Performance Of Pre-Service Physics Teachers On Microteaching Based On Science Literacy And Local Wisdom

M. A. Martawijaya[1], A.Sri Astika Wahyuni[2] , Mutahharah Hasyim[3]
Universitas Negeri Makassar
Email: martawijayamagus@gmail.com

Abstract. The purpose in this study is to describe the performance of pre-service physics teacher in microteaching by using lesson plan based on scientific literacy and local wisdom that are oriented 21st century skills. The subjects in this study were 30 pre-service physics teacher who programed the Microteaching course. This research is qualitative research with data collection techniques, there are interviews, video documentation, and assessment instruments of microteaching performance. The results of this study that the microteaching performance of pre-service physics teachers by using lesson plan based on scientific literacy and local wisdom is in a good category. This is indicated by the pre-service teacher performance of microteaching that have the aspects of skills microteaching, there are: 1) skills to open and close learning; 2) explaining skills; 3) the skill of making variations; 4) strengthening skills; 5) questioning skills; 6) class management skills; 7) individual and small group teaching skills; 8) guiding group discussions.

Keywords: Microteaching performance, local wisdom, science literacy

INTRODUCTION

The existence of microteaching courses in the curriculum in universities, especially the Department of Physics, Faculty of Mathematics and Natural Sciences, UNM is considered very important in an effort to prepare and improve the ability (competence) of teachers. To respond to these demands, various innovations for prospective teachers are continuously pursued with the aim of producing higher quality graduates. Teachers have a very strategic role in the creation of Indonesia's golden generation in 2045. Its task is not only to teach students to master a number of knowledge, but requires teachers to be more creative, innovative and inspirational in designing learning activities that are in line with 21st century skills.

The government has prepared human resources who master the skills of the 21st century. At the secondary school level, the 2013 Curriculum has been implemented. The 2013 curriculum actually accommodates 21st century skills, both in terms of content standards, process standards, and assessment standards. In standard processes, for example, educators are required to apply learning with a scientific approach. In the 2013 Curriculum, learning that must be applied is learning

with a scientific approach. According to the Guidelines for Implementing 21st Century Skills in the 2013 Curriculum in Senior High Schools in 2017, this approach refers to five skills, namely: (1) observing; (2) ask questions; (3) collecting data / information; (4) associate; and (5) communicate. These five skills are conditioned on the learning process which can develop critical thinking and problem solving skills, creativity and innovation, collaboration, and communication. To support 21st century skills, it can be integrated through scientific literacy processes. (S.N. Pratiwi, et al. 21st Century Science Learning with Student Science Literacy, Journal of Materials and Learning Physics: Vol 9 No.1 Year 2019: ISSN 2089-6158.

Science literacy focuses on building students 'knowledge by using science concepts meaningfully, thinking critically and making decisions that have relevance to students' daily lives. Environmental problems that occur around as well as various developing local cultural issues can be used as a means of teaching students about scientific literacy. Science literacy can be provided to prospective teachers by utilizing learning resources in the surrounding environment. One of them is by utilizing local potential and wisdom.

Likewise, the research team's direct experience as a lecturer in the Microteaching subject has an obligation to provide guidance for future physics teacher candidates. Therefore, it is reasonable if the proposing team conducted research, especially students of the Department of Physics, Faculty of Mathematics and Natural Sciences, UNM, who programmed the "Microteaching" course related to the performance of the microteaching implementation. Formulation of the problem in this study, How is the performance in the implementation of microteaching in accordance with the principles of scientific literacy and 21st century skills?

LITERATURE REVIEW

21st Century Skills

The National Education Association (NEA) has identified 21st century skills that include critical thinking, creativity, communication, and collaboration. Critical thinking skills are skills for conducting various analyzes, assessments, evaluations, reconstruction, decision-making that lead to rational and logical actions (King, et al., 2010). Activities to think about the subject, content, and problems are carried out through analysis, assessment, and reconstruction activities. Creativity is the skill to find new things that didn't exist before, to be original, to develop new solutions for each problem, and to involve the ability to generate new, varied, and unique ideas. Communication skills are skills to express new thoughts, ideas, knowledge, or information, both in writing and orally. Collaboration skills are skills to work together effectively and show respect to diverse team members, train fluency and willingness to make decisions needed to achieve common goals (Greenstein, 2012).

Scientific Literacy

Scientific literacy can be defined as knowledge and scientific skills to be able to identify questions, acquire new knowledge, explain scientific phenomena, and

draw conclusions based on facts, understand the characteristics of science, awareness of how science and technology shape the natural, intellectual and cultural environment, and the willingness to be involved. and care for science-related issues (OECD, 2016). The National Research Council (2012) states that the set of scientific competencies required in scientific literacy reflects the view that science is an ensemble of social and epistemic practices common to all sciences, framing all competencies as action.

Scientific literacy is the main key to facing various challenges in the 21st century to meet human needs in life. The development of science and technology is so fast that it is important for humans to understand science and technology.

Science and technology have major contributions related to all challenges of the 21st century and all challenges will not be resolved if individuals do not have scientific awareness. This does not mean turning everyone into a science expert, but it allows them to play a role in making choices that impact the environment and in a broader sense understanding the social implications of expert debate. It also means that science-based knowledge and technology make a significant contribution to personal, social and professional life. Scientific literacy helps us to form patterns of thought, behavior, and build human character to care for and be responsible for himself, society, and the universe, as well as the problems faced by modern societies that rely heavily on technology. Scientific literate individuals should be able to make more informed decisions. They must be able to recognize that science and technology are sources of solutions. Instead, they must also be able to see it as a source of risk, generating new problems that can only be solved through the use of science and technology. Therefore, individuals must be able to consider the potential benefits and risks of using science and technology for themselves and society.

Scientific literacy requires not only knowledge of scientific concepts and theories, but also knowledge of general procedures and practices related to scientific inquiry and how to advance science itself. For all these reasons, scientific literacy is considered to be a key competency that is very important for building human well-being in the present and the future.

Implementation of Microteaching

Microteaching is learning on a small scale. In microteaching it is limited to one basic competency or one learning outcome and one specific subject matter. Likewise, the time allocation is also limited between 10 - 15 minutes, with the number of students also being reduced to around 7 - 10 students, and the basic skills being trained are also limited (isolated). Each prospective teacher makes teaching preparations which are then carried out in the learning process with students / peers with the actual setting of conditions and context for teaching and learning activities.

The objectives of Microteaching are: (1) to assist prospective teachers in mastering specific skills so that the actual learning exercises do not experience difficulties; (2) increasing the level of learning competence for prospective teachers gradually with the mastery of special skills which can eventually be integrated into

actual learning; (3) supporting efforts to increase the skills, abilities and effectiveness and efficiency of prospective teachers or teachers in the learning process; (4) instill awareness of teaching skills; and (5) instilling self-confidence and being open to criticism from others.

The components of microteaching teaching skills include the following skills: (1) opening lessons; (2) verbal and non verbal; (3) using learning media; (4) choosing a method; (5) explains; (6) ask; (7) conduct an assessment (assessment); (8) providing motivation; and (9) closing the lesson.

Curriculum 2013 with a Scientific Approach

The learning process which refers to the scientific approach according to the Ministry of Education and Culture (2016) includes five steps, namely: observing, asking questions, collecting data, associating, and communicating. Further explained as follows.

a. *Observing*, which is the activity of students identifying through the sense of sight (reading, listening), smell, listener, taste and touch when observing an object with or without aids. Alternative observing activities include environmental observation, observing pictures, videos, data tables and graphs, analyzing maps, reading various information available on mass media and the internet and other sources. The form of learning outcomes from observing activities is that students can identify problems.

b. *Asking*, namely the activities of students expressing what they want to know, both with regard to an object, event, a certain process. In questioning activities, students make questions individually or in groups about what they do not know. Students can ask questions to teachers, resource persons, other students and / or to themselves with teacher guidance so that students can be independent and become habits. Questions can be asked orally and in writing and must be able to motivate students to stay active and happy. The form can be in the form of a question sentence and a hypothesis sentence. The learning result of the activity is that students can formulate problems and formulate hypotheses.

c. *Collecting data*, namely the activities of students looking for information as material to be analyzed and concluded. Data collection activities can be carried out by reading books, collecting secondary data, field observations, trials (experiments), interviews, distributing questionnaires, and others. The learning outcomes of collecting data is that students can test hypotheses.

d. *Associating*, namely student activities processing data in the form of a series of physical and mental activities with the help of certain equipment. Data processing activities include classifying, sorting, calculating, dividing, and compiling data in a more informative form, as well as determining data sources so that they are more meaningful. Student activities in processing data such as making tables, graphs, charts, concept maps, calculating, and modeling. Furthermore, students analyze data to compare or determine the relationship between the data they have processed with existing theories so that conclusions

can be drawn and / or important principles and concepts that are meaningful are found in adding cognitive schemes, expanding experiences, and insight into their knowledge. The results of learning from reasoning / associating activities are that students can conclude the results of the study from the hypothesis.

e. *Communicating*, namely student activities describing and conveying their findings from observing, questioning, collecting and processing data, and associating those addressed to other people both orally and in writing in the form of diagrams, charts, pictures, and the like with the help of simple technology tools and or information and communication technology. The learning result of this activity is that students are able to formulate and take responsibility for proving the hypothesis.

Local Wisdom

Local wisdom according to the meaning of language is local wisdom, namely local ideas that are wise, full of wisdom, have values that are embedded and followed by local residents. In anthropology, local wisdom is interpreted as knowledge contained in a local community (indigenous or local knowledge) or intelligence contained in a local community (local genius) which is the basis of their cultural identity (cultural identity). In line with that, Hamid (2012: 6) argues that conceptually local wisdom can be formulated as knowledge, values, views of life, and ways of society and community in meeting their needs and overcoming problems at hand.

Based on the understanding of local wisdom above, it can be seen that local wisdom means: norms, conceptual ideas, values, knowledge, views of life, ways of individuals and communities or communities to meet their daily needs, as well as to solve problems faced in the environment. around it. The intended environment is the interaction space for a group of people where they live together, work together, or hang out together.

In the world of education in Indonesia, one of the well-known local wisdoms is the very famous expression of Ki Hajar Dewantara, namely "Ing Ngarsa Sung Tuladha, Ing Madya Mangun Karsa, Tut Wuri Handayani" which means the function of educators as role models, dynamists and motivators (Suryadi , 2009: 57). This expression is in line with the expression that exists or lives in the Bugis ethnic group saying "Rioloi Napatiroang, Ritengngai Naparaga-raga, Rimonrii Napaampiri" which can be interpreted: he is a role model if he is in front of us, he will be a dynamist if in the middle motivator if he is behind us.

Microteaching Implementation Performance

The learning activities are divided into three stages of activities, namely: (1) preliminary activities; (2) core activities; and (3) closing activities. The allocation of time that is specifically determined for senior high schools is ± 90 minutes.

a. Preliminary activities

The activities of educators and students that can be conditioned by prospective teachers are as follows.

a) Students are in physical and psychological readiness to take part in meaningful learning.
b) Students are awakened by their motivation and expectations so that they will learn the material that has been prepared.
c) Students express their initial knowledge in connection with the previous learning material with the material to be studied.
d) Students understand the learning objectives or basic competencies to be achieved.
e) Educators must create situations and conditions that allow students to be able to connect or connect the material to be studied with their experiences in everyday life.

b. Core activities

The activities carried out by educators and students are as follows.
a) Educators facilitate students in carrying out investigative activities.
b) These students are also involved in witnessing the measurement result data.
c) Students are given the opportunity to convey the benefits of the investigation that has been carried out.

c. Closing Activities

The activities carried out by educators and students are as follows.
a) Students have the opportunity to be able to reveal the advantages and disadvantages of implementing learning that have been experienced.
b) Students get further activities in the form of investigative assignments carried out outside the classroom.

RESEARCH METHODS

Type of Research

This study uses a descriptive method that aims to describe and describe and map facts based on a certain perspective or frame of mind. While the approach used is a qualitative approach. A qualitative approach refers to a broad study of a study that produces descriptive data in the form of words and people's behavior that can be observed from both oral and written.

Time and Place of Research

This research was conducted for 6 (six) months in 2020 at the Department of Physics, Faculty of Mathematics and Natural Sciences, Makassar.

Research Subject

The subjects in this study were students who programmed microteaching courses which were determined based on the consideration of the results of the observation that the team of proposers had the intention to become physics educators consisting of 6 students and 22 female students. The total research subjects were 30 people.

Data Collection Techniques

Data collection techniques in this study used qualitative data collection techniques. Sugiyono (2013: 309) explains that in qualitative research, data collection is carried out in natural settings (natural conditions), primary data sources, and data collection techniques are carried out mostly on participant observation, in-depth interviews. interview) and also study documentation. Data analysis was carried out through (1) data reduction; (2) data display (data presentation); and (3) Conclusion drawing and verification on (drawing conclusions and verification). Withdrawing conclusions and verification, the researcher draws conclusions and verifies after all data has been collected and temporary conclusions are drawn and then re-verified. After the data collected is also verified, the researcher draws a final data-oriented conclusion. In this study, the data source in question is the result of interviews with subjects regarding phenomena related to their performance in making learning tools which are then followed by documentation to strengthen the data that has been obtained.

Research Instruments

The research instrument used in this study was an instrument for assessing the implementation of learning performance in microteaching courses which referred to the learning device assessment format developed by Teacher Professional Education (P3G).

Data Analysis Techniques

The data analysis technique in this study uses a qualitative descriptive analysis technique, in which data is collected in stages during the action. This qualitative data analysis process consists of three sequential components, namely, data reduction, data presentation, and conclusion, then checking the validity of the data in order to ensure the correctness of the data obtained by triangulation.

RESULTS AND DISCUSSION

Research Results

The implementation of learning is a process that is arranged according to certain steps so that the implementation achieves the expected results (Nana Sudjana, 2010: 136). In implementing learning, the teacher carries out several stages of the implementation of learning, including:

a. **Open learning activities**

Activities to open learning are activities carried out by prospective teachers to create a learning atmosphere that allows students to be mentally ready to participate in learning activities. In this activity, prospective teachers must pay attention to and meet the needs of students and show a great concern for the existence of students. In opening lessons, there are several activities carried out by prospective teachers, namely 1) preparing students physically and mentally including seating arrangements for students, delivering greetings, praying, asking about students' conditions, and attendance; 2) motivating students, namely conveying the benefits of studying the

material to be studied, as well as arousing the motivation of students to learn; 3) convey apperception, namely increasing the attention of students, for example by conducting demonstrations, asking questions that link previous knowledge with the material to be studied, relating to everyday life, relating to current issues; 4) convey the learning objectives, namely conformity to the theme / sub-theme, relevant to indicators, and can be implemented in learning; and 5) convey the scope of the material, namely conveying to students the main points of the material and conveying them sequentially.

b. Core activities

The core activities in the implementation of learning play an important role in achieving learning objectives and in shaping the predetermined abilities of students. The core activities in the implementation of learning carried out by prospective teachers are strongly influenced by the design or lesson plan that is made. In principle, the core activities in previous learning need to be designed to be identified by prospective teachers in a systematic manner which allows them to be carried out in the learning. The process of core activities in learning describes the use of learning strategies and approaches used by prospective teachers in the learning process, because in essence the core activities of learning are the implementation of learning strategies and approaches. In the core activities of implementing learning, there are two important activities carried out by prospective teachers, namely the first is mastery of the material which consists of 1) the delivery of the material is in accordance with the learning objectives in the lesson plan, the concept is conveyed correctly, systematically (from easy to difficult, from concrete to abstract, from those close to the student environment to far away), and linking the material with relevant environmental knowledge; 2) applying the concept of learning materials to life, namely providing real examples, linking with the latest information, linking with each other (science, environment, technology, and society). Next, the second is a model / approach / strategy which consists of: 1) implementing active learning, which means carrying out the steps of learning to reflect active learning, namely encouraging students to do direct experience activities, such as observing / conducting experiments, inviting students to interact, discuss, make inferences, stimulate the ability of students to think high order, foster joy); 2) fostering positive habits, namely accustoming students to be disciplined, cooperating, encouraging students to dare to argue or ask questions, accustom students to communicate politely, give appreciation appropriately and proportionally; 3) using tools / materials and media, as well as IT, namely effectively and efficiently using tools / materials / media / ICT, fostering active participation of students in learning, strengthening students 'understanding, and attracting students' attention; 4) class management, which is skilled at guiding students classically, in groups and individually, the class remains conducive, always provides reinforcement and motivation, can attract students' attention to stay focused in carrying out activities, the mobility of prospective teachers in the class has a purpose, eye contact with students awake; 5) use of

language, namely using words / sentences according to the psychological maturity of students, intonation and tone of speech as needed, sound volume is clear, and using polite language; 6) assessment of the learning process, namely prospective teachers traveling around monitoring the learning progress of students, asking questions to monitor student achievement, motivating students to achieve higher development, carrying out process assessments as planned; 7) assessment of learning outcomes, namely conducting assessment according to objectives, planning using an assessment rubric, and following up on the results of the assessment during learning; 8) social sensitivity, namely showing an attitude of empathy to students, caring about the needs of students, caring about environmental conditions, being open to differences in student conditions; 9) personality, namely having an open attitude such as saying thank you / sorry for the right conditions, showing friendly gestures, admitting mistakes / deficiencies gracefully, looking neat, clean, and polite, and enthusiastic.

c. Closing activities

The closing activity in the implementation of the learning implementation is carried out on the basis of the planning that has been made by the prospective teacher. Thus, prospective teachers need to plan and carry out closing activities in an effective, efficient, flexible and systematic manner. Closing activities in learning are not only defined as activities to close the lesson, but also as activities to assess student learning outcomes and follow-up activities. Follow-up activities must be taken based on the process and learning outcomes of students. The closing activities in the implementation of the implementation of learning carried out by prospective teachers consist of 1) summarizing learning material, namely by involving students, guiding students in making summaries through recall, and providing feedback; 2) reflecting and following up, namely reviewing the concept of the material that has been taught, guiding students to conduct self-evaluation to find benefits, providing feedback on the learning process, giving assignments, informing learning activity plans for the next meeting.

Analysis of the suitability description of the implementation of Microteaching with lesson plan

The description of the suitability of implementing microteaching with RPP can be seen in the results of the analysis in table 4.1 below.

Table 4.1 Results of Microteaching Assessment Analysis

No.	Rated aspect	Analysis Results
1.	**Open Learning**	In the activity of opening learning, it has been done well and in accordance with the lesson plan.
a.	Prepare students physically and mentally	Pre-service teachers have prepared students physically and mentally well.
b.	Motivate students	Pre-service teachers have motivated students according to the learning scenario written in the lesson plan.

c.	Apperception	In conveying the perception of Pre-service teachers, they have done it quite well.
d.	Asking learning objectives	Pre-service teachers ask the learning objectives well because they have been carried out effectively and efficiently by writing them down and not just mentioning them.
e.	Describes the scope of the material	Pre-service teachers have conveyed the material coverage properly in accordance with the lesson plan.
2.	**Core activities**	In the core learning activities have been carried out well and in accordance with the lesson plan.
a.	explain the material	Pre-service teachers have conveyed the material well through the teaching materials and teaching media that have been made and are in accordance with the lesson plan
b.	Apply the concept of learning material to life	Pre-service teachers have applied the concept of learning material to life well through the learning object, namely coconut oil.
c.	Apply *active learning*	In implementing active learning, Pre-service teachers have implemented it well because it involves students in demonstrations using coconut oil objects.
d.	Cultivate positive habits	Pre-service teachers have developed positive habits well because they provide new learning experiences to students, namely learning with scientific literacy and local wisdom.
e.	Using tools / materials and media	Pre-service teachers use tools and medians with very good categories because the experimental tools used use used materials and are designed themselves according to the lesson plan.
f.	Class management	Pre-service teachers have managed the classroom very well in accordance with the lesson plans.
g.	Use of language	Pre-service teachers use the language well according to the learning scenario in the lesson plan.
h.	Assessment of the learning process	Assessment of the learning process carried out by Pre-service teachers is quite good because there are several assessment processes in the lesson plans that are not carried out at the time of microteaching.
i.	Assessment of learning outcomes	Assessment of learning outcomes carried out by Pre-service teachers is in accordance with the lesson plan.
j.	Social sensitivity	Pre-service teachers have good social sensitivity.

k.	Personality	Pre-service teachers have a good personality in implementing learning.
3.	**Closing activities**	In closing activities, the learning has been done well and is in accordance with the lesson plan.
a.	Summarize the learning material	Pre-service teachers have carried out activities to summarize learning material properly in accordance with the lesson plan.
b	Reflect and follow up	Pre-service teachers reflect and follow up in accordance with the lesson plans.

Percentage of Conformity between Acting with the Format of Student Teacher Performance Assessment for Prospective Teachers

Table 4.2 Percentage of Average Appraisal Assessments of Suitability of Learning Implementation with lesson plan.

No	Respondents	Learning Activities																Total Score
		Opening					Core									Closing		
		1	2	3	4	5	1	2	3	4	5	6	7	8	9	1	2	
1	R 1	9	9	8	8	8	8	8	8	9	8	8	8	8	8	8	8	131
2	R 2	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8	131
3	R 3	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
4	R4	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
5	R5	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8	131
6	R 6	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	132
7	R 7	9	9	8	8	8	8	8	8	9	8	8	8	8	8	8	8	131
8	R 8	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	132
9	R 9	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	132
10	R10	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
11	R 11	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	132
12	R 12	9	9	8	8	8	8	8	8	9	8	8	8	8	8	8	8	131
13	R 13	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8	131
14	R 14	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
15	R 15	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	132
16	R 16	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
17	R 17	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
18	R 18	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
19	R 19	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
20	R 20	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
21	R 21	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
22	R 22	9	9	8	8	8	8	8	8	9	8	8	8	8	8	8	8	131
23	R 23	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130
24	R 24	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	130

25	R 25	9 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8	130
26	R 26	9 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8	130
27	R 27	9 9 8 8 8 8 8 8 8 9 8 8 8 8 8 8	131
28	R 28	9 9 8 8 8 8 8 8 8 9 8 8 8 8 8 8	131
29	R 29	9 9 8 8 8 8 8 8 9 8 8 8 8 8 8 8	131
Percentage of Overall Score (%)		81,68	

DISCUSSION

Performance appraisal is an assessment carried out to assess the performance of prospective teacher students in carrying out learning after they have developed learning tools consisting of RPP, LKPD, reading materials, teaching media, assessment and rubrics. Assessment of the performance of the implementation of learning is very important because prospective teacher students will be observed and assessed on how they can carry out learning according to the lesson plans that have been developed, how prospective teachers manage the class well and how they apply classroom learning in their daily life. The competence of prospective teachers in assessing the performance of the implementation of learning is an ability that must be possessed by prospective teachers in the microteaching learning process.

Based on the findings of the research that has been done, it can be argued that the performance of prospective physics teachers in implementing learning is good. In the data that has been obtained by researchers when assessing the performance of prospective teachers in carrying out the implementation of learning based on the lesson plans that have been made, it is obtained the results of a description of the implementation of learning which includes three learning activities, namely as follows.

Initial activity

Opening learning is an effort to create pre-conditions so that students' mental and attention are focused on what they are going to learn. Opening lessons means directing students to the subject matter not only that is needed at the beginning of learning, but also during the learning process. Based on the results of research related to the skills of prospective teachers in carrying out early learning activities, it was found that they were carried out well. This can be seen in the performance of prospective teachers in opening lessons in accordance with the RPP and the PPG microteaching performance appraisal format, namely 1) preparing students physically and mentally consisting of activities to greet, pray, ask about the condition of students, and make presence; 2) motivating students by conveying the title of the subject that will be studied and its benefits; and 3) convey apperception by showing three types of coconut oil from three regions as learning objects and with these objects prospective teachers ask apperception questions to foster interest / motivation to learn students.

Core activities

Core activities in learning play an important role in achieving predetermined learning goals. Therefore, the core activity in learning is a learning activity that prioritizes the process of forming the learning experience of students to acquire knowledge and skills. In the performance of the microteaching performance carried out by prospective teachers in this study, it was found that the research was carried out quite well. This can be obtained in the implementation of core learning activities consisting of two important activities carried out by prospective teachers, namely the first is mastery of the material which consists of 1) the delivery of the material is conformity with the learning objectives in the lesson plan and linking the material with relevant environmental knowledge using oil coconut as an object of learning, but in this activity prospective teachers do not convey concepts correctly and systematically (from easy to difficult, from concrete to abstract, from those close to the student's environment to the distance); 2) applying the concept of learning materials to life, namely providing real examples, linking with the latest information, linking with each other (science, environment, technology, and society) by using coconut oil as an object of learning for students. Furthermore, the second aspect in the core learning activities is a model / approach / strategy which consists of: 1) implementing active learning which means carrying out the steps of learning to reflect active learning, namely encouraging students to do direct experience activities, such as observing / conducting experiments, inviting students interact, discuss, make inferences, stimulate the ability of students to think high order, foster joy. This has been done quite well because some prospective teachers involve the active role of students to observe coconut oil and perform demonstrations and experiments directly using coconut oil as a learning object; 2) fostering positive habits, namely accustoming students to be disciplined, cooperating, encouraging students to dare to argue or ask questions, accustoming students to communicate politely, giving appreciation appropriately and proportionally. This can be seen when prospective teachers involve students in group discussions to observe, collect data, and interpret them; 3) using tools / materials and media, as well as IT, namely effectively and efficiently using tools / materials / media / ICT, fostering active participation of students in learning, strengthening students 'understanding, and attracting students' attention. this has been done quite well by prospective teachers because the media used can facilitate the learning process of students; 4) class management, which is skilled at guiding students classically, in groups and individually, the class remains conducive, always provides reinforcement and motivation, can attract students' attention to stay focused in carrying out activities, the mobility of prospective teachers in the class has a purpose, eye contact with awake learners. This activity has also been carried out quite well because prospective teachers can manage the class well, namely by dividing students into small groups; 5) use of language, namely using words / sentences according to the psychological maturity of students, intonation and tone of speech as needed, sound volume is

clear, and using polite language. This has also been done by prospective teachers well because in the implementation of learning, prospective teachers use language that is polite and easy to understand by students; 6) assessment of the learning process, namely prospective teachers traveling around monitoring the learning progress of students, asking questions to monitor student achievement, motivating students to achieve higher development, carrying out process assessments as planned; 7) assessment of learning outcomes, namely conducting assessment according to objectives, planning using an assessment rubric, and following up on the results of the assessment during learning; 8) social sensitivity, namely showing empathy for students, caring about the needs of students, caring about environmental conditions, being open to differences in the conditions of students; 9) personality, namely having an open attitude such as saying thank you / sorry for the right conditions, showing friendly gestures, admitting mistakes / deficiencies gracefully, looking neat, clean, and polite, and enthusiastic.

Closing Activities

The closing activity in learning is an activity that aims to conclude the core activities. Activities to close learning must provide a comprehensive picture of what has been learned, the level of achievement of students, and the success rate of the teacher. The activity of closing the lesson is not only done at the end of each lesson, but can also be done at the end of each part of the activity or whenever it is going to a new thing or topic. Based on the results of research related to the performance of prospective teacher microteaching, it was found that the closing activities had been carried out well by prospective teachers. This can be seen in the performance of prospective teachers in closing learning in accordance with the RPP and the PPG microteaching performance appraisal format, namely 1) summarizing the learning material shown by the activities of prospective teachers involving and guiding students to summarize the learning that has been implemented; 2) reflecting and following up which was shown by prospective teachers conducting activities guiding students to conduct self-evaluation to find benefits, providing feedback on the learning process, giving assignments, and informing learning activity plans for the next meeting. However, almost all prospective teachers in the closing activities did not conduct their activities to review the concept of the material that had been taught.

Based on the results of the research above, the performance of the prospective teacher's microteaching performance is already in a good category because in its implementation it already has several aspects in training the skills that a prospective teacher must have related to the extent to which the prospective teacher's ability is able to apply various variations of teaching methods. According to Barnawi and Arifin (2016) there are several aspects of skills in microteaching, namely as follows: 1) skills to open and close learning; 2) explaining skills; 3) skill in making variations; 4) strengthening skills; 5) questioning skills; 6) class management skills; 7) individual and small group teaching skills; 8) guiding group discussions.

CONCLUSIONS

Based on data analysis and calculation of the percentage of conformity between the components of the lesson plan and the 2013 Curriculum, the performance of the Microteaching implementation in this study was obtained in the good category. This is shown by the actions carried out by prospective teacher students who have carried out learning in accordance with the learning tools that have been developed and have fulfilled important aspects in the initial activities, core activities, and closing activities in the implementation of learning.

REFERENCES

[1] Borich, G. D. 2011. *Observation Skills for Effective Teaching 6ᵗʰ Edition*. Austin: Pearson.

[2] Direktorat Ketenagaan Dirjen Dikti. 2010. *Kerangka Acuan Pendidikan Karakter Tahun Anggaran 201*. Jakarta: Kemendiknas.

[3] Jumadi. 2003. *Wawasan Keilmuwan IPA/Fisika*. Makalah, Yogyakarta: Dinas Pendidikan Provinsi DIY.

[4] Kementerian Sekretariat Negara Republik Indonesia. 2017. *Peraturan Presiden Republik Indonesia Nomor 87 Tahun 2017 tentang Penguatan Pendidikan Karakter*. Jakarta: Kementerian Sekretariat Negara Republik Indonesia.

[5] Koesoema A., D. 2010. *Pendidikan Karakter*. Jakarta: Grasindo.

[6] Lickona, Thomas. 2012. *Character Matters: How to Help Our Children Develop Good Judgement, Integrity, and Other Essential Virtues*. Penerjemah: Juma Abdu Wamaungo & Jena Antunes Rudolf Zien, Jakarta: Bumi Aksara.

[7] Martawijaya, M.A. 2014. Model Pembelajaran Fisika Berbasis Kearifan Lokal untuk Meningkatkan Karakter dan Ketuntasan Belajar Peserta Didik SMP di Barrang Lompo. Disertasi. Program Pascasarjana Universitas Negeri Makassar.

[8] Menteri Pendidikan Nasional. 2011.*Kembangkan Tradisi Budaya Keilmuan*. Potensi khusus OSN X 2011, Edisi 2.

[9] Mikrajuddin. 2002. *IPA Fisika 1 untuk SLTP Kelas 1*. Jakarta: Erlangga.

[10] Mu'in, F. 2011. *Pendidikan Karakter Konstruksi Teoretik & Praktik*. Jogjakarta: Ar-Ruzz Media.

[11] National Research Council (2012), A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas, Committee on a Conceptual Framework for New K-12 Science Education Standards, Board on Science Education, Division of Behavioral and Social Sciences and Education, Washington, DC.

[12] OECD (2016), PISA 2015 Assessment and Analytical Framework: Science, Reading, Mathematic and Financial Literacy.

[13] Nurdin. 2007. *Model Pembelajaran Matematika yang Menumbuhkan Kemampuan Metakognitif untuk Menguasai Bahan Ajar*. Disertasi tidak diterbitkan. Surabaya: PPs Universitas Negeri Surabaya.

[14] Pakpahan, S. P. 2010. *Upaya Mencari Bentuk Pendidikan Karakter dalam Membangun Karakter Bangsa*. Makalah, Medan: Temu Ilmiah Nasional Guru II.

[15] Policy Brief. 2011. *Pendidikan Karakter untuk Membangun Karakter Bangsa*. Jakarta: Direktorat Jenderal Pendidikan Dasar.

[16] Republik Indonesia. 2003. *Undang-Republik Indonesia Nomor 20 tahun 2003 tentang Sistem Pendidikan Nasional*. Jakarta: Depdiknas.

[17] Santrock, J. W. 2011. *Educational Psychology*. New York: McGraw-Hill.

[18] Schwartz, M. J. 2008. *Effective Character Education*. New York: McGraw-Hill.

[19] Setyosari, P. 2013. *Metode Penelitian Pendidikan dan Pengembangan*. Jakarta: Kencana

[20] Sirozi, M. 2005. *Politik Pendidikan*. Jakarta: PT. Raja Grafindo Persada.

[21] Sugiyono. 2012. *Metode Penelitian kuntitatif, kualitatif, dan R&D*. Bandung: CV. Alfabeta.

[22] Suriasumantri, J. 1985. *Filsafat Ilmu: Sebuah Pengantar Populer*. Jakarta: Sinar Harapan.

[23] Sutrisno. 2006. *Fisika dan Pembelajarannya*. Bandung: Jurusan Fisika FMIPA UPI.