Learning models based Sundanese local wisdom: Is it effective to improve student’s learning outcomes?

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Abstract. Local wisdom is a potential that can be integrated in developing learning models in schools. In West Java, local wisdom Sundanese culture has a particularly high diversity of folk games. This research is focused on developing biology learning model by integrating local wisdom in the form of ethnic folk games Sundanese. This study aims to determine the effect of the learning model that integrates local knowledge Sundanese in improving student learning outcomes. The method used was quasi experiment with quantitative descriptive design. Research subjects consist of students from various levels of education, ranging from elementary school, junior high school and senior high school. The results showed an increase in learning outcomes at all levels, the highest increase in primary school (average N-gain = 0.6), Junior High School (average N-gain = 0.37) and Senior High School (average N-gain = 0.39). Based on the results of this study can be concluded that the model of biology learning by integrating local wisdom in the form of folk games of Sundanese can improve student learning outcomes. A high increase occurred in elementary school students, based on the results of interviews of elementary students still love learning with the game.

1. Introduction

Indonesia's cultural diversity is a potential to be developed in various fields. Indonesia has different local wisdom in each region so that it becomes characteristic of the region. In West Java in particular, there are Sundanese tribes who have a variety of local wisdom. Starting from traditional medicine, traditional arts, folklore and folk games. Indirectly, local wisdom provides education in which there are messages or unwritten rules passed down from generation to generation.

The potential of local wisdom can be integrated in school education. Local wisdom can be developed in the form of learning models, teaching materials, developing curriculum, and even assessment [1-3]. The model of learning based on local wisdom through adaptation of environmental conservation values contained in the social life of the community, is expected to develop problem solving skills, scientific communication, and caring attitude of maintaining environmental balance [4]. In addition, the potential of local wisdom can build teacher pedagogical skills so that it will bring the effect of balance on the condition of students [5].

The value of local wisdom contains the noble values of the nation's ancestors that can be used as capital to build a nation with good and strong character. The role of local wisdom can be utilized to develop the character of education. Character education that is implemented must be synergized with local wisdom of each region because it has its own cultural values that can be a guide for attitudes that have ethical, aesthetic and moral values. Character education synergized with local wisdom aims to
achieve the vision of integration and social harmony of a nation [6-8]. Character education based on local wisdom is expected to increase at least little by little the crisis experienced by the character of this nation now. With the character of education based on local wisdom is expected to create a generation that is rich in character and wisdom of local culture can develop well and build some values such as nationalism, harmony, and morals to establish identity [9, 10]. Local wisdom is a behavioral education to cultivate and foster the spirit of nationalism, patriotism and build up character education of students [11, 12].

Local wisdom can be collaborated with technological advances so as to produce an innovative learning model, can be developed to create a valid teaching material, so that it can be integrated into all lessons [13-16]. Local wisdom can also be integrated in learning tools developed to improve the science process skills and students' scientific attitudes, effective in improving the science process skills and students' scientific attitudes, increasing students' scientific literacy on the environment both theoretically and empirically [17-19]. Integration of local wisdom can improve the learning process, student learning outcomes and soft skills, have an important role to foster student behavior [20, 21]. The learning model based on local wisdom literature is very important to be prepared, as this model can enrich the knowledge and develop the students' character [22].

Local wisdom is an important element that is incorporated into an innovative and creative learning process in developing knowledge, science process skills, and good student character [23, 24]. Interactive learning materials with local wisdom content have many advantages and advantages so that students prefer learning materials that contain interactive content, directing the process of growth and development of the personality of learners through teaching materials based on local wisdom, this will impact on the process of thinking better students so as to improve student learning outcomes [25, 26].

This study aims to implement several models of local wisdom-based learning at various levels of education to determine the improvement of learning outcomes.

2. Method
This research uses quasi experimental method and using descriptive quantitative design. Research subjects involving students at various levels of school are elementary school (n=1), junior high school (n=3) and senior high school (n=3). Model of learning based on local wisdom developed implemented at every level of education. Local wisdom developed especially the folk games. Some folk games are used as a model of learning include: Bebentengan, Oray-orayan, Cingciripit, Sondah, Anjang-anjangan, Hompimpa and Beklen. The learning model implemented in each school aims to improve student learning outcomes. Data collection through pretest and posttest on various materials according to the level of education. In addition, the data collection was done through interviews. Interviews were conducted on several students at all levels of education. This research was conducted in August-November 2017.

3. Results and discussion
Implementation of the learning model that integrates local Sundanese wisdom in this research is used to measure the improvement of student learning outcomes. The results showed an increase in student learning outcomes (see Table 1) after the implementation of a learning model that integrates local Sundanese wisdom. Sundanese local wisdom developed into a model of learning comes from folk games. In addition to this study the learning materials that are taught to different students.
Table 1. Student learning outcomes after the implementation of learning models that integrate local Sundanese wisdom in various levels of education.

| Level of School | School Code | Developed Folk Games | Learning Materials                          | Pretest | Posttest | N-gain | Category |
|----------------|------------|----------------------|--------------------------------------------|---------|---------|--------|----------|
| Elementary School | A1         | Sondah               | Human Growth and Development               | 2.87    | 4.72    | 0.6    | Medium   |
| Junior High School | B1         | Anjang-anjangan      | Digestive System                          | 4.93    | 6.76    | 0.39   | Medium   |
|                  | B2         | Cingciripit          | Digestive System                          | 4.04    | 5       | 0.49   | Medium   |
|                  | B3         | Oray-orayan          | Population and Environment Protozoa        | 2.09    | 3.3     | 0.25   | Low      |
| Senior High School | C1         | Bebentengan          | Nervous system                            | 2.83    | 4.07    | 0.4    | Medium   |
|                  | C2         | Beklen               | Fungi                                      | 2.3     | 2.53    | 0.19   | Low      |
|                  | C3         | Hompimpa             | Nervous system                            | 4.4     | 7.1     | 0.6    | Medium   |

Based on the results of data analysis shows improvement of learning outcomes for each level of education. This can be seen from the results of pretest and posttest and N-gain (see Figure 1). The highest increase was seen in A1 and C3, while the lowest increase was seen in B3.

Figure 1. Results of analysis of pretest, posttest and N-gain data on loyal education; A. Primary School, B. Junior High School, C. Senior High School.

Table 1 showed increasing in all levels of education after the implementation of learning models that integrate local wisdom of Sunda. But the increase was dominated by the medium and low category. This is of course less than satisfactory. The greatest increase occurred in elementary school (N-gain = 0.6), it shows that elementary school students still love to learn while playing. Primary school-age children are still strong with traditional games, so they love the learning model by integrating local wisdom in the form of folk games. The lowest increase is in junior high school students (average N-gain = 0.37), this is because junior high school students ponder the transition from childhood to adolescence. The junior high school students are less likely to learn by using a learning model that integrates the local wisdom of folk games (see Figure 2).
Figure 2. Average N-gain scores at each school level; A. Primary School, B. Junior High School, C. Senior High School.

Based on the results of research shows that the learning model developed by integrating local wisdom can improve student learning outcomes. The integration of local wisdom can improve the learning process, student learning outcomes and soft skills, have an important role to foster student behavior [20, 21]. Although the increase in learning outcomes is categorized as low, this model is feasible to be developed in learning. There needs to be further analysis related to the suitability of the learning model with the learning materials, this is not explored in this research. We did not conduct an in-depth analysis of the model relationships developed with the learning materials and their relationship to the people's games used. This is interesting if further research is done. Nevertheless, the results of this study indicate that local wisdom can be used as a model of decent learning in learning. Local wisdom can be developed in the form of learning models, teaching materials, developing curriculum, and even assessment [1-3]. Local wisdom is an important element that is incorporated into an innovative and creative learning process in developing knowledge, science process skills, and good student character [23, 24].

Education in Indonesia at this time prioritizes character education in order to build the character of the nation. Integration of local wisdom in learning indirectly can form the character of students. We are confident that by reintroducing local or cultural wisdom to the students, students will build character by themselves. Character education that is implemented must be synergized with local wisdom of each region because it has its own cultural values that can be a guide for attitudes that have ethical, aesthetic and moral values. Character education synergized with local wisdom aims to achieve the vision of integration and social harmony of a nation [6-8]. Character education based on local wisdom is expected to increase at least little by little the crisis experienced by the character of this nation now. With the character of education based on local wisdom is expected to create a generation that is rich in character and wisdom of local culture can develop well and build some values such as nationalism, harmony, and morals to establish identity [9, 10] Local wisdom is a behavioral education to cultivate and develop the spirit nationalism, patriotism and building up student character education [11, 12].

4. Conclusion
Local wisdom values have the potential to be developed into a learning model. Based on the results of research shows that the integration of local wisdom in the learning model can improve student learning outcomes although still in the category of being. Thus the need for further development related to the model used so that the results can achieve the expected goals. This research needs to be continued by using or integrating other local wisdom in different contexts.
Acknowledgments
Thank you to the students of biology education of Universitas Pasundan Bandung who has helped in this research. The school in West Java who has given permission to conduct research, and the parties involved in this research.

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