Statistics Application Socialization to Analyze Student Learning Outcomes Evaluation Data for Teachers

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Abstract: This service is based on the competency standard of statistical knowledge and the evaluation of teachers is still low, so teachers need socialization regarding the application of statistics to analyze data on evaluating student learning outcomes. According to Law No. 15 of 2005, the development of the teaching profession can be carried out by increasing scientific knowledge both in the field of teaching materials and in the field of pedagogy. The method used in this service activity is mentoring including lectures, questions, answers, presentation assignments in face-to-face, and online forms. This service activity is arranged in four stages, of which one stage is carried out face-to-face and three stages are carried out online. Face-to-face activities are carried out using lecture and question-and-answer methods. while online activities are carried out with FGDs, questions and answers, and presentations. The expected outcome after this service is that teachers are proficient in using statistical application programs in analyzing valid and significant evaluation data on student learning outcomes.

Keywords: Statistics; Statistics Application Program; Analysis of learning outcomes.

Introduction

Assessment is the process of collecting and processing information to measure the achievement of student learning outcomes. The collection of information is not only complete in providing an overview but also must be accurate to produce decisions, so that the assessment becomes more effective (Kemendikbud, 2017). This collection of information is then analyzed using statistical methods, which are accurate, precise, and sophisticated analytical tools (Mundir, 2012).

Statistics is the science of processing data and drawing careful conclusions and logical decisions from data processing (Fauziah & Karhab,2019). The ability to understand statistical concepts and reasoning at the most basic level is known as statistical literacy (Rumsey, 2002). Statistical literacy is the ability to communicate statistical information (Ziegler, 2014). Our students to be good "statistical citizens," understanding statistics well enough to be able to consume the information that they are inundated with on a daily basis, think critically about it, and make good decisions based on that information. Some researchers call this "statistical literacy." Rumsey, 2002). Several factors contribute to the importance of students developing statistical literacy skills at the school level. First is the expectation for participation as citizens in the information and data-driven age where decision-making is likely to be based on critical skills from the realms of statistical literacy (Watson, 2002).

Based on Law number 14 of 2005, teachers and lecturers are required to develop their profession through scientific refreshment, both in the field of teaching materials and in the field of pedagogics. Based on the phenomena obtained through empirical initial studies, it was found that the professional development of teachers had not been carried out optimally.

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The frequent appearance of statistics courses within mathematics departments and statistically significant relationships between mathematics anxiety and statistics anxiety are two main reasons for this confusion (Baloglu, 2004).

The Community Service Team from the Mathematics Education Study Program, FKIP, Mataram University felt the need to develop the knowledge of the teachers evenly so that there was no gap between practice and knowledge. Thus, a service was carried out at SMP Negeri 1 Gerung, West Lombok Regency in order to increase the knowledge both scientifically and pedagogically in using statistical applications to analyze student learning outcomes in a valid and significant manner.

Method

Troubleshooting Framework

The problem-solving framework in community service is in the form of stages that are made systematically in the following flow-map:
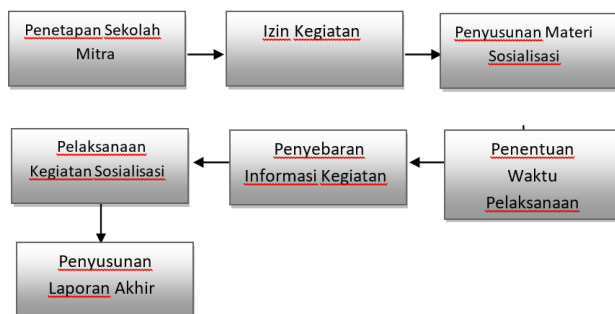
Figure 1. PKM Flow-Map

Once the students feel more confident about the theory of basic statistics and have had the opportunity of analysing data manually they are then required to use SPSS to analyse real data sets. Two guides have been created, one for Masters or Undergraduate Students in Information Science (Morris, 2013). Statistics anxiety is distinct in some ways and may be more associated to reasoning using concepts with words, and making connections between problems using patterns or relationships (Kiss *et al.*, 2019).

Activity Method

This series of socialization activities will be carried out from February-August 2021. The methods used in this socialization activity include lectures, question and answer through FGDs, presentation of socialization materials from the proposing team. Furthermore, this activity allows additional similar activities for teachers with the material in mathematics substantially and applied and accompanied by its application related to the needs of teachers in schools. The sustainability stage

of the activity will be carried out by the proposing team with topics that are in accordance with the needs conveyed by the teacher.

Results and Discussion

The target audience chosen for this PKM activity is to disseminate information to teachers at SMP Negeri 1 Gerung, which consists of 14 teachers, each of which comes from various subjects. This service activity has relevance to the teacher in the field. Based on the results of the survey in the field, (1) the competency standards of statistical knowledge and evaluation of teachers are still low, and (2) there is a gap between updating the competencies that teachers currently have with what will be the future demands related to their profession.

In this regard, PKM activities were carried out by lecturers of the mathematics education study program at the Faculty of Teacher Training and Education (FKIP) at the University of Mataram to teachers at SMP Negeri 1 Gerung, West Lombok.

This service activity is in the form of socialization by involving teachers from various subjects. It is hoped that every teacher who participates in this socialization activity will have additional knowledge and refresher regarding terminology in statistics so that in the future they can take advantage of this knowledge not only being taught to students by mathematics teachers. But teachers from other subjects can use and develop their knowledge based on statistical material. Furthermore, this PKM activity is expected to generate interest from teachers to develop similar activities both face-to-face and online with various other materials that can support their profession.

Community Service Activities by lecturers of the Mathematics Education Study Program, Faculty of Teacher Training and Education (FKIP) the University of Mataram to teachers at SMP Negeri 1 Gerung West Lombok were carried out in four stages. The first stage was held in the hall of SMP Negeri 1 Gerung with refresher activities on statistical concepts for teachers (14 teachers in various subject areas) and FGD (Focus Group Discussion). in activities. The third stage is the introduction of descriptive and inferential statistical materials used in evaluating student learning outcomes. This activity was carried out through a google meeting and was attended by 12 participants. In the fourth stage, the teacher is introduced to the application for processing student learning outcomes and practicing the use of the application. The process of guidance and communication online was very smooth because the participants followed closely the existing series of activities. In this fourth stage, an evaluation of the activities that have been carried out is also carried out so that in the future it can be improved again.

Conclusion

Based on the results of community service mentioned above, it can be concluded that teachers have been able to use statistical applications in processing valid and significant student learning outcomes. For the continuity of the results of this activity, it is necessary to conduct a field evaluation, namely the school where the teachers participating in this PKM activity apply a valid and significant evaluation tool for student learning outcomes. The results of this activity identified supporting and inhibiting factors. Some of the factors that make the activity run smoothly are the magnitude of the interest and enthusiasm of the participants during the activity. Likewise, during online mentoring activities because teachers are proficient in using online meeting applications so as to facilitate long-distance communication. While the inhibiting factor is the limited time for face-to-face meetings through FGDs due to the busyness of the participants as teachers in their respective schools. In addition, the COVID-19 pandemic is one factor that does not allow it to be held face-to-face too often.

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