High School History Education and Education for Sustainable Development. An Integrated Curriculum Approach

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Abstract. This study aims to identify sustainable development related-competencies that can be adopted into senior high school history curriculum. The study used a survey method to 128 history teachers selected based on geographical location (69 teachers from the lowlands and 59 teachers from the highlands) and their teaching experience (a range of less than 10 years and more than 10 years). The data are collected using a questionnaire in the form of rating scale that had been examined related its validity, reliability, and each of its items’ discriminating power. The data were analyzed using descriptive statistics and ANOVA. The results show that the sustainable development related-competencies that are potentially integratable into the senior high school history curriculum are those related to socio-cultural dimension which consists of the competences to preserve the socio-cultural environment and to preserve socio-cultural diversity. The conclusion of this study is that competencies related to education for sustainable development have the potential to be integrated into the senior high school history curriculum.

1. Introduction

Sustainable development can be defined as an effort to regulate the primary, secondary and tertiary needs of humans in utilizing various existing natural resources, but still taking into account the environmental aspects for the needs of future generations [1] - [6]. United Nations, 2007. UNESCO at the World Summit in Johannesburg on Sustainable Development, in 2002, highlighted the importance of education as the heart of sustainable development [7]. Likewise, the reports from the United Nations Conference on Sustainable Development highlight the importance of education in preparing communities to implement sustainable development [8]. Education for sustainable development (henceforth ESD) must be part of all subjects at all levels of education ranging from kindergarten to college [9].

ESD and learning of history subjects in secondary schools always face obstacles in terms of understanding the meaning of education as limited to the transfer of knowledge. Thus, mastery of material is still more important thing than students’ behavior changes. The same vision between ESD and the objectives of historical subjects is the basis of the integration of the two. On the basis of these thoughts, the research problems in this study are related to competencies in the History subjects needed...
by high school students related to ESD and history subject curriculum materials that can be adopted with education for sustainable development in high schools.

The effort to improve students' historical competence for sustainable development is one of the main choices in achieving the objectives of history instructions, which is more specifically referred as historical competence. If history is well studied, students will get habits of critical thinking through experience in analyzing and interpreting facts or historical evidence [10]. The learning experience gained by students can improve their high-level thinking skills, which is a skill needed as members of the community.

However, ESD content in high school curriculum is still not visible, both in the form of curriculum content and in the implementation of education in schools. Education plays an important role in producing wise and quality human resources responsible for implementing sustainable development [11]. High school curriculum content has not been explicitly or implicitly included ESD. Theoretically, curriculum content is differentiated between content coverage and content uncoverage. The first category of curriculum content is content or teaching materials that have been listed in curriculum documents, while content which is not covered in the curriculum is teaching material that is not contained in curriculum documents [12].

There are several previous studies that are relevant to research studies related to historical learning and ESD, among others, research [13]. The research aims to distinguish ESD from environmental education and emphasizes the importance of problem-based interdisciplinary learning for sustainable development of education. In the design and research methodology, this research uses various approaches related to ESD, which is due to the complexity of research problems. Problem-based studies such as case studies are one form of interdisciplinary instructions. The research findings suggest that ESD requires a complex interdisciplinary approach in the affected areas for environmental education. The implication of this research is to suggest that the next researchers who design educational and teaching programs for sustainable development must incorporate an interdisciplinary approach (integrated curriculum) and apply environmental problem-based learning. Education for historical situations, cultural understanding and studies of society and environmental criticism against new conservative groups in curriculum reform [14]. This research emphasizes the need to prepare young people through curriculum reform. Curriculum reform is carried out to deal with 21st century globalization in terms of cultural diversity, ethnic diversity, and global society through the development of critical thinking capacity. Critical thinking capacity development is carried out by placing historical studies, understanding culture, community studies and the environment as the basis.

The framework for the development of teaching approaches and learning resources for education for sustainable development [15]. The results of this study emerged as a response to technical and vocational education practitioners in developing a framework for designing ESD curriculum systematically through a holistic ESD approach in their teaching area. The framework proposed in this chapter is based on two sets of theories, namely the nature of society and the nature of sustainable development. Specific attention is given to one component of the framework that was previously not considered by the writers of sustainable development and ESD. This component is aesthetic. Aesthetics can play an important role in the ESD curriculum, because it affects the identity and behavior of the younger generation. The results of this study suggest that ESD aims to develop teaching areas as part of regional teaching and the framework proposed by this chapter can provide opportunities for teachers to plan and address a number of issues of sustainable development through the teaching process. Examples of technology education illustrate one way to implement this framework. In other words, sustainable development issues can be learned in the instructions [16]. This paper provides a case study of Learning for Sustainable Environment research that illustrates changes in how education can be fostered at the regional level through the development of professional teacher. The aim of this project is to expand the range of innovative practices used in teacher education programs in the Asia-Pacific region by introducing educators to curriculum planning skills and teaching methodologies in environmental education. This is
conducted through a network of teacher action research in the development and evaluation of workshop modules as a tool for collaborative professional development.

2. Methodology
This research uses survey methods to collect data quantitatively. The selection of survey methods is based on its ability to describe educational competencies for sustainable development for teachers to be used as research samples [17]. The sample in this study are history subject teachers in high schools, which are grouped using cluster sampling techniques based on geographical location, i.e. in the lowlands and highlands and their teaching experience in a range of less than 10 years and more than 10 years.

The research instrument used is a structured questionnaire which was developed through several stages. In the first stage, a literature review was conducted to various articles in journals and book manuals in the field of education for sustainable development (ESD). And in the second stage, the identification of ESD competencies that have the potential to be adopted into the history curriculum in high schools. Validity and reliability testing of the questionnaire contents are carried out through expert judgment. The data collection procedure uses a questionnaire in the form of a rating scale with each item's discriminatory power. Questionnaires are given directly to respondents in the form of hard files or soft files in the google form to be distributed via What sapp. The number of questionnaires that were successfully verified and validated is 128. The data obtained were analyzed using descriptive statistics and ANOVA.

3. Results
This study aims to identify ESD-related competencies that can be adopted into history subject curriculum in high schools. Before identifying competencies, a T-test is carried out for the sample area and dimension competencies. The results of the T test can be seen in table 1 below

| Dimension Competencies | Low Lands | Highlands |
|------------------------|-----------|-----------|
|                        | N         | Mean      | Std. Dev | N         | Mean      | Std. Dev |
| Environment            | 69        | 238.6     | 18.11    | 59        | 240.6     | 17.32    |
| Socio-cultural         | 69        | 149.0     | 12.86    | 59        | 149.7     | 11.97    |
| Economy                | 69        | 106.0     | 8.54     | 59        | 105.8     | 8.19     |

Table 1 shows that the mean and standard deviation of competencies in the environmental, socio-cultural and economic dimensions of ESD in the lowland and highland areas are not much different. Differences appear in the mean and standard deviation of dimensional competencies.

Competence in the environmental dimension of high school history subject teachers who teach in lowland areas has a standard deviation of 18.11. Standard deviations value in the socio-cultural dimensions is 12.86 and standard deviation value of competencies in the economic dimension is 8.54. This shows that in the lowland area, the competency in environmental dimensions has greater value compared to competencies in the socio-cultural dimension and competence in the economic dimension.

In the meantime, competency in the environmental dimension of high school history subject teachers who teach in highland areas has a standard deviation of environmental dimensions of competency of 17.32; a standard deviation of competencies in the socio-cultural dimension of 11.97; and competency standard deviation of economic dimensions of 8.19. This shows that ESD competencies in the environmental, socio-cultural and economic dimensions in historical subjects are not much different. In the lowland area, the standard deviation value in each dimension of competence is greater than those of the highland sample. In the meantime, the mean value of environmental and socio-cultural dimension
competencies of the sample in highland sample is greater than the mean of each competency dimension of the lowland sample. 

The results of the hypothesis test of the area on environmental dimension competencies is 0.509. The area of competence in the socio-cultural dimension is 0.839. The area of competence in the economic dimension is 0.981. Because the significance is above 0.05, it can be concluded that there are no differences in competencies in the environmental dimension, socio-cultural dimensions, and economic dimensions for the sample in both lowland and highland areas.

To see the ESD competencies that have the potential to be adopted in history subject curriculum, data processing was performed using multiple comparisons ANOVA test with Scheffe. The results are presented in table 2.

| Table 2. Mean Difference on environmental, cultural and economic social dimensions |
|---------------------------------|-----------------|-----------------|
| (I) Dimension                  | (J) Dimension   | Mean Difference (I-J) |
| Environmental                  | Socio-cultural  | 90.19531*        |
|                                 | Economy         | 133.61719*       |
| Socio-cultural                 | Environmental   | -90.19531*       |
|                                 | Economy         | 43.42188*        |
| Economy                        | Environmental   | -133.61719*      |
|                                 | Socio-cultural  | -43.42188*       |

Table 2 above shows that the mean difference in competence in the environmental dimension has a positive value on the socio-cultural dimension and the economic dimension. This shows that ESD competencies in history subjects related to the environmental dimension are more potential to be adopted in the instruction than those in socio-cultural dimensions and economic dimensions. The results of the ANOVA test on region and dimensional competence are presented in table 3.

| Table 3. Dimensional competencies in lowland and highland areas |
|---------------------------------------------------------------|
| Dimension          | N    | 1     | 2     | 3     |
| Economy            | 128  | 105.96|       |       |
| Socio-cultural     | 128  | 149.38|       |       |
| Environment        | 128  | 239.57|       |       |
| Sig.               |      | 1.000 | 1.000 | 1.000 |

Table 3 shows the conclusion that environmental dimension competencies have more potential to be adopted in history subjects in high schools. The results of the normality test for teachers who have teaching experience below 10 years have a significance of 0.002 and teachers who have teaching experience above 10 years have a significance of 0.006. Based on the non parametric statistical test has a significance of 0.047. The conclusion from the description is that teachers who have experience of teaching less than 10 years argue more diversely than teachers who teach over 10 years.

4. Discussion

The development of the ESD curriculum in high school can be done by first identifying the required competencies. After identifying and understanding various related competencies, the teachers can formulate effective learning strategies so that the students have those competencies as well as the procedure for evaluations [18].

In implementing the curriculum, more emphasis must be given to providing practical experience, as the expected results of this program are the growth of awareness, attitudes and values that can be an inspiration and a basis for the community to succeed in sustainable development. The concept
development and planning of this program require the application of practices and approaches that foster a sustainable development value system. In viewing sustainable development, the new vision of education emphasizes the existence of a holistic and interdisciplinary approach, values-driven, multimethodic, participatory, and critical thinking and problem solving. This requires educational institutions to reorient education systems, policies and practices that can encourage people to act and make appropriate decisions in accordance with local conditions in dealing with issues that threaten their future [19].

5. Conclusion

ESD-related competencies for that have the potential to be adopted into the high school history curriculum are those that are related to the socio-cultural dimension which consists of competencies to preserve the socio-cultural environment and to preserve socio-cultural diversity.

6. Reference

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