Evaluation of Mathematics Learning Program in High School

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ABSTRACT

The learning program carried out by the teacher continuously includes planning, implementing, and evaluating learning activities. The purpose of this study was to describe the learning planning program carried out by senior high school mathematics teachers in Semarang. This evaluation research was oriented towards learning planning program and achievement of program results was seen with the Context, Input, Process, and Product (CIPP) evaluation model approach. The results obtained are Context evaluation covering the school's vision and mission, the attention to the predictions of community needs for education, support of laws and regulations regarding education and understanding of learning tools; Input evaluation includes opportunities and support for increasing teacher competence, the fulfillment of school facilities and infrastructure for learning mathematics, and teacher understanding of students; Process evaluation includes teacher participation in training activities and MGMP for enhancing teacher competence, preparing and developing learning tools; and Product evaluation includes the suitability of learning tools with process standards.

Keywords: *Evaluation CIPP, Lesson Plan, High School Mathematics*

ABSTRAK

Guru melaksanakan program pembelajaran yang terdiri dari perencanaan, pelaksanaan, dan evaluasi. Kegiatan tersebut dilakukan terus-menerus sehingga perlu adanya evaluasi terhadap program yang dirancang. Tujuan penelitian ini adalah mendeskripsikan perencanaan pembelajaran yang dilaksanakan guru matematika SMA di Kota Semarang. Penelitian evaluasi ini berorientasi pada implementasi pembelajaran Matematika pada program perencanaan pembelajaran dan pencapaian hasil program dilihat dengan pendekatan model evaluasi *Context*, *Input*, *Process*, dan *Product* (CIPP). Hasil evaluasi yang diperoleh yaitu evaluasi konteks meliputi visi dan misi sekolah, memperhatikan prediksi kebutuhan masyarakat akan pendidikan, dukungan peraturan perundang-undangan tentang pendidikan dan pemahaman alat pembelajaran; evaluasi masukan meliputi peluang, dan dukungan peningkatan kompetensi guru, pemenuhan sarana dan prasarana sekolah untuk pembelajaran matematika, pemahaman guru terhadap siswa; evaluasi proses meliputi partisipasi guru dalam kegiatan pelatihan dan MGMP untuk peningkatan kompetensi guru, penyiapan dan pengembangan perangkat pembelajaran; dan evaluasi produk meliputi kesesuaian perangkat pembelajaran yang dibuat oleh guru dengan standar proses.

Kata Kunci: Evaluasi CIPP, Rencana Pelaksanaan Pembelajaran (RPP), Matematika SMA.

INTRODUCTION

Teachers are people who convey knowledge to others and also provide good examples to those they teach. A professional teacher must have four competencies, namely: pedagogical competence, professional competence, social competence, and personality competence (Akbar, 2021). Pedagogic competence is general knowledge about teaching, including learning theory, classroom strategies, or learning models used to teach in class. Professional competence includes content knowledge, namely knowledge of the subject matter this is the science that must be taught in class (Alimuddin, Tjakraatmadja & Ghazali, 2020). Personality competencies relate to the

attitudes and behavior of a teacher towards himself, students, and society at large. Social competence is teacher competence related to teacher behavior is behaving towards their social environment, for example, being objective, not discriminating, empathetic, adapting, and so on (Agung, 2014). These four competencies are inherent in a teacher so it is necessary to carry out a continuous evaluation to see the consistency of teacher performance as has been done by the government conducting the Teacher Competency Test (UKG).

Evaluation in the field of education is very comprehensive because it includes a variety of activities; student assessment, measurement, testing, program evaluation, school personal evaluation, school accreditation, and curriculum evaluation (Anh, 2018; Af'idah & Jaedun, 2020). Based on Permendiknas No.16 of 2007, it is mention that in teacher performance, a teacher must pay attention to the competencies he must have. Teachers must also pay attention to the development of science, technological progress, the conditions of students and the environment as well as the future goals of education, especially the subjects that they teach. As a teacher, it is better if you master Pedagogical Content Knowledge (PCK) which is a category of teacher knowledge that includes knowledge used by teachers in delivering subject matter to students to achieve learning objectives (Alimuddin, Tjakraatmadja & Ghazali, 2020; Muhtarom, et al., 2019). These competencies apply to all teachers at all levels from primary to higher education including teachers in mathematics.

Mathematics is one of the important subjects taught from elementary to higher level and has an important meaning in application everyday life (Widodo, 2013). Mathematical skills are often the foundation for other subjects, and a student's progress in other subject areas depends on his or her ability in basic mathematical procedures (Penny, 2011). To be able to carry out mathematics learning properly, it is necessary to prepare a supporting learning plan, including the preparation of lesson plan, teaching aid, and coding of students by paying attention to the supporting facilities owned by the school and the learning environment. The success of a lesson is determined by the readiness of learning. Therefore it is necessary to evaluate the learning planning for mathematics teachers.

Based on Mas'adi (2017) research, planning for the mathematics learning process of public high schools in East Lombok district is still not optimal, especially in terms of preparation of lesson plans and overall there is a gap between the implementation of the learning process and the minimum standard of Permendikbud No 65 of 2013. Wasino's research results (Slameto, 2019), the preparation of lesson plan in the implementation of the 2013 curriculum has gone well although it is not optimal, there are still gaps in all components, especially the selection of learning sources, media, and assessment. However, this research has not yet led to the revised 2013 curriculum.

Teachers in the city of Semarang also experience a similar problem. The research results by Susilo, Junaedi, & Suyitno (2016) revealed that (1) the knowledge of the 2013 curriculum concept from mathematics teachers was not sufficient, (2) the lesson planning prepared by teachers had not fully described the 2013 curriculum, and (3) the obstacles to implementing the 2013 curriculum by teachers due to a lack of understanding of scientific approach-based learning, time allocation

arrangements, and difficulties in conducting assessments. However, this research has not yet led to the revised 2013 curriculum.

Based on previous research, this research will conduct an evaluation of planning for high school mathematics learning in the city of Semarang. The problems that will be evaluated in this study; 1) context component, namely about the support and role of schools in terms of implementing learning; 2) input component which includes the availability of supporting facilities and teacher knowledge about learning tools and the government regulations that underlie them; 3) the process component includes the principal's support for the teacher in preparing for learning, the teacher's ability to analyze SKL, and the preparation of learning tools, and 4) the product component that sees the suitability of the learning tools made by the teacher with Permendikbud. The purpose of this study is to describe the learning planning preparation carried out by high school teachers in the city of Semarang. This research needs to be done to find out the readiness of the teacher in planning lessons so that the level of achievement of the on going program be known, then used for programming with the principle of continuous evaluation.

METHOD

This research includes evaluation research on the implementation of the lesson plan of senior high school mathematics teachers in Semarang City. Respondents were randomly selected as many as 31 mathematics teachers, consisting of 16 teachers from public high schools and 15 teachers from private high schools. The characteristics of respondents were 1) The age range from 24 years to 59 years old and 2) The teaching experiences from 1 year to 36 years of experience. The evaluation research used the CIPP model that consists of Context Evaluation, Input Evaluation, Process Evaluation, and Product Evaluation. According to Wirawan (2016), this model is depicted in Figure 1.
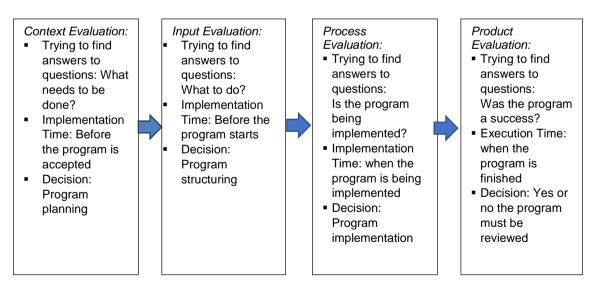

Figure 1. CIPP Evaluation Model

The data collection techniques used were documentation, interviews, and questionnaires. Data from the documentation are in the form of conditions and qualifications of students and

teachers, as well as mathematics teacher learning tools. The data from the interview were the principal's response to mentoring and monitoring in the implementation of learning preparation carried out by mathematics teachers, and the teacher's responses in preparing learning activities. The data from the questionnaire is the readiness of the teacher in planning and making learning tools. Analysis of the data on evaluation used a mixed approach with sequential procedures, namely by using a quantitative approach first and then supported by a qualitative approach (Retnawati and Mulyaningsih, 2014).

RESULT AND DISCUSSION

Context Evaluation

The context evaluation stage looks at a picture of the state of SMA regarding the vision and mission of the school, the school's attention to community support in education, the principal's knowledge of laws and government regulations related to learning planning.

In the points about making the school's vision and mission as a guide in carrying out tasks including planning learning programs, it is found that the teacher understands the school's vision and mission and tries to implement it, and provides role models for school members, especially students through activities at school, including learning and social life in school. As many as 61.3% of teachers said that they always pay attention to the vision and mission of the school as a guideline for implementing tasks (Figure 2a). This understanding of the vision and mission is supported by the Principal by disseminating the school's vision and mission to school residents implicitly in several activities carried out by the school, such as activities that invite parents/guardians at the beginning of the school year, delivered during meetings with teachers and education staff and several student activities, as well as implemented in daily activities at school, including learning. Even so, it turns out that there are still as many as 3.2% of teachers who do not use the school's vision and mission as a guide in carrying out tasks, including planning learning programs (Figure 2a).

In the points of understanding regarding laws and ministerial regulations regarding education standards, especially competence standard, content standards, and process standards in general, principals and teachers said they knew it. From Figure 2b it is known that the number of teachers who have understood the Law and the Education Standard Regulation is 91%, while only 8% of the teachers have not understood it. However, another fact that was obtain even though the teacher said that they understood the education standards, in practice, there were still some who did not understand the process standards and content standards, and learning tools that had to be prepared. Teachers should have a thorough understanding of the curriculum because mathematics teachers who carry out learning in class are curriculum (Mulyasa, 2014). Teachers with strong curriculum knowledge will know the state or national standard for learning mathematics and plan learning activities appropriately and can choose learning supporters that will be used effectively to achieve the curriculum (Kilic, 2011).

Input Evaluation

The input evaluation stage looks at resources that support the learning planning program, determines plans and strategies to achieve needs, and determines procedures with indicators of attention to teacher competency development, school support for increasing teacher competence, teacher involvement in MGMP, and the availability of school facilities and infrastructure and understanding of the characteristics of students.

In the points about the opportunities given by schools to teachers to improve competence by sending teachers to attend training/seminars on learning mathematics, it was found that 90% of teachers get opportunities from school and only 10% of teachers who lack these opportunities (Figure2c). The school principal supports increasing the competence of mathematics teachers by instructing them to take part in the mathematics MGMP, sending teachers to seminars and training activities related to increasing teacher competence, also holding IHT (in house training), namely discussion activities and knowledge exchange with fellow teachers at their schools. Every teacher also has the awareness and desire to always improve their competence as a math teacher.
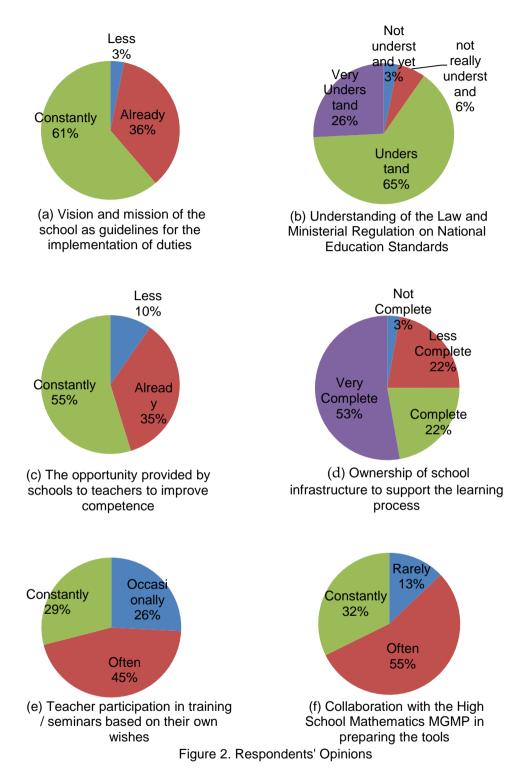
The points on ownership of complete and adequate facilities and infrastructure to support the learning process, obtained a response of 3.2% of teachers who stated that it was not complete, 9.7% of teachers stated that it was incomplete 25.8% of teachers said it was complete, and 61.3% of teachers stated very complete (Figure 2d).In general, schools have tried to prepare the maximum possible facilities and infrastructure. In contrast to public schools that can use school operational assistance (BOS) funds, private schools adjust to the financial capacity of the Foundation. Schools that implement school-based management have broad freedom in managing schools through strategies (a) an inclusive curriculum, (b) an effective teaching and learning process, (c) a supportive school environment, (d) equal human resources, and (e) standardization in terms of monitoring, evaluation, and testing (Pratiwi, 2016). Pratiwi added that the five strategies were implemented in an integrated manner with the school management function to form components (a) management, (b) teaching-learning process, (c) human resources, and (d) school administration. The results of implementing school-based management in every school cannot be the same, but all schools have the same opportunity to become quality schools.

Process Evaluation

Process evaluation aims to (a) identify or predict, during the process, errors in procedural design or implementation, (b) provide information to make decisions that have not been programmed, and (c) record and assess events and procedural activities (Mahmudi , 2011). In evaluating the learning process, several things must be explored, namely: teachers' participation in MGMP, the role of MGMP and peers in planning learning tools, analysis of content standards into indicators, and suitability of preparation of learning tools based on process standards.

In the point of teacher participation in training/seminar activities based on their wishes to increase teacher competence, it is known that the majority of teachers have the awareness to increase their competence. Based on Figure 2e, it is known that 25.8% of teachers stated sometimes, 45.2% of teachers said they often, and 29% of teachers stated that they always wanted to take part in MGMP activities and training/seminars held by outsiders. Besides, it turns out that many teachers are willing to pay for themselves to increase their competence as teachers. To

develop themselves, a teacher must always hone their knowledge and skills regarding learning (pedagogic competence), one of which is by attending training/seminars (Akbar, 2021).

(a) Vision and mission of the school as guidelines for the implementation of duties

(b) Understanding of the Law and Ministerial Regulation on National Education Standards

(c) The opportunity provided by schools to teachers to improve competence

(d) Ownership of school infrastructure to support the learning process

(e) Teacher participation in training / seminars based on their own wishes

(f) Collaboration with the High School Mathematics MGMP in preparing the tools

Figure 2. Respondents' Opinions

The point about arranging learning tools with members of the High School Mathematics MGMP is known that as much as 87% of teachers have done collaborated intensely (Figure 2f). It turns out that there are still as many as 13% of teachers who lack collaboration with MGMP even though there is a contribution of the intensity of teacher involvement in MGMP to the performance

of high school mathematics teachers by 6.30% and an effective contribution of 9.5% (Sunarsa, 2013). So that teachers who are actively involved in MGMP will improve teacher performance, especially in learning. One of the activities carried out by the Semarang City Mathematics MGMP is to discuss questions, in this case, numeracy and higher-order thinking skills. If the teacher is less involved in the MGMP, then the teacher does not have the opportunity to develop numeracy skills and higher-order thinking skills so that the teacher will also lack in facilitating their students.

Product Evaluation

The product evaluation stage is carried out by analyzing the learning device documents using a review sheet of learning device documentation. The study of the lesson plan refers to the Regulation of the Minister of Education and Culture No. 22 of 2016 concerning Basic and Secondary Education Process Standards. The components seen in the learning plan are describing the curriculum used, linking indicators and material concepts with basic competencies, describing learning based on the implementation of learning, and implementing assessments that are following the curriculum (Susilo, Junaedi, & Suyitno, 2015).

In general, the learning tools made by the teacher are guided by the Basic and Secondary Education Process Standards. However, there are still several things that need to be considered, namely regarding the completeness of the lesson plans, which most of them adopt the lesson plans made with the MGMP team where the lesson plans are shared for all teachers so that there are lesson plans that only made as a formality without paying attention to the conditions of students in schools and facilities school. It also includes how teachers must formulate indicators by describing basic competencies. Another part that also needs to be considered the accuracy of the teacher in writing, copying, or placing the lesson plans to be used, for instance the suitability between parts of the lesson plans that are not related. This is in line with research by Ernawati & Safitri (2017) that the difficulty of formulating indicators for this teacher reaches 66.67%.

The results of this study are following Uran's research (2018) that in implementing learning in the KTSP curriculum, teachers feel limitations in fulfilling literature but are flexible in developing the curriculum. In the implementation of the 2013 curriculum, teachers experienced difficulties in making learning assessment formats, even though teachers and students felt more creative, but sometimes it was difficult to understand. It was also supported by the research of Marlina, Harun, and Usman (2018) which states that the obstacles that occur in efforts to increase teacher pedagogical competence are the lack of workshops/training activities, training that is often carried out is about the 2013 curriculum, too many teacher teaching hours, lack of the awareness of teachers to read books, journals, and other references, as well as discipline. Anwar et al. (2014) revealed that senior teachers (experience> 20 years) are more focused on concepts that tend to cause misconceptions and are difficult to understand, but are more flexible in using teaching strategies tailored to the conditions of students. In contrast to junior teachers (<10 years experience), they focus more on the depth of the material and the learning models used so they tend to be less flexible because they are more related to the planning that has been made.

CONCLUSION

Based on the results of the evaluation of the learning planning for senior high school mathematics teachers in Semarang, it can be concluded:1) at the context evaluation stage, the principal and teachers make the vision and mission a guide in carrying out their duties, and almost all teachers have the motivation to increase competence even though there are activities that must use independent costs; 2) At the input evaluation stage, it was found that some schools already had supporting facilities and infrastructure, but there were still some who had limited facilities and infrastructure, another source of support was the understanding of most teachers who had understood the content standards and process standards in general and could implement them in development of learning tools; 3) In the evaluation stage of the process, it found that making learning tools the teacher made them together through the MGMP activities for high school Mathematics Teachers; 4) At the product evaluation stage, it is found that a teacher needs to innovate to develop learning tools, especially by paying attention to the conditions and needs of students so that they can achieve the learning objectives as expected. Recommendations that can be put forward based on the results of this study are schools that need to carry out good management in the framework of quality schools and teachers who need to continue to develop their knowledge of educational standards and participate in organizations whose professions are related to science. With this, it is hoped that the education program will run optimally.

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