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Scientific Research Training for Teachers in Bengkulu City

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Abstract: Scientific research training for teachers aims to improve the professional competence of educators in carrying out educational research, especially Classroom Action Research. Research is a reflective tool that allows teachers to improve the learning process in an ongoing manner. However, many teachers face obstacles in understanding research methodologies, compiling proposals, and writing scientific reports. Therefore, community service activities are needed in the form of educational and participatory training. This activity is carried out through an andragogy approach and an experiential learning model that prioritizes the active involvement of participants. The training method consists of material presentations, discussions, workshops, and assistance in preparing research proposals. Evaluation is carried out through pre-test, post-test, and product assessment in the form of draft proposals. The output of the activity includes increasing research understanding, the ability to prepare proposals, and the growth of a research culture in the teacher environment. With this training, teachers are expected to be more confident to conduct research based on real problems in the classroom, as well as be able to produce relevant and publishable scientific works, so as to directly contribute to improving the quality of learning and teacher professionalism.

Keywords: Professional Competence of Educators, Proposal Preparation Assistance, Scientific Research Training

A. Introduction

Education has an important role in shaping the quality of a nation's human resources (HR). In the education system, teachers occupy a strategic position as the spearhead of the implementation of learning. Not only playing the role of delivering material, teachers also have a responsibility in creating learning that is meaningful, innovative, and in accordance with the times. Therefore, improving teacher competence is a must, especially in the aspects of science and professionalism. One of the important competencies that teachers need to have in the modern era of education is the ability to conduct scientific research.

Scientific research for teachers is an important instrument in order to improve the quality of learning. Through research, teachers can identify learning problems that

occur in the classroom, design solutions, implement improvement strategies, and evaluate the results in a systematic and measurable manner. Thus, teachers are not only the implementers of the curriculum, but also agents of change in the world of education (Arikunto, 2010). However, the reality on the ground shows that not all teachers have an adequate understanding of scientific research. Many teachers find it difficult to prepare research proposals, determine the right methods, process data, and write research reports. This can be caused by the lack of training on scientific research received by teachers, limited access to academic resources, and busyness in carrying out daily teaching tasks (Sagala, 2019). On the other hand, government policy through Permendiknas No. 35 of 2010 requires teachers to conduct scientific publications as one of the requirements for promotion. Therefore, strengthening teachers' capacity in conducting research is no longer just an option, but an urgent professional need.

The importance of increasing the capacity of teachers in the field of research is also emphasized in the framework of Sustainable Professional Development (PKB). PKB is a systematic approach to continuously improve the quality and professionalism of teachers, one of which is realized through scientific research and publication activities (Ministry of National Education, 2018). Within this framework, teachers are encouraged to develop themselves through data-driven reflective practices, and research becomes a means to support the process.

Scientific research training activities are one of the tangible forms of higher education's contribution in supporting the development of teacher professionalism. Universities, as centers for scientific development, have an important role in transferring knowledge to the community, including to educators at the school level. Through community service, lecturers and researchers can provide training, mentoring, and share experiences in carrying out scientific research that is applicable and contextual to the world of primary and secondary education.

This scientific research training is expected to answer the various challenges faced by teachers in compiling and carrying out research. In this activity, teachers will be given an understanding of the basics of research, such as the preparation of problem formulations, literature reviews, research methods, data collection and analysis techniques, and scientific report writing techniques. Training can also be accompanied by practical sessions or workshops that allow teachers to directly develop research designs based on real problems they face in the classroom. Furthermore, this activity also aims to foster a culture of research among teachers. Research is no longer considered a complicated academic activity and is only carried out by professional lecturers or researchers, but as a relevant and useful tool in improving the quality of learning in the classroom. With a practical, contextual, and collaborative approach, it is hoped that teachers will be more motivated to conduct research as part of the process of reflection and innovation in their daily teaching activities (Azizah, 2021; Fitria, et. al., 2019).

The results of this training activity are not only beneficial for individual teachers, but also for the school institution as a whole. Schools can develop a strong academic culture, where every teacher is encouraged to think critically, evaluate their learning practices, and share research results with peers as a form of knowledge dissemination. Thus, this training activity will have a long-term impact in creating an educational ecosystem that is oriented towards continuous and data-driven learning. In addition, this training activity can also support the implementation of the Independent Curriculum which emphasizes differentiated learning and is based on the needs of students. To be able to identify these needs, teachers need to reflect and evaluate learning systematically, which can be done through research activities. Therefore, research skills are a very relevant competency in the context of the current curriculum implementation (Ministry of Education and Culture, 2022).

By considering these various urgency, Scientific Research Training for Teachers is a form of community service that has strategic value in improving the quality of education. This activity not only provides solutions to the practical needs of teachers, but also strengthens the synergy between universities and schools in encouraging the improvement of the quality of national education. Problem formulation in this article: 1) How is the implementation of scientific research training for teachers in Bengkulu City?; 2) What obstacles were faced during the scientific research training for teachers in Bengkulu City?; 3) How did the participants respond to scientific research training for teachers in Bengkulu City?

B. Methods

This community service activity is carried out through a participatory-educational approach, which is a method that actively involves teachers in the entire training process, starting from providing theoretical materials to the practice of preparing research designs. This approach was chosen because it is in accordance with the principles of adult education (andragogy) which emphasizes the active involvement of participants in the learning process and relates learning to their real experiences (Knowles, Holton & Swanson, 2015). The training method will place participants as subjects who actively explore experiences, share ideas, and solve problems they face on their own. Thus, the activity is not only a transfer of knowledge from facilitators to participants, but also builds critical reflection and empowerment of teachers' capacity as practitioners as well as researchers.

Activity Design

The training is designed in several main stages, namely: 1) Identification of the needs of the participants; 2) Preparation of training modules; 3) Implementation of training; 4) Assistance and practice in the preparation of research proposals; and 5) Evaluation and follow-up.

Identify Needs

Before the activity starts, the implementation team will identify the needs of participants through an initial survey or a brief interview. The goal is to find out the teacher's level of understanding of scientific research, the challenges they face, and their expectations for training activities. This stage is important to ensure that the material delivered is appropriate to the context and real needs of the participants (Creswell & Creswell, 2018).

Module Preparation

Based on the results of the identification of needs, the extension team will prepare a training module which includes the following materials: 1) Introduction to scientific research in education; 2) Types of research relevant to teachers (especially Classroom Action Research); 3) Steps to prepare research proposals; 4) Data collection and analysis techniques; 5) Writing reports and publishing research results. This module will use simple language and be complemented by examples from the context of learning in schools. In addition, worksheets and proposal templates are also prepared to facilitate writing practices.

Training Implementation

The implementation of the training is carried out through two main forms of activities, namely: 1) Material Presentation (interactive lectures); and 2) Workshops (hands-on practice). The material presentation session was carried out using the interactive lecture method, where the facilitator provided an introduction to theory interspersed with discussions and questions and answers. Meanwhile, the workshop sessions were carried out in groups or individually, where participants were guided directly in preparing research proposals based on real problems they encountered in class. The facilitators in this activity consist of lecturers and experts who have experience in the field of educational research and community service.

Mentoring and Consulting

After the training is completed, the activity will continue with a mentoring session that is flexible and adaptive. Assistance can be done online or offline, depending on the conditions and needs of the participants. The goal is to ensure that participants can actually prepare research proposals that are ready to be implemented. According to Suharsimi Arikunto (2010), guidance in the early stages of research is very important to ensure clarity in the formulation of the problem and the suitability between the objectives, methods, and instruments used. Therefore, the implementation team will provide personal or small group consultation services.

Evaluation and Follow-up

Evaluation of activities is carried out in two stages, namely: 1) Process evaluation, in the form of observation of participant involvement and response during activities; and 2) Evaluation of results, through simple pre-tests and post-tests to determine the improvement of understanding. In addition, participants will be asked to submit a draft research proposal as a form of product of the activity. This product will be used as a material to determine the sustainability of activities in the form of assistance in the implementation of research and guidance on scientific publications in the next stage.

Experiential Learning Model

In this training, the experiential learning model from Kolb (1984) was used, which is an experiential learning approach consisting of four stages: 1) Concrete Experience, participants convey real experiences about learning problems; 2) Reflective Observation, participants reflect on the causes of the problem and possible solutions; 3) Abstract Conceptualization, participants gain theoretical concepts and scientific frameworks. 4) Active Experimentation, participants develop action plans (research proposals). This model has proven to be effective in teacher training because it allows participants to learn from their own experiences and relate them to new knowledge contextually (Zepeda, 2012).

Training Techniques and Media

The media used in the training includes: Presentation slides (PowerPoint) with infographic visualizations Print and digital modules Short videos about examples of teacher research Google Forms worksheets for the initial and final evaluation of WhatsApp Group / Google Classroom as a forum for communication and advanced mentoring Techniques applied include lectures, group discussions, case studies, simulations, and individual guidance. This combination of techniques aims to improve participants' understanding as well as encourage active engagement during training (Joyce & Showers, 2002; Hopkins, & Harris, 2013; Guskey, 2002; Morgan, & Neil, 2004).

Output Target

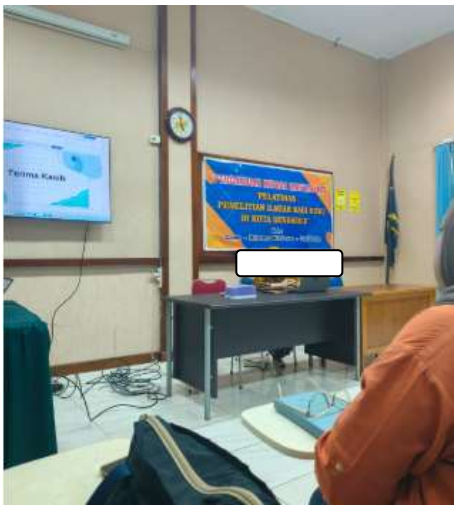
Through this training method, participants are expected to have: Basic understanding of scientific research and PTK methods Ability to formulate problems and prepare research proposals Confidence to carry out research in the classroom Draft research proposals that are ready to be realized In the long run, this activity is expected to foster a culture of research among teachers and improve the quality of learning through a data-driven approach.

C. Results and Discussion

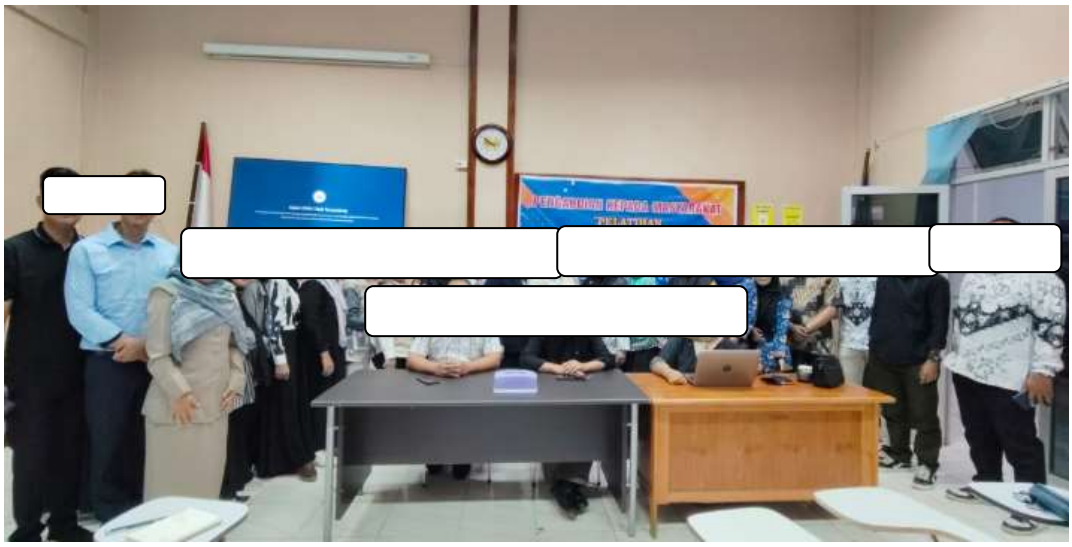
1. Implementation of Scientific Research Training for Teachers in Bengkulu City

The implementation of scientific research training for teachers in Bengkulu City requires a systematic, tiered, and sustainable approach. With a focus on real mentoring and dissemination of results, this program not only pursues the quantity of research but also on improving the quality of the learning process in the classroom. The long-term impact is the realization of professional, reflective, and innovative teachers, which will ultimately improve the quality of education in Bengkulu City as a whole.

Scientific research training is implemented through the explanation of the Basic Concepts of Simple Research; Identification and formulation of research problems; Preparation of research proposals (background, problem formulation, objectives, benefits, literature review, methodology); Data collection techniques (observation, questionnaires, interviews, tests, documentation); Simple Qualitative and Quantitative Data Analysis Techniques; Preparation of Scientific Reports and Articles; and Publication and Dissemination Strategy of Research Results (Seminars, Journals). Then the opportunity for question and answer was given and ended with the demonstration collected in the following drive https://drive.google.com/drive/folders/1rqLlHVwRNsYDgg1_M4ILBX6RSt2-y7u6?usp=sharing The author also presents below photos of the implementation of the Scientific Research Training for Teachers service activities in Bengkulu City.




PENGABDIAN KEPADA MASYARAKAT
"PELATIHAN
PENELITIAN ILMIAH BAGI GURU
DI KOTA BENGKULU"



2. Obstacles Faced During Scientific Research Training for Teachers in Bengkulu City

a. Obstacles from Teacher Mindset and Motivation
   Many teachers are already burdened with administrative and teaching tasks, so they view research as a burdensome "additional task" rather than a problem-solving tool. Teachers often feel that research is the domain of academics (lecturers) and feel incapable of doing so. They are afraid of being wrong, afraid of being criticized, and feel incompetent. If the training is only associated with promotion requirements, teachers tend to look for shortcuts (plagiarism, jockey services) instead of understanding the essence of the research.
b. Obstacles to Teachers' Academic Competence
   An understanding of research methodology, simple statistics, and scientific philosophy is often weak. Difficulties in composing sentences that are systematic, objective, and in accordance with the rules of Indonesian Spelling (EBI) and writing scientific papers. Difficulty finding relevant journals, citing them correctly, and synthesizing theories to build a framework of thinking.

By understanding the root of the problem, scientific research training for teachers can be designed more maturely, realistically, and ultimately succeeds in creating truly reflective and professional teachers.

3. Participants' Responses to Scientific Research Training for Teachers in Bengkulu City

Participants' (teachers') responses to scientific research training are typically highly varied and complex, reflecting their diverse backgrounds, motivations,

and experiences. These responses can be grouped into three main categories: Positive Responses, Negative Responses, and Critical/Constructive Responses.

a. Positive Response

Finally, participants understand how to distinguish between problems that can be researched and those that cannot. The training succeeded in providing clarity of concepts and making the research feel more understandable. They appreciate the practical and applicative side of the training, especially about citations and references using Mendeley and leveraging ChatGPT and Deepseek. This is very applicable, they can apply it immediately. They see a direct relevance between training and the context of their day-to-day work.

b. Negative Response

Research is seen as a mere administrative burden, not as an investment to make long-term work easier. "The theory is good, but in the field it will be difficult to apply. There is a gap between the theories given and the complex realities in their classrooms. They feel the material is not contextual. "I'm not very good at this kind of research. Let the young be alone." Mental blocks and strong feelings of inadequacy, often associated with past negative experiences or lack of confidence. "The training was very fast, I don't know. Just stack the certificates. "Training that is too short and dense is counter-productive. Teachers only come to fulfill obligations and get certificates. "This is just for promotion. Later, if necessary, I will pay for the service more easily." Extrinsic motivation (promotion) has distorted the essence of research, leading to the practice of plagiarism or the use of jockey services.

Discussion

Scientific research training for teachers in Bengkulu City is not just an additional program, but a strategic investment to fundamentally improve the quality of education and bring a sustainable positive impact to students, teachers, schools, and the city itself. As a result of the ability of scientific research, teachers not only become "teachers" but also "practicing scientists" in their fields. They are able to analyze learning problems in the classroom systematically and empirically, not just based on assumptions. Scientific papers are one of the important components to improve teacher competence. Teachers who are skilled in research will find it easier to understand their students. Teacher research published in scientific journals or seminars, can enhance the portfolio and reputation of teachers as professional educators. With the mindset of the researcher, teachers are encouraged to create innovative and contextual learning methods, media, and strategies, especially those that are in accordance with the characteristics of students in Bengkulu City. Teachers

become more critical and responsive to curriculum changes, such as the Independent Curriculum, which emphasizes differentiated learning and problem-based projects.

The Essence of Scientific Research

Scientific research is a systematic process of acquiring new knowledge, solving problems, and developing theories that can be used to explain certain phenomena. According to Sugiyono (2019), scientific research is a scientific activity that is carried out systematically, logically, and empirically to discover, develop, and test knowledge. The research is conducted with a specific methodological approach designed to answer the research questions objectively. In the context of education, scientific research has a very important function to support the improvement of the quality of learning. Educational research helps teachers understand learning problems in depth and find solutions based on data obtained from the field (McMillan & Schumacher, 2010). Therefore, teachers as education practitioners need to have understanding and skills in conducting scientific research.

Classroom Action Research (PTK) as a Teacher Research Method

One of the most relevant forms of scientific research for teachers is Classroom Action Research (PTK). PTK is a form of research conducted by teachers in their own classrooms with the aim of improving the learning process and outcomes. According to Arikunto (2010), PTK is a research activity carried out by teachers in their own classrooms by designing, implementing, and reflecting on actions in an effort to improve learning practices. The characteristics of PTK are its reflective, participatory, and cyclic nature. The teacher reflects on the learning problems that occur, designs solutions (actions), implements these actions, and then evaluates the results. This process is carried out in several cycles to obtain optimal repair (Kemmis & McTaggart, 1988). PTK provides opportunities for teachers to become researchers on their own practice, as well as make the classroom a laboratory for learning innovation. In addition, PTK can also be a means for teachers to fulfill the obligation of scientific publication for promotion as stipulated in the Minister of National Education Regulation No. 35 of 2010.

Research Competencies for Teachers

The ability to conduct scientific research is part of the professional competence of teachers, as stipulated in Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers. Professional competence includes a broad and in-depth mastery of subject matter, including the ability to develop a profession through reflective actions such as research. The ability to conduct research includes: 1) Identifying learning problems; 2) Formulate the problem and purpose of the research; 3) Compiling theoretical frameworks and literature studies; 4) Determining appropriate research methods; 5) Collecting and analyzing data; and 6) Compile a

report on the results of the research. But in practice, not all teachers have this competence. Research conducted by Azizah (2021) shows that the majority of teachers do not have adequate skills in conducting classroom action research, especially in terms of methodology and data analysis. Therefore, systematic and continuous training is needed.

The Role of Teachers as Reflective Researchers

In the modern educational paradigm, teachers not only function as teachers but also as reflective practitioners. This concept was introduced by Schön (1983), who emphasized that ideal professionals are those who are able to reflect on their practice in order to improve their performance. Teachers as reflective researchers mean having the awareness to always evaluate the learning process, identify weaknesses, and correct them based on evidence and data. This reflection can be done through research activities, so that teachers can continue to develop themselves professionally based on experience and empirical data from their own classrooms (Cochran-Smith & Lytle, 2009).

The Relationship of Teacher Research to Sustainable Professional Development

Improving teacher professionalism is one of the important aspects in improving the quality of national education. One of the strategies used by the government is the Sustainable Professional Development (PKB) program. In the PKB guidelines by the Ministry of Education and Culture (2018), it is stated that scientific research and publication activities are part of the development of the teaching profession. By conducting research, teachers not only improve academic skills, but also make a real contribution to the development of education. Furthermore, the results of teachers' research can be disseminated through publications or scientific forums as a means of sharing best practices among fellow educators. Research conducted by teachers can also strengthen a curriculum that is oriented to student needs. For example, in the implementation of the Independent Curriculum, teachers are required to design differentiated learning that suits the conditions and needs of students. Research can be a tool in identifying student profiles, designing appropriate interventions, and evaluating the effectiveness of learning objectively (Ministry of Education and Culture, 2022).

Scientific Research Training as a Teacher Empowerment Strategy

Training is a form of educational activity in community service. In this context, training aims to provide new knowledge and skills to the target community in this case, teachers so that they are able to develop their capacity independently. Training on scientific research for teachers is very relevant considering the low research literacy among educators. Based on the results of a survey by the Director General of GTK (2021), only around 18% of teachers in Indonesia actively conduct research to

support learning activities. This figure shows that there is still a need for academic intervention from universities, both in the form of training and mentoring. Training designed with a participatory approach will be more effective in answering the needs of teachers. Training can involve hands-on practice in preparing research proposals, case studies, and data collection simulations. This activity can also be a bridge of collaboration between schools and universities in building an academic culture in the primary and secondary education environment.

D. Conclusion

Scientific research training for teachers in Bengkulu City is a strategic need and a long-term investment to break the chain of educational problems fundamentally. This training acts as a catalyst for 1) Improving Teachers' Professional Competence: Transforming teachers from a teacher to a reflective practitioner who is able to scientifically analyze and solve learning problems in their own classroom; 2) Improving the Quality of Learning and Student Outcomes: Research-tested learning methods will make the learning process more effective, interesting, and relevant, especially by integrating the local wisdom of Bengkulu City, which ultimately shapes students' 21st century skills; 3) Building a Scientific Culture in the School Environment: This training encourages the creation of a Professional Learning Community (PLC) where teachers share and collaborate with each other, thereby improving the quality and competitiveness of the school as a whole. In essence, teachers who are knowledgeable in research are the main asset to realize quality, characterful, and competitive education in the City of Bengkulu. If this scientific research training is not implemented or carried out half-heartedly, then some negative implications can occur. 1) Stagnation of Teacher Quality: Teachers' professional competence will be stagnant. Teachers tend to rely on conventional methods without proven effective innovations, so the gap between the curriculum (such as the Independent Curriculum) and classroom practice will widen; 2) Low Quality of Learning: The learning process will continue to run based on habits and assumptions, not data and evidence-based practice. This has the potential to cause low student absorption and lack of critical thinking skills; 3) Weak Data for Policy Making: Schools and Education Offices will have difficulty obtaining empirical and contextual data from the grassroots (classes) to formulate targeted policies to improve the quality of education; and 4) Failing to Build Local Character: Opportunities to integrate Bengkulu's cultural richness and local potential into learning will be missed, so that education is less grounded and less relevant to students' lives.

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