Islamic Religious Education (PAI) Learning Assessment Based On Higher Order Thinking Skills (HOTS) At SMK Muhammadiyah 5 Jember

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Abstract

Teachers' lack of understanding of the HOTS assessment concept and how to integrate it into learning assessment is a crucial problem that needs to be resolved. This research reveals the HOTS-based PAI learning assessment implementation at SMK Muhammadiyah 5 Jember. The aim is to explore and evaluate the effectiveness of using HOTS in assessing Islamic religious education (PAI) learning at this institution. Using a qualitative phenomenology-type approach involving observation, interviews, and document study. The research results show that 1). The formulation of learning objectives uses learning achievement (CP) references developed in learning objectives with high-level thinking indicators. 2). Assessment instruments are carried out by student competencies. 3). Use of a problem-based learning model (Problem-Based Learning) which was developed with several types of innovative learning strategies. 4) Creative tasks can improve high-level thinking skills as demonstrated by the behavior of appreciating explanations, being able to interpret actual problems, and generating new ideas by thinking critically and creatively.

Keywords: Assessment, PAI Learning, Higher Order Thinking Skills (HOTS)

Abstrak

Kurangnya pemahaman guru terhadap konsep penilaian berbasis *HOTS* dan cara mengintegrasikannya dalam penilaian pembelajaran menjadi masalah krusial yang perlu diselesaikan. Penelitian ini mengungkap implementasi penilaian pembelajaran PAI berbasis *HOTS* di SMK Muhammadiyah 5 Jember, adapun tujuannya untuk mengeksplorasi dan mengevaluasi efektivitas penggunaan *HOTS* dalam penilaian pembelajaran pendidikan agama Islam (PAI) di lembaga tersebut. Dengan menggunakan pendekatan kualitatif jenis fenomenologi yang melibatkan observasi, wawancara dan studi dokumen. Hasil penelitian ini menunjukkan bahwa 1). Perumusan tujuan pembelajaran menggunakan acuan capaian pembelajaran (CP) yang dikembangkan pada aspek tujuan pembelajaran dengan menyisipkan indikator berfikir tingkat tinggi. 2). Instrumen penilaian yang dilakukan sesuai dengan kompetensi peserta didik dalam

memetakan kekuatan dan kelemahan berpikir tingkat tinggi, mengingat setaip peserta didik memiliki kemampuan yang berbeda-beda . 3). Penggunaan model pembelajaran berbasis masalah (*Problem Based Learning*) yang dikembangkan dengan beberapa inovasi jenis strategi pembelajaran memungkinkan peserta didik mengembangkan keterampilan berpikir tingkat tinggi dan siap menjadi lulusan yang mempu menghadapi tantangan abad 21. 4) Penugasan kreatif mampu meningkatkan kemampuan berfikir tingkat tinggi, yang ditunjukan dengan perilaku respek peserta didik terhadap penjelasan, dapat menafsirkan masalah aktual dan memunculkan ide baru dengan pemikiran yang kritis dan kreatif. Hasil dari penugasan kreatif dapat memberikan gambaran kemampuan berpikir tingkat tinggi dan kreativitas peserta didik.

Kata Kunci: Penilaian, Pembelajaran PAI, *Higher Order Thinking Skills (HOTS)*

Introduction

Instilling critical thinking in students is an urgent matter that needs to be a priority for educators, especially in Islamic religious education learning. Considering that religious education has an important role in forming character and morals. By improving the quality of learning, it can help build critical thinking skills in students' learning activities.[1] Based on the data, it shows that 45% of students have low critical thinking skills, this is due to a lack of development in the aspects of critical thinking indicators. Furthermore, critical thinking skills in Indonesia are an important problem and must be addressed.[2] If students have critical thinking skills, they will be better able to master the concepts and problems they face in learning and in everyday life.[3]

The research that has been carried out regarding *higher-order thinking Skills (HOTS) is* more focused on three main discussions. *First*, implementation-based Learning *Higher Order Thinking Skills (HOTS)*. *Second*, module and question-based development *Higher Order Thinking Skills (HOTS)*. These studies focus more on developing question-based instruments, modules, and applications of *higher-order thinking Skills (HOTS)*. *Third*, based learning evaluation *HOTS*.[4] From several of these studies, discussions about learning-based assessment are discussed *Higher Order Thinking Skills (HOTS)* It has not yet been researched, even though this assessment will help teachers evaluate learning outcomes and refine scientific ideas in the aspect of students' critical thinking abilities.

This research aims to explore and develop PAI-based learning assessment methods and instruments of *Higher Order Thinking Skills (HOTS)* towards improving the quality of learning that is deeper and more relevant for students. Seeing that the quality of education is still low provides a lot of evaluation of the learning that was implemented previously.[5] Thus, it is hoped

that this research can contribute to the development of sustainable Islamic religious education.

This research is based on the importance of PAI-based learning assessment *of higher-order thinking Skills (HOTS)* in schools, considering that not all teachers can implement this type of assessment.[6] This shows that there is a demand for teacher expertise in planning and implementing learning that encourages the development of higher-level thinking abilities. Teachers tend to experience difficulties in preparing based assessments *I MEAN* which is appropriate to the student's cognitive level so that it has an impact on the level of critical thinking skills and lack of students' analytical skills.[7] This tendency is the basis for PAI-based learning assessment *Higher Order Thinking Skills (HOTS)* This needs to be explored and developed, both methods and assessment instruments, especially in PAI learning. Thus, this assessment has the potential to improve students' high-level thinking processes in Islamic religious education subjects.

Method

This research uses a qualitative approach, which is a study that investigates and interprets the meaning of certain situations that are the source of a social problem.[8] The researcher chose a qualitative method of the phenomenology type to study phenomena with data explored, understood, and then analyzed in depth to reveal teachers' readiness to carry out "based assessment *Higher Order Thinking Skills (HOTS)"* in the context of PAI learning which is still crucial to be discussed.[9]

Based on how it was obtained, the data in this research is primary data obtained from interviews obtained from participant informants, namely teachers in Islamic religious education to provide information related to assessment-based *Higher Order Thinking Skills (HOTS).* Secondary data was obtained from document media that already existed at the institution according to the researcher's needs.[10] Data collection techniques in this research include observation, interviews, and documentation.[11] Researchers conducted data mining with school principals, teachers, and students at the institution through interviews, observation, and documentation. The observation carried out was a type of passive participant observation, where the researcher was not directly involved in the activity being observed.[12] The analysis technique used in this research involves several stages, data reduction, data display, and conclusion drawing.[13] After the data is collected, the validity of the data is tested

through data triangulation involving several sources and techniques.

Results and Discussion

PAI teachers must be able to inspire students to understand and apply Islamic religious beliefs through critical, analytical, and creative thinking.[14] PAI learning seeks to develop personality and noble qualities through Islamic teachings, in addition to instilling religious knowledge in students. It is important to include higher-order thinking skills *(I mean)* into PAI learning so that students can apply Islamic teachings to analyze, evaluate, and solve problems in real life in addition to memorizing religious ideas.[15] Thus, the implementation of HOTS-based PAI learning assessment is expected to have an impact on increasing students' abilities in their learning activities.

Formulation of Learning Objectives

Formulating learning objectives is an important first step in creating teaching materials and designing effective learning activities. From this stage, the teacher can know what and how to determine the next step. The formulation of learning objectives can be a guide in choosing the type of media, strategies, methods, and materials that will be used in the learning process. By formulating good learning objectives, teachers can ensure that learning will run effectively and students'

competencies will be achieved as expected.[16] Without specific goals, learning will lose its purpose and turn into a directionless activity.

Formulation of learning-based objectives *Higher Order Thinking Skills(HOTS)* in the independent curriculum at SMK Muhammadiyah 5 Jember focuses on cognitive development for critical, logical, and systematic thinking. Teachers are required to be able to formulate learning-based objectives *for higher-order thinking Skills(HOTS)* with the aim that students can think more complexly and can become a reference when they are involved in elements of society.[17] In this way, it is hoped that it will be able to produce graduates who have 21st-century skills, namely graduates who can think critically, creatively, and innovatively, and have character, competence, and literacy so that the nation's next generation is ready to face the

challenges of a more modern life.

Figure 1. Concept Of Learning In The Independent Curriculum

The results of observations of the PAI teacher teaching module at SMK Muhammadiyah 5 Jember, show that

learning objectives occupy a position that determines the next learning steps. This is because the formulation of learning objectives is considered an effective spearhead in carrying out teaching and learning activities in the classroom. This serves as a reference for all components that make up the instructional design in the learning that will be carried out in class. Learning objectives function as guidelines and means of assessment for teachers to develop students' abilities as expected.[18] Thus, careful and comprehensive learning formulation is the key to achieving optimal learning outcomes.

Based on the results of interviews with PAI teachers at SMK Muhammadiyah 5 Jember, it was explained that students' abilities, obstacles, and solutions also need to be considered in formulating learning objectives. This refers to the principle of formulating learning objectives containing several elements, namely ABCD *(audience, behavior, condition & degree)* or audience, behavior, situation, and standards. This principle is closely related to the implementation of classroom learning.[19] Therefore, the needs of students, learning materials, and the teacher himself are very determining in determining learning objectives.

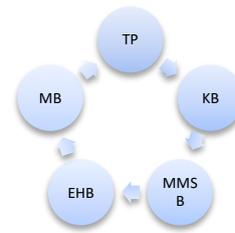The component structure in formulating learning objectives is as follows:

Figure 2. Process of Formulating Learning Objectives

As per the picture above, formulating learning objectives is the first step that needs to be designed by the teacher. Learning objectives that are formulated and will provide benefits are as follows:

a. A teacher's ability to plan learning, apply methods, and design learning plans that can help students achieve their learning goals.

b. Students can determine priority learning goals and manage their time well.

c. Test instruments can be prepared by evaluators by the learning objectives created for students.

As for formulating learning objectives, you also need to pay attention to the following matters, as follows:[20]

a. *Leraner Oriented* is the foundation of leraner-oriented education. Thus, students' words must be written clearly in the formulation. Furthermore, the behavior being evaluated must be something that students can do, not something they cannot do.

b. *Operational,* The formulation of learning objectives must be specifically designed and targeted. Using the right verb can also influence because using words that are still general allows for many meanings and interpretations to emerge.

c. Formula ABCD *(audience, behavior, condition & degree)*

As explained in, namely: 1) Audience component, which is one of the elements of learning objectives as an object that carries out learning activities. With this audience, it can be seen who is taking part in the series of learning processes that will be followed. For example: students, trainees, teachers, etc. In this case, students. 2) Behavioral component, this component focuses on specific behavior possessed by students which is used by teachers to consider the formulation of learning objectives.[21] Behavior shows the domain aimed at learning. Therefore, the position of behavior is very important in the formulation of learning objectives. 3) Components *Conditions*, learning conditions, and facilities are also some of the elements that teachers need to consider in formulating learning objectives. By considering the conditions of the students, teachers will be better able to choose the materials, methods, strategies, and facilities needed during learning.[22] For example, materials and strategies that are not in sync with students' conditions will also have the effect of not achieving learning objectives that are in line with expectations. 4) *Degree*, is one of the elements in considering the expected level of success of students in completing a learning objective.[23]

PAI teachers at SMK Muhammadiyah 5 Jember formulate learning objectives in teaching modules by CP (learning outcomes) and continue to adapt the material to the needs of the students themselves. This was obtained from the results of an interview with Mrs. Sabila as a PAI teacher. According to him, learning without formulating learning objectives will make teaching and learning activities directionless. Formulating learning objectives using elements of the ABCD formula can make learning objectives more specific.[24] So in its implementation, a formulation with clear objectives will help teachers observe students' thinking processes and evaluate the effectiveness of the learning process.

The formulation of learning objectives does not happen immediately without effort from the teacher as an educator. The findings from this research reflect that PAI teachers have implemented the formulation of learning-based objectives *Higher Order Thinking Skills (HOTS).* This was reflected in the statement made by the Principal who explained that in its

implementation, teachers at SMK Muhammadiyah 5 Jember were included in socialization activities for the independent curriculum using an alternating system, including PAI teachers. Judging from the formulation of learning objectives in the teaching module, there is an ABCD formula contained therein. So that in its implementation teachers can see the different levels of thinking of students.

Development of Assessment Instruments

Assessment instruments are a reference used by educators in measuring the level of success of students' learning processes.[25] Development of based assessment instruments *Higher Order Thinking Skills (HOTS)* requires careful and careful planning. The teacher's ability as an evaluator of student learning outcomes has an important role in providing feedback on student learning outcomes.[26] The teacher's function as an evaluator can consist of aspects of evaluating students' active, cognitive, psychomotor, and affective activities. Therefore, teachers play an important role in developing students' potential.

Instrument is the key held by a teacher in making decisions. An evaluation instrument is a tool used in the data collection process that is used as a basis for analysis and a tool for decision-making.[27] In line with Mr. Safridzal's statement as a Class X PAI teacher who explained that, by holding evaluation activities, teachers can estimate the results of the learning objectives that have been designed.

In general, assessment is carried out in 2 types, namely test instrument assessment and non-test assessment.[28] However, there are still many teachers who pay little attention to the use of non-test aspects. The results of the student's learning process are not only supported by the aspect of the student's cognitive assessment. However, it also requires non-test assessments for students' affective and psychomotor aspects in contextual problems. After teachers evaluate the test questions, their evaluation findings are modified and used as a series of limited trials. Limited trial instruments will be provided from changes to the final product related to the operationalization of the assessment-based tool *Higher Order Thinking Skills (HOTS)* tested in the field.

This research revealed that the practice of developing PAI teacher assessment instruments at SMK Muhammadiyah 5 Jember, at the design stage of the non-objective description test instrument, was carried out in 4 steps:[29] Designing test guidelines, compiling test questions, reviewing test questions, and

perfecting tests. In this research, the test used is a formative test. The purpose of this formative test is to classify the average results of students' understanding of the concept of learning objectives. [30]Based on the Minister of Education and Culture of the Republic of Indonesia Regulation No. 104 explained that formative assessment functions to correct deficiencies in student learning outcomes in the form of attitude, knowledge, and skill competencies during one semester's learning activities. Therefore, formative assessment has an important role and will have an impact on practice, discussions, and student learning outcomes.

Characteristics of based assessment instruments *Higher Order Thinking Skills(HOTS)* among others*: [31] a.)* Assessing higher order thinking skills, these abilities include problem-solving skills (*problem-solving*), creative thinking (*creative thinking*), critical thinking skills(*critical thinking*), arguing (reasoning), and taking a stand (*decision making*); b.) Provide contextual problems, problem-based *Higher Order Thinking Skills (HOTS)* allow it to still be applied to problems in everyday life, and c.) Uses various types of questions, there are several types of tests *Higher Order Thinking Skills (HOTS)* can be used including multiple-choice, complex multiple-choice, short description, and description. Steps for preparing questions based on *higher-order*

thinking Skills (HOTS) among others *:[32]* a.) analyzing learning outcomes (CP) which are usually made for question instruments *I MEAN* adapted to the material and student needs. b.) compose a grid of questions. c.) choosing an interesting stimulus for contextual trigger questions. d.) arrange the questions according to the grid. e.) create an assessment rubric.

The thinking process includes the following aspects, according to Bloom's taxonomy:[33] cognition (K1), understanding (understanding-K2), application (K3), analysis (analysis-K4), evaluation (evaluation-K5), and creation (doing-K6). Aspects of thinking Cognitive level 1 (low thinking skills/LOTS), cognitive level 2 (medium thinking skills/MOTS), and cognitive level 3 (high thinking skills/HOTS) are divisions of C1 and C2. Analysis (C4), namely the ability to dissect an idea into its component elements and connect them to form a larger idea, evaluating (C5) refers to the capacity to ascertain how something is measured to reach certain benchmarks and standards while creating (C6) refers to the ability to unite separate parts to produce a complex, original whole.

In implementing critical thinking, the assessment aspect is more about analysis (C4), evaluating (C5), and creating (C6).

Figure 3 Aspects of Critical Thinking Indicators

From the picture above, it can be concluded that Bloom's theory classifies several competencies that must be achieved in learning. Organizing student competencies in the independent curriculum is more flexible.[34] So that it can make it easier for teachers as educators to better consider what type of test instruments are needed by students according to school conditions.

Based on the results of observations, the Islamic religious education learning process at SMK Muhammadiyah 5 Jember carries out assessments that do not only involve written test assessments. Teachers use more non-test assessment instruments. This is based on the considerations of the teacher who states that the abilities of students are different. So teachers choose to consider the various materials, methods, and strategies used to carry out assessments. Test and non-test techniques are an inseparable unit.

By implementing the concept of independent learning and 21st-century skills, practical implications are used by teachers in developing assessment-based instruments *Higher Order Thinking Skills (HOTS)* when assessing students, it reflect creative assessment and can improve students' critical thinking patterns. This is based on the results of PAI teacher interviews which explain that teachers prepare assessment instruments using a package model. This type of preparation is still adjusted to the student's abilities and learning material needs. In preparing the assessment instrument, it can be explained, among others: a). instrument question package one, namely questions with a low level of difficulty, and the points obtained by students only match the criteria for completing the learning objectives (KKTP) in the independent curriculum. b). question instrument package two, the question instrument has a weighted value of medium-level difficulty and the value is adjusted to the level of difficulty of the questions. c). instrument question package three, the weight of the instrument questions in this package has a high level of difficulty. This is adjusted to the points that will be obtained by students.

Furthermore, to prevent students from getting confused when working, the teacher's learning plan gradually inserts several elements of questions by applying high-level thinking skills.[35] Analysis is the highest level included by educators in the

assessment instrument. This shows that the teacher has made a learning plan that inspires students to think critically. When the administration is complete and appropriate, the PAI teacher prepares media to assist learning. Apart from that, PAI teachers provide assessments and assignments in each chapter which refer to the question instrument I mean to encourage students' thinking to a higher level.

From the results of the interview with Mrs. Sabila as a PAI teacher, it was stated that with the package question instrument model, a teacher would indirectly know the differentiating power of the question instrument. Differentiating power is a tool for sorting students who have low, medium, and high thinking.[36] The implications of this type of assessment instrument can be further developed with an odd-even type of instrument. Items developed can include the skills of observing, classifying, concluding, and creating. The scores obtained by the teacher can then be categorized into three, namely high, medium, and low scores.[37] The development of assessment instruments that have been implemented at SMK Muhammadiyah 5 Jember can be a plus point in students' thinking processes with learning-based assessments. *Higher Order Thinking Skills(HOTS),* which is still adjusted

to the aspects in the student's report card. So that the teacher's efforts in developing students' higher-level thinking skills increase in development.

Problem-Based Learning

The ability to think critically is one of the challenges in the learning process. Several weaknesses in learning, such as the dominance of the lecture method and the rare use of learning models, have an impact on students' abilities.[38] Students will be more passive and less likely to express their reasoning in conventional learning. On the other hand, 21st-century education places more emphasis on higher-order thinking skills *(mean)* rather than just understanding the subject.[39] Therefore, teachers as facilitators can design student learning activities by providing contextual and varied problems to students to make them use their analytical and critical thinking skills.[40]

One of the learning models applied at SMK Muhammadiyah 5 Jember is problem-based learning *(problem-based learning).* Presenting complex problems will provide a thinking stimulus for students to analyze problems solve them systematically and generate new ideas.[41] This allows students to play with ideas, cooperate, and be logical and systematic. Therefore, this problem-based learning model can be used as a basis for developing learning strategies.

Problem-based learning model *(problem-based learning)* is a learning model that uses problems as a starting point in collecting and integrating new knowledge. This is because it utilizes contextual problems as a framework for thinking to teach students to solve problems, provide knowledge, and develop their critical thinking and problem-solving abilities.[42] The main goal of problem-based learning *(problem-based learning)* is to combine students' cognitive and metacognitive abilities. This means that in the learning process, students are directed to think critically and use higher-level thinking. Therefore, students who have received metacognition training will be able to think critically and systematically. In other words, students know exactly how the process works and think about a problem until they can understand and find a solution.

There are five phases in implementing problem-based learning *(Problem Base Learning),* the steps include:[43] a.) introduce students to the problem, b.) organize students to research, c.) Support individual and group investigations, d.) Create and display work results. e.) Check and assess the problem repair process. The problems that exist are problems that exist in the real world.

In its implementation, the learning model is problem-based *(problem-based learning)* at SMK Muhammadiyah 5 Jember does not only focus on problem-solving. However, problem-based learning is also intended to develop students' independence and social skills.[44] From the results of an interview with Mr. Safridzal as a class Moreover, the implementation of Islamic religious education subjects will be more necessary when they are in the social environment of society. Therefore, through the problem-solving process and discussion process in learning, students' knowledge can be consolidated, which was initially only formal and limited knowledge, becoming more complex and critical. Furthermore, Mr. Safridzal also explained that the level of student activity in implementing problem-based learning in the classroom had increased. This is reflected in the implementation of diagnostic assessments and the presentation of various problems so that the reasoning potential of each student can develop well. This problem-based learning model is also intended to analyze students' abilities towards social problems and students' critical thinking abilities.

One of the interesting findings from the research is that in solving *problems* presented by teachers, students ' problems are also integrated with the use of technological knowledge. In its implementation, students are required to solve problems by making problem-solving

videos. So that the points of the problem are presented virtually, creating a more realistic and interactive problem scenario. Social media and internet platforms also help students collaborate and discuss. Later, the results of the videos they work on will be uploaded on social media as a school promotion strategy that can attract students' literacy interest from the mass media.

Creative Assignment

Creative assignments are a learning strategy designed to improve students' critical thinking abilities. In this context, teachers need to think about a more diverse and holistic assessment process, covering a wide range of student abilities, encouraging critical thinking, and helping the development of skills that can be applied in everyday life.[45] Therefore, development in terms of assessment also needs to be carried out by teachers to increase students' creativity and interest in expediting the learning process.

Some examples of creative assignments that have been implemented by PAI teachers at SMK Muhammadiyah 5 Jember include a. Multimedia Presentation, in this case, the PAI teacher gives assignments such as making videos of buying and selling practices, zakat, caring for corpses and materials that are appropriate to the type of creative assignment. b.

Collaborative Projects, working together in groups such as collaborating on case studies and designing creative solutions to current issues. Through an interesting approach and active participation of students, creative assignments like this can increase students' creativity, problem-solving abilities, and conceptual knowledge.

As explained by the PAI teacher at SMK Muhammadiyah 5 Jember, creative assignment activities are one solution as a forum for developing students' potential. Students who tend to be passive will be more able to express themselves in assignments according to their potential. This is because creative assignments are intended to enable students to think higher and solve problems with more complex solutions. This is in line with the results of interviews with class X-TJKT II students who stated that with creative assignments, they were able to come up with new ideas in the problems given by the teacher. Apart from that, students are also able to express learning styles according to their interests and abilities. However, the implementation of this type of assignment is only applied to a few sub-materials.

Several examples of creative assignments to develop students' critical thinking skills include: a). Developing innovative solutions, b). Developing problem-based products, c). Developing

arguments, d. Develop analysis and evaluation. Giving creative assignments to students has a quite significant positive impact. This is based on the statement of Mrs. Sabila as a PAI teacher who explained that giving a variety of assignments, provides a level of activity and creativity for students. The progress that students make will also have an impact on the quality of learning in class.

Conclusion

The use of based assessment is very important in learning, especially in PAI learning. This is because not all teachers have the ability to implement HOTS-based assessments, even though this ability will have a significant impact on students. With this learning assessment, teachers can use various assessment strategies and techniques that encourage students to think critically, analytically, and creatively. The results of the research show that PAI teachers at SMK Muhammadiyah 5 Jember, PAI-based assessments *Higher Order Thinking Skills (HOTS)* are 1.) Teachers relate learning objectives to real-world contexts that can encourage students to use higher-order thinking skills, critical thinking, problem-solving, creative thinking, and decision-making. 2.) The HOTS assessment instrument combines various types of questions, such as descriptions, case studies, projects, or performance, which allows students to demonstrate high-level thinking abilities comprehensively. 3.) The teacher as a facilitator guides students in the learning process and provides feedback to improve students' high-level thinking abilities. 4.) HOTS-based creative assignments can increase student motivation and involvement in the learning process, as well as foster self-confidence and independence in learning. It's just assessment-based *I MEAN* This is only given on certain materials in implementing various assessment techniques, including case studies, projects, presentations, and collaborative projects. Overall, the results of this research can contribute in the form of insight and innovation to the development of science and skills in the 21st century, but there are still limited informants provided by researchers. So that future researchers should be able to develop this research.

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