



THE IMPLEMENTATION OF SIMULATION LECTURE BASED ON THE PRINCIPLE OF *NITENI*, *NIROKKE*, *NAMBAHI* (OBSERVE, IMITATE, INNOVATE) TO IMPROVE THE DISCUSSION SKILLS OF FUTURE MIDDLE SCHOOL TEACHER

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Abstract

Teaching needs specific expertise through education and experience. The lecturing unit of Science Teaching is expected able to help future teachers handle the difficulty of implementing their teaching skills of teaching integrated science. Loads of materials can be a guide for the prospective teacher to learn and apply on each component during teaching. Therefore, this research aims to describe the implementation of simulation method based on the principle of *niteni* (observe), *nirokke* (imitate), and *nambahi* (innovate) in improving the discussion skills of future middle school's science teachers. This research is action research. The research occurred in two cycles with students of Integrated Science Education of Universitas Sarjanawiyata Tamansiswa as the object of the research. The finding found that there is an improvement of students' discussion skills from cycle I, 64%, to cycle II, 67%.

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INTRODUCTION

The advancement of technology demands teachers to be able to develop and implement their academic qualification and competence continuously that they can become a professional teacher. One of the teacher's ways to achieve that is through implementing interactive, inspiring, joyful, and motivating learning process. The learning process should object to developing students' talents, interests, psychology, and physical development. Alpusari & Putra (2015) adds that the teacher can implement proper learning strategy to make students more active and knowledgeable in the learning process.

Integrated thematic learning in the Middle School level (SMP/MTs/SMPLB/Paket B) is adapted with the development of the students. The characteristics of the learning process should be in line with the characteristics of the targeted competency. According to the Regulation of the Ministry of Education and Culture Number 22 the year 2016 regarding the Standard of Education for Primary, Middle, and High level, competencies are important and have different approaches to develop. The competence of behaviour is related to the activities of accepting, executing, appreciating, experiencing, and implementing. The competence of knowledge is related to memorising, understanding, analysing, evaluating, and creating. The competence of skills is built through observing, asking, trying, reasoning, delivering, and inventing. The characteristics of competence and also its sub-competence can be achieved through the understanding of the concepts. These competencies are actually in line with the teaching of Ki Hajar Dewantara on the principle of 3N (*Niteni* (observing), *nirokke* (imitating), *nambahi* (innovating)). Therefore, the prospective teacher of integrated science in middle school must train themselves how to plan and execute a learning process which can build all of those competencies.

Integrated Science Department is a part of Universitas Sarjanawiyata Tamansiswa, a private university in Yogyakarta which envisions to excel in glorify and educate the

nation. One of the units offered by the department is the Introduction to Teaching. Teaching is the main tasks of a teacher. It needs a professional pathway through teaching education and experiences. Kusumawati (2016) adds that teaching ability in managing the learning process is essential so that teachers can maintain their professional quality. Later, the prospective teacher of science should be aware of the importance to improve students' positive behaviour in science (Farsakoglu, 2012). Finally, a professional teacher can be expected to be able to teach well theoretically and practically.

Supriyadi (2011) says that teaching skills are the combination of intellectuals, talents, and ability. Shahrill (2013) adds that through teaching, teacher stimulates students' interest to the materials and motivate them to participate in the whole learning process. The teacher can identify whether the students master the materials or not. Through higher order thinking skills questions, students can stimulate their critical thinking and creative contribution in the classroom. Thus, the students of integrated science department are required to take continuous professional training of teaching.

Based on the observation of the Introduction to Teaching class, there are some problems to solve: 1) the implementation of traditional teaching which lacks on handling students' mental development as well as future teachers' teaching mentality; 2) the lack of questioning skills for prospective teachers seen from their simple cognitive questions; 3) the lack of creativity from the future teacher in teaching. All of these problems are visible from the scenario or dialogue used in their teaching practices, and 4) the lack of high level of discussion where students are shy to articulate their opinion.

Learning is a process of thinking. Learning activity requires a facility for group learning. Classroom interaction is a process where students are involved in classroom activities, like writing, reading, discussing, or solving problems (A & Alfianti, 2013). Wenno (2008) says that discussion is the process of exchanging information, opinion, and experiences to gain collective conclusion on specific issues.

In order to solve the problems above, the principles of 3N are the offered solution to make the prospective teacher able to handle their difficulties in teaching. Students (the future teachers) can get the assistance and guidance in planning and doing the simulation of teaching integrated science. The innovation of the learning process with 3N principle can potentially develop and dig students' competence, creativity, and activity in a more concrete way. Through the principle, the teaching simulation will be constructive for the students. The simulation of teaching should not only limit its cope on transferring knowledge because it is a complex thing. Beside building students' skills, the prospective teacher has a target on making the students able to master the taught concepts (Irwanto, Rohaeti, & Wijayanti, 2017).

Based on the mentioned problems, this research aims to develop the discussion skills of the prospective Middle School teacher based on the principle of *niteni* (observing), *nirokke* (imitating), and *nambahi* (innovating).

METHODS

This research is action research which consists of (1) planning, (2) implementing, (3) observing, and (4) reflecting in two cycles. The steps were targeted to answer the research problems. At the end of each cycle, the researcher conducted a reflection to determine the success of the treatment or to develop it. The total of the cycles depends on the success of achieving the objectives of the research.

This research occurred from February 2018 to October 2018 on the Integrated Science Program of Faculty of Teaching and Education, Universitas Sarjanawiyata Tamansiswa on the unit of Introduction to Teaching Science. The research has 34 students as its subject. To obtain the information on the activity of the lecturers and the students in using the 3N principle, the researcher made an observation sheet. To measure the students' discussion skills, the researcher conducted a pair assessment. The analysis of the data employed the descriptive quantitative method.

RESULTS AND DISCUSSION

This research activity was in two cycles with three meeting in each cycle. The following explanation elaborates the execution of each cycle.

1. Cycle I

In cycle I, the researcher organised the experiment in five meetings: 27th February and 6th March on the material of Advanced Questioning, 27th March and 3rd April on the material of providing variation and presenting material, and 10th April on the evaluation and questionnaire filling.

a. Planning

The activities of this step are: 1) arranging the Standard of Procedure for the meeting to the simulation of 3N simulation lecture; 2) preparing the used media for the simulation; 3) arranging the observation sheet for lecturer and students; and 4) arranging the evaluation tools to measure students' productive skills in discussion at the end of the cycle.

b. Implementing

In this stage, the lecturer started the lecturing process using the 3N principle under the following description.

- The reinforcement of to the students (identifying and explaining problems, interpreting problems, and doing role-playing).

The lecturer asked the students to make themselves ready to observe (*niteni*) a video. However, the observation process was not optimum due to too bright lighting and the unclear sound of the video. The lecturer has not started to give students tasks and ask them to take notes on the video. After the ending of the video, the lecturer asked the students to observe the component and the action in the video. There was a question and answer section during the process. The students were still shy to answer the questions from their teacher. Then, the lecturer gave the students the view of another perspective to answer her question and understand the materials.

- Selection of participant (analysing roles and deciding the group for a play role)

The lecturer group the students based on their academic achievement, activeness, and gender. The grouping was very rowdy when the students had not chosen the leader of the group. The lecturer says to each group to divide their roles in a play role as a teacher and students based on their scenario.

- Setting (setting the play role, reaffirming the role and problematic situation).

In this stage, the students were asked to imitate (*nirokke*) what they have observed. The lecturer asked the students to make a teaching and learning scenario based on the video. The scenario discussed regarding the materials of science for middle school. The students discussed the simulation related to their chosen topic. The lecturer walks around to observe and help the students to utilise the components of 3N. Some groups have difficulty in imitating the component as the group members did not take the critical note during the observation.

- Preparation, choosing the students as the observer (deciding the materials, giving tasks of observation to other groups)

In this case, the other students (other groups were asked to observe the simulators. The lecturer conditioned the students and directed them to observe the simulation. Some of the students were enjoying their time, some of the other students were still preparing their scenarios.

- Playing the role (starting and finishing the play role or simulation)

The students used facial expression according to the role they played. No group voluntarily wanted to simulate their scenario; thereby the lecturer chose the group. The lecturer asked the students to copy their scenario and distributed that to each group. The current scenario was shared using a smartphone camera from each group. The distribution of the role was not working well as some of the students did not perform with clear sound and mimic. Some of the other students were not shown on making questions or fixing their scenario. The lecturer did not set the limiting time for the play role which made the learning situation inefficient.

- The discussion and evaluation (reviewing the simulation, position, and main focuses of the materials; developing further acts).

This stage is the time when the students can actively add and response their observation. Some groups were unable to analyse and suggest the performance of other groups. Some groups were unable to imitate the simulation that they observe in the video. The lecturer was out of time when she responded the questions from the observer. The focus of the class became blurred as many problems occurred starting from lacks of questions, lacks focus discussion, and lacks quality responses.

- Replaying (playing a different role and provide alternative suggestions in the next steps).

The students from other group imitate the simulation from the other group for an integrated science material. The other group were enthusiastic about performing their scenario. Some students were ready to perform and more confident to do so. Despite the positivity, there were still lacking in focus to the roleplayer as the observer were noisy during the simulation.

- Discussion and evaluation.

The lecturer asked the students regarding the essential components of teaching to make sure that they understand the concept of the materials — however, only a little part of the class involved in the discussion. The other students were silent and waiting for the additional information from the lecturer. The lecture was not optimum as it was not able to make the whole classes understood the components of teaching.

- Sharing and generalisations of the experience (connecting the situation of the role with the real life and explaining the general principle for the problems)

The students were asked to observe (*niteni*) and innovate (*nambahi*) the information from the lecturer. The lecturer chose the representative from the students to retell on what they have experienced or what they have felt during teaching. They should focus on the problems they face in teaching and how to handle that. It is expected that the

students were able to face further challenge of making the classroom activity more exciting and engaging.

c. Observation Result or Monitoring of Action

Based on the observation of the researcher and collaborator, the observation of activity from the lecturer and students in the simulation based on the 3N principle was as follows.

1) Activities of the Lecturer

The lecture with 3N principle was done based on the planning. However, the lecturer lacked on 1) centralizing the focus of the students to the video; 2) adjusting the brightness of the room; 3) low sound of the video; 4) lack of explanation to the task of the students; 5) lack of asking the students in taking notes to the video; 6) absence of group leader; 7) lack of checking all groups' preparation; 8) lack on obliging the observer group to make questions for the simulating group; 9) direct choice to the ready group; 10) absence of copy of the scenarios; 11) unclear time limitation; 12) lack on giving chances to another group to response; 13) lack of focusing on the main ideas; and 15) less optimum advanced questions.

2) Students' Activities

For the activity of the students, there were some lacking points: 1) some students were taking notes while the others were only observing the video; 2) students were shy on answering and making questions; 3) active students were too dominant; 4) rowdy situation during the group conditioning; 5) students were hard to make scenario or imitate the observation as they did not take any note; 6) students were joyful while the other groups were still discussing the scenario, 7) students were unready to perform; 8) students were lack on preparation to copy their scenario to other group; 9) students were having low sound and bad performance; 10) some students were clueless on revising their scenario; 11) some groups were unable to analyse and give insights to other groups; 12) some groups were unable to exemplify on how to teach well; 13) there were almost no questions from the observing groups; 14) some roleplayers were not focused on their roles while the other group disturbing their performances; dan 15) only some of the groups

were active on sounding their opinion and relating their perspective to the real life situation.

3) Group Discussion

The initial scoring to students' group discussion skills is projected as follows.

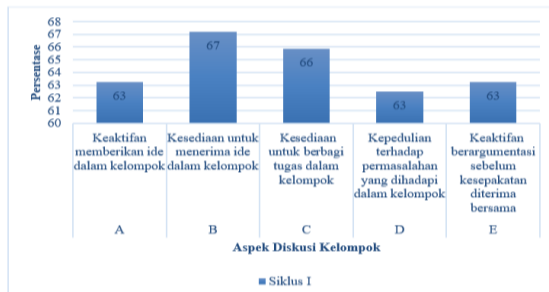


Figure 1. Students' discussion skills on Cycle I

Figure I shows that the aspects of activeness of the students in the group, the awareness of the problems and the activeness of argumentation were under 65%. These things showed that the group discussion skills of the students should be upgraded and assisted.

d. Reflection

Some recommendations for evaluation in the cycle II are as follows.

1. The lecturer centralised students' focuses on the video to precisely observe (*niteni*) the video. The lecturer should also give clear task on what the students are supposed to do during the play. The room should be set to be less bright to make the whole class can see the video in crystal clear.
2. The lecturer groups the students in the various components in which one of the members act as the leader.
3. The lecturer asks each group to *niteni* the video and to make a conceptual map which makes them understand each component of the video.
4. The representative of the group should present their group's idea on the conceptual map and ask the other group to *niteni* and *nirokke* on what they have explained.
5. The class should maximise the use of the laptop and smartphone.
6. The lecturer should completely walk around the class and direct the scenario to make sure that there is no component left neglected during the simulation.

7. The lecturer reminds the students on the critical points on the simulation, especially the time limit, clarity of sound, and facial expression.
8. The lecturer asked or obliged the observer group to analyse and ask some questions on what is observed and add new things from the performance of the performing group.
9. The lecturer asked some groups to exemplify and contend the role of the other group with the concrete way and relate the existing situation with other living problems.
10. The lecturer reminded the students on not only some students who dominate the class and actively participate in the discussion.

Cycle II

The cycle II happened for five times starting from 12th April and 24th April on the focus of opening and closing a class, 6th May and 13th May on the focus of guiding small group, and 22nd of May for the evaluation and filling the questionnaire.

a. Planning

The planning of cycle II was the same on cycle I with differences on the material focus and the execution for the recommendations from cycle I.

b. Implementing

The implementation of cycle II can be described as follows:

- The reinforcement of to the students (identifying and explaining problems, interpreting problems, and doing role playing)
The lecturer set the students to observe the learning media of a video. She gave the students direction on what they should do during the play. The teacher asked the students to sit at the front seats. The lecturer set the brightness of the room and used a loudspeaker to make the students able to listen to the sound from the video. The lecturer then asked the students to take notes on a conceptual map for the essential things on the video and gave them a task to imitate that into a performance.
- Selection of participant (analysing roles and deciding the group for a play role)

The lecturer divided the students into a heterogeneous group as well as chose the group leader. The lecturer asked the representative of the group to explain their conceptual map while the other students can observe and imitate the presentation from the performing group. The lecturer asked the groups who have not performed to show their scenario into a simulation.

- Setting (setting the play role, reaffirming the role and problematic situation)

In this stage, the students imitated the things they observed in the video. The students discussed the simulation for teaching integrated science. The lecturer asked the students questions about teaching components. After answering the questions, the students identify the components with a bracket in their scenario. The lecturer asked the students to share their scenario using email. The students can also access the scenario using their smartphone. The lecturer walked around the class checking every group's preparation. The students had easy and joyful time on the preparation with the help from their conceptual map. She also asked the students to make quality questions for the other groups. There were various quality questions provided by the students which are better than the cycle I.

- Preparation, choosing the students as the observer (deciding the materials, giving tasks of observation to other groups)

The other group observed the performer. The lecturer reminded the students to perform well with clear voice and facial expression. The other group oversee the performance and analyse whether the performance was according to their conceptual map or not.

- Playing the role (starting and finishing the play role or simulation)

The lecturer set the time limit for the simulation. The students started to show facial expression as what the lecturer commanded. The students showed their teaching performance well. The performing group had an efficient time during the performance. The other groups were able to

compare and discuss their scenario while observing the performers.

- The discussion and evaluation (reviewing the simulation, position, and main focuses of the materials; developing further acts).

The students actively opine their ideas on their observation. The lecturer limited the time for the argumentation. Most students were able to actively argue, ask questions, and exemplify the actual teaching to their friends.

- Replaying (playing a different role and provide alternative suggestions in the next steps)

The other groups imitate (*nirokke*) the simulation on integrated science teaching with different materials. The students performed more naturally and confidently rather than the cycle I performance.

- Discussion and evaluation

The lecturer stimulated the students to mention the essential components of teaching. The lecturer asked the students to ask questions to make sure that students understand the materials. The lecturer asked different students to ask questions to make sure that there is no domination from active students group.

- Sharing and generalisations of the experience (connecting the situation of the role with the real life and explaining the general principle for the problems)
The students observed and innovate the materials discussed by the lecturers. The lecturer asked some groups to exemplify and opine their ideas to concrete actions. The lecturer related the problems of teaching to other problems in real life. Some groups were actively participating in sharing their experiences and giving a solution to the existing problems.

c. Observation of Result or Monitoring of Action

1) Lecturer's Activities

The lecturer has conducted the simulation based on 3N principle well based on the recommendations from the cycle I. In the cycle II, the lecturer felt that the discussion of the students was more lively and the students can finish their task on time.

2) Students' Activities

Students have executed the simulation on 3N principles well. The students were more enthusiastic in cycle II in performing, asking questions, and sharing their opinion. They have understood their tasks which make them able to present and finish their task efficiently.

3) Group Discussion

The observation of students' discussion can be seen as in Figure 2. □

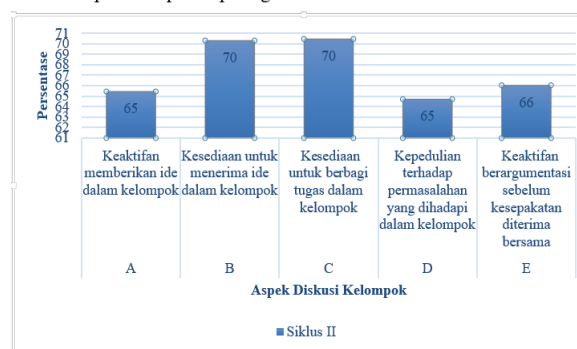


Figure 2. Students' discussion skills on cycle II

In some aspects, the students had an overall improvement from the score of 64% to 67%. The students in cycle II group were very enthusiastic in following the simulation and applying the 3N principle.

d. Reflection

Based on the discussion with the collaborator, the lecturer caught some problems and committed to fixing it in the next cycle. Thus, the problem in cycle I did not happen in cycle II.

2. Discussion

In this simulation, the lecturer applied the 3N principle. The social system in 3N is powerful that lecturer had to choose the proper activity entirely in a structured way. The lecturer had an essential role in planning and conditioning the learning process to build a cooperative interaction. The success in the simulation was also coming from the help of the students.

Beside learning on their roles, students should be active in the classroom activities. The activeness will make them engage in sharing discussion and evaluation for improving their teaching skills. Therefore, the social system in

the simulation makes the learning process exciting and cooperative.

The quality of the learning process is influenced by the communication inside it. Effective communication is a transformation of knowledge from teacher to students where the students can understand the material taught by the teacher. Therefore, they can improve.

The simulation method had a useful feature of a group discussion. The feature helps the students to exchange ideas and opinion between students and lecturer. The discussion is also useful as a measurement for students' knowledge, skills, and organisation. Hence, the lecture should not ask the students simple factual questions on a discussion, instead of a question "how" or "why. Shahrill (2013) adds that lecturer's question will grow students' independence on thinking and participating in the learning process to make it very interactive.

The improvement of the future teacher can be seen in Figure 3.

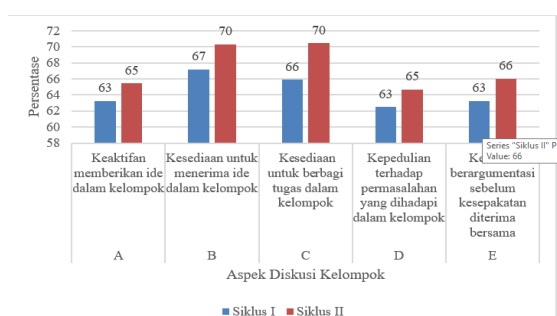


Figure 3. The comparison of students' discussion skills from Cycle I and Cycle II

In figure 3, cycle II shows an improvement of 3% from the cycle I. The improvement merely happened due to the betterment in the simulation method. Lecturer's actions were also necessary for directing and supporting the dialogue of the group discussion so that there will be a conceptual development in students' thinking skills.

Students' decision making in the scenario happened through discussion. The students conducted brainstorming before creating the scenario in which they share various perspective with their friends on scientific investigation, behaviour, values, and the ability to be involved in a rational argumentation (Siribunnam, Nuangchalerm, & Jansawang, 2014). In

McDonald (2002) cited in Wang (2005), based on dynamic group perspective, the resulting group analysis, debate, and shared perspectives help to develop conceptual learning and higher order thinking skills as well as promoting self-understanding and generating an experiential base for learning.

The confusion from reviewing the literature and observation will be a good way to ask the students to be careful about formulating their scenario (Prince, 2004). The statement is similar to Pilkington (2004) that discussion can mediate learning and play a critical role in the learning experience because learning is the process of knowledge construction through dialectic conversations among students who hold a variety of perspectives rather than information infusion.

The execution of the discussion can help the students to think on a specific topic and how to implement it with their group. The students' chances to bring a new idea in showing information, opinion and a task can improve well. The improvement of these abilities was meagre because not all of the students participated in the argumentation. The discussion task was considered difficult for the students as it was not based on their level of understanding.

Through simulation in 3N principle, the lecturer can ask the students to think how a future science teacher can handle a learning process and provide an excellent academic service to students. As in Adnyana & Citrawathi (2017), learning how to learn is very beneficial for students since this allows for lifelong learning.

CONCLUSION

The research shows that there was an improvement for students' discussion skills from the teaching of teaching simulation based on the principle of *niteni*, *nirokke*, dan *nambahi* on the unit of Introduction to Teaching Science. The result was evident from the improvement from 64% on cycle I to 67% on cycle II. The method of 3N principle should also be applied for other relevant lecture in helping students building

their knowledge and develop high order thinking skills.

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