variations will make students excited without always being guided by the lecturer*.

The use of selected language was of great importance. With proper language selection, a person will do well to communicate. This communication is vital in education. Good communication will have a positive impact on learning activities. It is equivalent to Mrs. Karliana's statement that:

> *Making a paper or an assignment is required to find references such as an article, a book, or other references*.

Their easy language would naturally stimulate their enthusiasm and interest in such creative activities, publishing articles.

4. CONCLUSION

Based on the results on lecturer strategies in improving the higher-order thinking abilities of Islamic religious education students, the strategies used are active learning, problem-solving, brain-based learning, and inquiry. The steps taken by the lecturer are maximizing students' abilities by giving assignments. The supporting factors are students' willingness, the existence of an internet network, library, and media services. Meanwhile, the inhibiting factors are students' lack of habit of using their abilities, lack of reading for journal and book. With this research, it is hoped that can be used as study material for other research in improving higher-order thinking abilities and future needs in the cognitive realm.

REFERENCES

Abidin, Z. (2005). Learning strategies in higher education (Optimizing lecturer performance in learning at the Faculty of Islamic Religion, University of Muhammadiyah Surakarta). 17(1), 75-85. *SUHUF, Journal of the Faculty of Islamic Religion* , *17* (1), 75–85.

Al Masjid, A. (2016). The Application of Affective Learning Strategies in the Upload-Upload Learning of Javanese Language in Elementary Schools. *Trihayu: Journal of Elementary Education* , *2* (2), 9–18.

Al'Azzy, Luthfiana, U., & Budiono., E. (2013). *"Application of Brain Based Learning Strategies that can Improve Higher Order Thinking Skills."* State University of Malang.

Andriawan, B. (2014). Identification of Logical Thinking Ability in Solving Mathematical Problems in Class VIII-1 Students of SMP Negeri 2 Sidoarjo. *MATHEdunesa* , *3* (2), 42–48.

Anggareni, NW, Ristiati, NP, & Widiyanti, NLPM (2013). Implementation of Inquiry Learning Strategy on Critical Thinking Ability and Understanding of Science Concepts for Junior High School Students. *Ganesha University of Education Graduate Program E-Journal* , *3* , 1–11.

Ardiyanti, Y. (2016). Students' critical thinking in problem-based learning is assisted by the key of determination. *JPI (Jurnal Pendidikan Indonesia)* , *5* (2), 193–202.

Arikunto, S. (1998). *Research Procedure A Practical Approach* . Rineka Cipta.

Azizah, R., Yuliati, L., & Latifah, E. (2015). Difficulty solving physics problems in high school students. *Journal of Research in Physics and Its Applications (JPFA)* , *5* (2), 44–50.

Baihaqi, M. (2016). *Introduction to Cognitive Psychology,* . PT Refika Aditama.

Ciesielska, M., Boström, KW, & hlander, M. (2018). Observation Methods. In M. Ciesielska & D. Jemielniak (Eds.), *Qualitative Methodologies in Organization Studies: Volume II: Methods and Possibilities* (pp. 33–52). Springer International Publishing. https://doi.org/10.1007/978-3-319-65442-3_2

Dahlan, D., Permana, L., & Oktariani, M. (2020). Teacher's competence and difficulties in constructing hots instruments in economics subject. *Educational Horizons* , *39* (1), 111–119. https://doi.org/10.21831/cp.v39i1.28869

Ministry of National Education. (nd). *Ministry of National Education Directorate General of Primary and Secondary Education Directorate of Education Personnel, Learning Evaluation* . 2.

Dwijananti, P., & Yulianti, D. (2010). Development of Students' Critical Thinking Skills Through Learning Problem Based Instruction in Environmental Physics Courses. *Indonesian Journal of Physical Education* , *6* (2), 108–114. https://doi.org/10.15294/jpfi.v6i2.1122

Erfan, M., & Ratu, T. (2018). Achievement of HOTS (Higher Order Thinking Skills) Students of the Physics Education Study Program FKIP Samawa University. *Journal of Physics and Technology Education* , *4* (2), 208. https://doi.org/10.29303/jpft.v4i2.831

Fadlan, A. (2010). Strategies to improve the skills of prospective teachers in implementing active learning through MEI (Modelling, Engaging, and Integrating). *Creative Journal : Journal of Basic Education* , *1* (1), 22–32.

Fuady, A. (2017). Reflective Thinking in Mathematics Learning. *JIPMat* , *1* (2). https://doi.org/10.26877/jipmat.v1i2.1236

Hamilton, AB, & Finley, EP (2019). Qualitative methods in implementation research: An introduction. *Psychiatry Research* , *280* , 112516. https://doi.org/10.1016/j.psychres.2019.112516

Hayikaleng, N., Nair, SM, & Krishnasamy, HN (2016). Thai students' L2 reading comprehension level for lower order thinking skills and higher order thinking skills questions. *Journal of Applied Linguistics and Language Research* , *3* (5), 83–91.

Herry Maurits Summampouw. (nd). *Development of Problem Solving Oriented E-Modules to Improve Students' Critical Thinking Skills* . *2* (1), 3.

Heryandi, Y. (2018). Problem Based Learning with Cognitive Conflict Strategy Improves Mathematical Critical Thinking Ability. *Eduma: Mathematics Education Learning and Teaching* , *7* (1), 93–108.

Huberman, M., & Miles, MB (2002). *The Qualitative Researcher's Companion* . SAGE.

Huriah, T. (2018). *Student Center Learning Method; Applications in Nursing Education*. Prenadamedia

Group.
Jonner, H. (2008). The Urgency of Information Literacy in Competency-Based Curriculum at Jonner Hasugian College, Library Science Study Program. *Pustaha : Journal of Library and Information Studies* , *4* (2), 34–44.
Karolina, A. (2018). The Implementation of Brain Based Learning to Improve Students' Critical Thinking Ability in Islamic Education Philosophy Course in PAI Study Program STAIN Curup. *Scholar: Journal of Education and Society* , *16* (1), 189–222. https://doi.org/10.21154/cendekia.v16i1.1265
Knox, S., & Burkard, AW (2009). Qualitative research interviews. *Psychotherapy Research* , *19* (4–5), 566–575. https://doi.org/10.1080/10503300802702105
Kusnawa, WS (2011). *Taxonomy of Thinking*.
Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory into Practice* , *32* (3), 131–137.
Lisnawati, S., & Makarim, C. (2017). Analysis of the Practice Ability of Classroom Action Research of Students of the Islamic Education Study Program. *Proceedings of LPPM UIKA Bogor* , 119=130.
Murtianto, YH, & Harun, L. (2014). Development of Middle School Mathematics Learning Strategies Based on Metacognitive Approach in View of Student Self-Regulation. *Axiom* , *5* (2), 76–92.
Mustapa, K. (2014). *The Influence of Learning Strategies on Higher Order Thinking Skills* . *2* (4), 348–357.
Nasriadi1, A. (2016). Reflective Thinking of Junior High School Students in Solving Mathematical Problems Judging from Differences in Cognitive Style. *Journal of Chemical Information and Modeling* , *III* (1), 1689–1699. https://doi.org/10.1017/CBO9781107415324.004
Nindiasari, H., Kusumah, YS, Sumarmo, U., & Sabandar, J. (2014). Metacognitive Approach To Improve Mathematical Reflective Thinking Ability of High School Students. *Educentric* , *1* (1), 80. https://doi.org/10.17509/educentric.v1i1.136
Nugroho, EW, Warsah, I., & Amin, M. (2020). The Role of Extra-Campus Organizations in Improving Students' Communication Skills. *Journal of Da'wah and Communication* , *5* (2), 205–224. https://doi.org/10.29240/jdk.v5i2.2156
Owen, G. (2014). Qualitative Methods in Higher Education Policy Analysis: Using Interviews and Document Analysis. *The Qualitative Report* . https://doi.org/10.46743/2160-3715/2014.1211
Pamungkas, AS, Setiani, Y., & Pujiastuti, H. (2017). The Role of Early Knowledge and Mathematical Self Esteem on Students' Logical Thinking Ability. *Kreano, Journal of Creative-Innovative Mathematics* , *8* (1), 61–68. https://doi.org/10.15294/kreano.v8i1.7866
Panjaitan, MO (2011). Ability of the Curriculum Development Team to Design Learning and Assessment Activities That Develop Complex Thinking Skills (A survey of TPK in 4 districts). *Journal of Education and Culture* , *17* (5), 491. https://doi.org/10.24832/jpnk.v17i5.44
Prastowo, A. (2018). *Learning Resources and Learning Resource Center; Theory and Its Application in Schools/Madrasah*. Kencana.
Purwanto, A. (2012). Logical Thinking Ability of Students of Sma Negeri 8 Bengkulu City By Applying Guided Inquiry Model in Physics Learning. *Exacta* , *10* (2), 133–135.
Rooijakkers, Ad. (2008). *Teaching Successfully Instructions for Planning and Delivering Teaching* . PT. Gramedia.
Rosidah, CT (2018). Application of Problem Based Learning Model to Develop Higher Order Thinking Skills for Elementary School Students. *Inventa* , *2* (1), 62–71. https://doi.org/10.36456/inventa.2.1.a1627
Rozi, F., & Hanum, CB (2019). Hots-Based Elementary Science Learning (Higher Order Thinking Skills) Responding to Learning Demands in the 21st Century. *National Seminar on Basic Education, State University of Medan* , *1* (4), 246–311.
Sani, R. A. (2019). *Pembelajaran Berbasis HOTS (Higher Order Thinking Skills)*. Tira Smart.
Santoso, H., & Sos, S. (2015). Development of critical and creative thinking of librarians in writing scientific papers. *Journal of the State University of Malang. Pg* , 1–17.
Sari, E. (2021). Evaluation of the Kirkpatrick Model-Based Performance Examination Training Program

at the BPK RI Education and Training Center. *Raflesia Journal of Vocational Education* , *1* (2), 20–31.

Shanti, WN, Sholihah, DA, & Martyanti, A. (2017). Improve critical thinking skills through problem posing. *LITERATURE (Journal of Educational Sciences)* , *8* (1), 48–58.

Simorangkir, FMA (2016). The Effect of Social Media Use on Students' Creative Thinking Ability in Mathematics Learning. *MBP Scientific Journal* , *4* (1), I–91.

Siswono, TYE (2010). Evaluating Students' Mathematics Learning Outcomes in Creative Thinking. *National Seminar Papers for PIMNUS … .*

Slamet. (2003). *Learning and the Factors That Influence It* . Rineka Cipta.

Smith, R., & Smith, L. (2018). Qualitative methods. In *Research Methods in Human Rights* . Routledge.

SP Christina. (2019). *Teaching Reading is Easy*. CV Alaf Media.

Sucipto, S. (2017). Development of Higher Order Thinking Skills Using Metacognitive Strategy Problem Based Learning Model. *Journal of Education (Theory And Practice)* , *2* (1), 77. https://doi.org/10.26740/jp.v2n1.p77-85

Sumampouw, HM (2011). *Metacognitive Skills and Higher Order Thinking in Genetic Learning (Concept Articulation and Empirical Verification) . 1986* , 23–39.

Syafa'ah, K., & Handayani, L. (2015). *Development of Metacognitive Self-Assessment to Measure Evaluation Thinking Skills in Reading Science Texts in English* (p. 44).

Syawahid, M. (2015). Student's Formal Thinking Ability. *Beta* , *8* (2), 125–141.

Tikhonova, E., & Kudinova, N. (2015). Sophisticated thinking: Lower order thinking skills. *Event Conference: 2nd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM*.

Wahid, AH, & Karimah, RA (2018). Integration of Higher Order Thinking Skills (HOTS) with Creative Problem Solving Models. *Modeling: Journal of the PGMI Study Program* , *5* (1), 82–98.

Wahyuni, ED (2018). Factors Causing the Level of Saturation of Learning Islamic Religious Education (PAI) in the Pgsd Department at the Balitar Islamic University. *Constructivism: Journal of Education & Learning* , *10* (2), 158–159. https://doi.org/10.30957/konstruk.v10i2.509

Warah, I. (2020). Religious Educators: A Psychological Study of Qur'anic Verses Regarding al-Rahmah. *AL QUDS : Journal of the Study of the Qur'an and Hadith* , *4* (2), 275–298. https://doi.org/10.29240/alquds.v4i2.1762

Warsah, I., Morganna, R., Uyun, M., Hamengkubuwono, & Afandi, M. (2021). The Impact of Collaborative Learning on Learners' Critical Thinking Skills. *International Journal of Instruction* , *14* (2), 443–460.

Warsah, I., & Nashori, F. (2021). MODEL OF EVERYONE IS A TEACHER HERE: SOLUTION TO BUILD UP STUDENTS' SELF-CONFIDENCE. *Journal of Integrative Psychology* , *8* (2), 1–17. https://doi.org/10.14421/jpsi.v8i2.2061

Warsah, I., & Nuzuar, N. (2018). TEACHER ADMINISTRATIVE INNOVATION ANALYSIS IN IMPROVING THE QUALITY OF LEARNING (STUDY OF MAN REJANG LEBONG). *EDUKASI: Journal of Religious and Religious Education Research* , *16* (3), Article 3. https://doi.org/10.32729/edukasi.v16i3.488

Widodo, T., & Kadarwati, S. (2013). Higher Order Thinking Based Problem Solving To Improve Student Character Building Oriented Learning Outcomes. *Educational Horizons* , *5* (1), 161–171.

Wulandari, NPR, Dantes, N., & Antara, PA (2020). Open Ended Based Realistic Mathematics Education Approach to Students' Mathematical Problem Solving Ability. *Elementary School Scientific Journal* , *4* (2), 131–142.