The effectiveness of multicultural education through traditional games-based inquiry toward improving student scientific attitude

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Abstract. Curriculum 2013 provides the opportunity for students to promote learning invites students to actively participate in learning activities, and fun for the learning activity. Lessons are taught by teachers also need to instill the character of the nation based on the principles of Pancasila. This is very important considering the development of information in the era of globalization led to the decline of morality in students, degradation students' behaviour and identity of Indonesia. This study aimed to analyze the effectiveness of inquiry-based multicultural learning using traditional games in improving the student's character. The results showed that the average grade higher than the grade experiment control with t-count at 16.0992 to 1.9944 T-Table (df = 70, α = 5%) therefore t-count > t-table then H0 is rejected and H1 accepted. It can be concluded from this study that multicultural education through inquiry-based traditional games can improve students' character.

1. Introduction
Implementation of 2013 curriculum emphasizes interactive learning, fun, challenging, motivating students and make students actively participate in learning activities. National Education Act No. 20 of 2003 on national education activities states that education was held in a democratic and fair and not discriminatory to uphold human rights, religious values, cultural values, and the diversity of the nation. Implications of the Education Law No. 23 of 2003 has clearly illustrated the direction of motion of national education in accordance with the cultural background and personality of the Indonesian nation. However, it is undeniable that education can not be separated from the era of globalization that is on growing rapidly. Globalization is a phenomena that increase quality of life through being open to the new ideas which also be the last step to change the world into a global village [1]

The globalization process allows for the exchange of information, technology, science and culture. Exchanges in various fields will provide positive and negative impacts. The negative impact of the cultural exchange is the influx of outside cultural values that are inconsistent with the noble values of Indonesian national identity. If the culture does not match the incoming Indonesian culture and
implemented by the students, then the process of globalization is not directly resulting in the decline of the morals of the nation for the younger generation who became the nation's assets in the future.

Impact of globalization and democracy can not be dammed, that needs to be done is to develop a strategy for the culture of different parts of the globe do not disintegrate and eliminate the local culture. Multicultural ethnicity, social class, gender, religion, and so on in Indonesia make multicultural education need to improve it makes students proud of their nation. Multicultural education is a form of implementation of the national education function to form human dignity. The aim of multicultural education is to ensure that all students enjoy and to create equal condition for all students regardless of race, gender, culture, language, religion, and social classes [2]. Positive perspective about multicultural education give affect on scientific attitude [3].

2. Methods
This study was an experimental study with design Nonequivalent Control Group Design. The sample in this study were taken by purposive sampling, to obtain the experimental class and control class. The independent variable in this study is a device-based science learning by inquiry model of multicultural education, while the dependent variable in this study is the character of science in students.

The research instrument used is the observation sheet characters. The data were analyzed with quantitative and descriptive analysis. Quantitative analysis of the validity, reliability, two variance analysis test (homogeneity grade sample), the data normality test, calculate the N-Gain, different tests of significance in the development of a scientific character. Descriptive analysis is used to describe the increase of scientific character in every aspect of each meeting.

3. Results and Discussion
Analysis of the data of the inquiry-based multicultural learning through traditional games conducted to answer the hypothesis has been put forward. In this phase, the data used is the value of observation character and value students' critical thinking skills. Observation value data were analyzed using the student's character homogeneity, normality test, descriptive analysis faceted increase at every meeting and different test experimental class and control class.

Data observation scientific character of students who have a scale of 1 to 4 is an ordinal data. The data is then converted into interval data using the MSI (Method of Successive Interval). Once converted into interval data using the MSI, the data were tested for normality using the Chi-square formula. Based on the test results of normality, normal distribution character development data. The next stage of analysis is descriptive and quantitative analysis. Descriptive analysis to determine the increase in the observation of a scientific character at every meeting, while the quantitative analysis to determine differences in the observation of the scientific character of the experimental class and control class.

The descriptive analysis on the observation of the student scientific character performed by calculating the percentage of each aspect of the scientific character of students ranging from first meeting until the meeting 4. The percentage then categorized according to the criteria of scientific character development based Handbook Culture and Character Education Events Calendar 2010. Classification of the percentage of the development of students served in Table 1.

| Table 1. Interval of Character Development |
|---------------------|------------------|
| Interval            | Criteria         |
| 80 < x ≤ 100       | Entraceh         |
| 60 < x ≤ 80        | Develope         |
| 40 < x ≤ 60        | Visible          |
| 20 < x ≤ 40        | Not Visible      |

Aspects observed characters consist of 14 that is the attitude of prayer, respect for older people, cooperation, democracy, mutual help, responsibility, discipline, peace-loving, creative, communicative, curiosity, critical reflection, perseverance and creative. Results of a scientific character development based on the observation are shown in Table 2.
Table 2. Presentation Observation of Characters at Students

| Aspects | Classes | Meeting (%) |
|---------|---------|-------------|
|         | 0       | 1           | 2   | 3  | 4 |
| 1       | Experiment | 95          | 100 | 98 | 99 |
|         | Control    | 86          | 95  | 91 | 94 |
| 2       | Experiment | 92          | 95  | 95 | 93 |
|         | Control    | 83          | 87  | 87 | 88 |
| 3       | Experiment | 88          | 92  | 90 | 95 |
|         | Control    | 82          | 89  | 80 | 88 |
| 4       | Experiment | 87          | 91  | 88 | 94 |
|         | Control    | 82          | 83  | 85 | 86 |
| 5       | Experiment | 88          | 88  | 88 | 93 |
|         | Control    | 79          | 81  | 83 | 84 |
| 6       | Experiment | 85          | 86  | 92 | 93 |
|         | Control    | 77          | 79  | 86 | 88 |
| 7       | Experiment | 89          | 89  | 89 | 94 |
|         | Control    | 83          | 82  | 84 | 85 |
| 8       | Experiment | 87          | 87  | 92 | 90 |
|         | Control    | 81          | 80  | 83 | 83 |
| 9       | Experiment | 86          | 89  | 93 | 93 |
|         | Control    | 78          | 80  | 86 | 83 |
| 10      | Experiment | 91          | 94  | 92 | 95 |
|         | Control    | 81          | 85  | 86 | 87 |
| 11      | Experiment | 86          | 89  | 91 | 89 |
|         | Control    | 84          | 81  | 81 | 77 |
| 12      | Experiment | 94          | 91  | 94 | 94 |
|         | Control    | 80          | 83  | 81 | 80 |
| 13      | Experiment | 91          | 92  | 94 | 93 |
|         | Control    | 84          | 83  | 80 | 81 |
| 14      | Experiment | 88          | 89  | 95 | 92 |
|         | Control    | 82          | 86  | 85 | 80 |

The first character is observed in the attitude of prayer observed at the time before and after the learning. Table 2 shows that the attitude of praying students both experimental and control classes has increased from zero to a meeting of the fourth meeting. At a meeting of the experimental class, unity has a percentage of 100%. This is because before learning starts very enthusiastic learners learning as a first impression by showing an attitude of prayer were very nice and quiet. It is seen by not showing other activities undertaken and the solemn atmosphere when praying. Different circumstances are seen as a learning process ends. Experimental class tend to be quieter while praying when the learning ends while the control class is still preoccupied with its own activities and more actively talking, so that the control class has a percentage of 86%. However, at a meeting of the class unity has increased much control that is 95%, in the category entrenched. This happens because researchers motivate learners that everything will give goodness it starts with praying to God is good and right. In prayer, in addition to the attitude of the implementation of multicultural charge pray also be inserted, namely mutual respect for religious diversity of each student. Teachers do not lead by ordinance pray one religion, but invited all students to pray to the procedure of religion and belief respectively. [2] stated that the most important thing in multicultural education is a teacher who is not only required to master and is able to professionally teach subjects, but teachers should also be able to instill the core values of multicultural as democratic, humanism and pluralism. Studies [2] mention that teacher must have positive perspectives and attitudes toward multicultural education.

The second character is respect for older people in the school environment especially in the learning process. Table 2 shows that respect for older people both in the experimental class and control rose from...
zero to a meeting of the fourth meeting. Respect for older people has grown even entrenched among students. Teacher strengthen existing positive culture by developing a respectful attitude directly in the learning process.

In the process of inquiry learning, especially in the concluding stages and clarifications much interaction between students and teachers. At this stage the teacher provides multicultural intake charge. Teachers give warning, direction and motivation for students who do not heed respect for older people. This good culture should be maintained and improved.

The third character is a collaboration with colleagues at the time of the discussion during the learning process. achievement indicator derived from the active involvement of learners in playing the game and the discussion process. attitude of cooperation with colleagues in the experimental class has increased in every meeting. However, at a meeting to zero indicates a yield of 88% to a meeting of unity improved considerably by 92%, this is due to the motivation of learners in the learning following the very high and entrenched in the category. Learners are motivated when the learning process is different from the usual. The process of using the traditional game learning which is congklak to build enthusiastic learners in the following study. Congklak game is used as a suggestion of learners, thus giving the impression that interests learners. At this time congklak game created a group, then the atmosphere of the discussion is going well.

At the stage of inquiry to collect data, conduct experiments and discussion students in the group that demands cooperation among students in each group. Core meaning of the inquiry learning process is the student find their own therefore we need cooperation with friends in order to exchange findings. Then the attitude of cooperation has also appeared on the activities of clarification and a question and answer with the method of the traditional game. Traditional children's games can stimulate children in foster collaboration, to help children adapt, interact positively.

The fourth character is a democracy that is reflected when actively participating in the learning process. Results showed that the experimental class character of democracy increases at each meeting. It is seen from the data at the meeting to zero by 87%, a significant increase unity dipertemuan 91% and then decreased dipertemuan both 88% and climbed back 94% in the category has been entrenched. These results are not consistent because it is influenced by several factors: motivation of learners in following the teaching and learning activities, from zero meeting to the first meeting. Unity meeting learners congklak very interested in the game, they seemed to recall the way the game plays. Learning environment which involves students in collaborative decision-making and responsibility to make learning more meaningful. In the control group experienced an increase that is not too significant. This is because the learners are less explored questions and answers given. When the student's answer sheet discussion showed less complete answer. But in general results in the category has entrenched. Inquiry model of learning with emphasis on its own findings by students that will bring a positive attitude as disciplined, responsible, creative and critical.

The fifth character is mutual help shown by the concern to help a friend in distress. Based on observations are presented in Table 2, the experimental class increased in every meeting. In the learning process in the experimental class students actively involved, so that the interaction of students much more than learning directly applied to the control class. Multicultural can help students learn how to understand the differences vary.

Freedom in learning gives students the opportunity to explore the capabilities. A'yun [4] states that the activities hypothesize and discussion contained in inquiry learning is a way of learning that requires students to develop knowledge through different outlooks due analogy thinking and imagination are not the same, so that these activities provide guidance and opportunities to students to try to learn together so that the knowledge gained is more meaningful.

The sixth character is a responsibility that is reflected in the attitude shown when you receive and complete any given task in accordance with the direction and at a predetermined time. Based on the results presented in Table 2, the experimental grade class at the second meeting showed a significant increase of 92% and in the category entrenched. This is because in doing learners helped by looking at the website as a reference for the work. Completeness in answering becomes greater insight to
students. Research [5] explains that, during the course of the game takes place child will likely finish its work until the game can be won. It is the child's sense of responsibility in completing a specific task.

On inquiry learning process, teachers actively engage students in learning activities, so that students are required to take responsibility for the tasks given. It can be seen one of them in practical activities of observation using a microscope. Each student in the group is responsible for a given observation tasks, responsible conduct observations with the appropriate procedures and is responsible for reporting these observations at a predetermined time. This is consistent with observations made by [6] found through inquiry learning affective student learning outcomes such as students can control their strategies, build self-efficacy, and more likely to continue engaging in learning.

In multicultural education based learning with this inquiry model incorporate elements of traditional cultural form of game media in the process of clarification. The traditional game in practice is an effort for the introduction and strengthening of cultural and efforts to positively impact students' character development.

The seventh character is a discipline as evidenced by adherence students in participating in any learning activity. In Table 2 shows that the experimental class has increased each meeting. During each meeting the learning process using the traditional game different is congklak, cinaboy, buckshot legendri, and gobag Sodor. Students show discipline for reading a guide to play, so that they follow the flow of how to play properly. Learning with inserting game can stimulate a child learning to control themselves by obeying the rules that have been set, so it can provide a very good impact in helping develop emotional and social skills of children [7]. Aspects of the discipline has been included in the category entrenched. The experimental class implementing inquiry learning that in its implementation, students have the opportunity to conduct an investigation, data collection as well as develop and present the work. Through an investigation by the inquiry students will be stimulated to think analytically, behave with honesty and discipline. This is consistent with the results of research Machin [8] showed that learning by applying scientific inquiry activity is able to bring the character of curiosity, unyielding, self-discipline, objective, thorough, social care, recognize excellence and environmental conservation. In the process of playing while learning that is at the stage of clarifying the traditional game media experiment grade students are required to abide by the rules of discipline in the game.

Eighth character observed are peace-loving attitude shown by not making noise in class. Meeting to zero and unity experimental class of 87%. The results are due to the time constant learning using congklak game, learners tend to make noise in the classroom. The commotion caused by the inter-group will not budge to quickly play it so that there is a debate. The second meeting of the much increased by 92%, this is because the learners more confident in playing the game cinaboy. Basically cinaboy game requires strategy and precision in playing, so that learners are more discussions to be able to win the game. Each team accepted defeat with no show noise during the learning takes place. Children will share property rights, doing activities together and maintain relationships already established.

In the experimental class, each student is given ample opportunity to move in accordance with the direction of the teacher. This raises each student has an establishment, the work and the different arguments so that differences appear even more diverse. Students are encouraged to appreciate the differences in ideas from other students and other groups who appreciate a victory in this case is shown while playing traditional games.

Creative ninth character is shown by the novelty of the questions posed by the students. Table 2 shows that a creative attitude to increase in the experimental class in every meeting, while the control group decreased and constant. In the process of clarifying the experimental class through traditional games, students in the group are asked to make about the card that contains the questions posed in the other group. Tenth is communicative character that reflected the style of the language used is easy to understand and meet the criteria of short, dense, clear and straightforward. Achievement of the desired indicator is that learners are able to use language that is concise, clear and to the point while speaking. class experiment shows that increased scientific character of the meeting to zero 91% to 94% of unity meetings. This is because the learner is actively participating in the learning. Learning to use traditional games provide new experiences for learners. Motivation of learners visible when active asked
the teacher during the learning activities. Learners can communicate with teachers and peers using a style that is easily understood. Clarity of speech is seen when the learners provide the questions and answers on a friend. According to research results [9] explain if learners actively ask, active in answering questions, and active in presenting their opinions would have better cognitive abilities as learners are able to absorb something delivered. In the experimental group communication activities performed on multicultural education based learning with inquiry model that many require students to discover and communicate findings. Research [10] shows the results of that inquiry learning, especially at this stage of the effective reflection rise to a change in the behavior of students to learn more effectively, active, communicative and happy so that students are motivated to learn and active in presenting their opinions would have better cognitive abilities as learners are able to absorb something delivered. In the experimental group communication activities performed on multicultural education based learning with inquiry model that many require students to discover and communicate findings.

In the eleventh aspect of scientific character observed was curiosity. Achievement of the desired indicators are learners show curiosity to every natural behavior in the vicinity. At a meeting of zero to 86% and 91% the second meeting, a very significant increase. This is because the students showed a high curiosity when the teacher explains the material. Curiosity is also visible when learners read the guidelines used games for learning. Curiosity is indicated by observing the teacher gives an explanation, the students also actively asked. Learners explore their horizons through learning website so that they can answer the question on independent assignment sheet.

In the twelfth aspect of scientific character is observed the attitude of critical reflection. Achievement of the desired indicators are learners do not ignore the data and ask for information of any changes. attitude of critical reflection experiment class meetings zero to 94%. At the beginning of the meeting the students show concern when the teacher explains the material. Questions arise teacher gave a statement that tests the knowledge of learners. Some learners trying to express opinions with berbekalkan fact he gets. But at a meeting of unity decreased 91%, this is because the students experience learning cycle with the method of traditional games. Initially learners enthusiastically playing the game until too busy to try to win.

In the thirteenth aspect of scientific character is observed the attitude of perseverance. Attainment of desired indicator are learners continue researching and receive data to fit the facts, perseverance attitude experimental class meetings zero to 91%. Learners show a sense of calm when continued researching in question is able to accomplish the tasks that have been given the teacher. The task given in the form of sheets of independent tasks can be done optimally and collected on time. In the first and second meetings increased 92% to 94%. This is shown by the attitude of learners who collect a good job, answer according to the facts. Earnestness do all the tasks that make the teacher instructed the students have extensive knowledge.

In the fourteenth aspect of scientific character observed was a creative attitude and discovery. Achievement of the desired indicator is that learners can reveal the facts to base conclusions and can use their own opinion within the scope of the facts. being creative and experimental class discovery unity meeting highly significant 88% increase 95% in the second meeting. This is because when the teacher gives learners the opportunity to explain the conclusions of the material that has been learned. Learners try to make your opinion with his own words and style of language. [11] states that, learners can indirectly discover new facts learned through activities supported by traditional game. These characters appear as the game progresses and provide a better knowledge implications. In general, the scientific character of students in every aspect has increased both in the experimental class and in the control group. Overall results every aspect of scientific character in the category entrenched. It is seen that the results of the experimental class is always higher than the control class.

After knowing the increase in the development of the scientific character of every aspect of each meeting, then the average growth seen between the experimental and control classes. The result of the calculation of the value t test experimental class character and class control can be seen in Table 3.
**Tabel 3 The Result of t-test of Developing Student Scientific Approach**

| Class     | Mean    | S²      | t_count | t_table |
|-----------|---------|---------|---------|---------|
| Experiment| 2.3360  | 0.0181  | 16.0992 | 1.9944  |
| Control   | 1.7083  | 0.0366  |         |         |

Based on Table 3 show that the average grade higher than the grade experiment control with \( t_{count} \) at 16.0992 to 1.9944 \( t_{table} \) \((df = 70, \alpha = 5\%)\) so that \( t > t_{table} \) then \( H_0 \) is rejected and \( H_a \) accepted. Then accepted hypothesis is the average value of the character of the experimental class is higher than the average value of the class character of control.

Through multicultural education based learning with inquiry model, students are given the authority and freedom to perform and communicate the findings of his own invention. Gulo, as quoted [12] states that the inquiry method can involve maximally entire ability of learners to search and investigate in a systematic, critical, logical, analytical, so that learners can formulate its own inventions with aplomb. This is consistent with the statement of [13-15] that the inquiry learning model is one model of learning that can promote students’ active learning and improve conceptual understanding. In its implementation, the students managed to explore the differences as a necessity (grace of God).

4. Conclusion

The learning process is based on multicultural education through the traditional game based inquiry increases the planting of character in the fourteenth aspect of the character that is the attitude of prayer, respect for older people, cooperation, democracy, mutual help, responsibility, discipline, peace-loving, creative, communicative, curiosity, critical reflection, perseverance and creative. Through traditional game, students can improve the scientific characters in accordance with mandated in legislation.

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