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Biology Teacher's Perception in Accommodating 21st Century Learning Demands

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Abstract. The teacher is the main factor that contributes to 21st century learning which has four aspects, namely 1) creativity, 2) critical thinking, 3) communication, 4) collaboration. Characteristics of 21st century learning include the integration of technology in learning which is a component of TPACK (Technological Pedagogical and Content Knowledge). This study aims to describe the perceptions of biology teachers in accommodating the demands of 21st century learning. This research is a descriptive study with survey methods. The study population was biology teachers who were included in the Biology Subject Group Consultative Group (MGMP) in Bandung Regency. The research sample is four biology teachers who teach in class XI of High School (SMA) in two schools in the district of Bandung. Teacher perceptions data obtained from the teacher's answer to the 21st century skills, learning questionnaire and a teacher's consideration questionnaire in integrating technology in 21st century learning. The results showed the teacher had understood that 21st century learning must include all four aspects of 21st century learning, but in the aspects of creativity and critical thinking the teacher was still unsure of the learning evaluation process. Teachers have also understood the importance of technology integration in 21st century learning, but in the aspects of Technological Content Knowledge (TCK) teachers are still not optimal.

Keywords: Teacher's Perception, 21st Century Learning, Questionnaire, TPACK, Technology

INTRODUCTION ~ Education in Indonesia is inseparable from cultural differences because, Indonesia is a country that consists of various ethnic groups, cultures, ethnicities, and religions so that Indonesia can simply be called a multicultural society. However, on the other hand, the multicultural reality is faced with an urgent need to reconstruct Indonesia's national culture which can become an integrating force that binds all ethnic and cultural diversity.

Indonesia has a plurality of tribes, this plurality of tribes is one of the characteristics of Indonesian society to be proud. However, without werealize that the plurality also holds the potential for conflicts that can threaten the life of the nation and state. It is not only in communities where conflicts often occur, but among students also often reported brawls among fellow students of different schools. Because of the attitude that has not been mature among students so that the attitude of tolerance possessed is still lacking. (Rufaida, 2017)

To minimize the above problems, schools must be instilled in the values of togetherness, tolerance, and being able to adapt to various differences. The education process in this direction can be pursued with multicultural education, multicultural education is the process of planting a way of life respecting, sincere, and tolerant of the cultural diversity that lives in the midst of a plural society. With multicultural education, it is expected that the mental flexibility of the nation faces the clash of social conflicts.

Schools must provide teachers with sufficient knowledge so that they can carry out multicultural education and teaching.this requires teachers to validate student culture and use their cultural knowledge to develop curriculum to help students become agents of change in their communities and see cultural diversity as assets. (Djonko-Moore, Jiang, & Gibson, 2018)

In this state of the art, some previous research examples are taken as a guide or example for the research conducted which will later become a reference and comparison in conducting this research. Such as cultural and language differences are the main factors as a critical determinant of the progress of multicultural citizenship education. Based on these findings, the need for awareness and ability of teachers or educators to understand culture and best practices in multicultural education. (Kumi-Yeboah& Smith, 2016)

The uniqueness of this research is the inclusion of discussion among students. especially elementary school age childrenbecause elementary school age children are the beginning of the formation of tolerance and mutual respect and respect. Therefore the teacher has an important role in teaching methods where value-based learning is the right learning to usebecause learning can make students take meaning from each learning that is played. It hopes that it can shape

student attitudes, especially related to cultural differences. (Dr. RoliRai, 2014)

The purpose of this study is to improve students' cultural diversity attitudes based on the use of role playing learning models in elementary schools, students begin to form cultural diversity attitudes by using role playing methods where the Learning Role Play Techniques of Role Play is a learning model that can be used by teachers in creating attitudes about diversity culture in elementary schools, because clarification of values can encourage students (1) to empathize (to understand other people's feelings; see other people's perspectives); (2) solving problems; (3) state the attitude: agree, disagree, reject or accept the opinions of others. (Istiningsih, 2006) S

While role play can invite students to interact with other people who play a role. Doing that's not only results in sympathybut also empathy and learning to put ourselves in the shoes of others and consider problems with a different perspective. Because empathy, sympathy, love, and friendship are generated during interactions, role plays will be effective. So to have a clear attitude about yourself, the attitude of others is also important. (Dr. RoliRai, 2014) which means that learning VCT Role Play type can be used to enhance cultural diversity material because it invites students to try to see things from the perspective of others (sympathy and empathy).

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METHOD

The method used is qualitative action research. In this study, the thing that was improved was to improve the attitude of National Cultural Diversity in students through the learning model of Value Clarification Technique type Role Playing. Data sources are 33 children, in this action research the researcher acts as the designer of the learning process assisted by collaborators, the researcher will design and implement actions while observing the implementation of actions, noting important things that will be used as material for review as well as improvements for the next cycle. Observations and reflections from actions taken can be used as material for data analysis and planning for the next cycle.

Class action research is also described as a dynamic process in which four aspects, namely planning, action, observation, and reflection must be understood are not as steps that solve themselves, but rather a spiral moment that involves planning, action, observation, and reflection. Kemiss&McTaggart (2013).

RESULTS

The results of this study are that there is an increase in the attitude of national cultural diversity by using role play VCT learning

models. This research was conducted in two cycles conducted with the aim of improving the learning process. In using the learning model, the data were observed qualitatively. Learning outcomes data includes activeness and character values from pre-test and post-test. The steps or procedures are as follows: (1). Planning includes preparing a syllabus, Learning Implementation Plan, teaching materials. (2) Preparation of observation sheets for each learning session. (3) Prepare in each cycle by giving test questions. (4) Preparation of attitude and activity assessment sheets. (5) Actions at this stage educators carry out learning as usual but by using a role play type VCT learning model that has been prepared in accordance with the guidelines in the Learning Implementation Plan that has been made. In the first cycle, the subject used is about the importance of unity and unity in ethnic and cultural groups. From the two cycles that have been carried out, it can be concluded that there is an increase in the attitudes of students' national cultural diversity such as differences in race, ethnicity, language, nationality, and religion, through the role playing method can be seen visually in the Comparative Cycle diagram of national cultural diversity can be seen in the picture below   this:
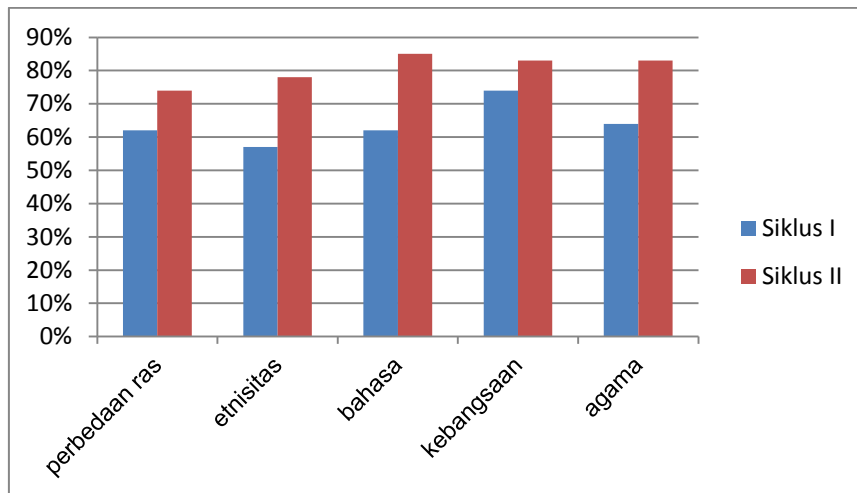
Figure 1. Comparison of Attitudes of Student's national cultural diversity in Learning PPKn Cycle I and II.

In addition to the above the authors analyzed data obtained from questionnaires in cycle I and cycle II. The comparison of the results of data analysis on the number of questionnaires attitudes towards national cultural diversity in the learning of civic of Cycle I and cycle II are presented in the diagram below :
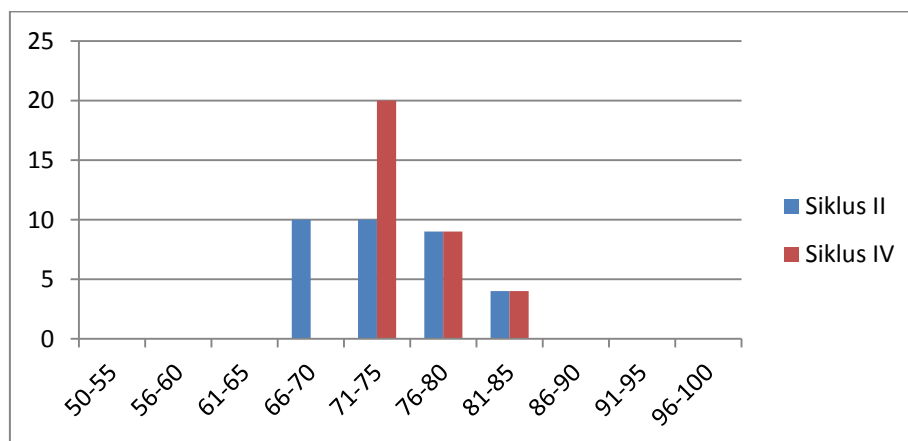

Figure 2. Comparison of the Questionnaire's Attitudes on the Diversity of the National Culture of Students in Learning PPKn Cycle I and cycle II.

The picture above questionnaire value of the attitude of national cultural diversity in learning cycle I students who scored below of minimal completeness criteria (MCC / KKM) as many as 10 students 30.3%, who have reached of minimal completeness criteria (KKM) as many as 23 students 69.6%.

In the second cycle there was an increase in the value below the (MCC) no longer exists. It can be seen a very significant increase in cycle II there are still 10 students who score below the MCC, but in cycle II all students meet the MCC.

The researcher emphasizes that changes in attitudes of students' cultural diversity are observed and described in the field

notes and other documentation. Furthermore, a comparison of the results of the data analysis of Citizenship Education learning activities using the role playing method can be seen in the observations of the first and second cycles presented in the graph below:
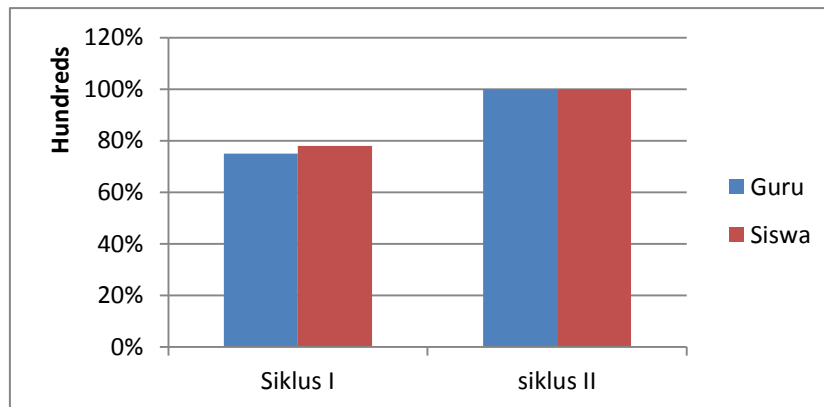

Figure 3. Comparison of Observation Results of Teacher and Student Activities through Cycle I and II Role Playing Methods

In the diagram of the first cycle the presentation of the results of the teacher 75% and students 78% and then in the second cycle the presentation of the results of the teacher and students 100%. Based on field record dataand documentationfrom the learning process and based on the theory studied by the researcher, it can be explained that there has been an increase in Civic learning about students' national cultural diversity attitudes through role playing methods, such as students starting to respect the ethnicity of other people's religious cultures This is due to the role playing process that gives students many opportunities to be able to respect diversity as beautiful. Students can also respect other people because playing role teaches students to respect differences in other students who have different ethnic and cultural backgrounds, such as the number of different opinions at each opportunity to evaluate their friends after role playing is complete. Students are also taught how to be able to tolerate other people who are different, such as accepting students who are appointed by the teacher to do role plays, and students must play the roles that have been given by the teacher. Finally, students are taught how to behave and behave that reflect the beauty of differences, such as not mocking their friends who use local language, dark skin, and dressing unlike other students, because these differences make Indonesia rich and united in accordance with the principle of Unity in Diversity which is differentbut still one.

DISCUSSION

Based on the results of the research that has been obtained, the learning process and based on the theory learned by researchers, it can be explained that there has been an increase in the attitudes of

national cultural diversity of students through role play type VCT models. This can happen because Whereas role play can invite students to interact with other people who play a role. Doing so not only results in sympathy, but also empathy, learning to put ourselves in the shoes of others and consider problems with a different perspective. Because empathy, sympathy, love, and friendship are generated during interactions, role plays will be effective. So to have a clear attitude about yourself, the attitude of others is also important. (Dr. RoliRai, 2014) which means that learning VCT Role Play type can be used to enhance cultural diversity material because it invites students to try to see things from the perspective of others (sympathy and empathy). The findings of this study are in line with Fariyatul&Bandono, (2017) who argue that by applying the learning model of Value Clarification Techniques is a way to instill and explore certain values of students. This model can assist students in finding and determining values that are considered good in dealing with problems through the process of analyzing the values that already exist and are embedded in students.

CONCLUSION

This study can be concluded that in the learning of citizenship education about national cultural diversity material makes students more aware of the importance of respecting different religious cultural tribes, students can reflect the attitude of

beautiful diversity of national culture of students, such as tolerance for friends from various ethnic groups and religion and can work with everyone. There was a significant increase in students' national cultural diversity material using the role play type VCT learning model in the first cycle of 10 people who had not yet reached the Minimum Completion Criteria, while the IV cycle 100% of students had reached the Minimum Completion Criteria where the specified Minimum Completion Criteria was 70.

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