



Trends in The Development of Evaluation in Mathematics Learning

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Abstrak

Perkembangan evaluasi pembelajaran ditentukan oleh perubahan kurikulum pembelajaran matematika secara langsung dan perubahan kurikulum nasional secara tidak langsung. Penelitian ini merupakan penelitian studi *literature* yang bertujuan untuk menggambarkan *trend* evaluasi dalam pembelajaran matematika. Evaluasi pembelajaran matematika saat ini mengakomodir ketiga aspek kemampuan siswa yaitu, sikap, pengetahuan dan keterampilan serta penilaian komponennya mulai dari input-proses-output. Evaluasi pembelajaran matematika ke depan juga masih akan menerapkan penilaian autentik.

Kata Kunci

Evaluasi pembelajaran matematika, kurikulum, penilaian autentik

Abstract

The development of learning evaluation is determined by changes in the mathematics learning curriculum directly and changes in the national curriculum indirectly. This research is a literature study that aims to describe the trend of evaluation in mathematics learning. The evaluation of mathematics learning currently accommodates the three aspects of students' abilities, namely, attitudes, knowledge and skills as well as the assessment of its components starting from the input-process-output. Evaluation of mathematics learning in the future will also still apply authentic assessment.

Keywords

Evaluation of mathematics learning, curriculum, authentic assessment

Introduction

The purpose of national education in (No, 20 C.E.) regarding The purpose of the national education system is to train students to become reliable individuals, fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative and independent, and become democratic and responsible citizens to achieve national education goals, teachers and the school academic community design learning (PeranginAngin, 2021).

Learning is a process used to direct students with conditions to help achieve optimal learning targets (Nitko & Brookhart, 2007); (Suherman, 2003); (Martiyono & Berdasarkan, 2012). In learning, teachers have an important role in conditioning the environment to support behavior change for student (Darmadi, 2010). According to (Pendidikan & Nomor, 2013) about the standard process starting from the preparation of RPP Implementation of the learning process and evaluation of learning outcomes.

Z. Arifin, (2009) assessment is an activity that provides continuous and comprehensive information about the process and results achieved by students in acquiring skills, attitudes, and knowledge. Based on (Payong, 2011) assessment is the teacher's task in learning, namely: assessing the learning process and as a result, appropriate assessment tools are used to measure student learning progress comprehensively. This assessment of learning outcomes is generally referred to as evaluation, although there are hierarchical differences. This paper will describe the development trend of mathematics learning evaluation in the past, present, and future.

Method

This research is a literature study that aims to describe the trend of evaluation development in mathematics learning. This research procedure is carried out by examining the forms of evaluation of mathematics learning from year to year. It is hoped that this article can be a reference for researchers who will conduct research in the field of evaluating mathematics learning.

Results and Discussion

Results

In learning mathematics first, educators focused on assessing knowledge test results. The form of assessment that focuses on assessing students' knowledge is the holding of a national exam (UN) and this UN score is a determinant of student graduation. Attitude and skill components are complementary to past assessment systems. Evaluation in mathematics learning in the past was not much different from general education evaluation. Mathematics learning in the classroom is designed only to develop students' cognitive knowledge. This is due to the philosophical view and the nature of mathematics itself. In the past mathematics was an arithmetic science that only relied on the work of the mind and cognition.

The development of mathematics education assessment is currently in line with changes in the national education curriculum. The 2013 scientific-based national education curriculum, integrates the components of attitudes, knowledge, and skills in one assessment. Evaluation of mathematics learning now with authentic assessment gives teachers the freedom to develop it. Teachers can choose problem topics that are more contextual and closer to students. With authentic assessment, teachers can determine improvement or enrichment programs based on the level of competency mastery for students who are identified as slow or fast learners in learning and achieving learning outcomes.

The evaluation of mathematics learning in the future will continue the evaluation trend that is currently still developing, namely authentic assessment.

Discussion

Trends in the Development of Evaluation of Mathematics Learning in the Past.

The term evaluation comes from English evaluation which means an action or process to determine the value of something or can be interpreted as an action or process to determine the value of everything that has to do with education (Nata, 2001). Furthermore, evaluation can also be interpreted as a process of comparing something with certain criteria. Evaluation is the process of obtaining information and using it to construct an assessment to make a decision (A. Arifin, 2003).

The Educational Assessment Standard (Nasional, 2007) states that the evaluation of educational outcomes in primary and secondary education is carried out by educators, education units, and the government. It was further explained that the assessment of learning outcomes carried out by educators consisted of tests, daily tests, mid-semester tests, tests, and end-of-semester tests. The assessment of learning outcomes carried out by educators is a school/madrasah examination unit, while the assessment of learning outcomes carried out by the teaching unit is the national exam (UN).

The assessment carried out by educators is continuous. In ancient mathematics learning, educators focused on assessing knowledge test results. The form of assessment that focuses on assessing student knowledge is the holding of a national exam (UN) and the UN is a determinant of student graduation. Attitude and skills components complement past assessment systems.

Evaluation in learning mathematics in the past was not much different from the evaluation of education in general (Purba, 2015). Mathematics learning in the classroom is designed only to develop students' cognitive knowledge. This is due to the philosophical view and the nature of mathematics itself. In the past mathematics was an arithmetic science that only relied on the work of the mind and cognition.

Trends in the Current Development of Mathematics Learning Evaluation



The development of the evaluation of mathematics education is currently in line with changes in the national education curriculum. The 2013 science-based national education curriculum integrates the components of attitudes, knowledge, and skills in one assessment. (Nomor, 32 C.E.) clearly describe the standard of assessment, including attitude assessment, knowledge assessment, and competency assessment. Attitude assessment is done through observation, self-assessment, peer assessment and journaling. Knowledge competency assessment is carried out by educators through written exams, oral exams and assignments. Skills Capacity Assessments are conducted by educators Performance appraisals, which are assessments in which students demonstrate specific skills using exercises, programs, and portfolio assessments.

Kurniasih & Sani, (2014) said that in the context of attitude assessment, indicators are signs raised by students, which can be observed or observed by the teacher as a representation of the attitude being assessed. The instrument used for observation, self-assessment, and assessment between students is a checklist or rating scale accompanied by a rubric, while the assessment is through journals in the form of notes from the educator.

(Fadillah, 2014) said that preliminary activities are flexible, meaning that teachers can adapt to the conditions of each class. (Fadillah, 2014) the most important and main activities in the learning process because learning materials will be delivered to students. (Kurniasih & Sani, 2014) said that the closing activity is intended to validate concepts or principles that have been constructed by students.

The current trend in learning mathematics is authentic assessment. What is authentic assessment? Nasional, (2007) It was explained that the evaluation was actually a comprehensive evaluation starting from the input, process, and output of learning, covering areas such as attitudes, knowledge, and skills. Real assessment assesses student readiness, as well as the overall learning process and outcomes. A comprehensive evaluation of the three elements (input-process-output) describes students' abilities, learning styles and outcomes, and even produces teaching and learning effects and training.

The procedures for assessing the input-process-output components are (1) Input evaluation, which is to assess the students' initial ability to the material to be studied, such as pre-test, perception, brainstorming; (2) Process evaluation, namely evaluation in the learning process. For example, to evaluate the seriousness of students, acceptance of students, level of cooperation, ability to complete a given task, self-evaluation, peer evaluation, etc.; (3) Evaluation of results, namely evaluating students' abilities after the learning process occurs. For example, use written, oral, or assignments to assess students' knowledge and abilities, and use practice/performance tests, portfolios, and project assignments to assess student skills.

(Alimuddin, 2014) suggest that authentic assessment should reflect real-world problems, not the school world with criteria and holistic (full competence to reflect knowledge, skills, and attitudes). Real assessment not only measures what students know but also emphasizes what students can do. With this evaluation system, knowledgeability is not the essence of learning mathematics, but how the three components of attitudes, knowledge, and skills can be developed together.

The current evaluation of mathematics learning with authentic assessment gives teachers the freedom to develop it. Teachers can choose problem topics that are more contextual and closer to students. With authentic assessment, the teacher can determine an improvement or enrichment program based on the level of competency mastery for students who are identified as slow or fast learners in learning and achieving learning outcomes.

Trend of Future Mathematics Learning Evaluation Development

Evaluation of mathematics learning in the future will continue the trend of evaluation that is currently still developing, namely authentic assessment. Authentic assessment is very appropriate to do in learning mathematics. The integration of attitudes, knowledge, and skills in the assessment of mathematics learning results in a more alert and responsive output.

With authentic assessment, attitudes and skills become the teacher's attention in learning mathematics. This is in line with research that attitudes towards mathematics affect students' mathematics learning achievement. The thing that needs to be considered in evaluating mathematics learning with authentic assessment is the teacher's readiness and ability to implement it. Guidance and training of teachers in designing and developing evaluations of mathematics learning based on authentic assessment is the government's concern.

Conclusion

The development of the evaluation of mathematics learning is influenced by changes in the mathematics learning curriculum directly and also by changes in the national curriculum indirectly. Evaluation of past mathematics learning only focused on assessing students' knowledge abilities. Knowledge of students' cognitive abilities was the main goal of mathematics education in the past. Changes in views on learning make changes in the evaluation of mathematics learning.

The trend of evaluating mathematics learning currently accommodates three aspects of students' abilities, namely attitudes, knowledge, and skills. This can be seen from the study that attitudes and skills as well as mathematical abilities affect the metamatic achievement, Shiva, so it is necessary to develop a learning evaluation model to accommodate these three aspects. And in the future the evaluation of mathematics learning will be maintained by minimizing its shortcomings.

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