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Integrated Science Learning with Theme of the Favorite Fashion on Junior High School

Ardiani Mustikasari [1,a)] and Wiyanto [2,b)]

[1] *Education Quality Assurance Institution for Central Java*
[2]*Science Education Study Program, Graduate, Universitas Negeri Semarang*

[a)]Corresponding author: ardianim@gmil.com
[b)] wiyanto_fis@yahoo.com

Abstract. The purpose of this study was to explore: (1) the application, (2) the students' activities, (3) knowledge and skills of students, (4) the advantages and disadvantages of implementing an integrated science learning with the theme of favorite fashion in junior high school. The favorite fashion is something that someone likes and used to show her or his lifestyle. To achieve the purpose of this study, the webbed type of the integrated science learning was developed based on the Curriculum 2013, and then it was implemented in the Class VIIID of SMPN. 2 Temanggung with one group experimental design (without control). The data were collected using observation, tests, and documentation technique. The results was showed that integration learning of webbed model with theme of the favorite fashion to bring material Biology, Physics and Chemistry. The Integration are interdisciplinary, transdisciplinary, and intradisciplinary. The students tend to be active in the whole process of learning. Knowledge and skills of students achieving in the top of 80%. The advantages of a webbed-integrated science learning include students are more motivated and more easily understand inter relationships of concepts/topics, and the disadvantages of that are difficulties of teachers for determining the themes and design in diferent subjects.

INTRODUCTION

Natural science is a representation of the extant body of scientific knowledge, the values of science, and the methods and processes of science. Thus natural science is not only consists of a collection of knowledge or a variety of facts memorized, but natural science is also an activity or actively process using the mind in the study of natural phenomena. Natural science using what you already know to understand what is not yet known [1,2].

The purpose of the science learning is to teach students to be able to apply what is learned in daily life. The student's critical thinking skills need to be trained so that mastery of a concept by students is not just a recitation of a number of concepts that have been learned, but they were able to apply the concepts they have on other aspects [2,3]. The science learning refers to the process standard. In the standard process shown that one of the changes in learning principle of partial learning towards an integrated learning. Thus, learning at primary and secondary levels, both in SD / MI, SMP / MTs, SMA / MA or SMK / MAK implement integrated learning. As for the characteristics of the learning process in SMP / MTs / SMPLB / Package B adapted to the characteristics of competence began to introduce subjects to maintain a unified thematic in science and social studies. Thus science learning in junior high school implement an integrated science learning.

Integrated learning is a learning that links several aspects. There are four integration in integrated learning, which is a multidisciplinary, interdisciplinary, transdisciplinary, and intradisciplinary [4,5]. With the integration, learning becomes meaningful for students [6,7].

Integrated learning has not been implemented by the majority of teachers. Supervision results of Education Quality Assurance Institution for Central Java and also research results, show that science learning in junior high school has not shown the application of integrated thematic learning [2,8,9]. Training of Curriculum 2013, material of integrated learning is not discussed in depth, so teacher's understanding about the science learning associated integrated learning is still lacking.

There are 10 integrated learning models, which are fragmented, connected, nested, sequenced, shared, webbed, threaded, integrated, immersed, and networked model. This paper discusses an integrated science teaching in junior high school with webbed model. Webbed model is the most popular model. This model uses the theme as

alloying materials and learning activities. Science with webbed model can tie learning activities either in certain subjects or across subjects [10,11,12].

The interesting problem for further investigation are: (1) how is the application of integrated science learning with the theme of favorite fashion in junior high school; (2) how are the students' activities; (3) how are knowledge and skills of students; and (4) how are the advantages and disadvantages of implementing an integrated science learning with the theme of favorite fashion in junior high school? The favorite fashion is something that someone likes and used to show her or his lifestyle. The purpose of this study was to explore: (1) the application of integrated science learning with the theme of favorite fashion in junior high school; (2) the students' activities; (3) knowledge and skills of students; and (4) the advantages and disadvantages of implementing an integrated science learning with theme the favorite fashion. The paper is expected to be used as (1) the information and insights on integrated learning; (2) ingredients to prepare training program of the Curriculum 2013 in junior high school; and (3) the references of the following research that relevant to this study.

EXPERIMENTAL

Preparation of Integrated Science Learning

Implementation of Integrated science learning begins with the preparation documents. The steps that must be done in preparation documents are as follows: (1) analysis of SKL-KI-KD, (2) deciding theme, (3) mapping KD, (4) making nets indicator, (5) developing syllabus, (6) developing RPP.

Setting

Place of study. Implementing an integrated learning of webbed model with the theme of the favorite fashion done in class VIIID SMPN 2 Temanggung, because it is a referral school of curriculum 2013. Number of students is 32, boys 15 and girls 17.

Time of study. The study done as follows: program preparation in October 2016, instrument preparation in November 2016, learning observations at 4 December 2016, data analysis at 5 to 17 December 2016, report preparation at 19 to 31 December 2016. The research was adapted to the annual program and the semester program.

Design and Technique

This study used a one-group experimental design (without control). Technique of this study used as follows: implementing an integrated learning with themes of the favorite fashion with documentation and learning observation, student activities with attitudes observation, student skills with performance observation, and student knowledge with tests.

Instrument and Data Analysis

Instrument used learning observation and documentation, attitude observation, performance observation, as well as a written test instrument. Data obtained in the form of qualitative and quantitative data. Data analysis used descriptive analysis.

RESULTS AND DISCUSSION

Implementating of Integrated Science Learning

Implementation of Integrated science learning begins preparation documents, as follows: (1) analysis of SKL-KI-KD, (2) deciding theme, (3) mapping KD, (4) making nets indicator, (5) developing syllabus, (6) developing RPP. Analysis SKL-KI-KI-KD performed in Class VIII. One of themes is the favorite fashion. The results of mapping with theme of the favorite fashion includes KD 3.2 Explaining the linkage of plant tissue structure and their function, as well as various utilization in technology that inspired by the structure; 3.3 Describe the linkage of materials character and their use in everyday life, as well as the effect of the use of certain materials on human health; 4.2 Conducting Observation of plant tissues structure, as well as produce a simple technology ideas that

inspired by the structure; 4.3 Conducting the investigation of materials character and proposing material utilization ideas by its character in everyday life.

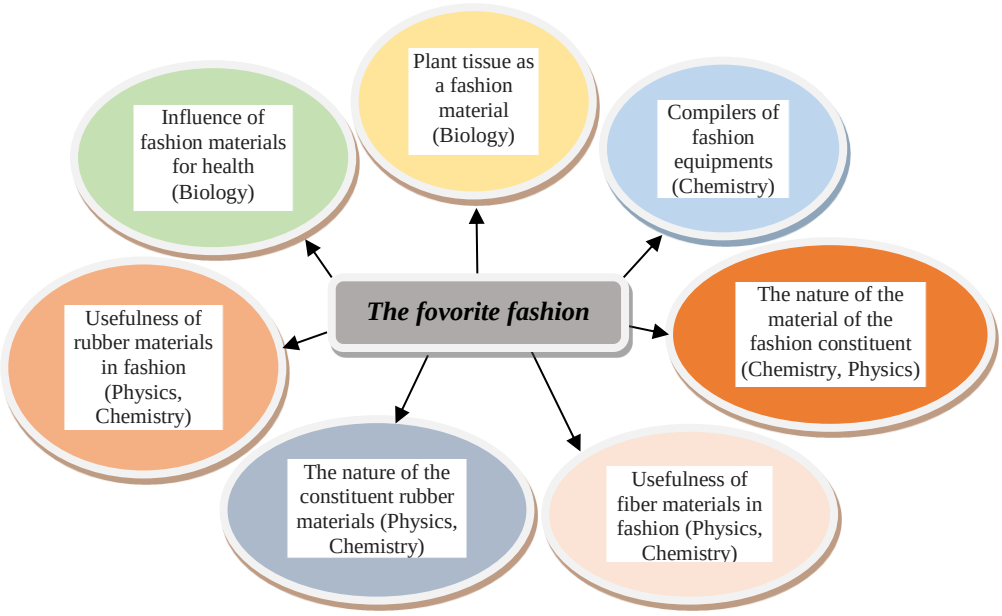

FIGURE 1. Indicators Nets of Webbed Model

Mapping based competency in indicators net as shown in Figure 1. Indicators Nets of Webbed Model. This figure showed that integration learning of webbed model with theme of the favorite fashion to bring some material together. The material can be from some subject mater. Theme of favorite fashion unites the indicators of science based competency. The results of materials analysis corresponding indicators of Biology, Physics and Chemistry based competency. Some theories and result result showed that the webbed model uses a common theme to integrate subject matter [10,11,12,23,27].

Indicators net was for developing syllabus and lesson plan (RPP). Learning activities consist of introduction, core, and cover activities.

Introduction activities. The teacher showed fashion equipment, displayed a variety fashion images, for example clothes, bags, shoes, bracelets, necklaces, and others. This activities focused students attention, demonstrated something related to the theme, and motivated students to present favorite fashion that they liked.

Core activities. The teacher associated theme of the favorite fashion with indicator and learning objectives. Learning steps was designed to suit the syntax (phase) of discovery learning model. Through discovery learning model, students will construct their own material. Research result showed that discovery learning makes students actively discover the concept of matter [15,16,17]. First sintax, student observe fashion equipment and picture that was give a teacher for stimulation. Thus, students will find their own answers to the questions as follows: What were your favorite fashion that are made from fiber and rubber?; Do your favorite fashion made from plant?; What do parts of the plant that product fiber and rubber of your favorite fashion-makers?; How are character of fiber of your favorite fashion-makers?; How are usefulness of fiber of your favorite fashion-makers?; How are character of rubber of your favorite fashion-makers?; How are usefulness of rubber of your favorite fashion-makers?; Why do fiber and rubber of your favorite fashion-makers effect on your health?

Core activities demonstrate integration of interdisciplinary, intradisciplinary and transdisciplinary. Integration of interdisciplinary was indicated with achievement of Biology, Physics, and Chemistry matter. Integration of intradisciplinary was indicated with achievement of attitudes, knowledge and skill. Integration of transdisciplinary was indicated with activities to suit the context. Theories showed that Interdisciplinary is integration of different disciplines, intradiciplinary is integration of attitudes, knowledge and skill, Transdisciplinary is a holistic view [4,5,18,19].

Close activities. The teacher associate activities with theme of the favorite fashion. The teacher facilitates students to conclude, reflect, and talk value that relate the matter and theme of the favorite fashion.

The result of learning observations get score 52, the value was 86.67 and very good category. It showed that implementation of learning process same with lesson plan steps have been prepared based on process standard. [20].

TABLE 1. Integrated science learning activities with theme of the favorite fashion

Activites	Activities Description	Time
Introduction	• Teacher give greeting and invite to pray. • Teacher check the presence of student • Teacher showed fashion equipment • Teacher displayed a variety fashion images, for example clothes, bags, shoes, bracelets, necklaces, and others • Students **observe pictures, talk about** the picture and their favorite fashion? • Teacher associate last learning with the picture and theme of favorite fashion as well as usefullnes of learning • Teacher talk abou learning goal • Teacher talk abou learning activities • Teacher talk abou learning assessment	20’
Core Stimulation (phase 1)	• Students make group base on their favorite fashion • Students observe some good and picture of fashion • Students identificate and clasificate fashion-maker	90’
Problem statement (phase 2)	• Students ask question. The questions were hope: ➢ What were your favorite fashion that are made from fiber and rubber? ➢ Do your favorite fashion made from plant? ➢ What do parts of the plant that product fiber and rubber of your favorite fashion-makers? ➢ How are character of fiber of your favorite fashion-makers? ➢ How are usefulness of fiber of your favorite fashion-makers? ➢ How are character of rubber of your favorite fashion-makers? ➢ How are usefulness of rubber of your favorite fashion-makers? ➢ Why do fiber and rubber of your favorite fashion-makers effect on your health? • Students are guided to create temporary answer	
Data collection (phase 3)	• Students collect information to prove the answer • Students find different references sources from textbook and internet to answer questions. • Students do experiment to identification fiber and rubber fisic character with worksheet. • Students create table.	
Data processing (phase 4)	• Students process and analyze data and information from various sources to answer questions and prove temporary answer	
Verification (phase 5)	• Students compare the results of processing and analysis data with valid resources.	
Generalization (phase 6)	• Students create conclution • Students present group work result with power point • Students from other group give feedback • Teacher give feedback	
Close	• Students were guided teacher to create learning conclution • Students do reflection • Teacher collects student product as portfolio • Teacher informs future learning • Teacher talk value that relate the matter for choice product fashion that savety. • Regard and pray.	10’

Student’ activities of Implementating an Integrated Science Learning

Students' activities observation during learning process showed that 81.25% of students actively ask questions, 90.62% of students actively answer questions, 93.75% of students actively discussion group, 100% of students actively carry out experiments, and 100% of students actively do task. These results showed that students are active during the learning process. Students’ activities reinforced with reflection teacher after learning process. It can be stated that during implementating of integrated science learning of webbed model with theme of the favorite fashion can effect student active learning. Some research result showed that integrated science learning of webbed model can achieve students activities [13, 14, 20,21,22,23,24].

Student Knowledge and Skills of Implementating an Integrated Science Learning

TABLE 2. Learning outcomes of Implementatingan Integrated science Learning in class VIIID SMPN 2 Temanggung

Component	Knowledge		Skill	
	KD 3.2	KD 3.3	KD 4.2	KD 4.3
Average of learning outcomes	90.67	87.18	93.77	89
student that achieved minimum completeness criteria (%)	93.75	87.50	100	100

Knowledge assessment. It conducted during and after learning process. During learnig process through assignment. After learning process through written test. The results of knowledge assessment showed the average of learning outcomes KD 3.2 and 3.3 is 90.67 and 87.13. Prosentase of students achieve a minimum completeness criteria is 93.75% and 87.5%. Mastery learning was analyzed based on students achieve knowledge compare with the minimum completeness criteria. The minimum completeness criteria (KKM) of science subject matter was 80. Research result showed that integrated science learning of webbed model can improve student knowledge [25,26].

Skill assessment. It conducted during learning process. It through performance appraisal. The results of skill assessment showed the average of learning outcomes KD 4.2 and 4.3 is 93.77 and 89. Students that achieved minimum completeness criteria, both KD 4.2 and 4.3 is 100%. Research result showed that integrated science learning of webbed model can improve student skill [25,26].

These results suggest that student in class VIIID SMPN 2 Temanggung achieved mastery learning on knowledge and skills in integrated science learning of models webbed with theme of the favorite fashion. Mastery learning on knowledge and skills was above class completeness (80%). Research result showed that integrated science learning of webbed model can achieve mastery learning [20].

The Advantages and Disadvantages of Implementing an Integrated Science Learning

TABLE 3. The advantage and Disadvantage Integrated science Learning

Advantage	Disadvantage
• Student more active • Students more motivated • Students more easily understand interrelationship of concepts/topics	• difficulties for determining the themes • difficulties for design in diferent subjects

Based on learning observation, student activity observation and student learning outcomes data can show the advantages and disadvantages of implementated an integrated learning of webbed model with theme of the favorite fashion. The advantages and disadvantages of webbed model are described in more detail.

The advantages. Webbed model with theme of the favorite fashion was active learning student and mastery learning above 80%. Theories showed that the advantages of webbed model include students are more motivated and more easily understand inter relationships of concepts/topics [10,11,12]. During implementating of an Integrated learning, students of Class VIIID SMPN 2 Temanggung showed activity. Students have motivation to learn. The research results showed significant relationship between learning motivation and learning activities [24]. Mastery learning students above 80% showed that students more easily understand subject matter are linked one another. During the learning process, students working in groups so through integrated learning of webbed model with theme of the favorite fashion capable to facilitating group work learning.

The disadvantages. Webbed model is selection of theme. There was need analytical skills and creativity in determining the theme for linking variety of subjects and students characteristics. Theories showed that the disadvantages of webbed model is a tendency to grab at shallow theme that are superficially useful, teachers can become focused on activities rather than on concept development, difficulty in planning does not guarantee that the necessary time is proportional to implementation [10,11,12]. Thus the difficulty in determining the theme that the disadvantages of webbed model with theme of the favorite fashion accordance with the fogarty opinion. The disadvantages of teachers can become focused on activities rather than on concept development can be overcome by preparation of an integrated learning program that consist of analysis SKL- KI-KD, deciding theme, mapping KD, making nets indicator, developing syllabus and developing lesson plan. Implementating of an integrated science learning with theme of the favorite fashion in yunior high school come across difficulties of teachers for determining the themes and design in diferent subjects.

From the results of implementing of an integrated learning of webbed model with theme of the favorite fashion in Class VIIID SMPN 2 Temanggung and theory of Fogarty, 1996 can be finding the advantages and disadvantages. The advantage of webbed models include students are more motivated and more easily understand inter relationships of concepts/topics as well as facilitate teamwork. The disadvantage of webbed model are difficulties of teachers for determining the themes and design in diferent subjects.

CONCLUSION

Conclusion. Integrated science learning of webbed model with theme of the favorite fashion combined several matter. Steps to building an integrated learning tool is the analysis of SKL-KI-KD, deciding theme, mapping KD, making indicators net, developing syllabus and lesson plans. Integrated learning of webbed model with theme of the favorite fashion in class VIIID SMPN.2 Temanggung showed the integration of interdisciplinary, intradisciplinary and transdisciplinary. The students tend to be active in the whole process of learning. Knowledge and skills of students achieving in the top of 80%.The advantage of webbed models include students are more motivated and more easily understand inter relationships of concepts/topics as well as facilitate teamwork. The disadvantage of webbed model are difficulties of teachers for determining the themes and design in diferent subjects.

Suggestions. For teachers when implementing integrated learning of webbed model to be more creative determine the theme and develop learning program very well. For school that it was facilitate and support the teachers in implementing of an integrated science learning. For the Department of Education that it was facilitate teacher competency improvement in implementing of an integrated science learning. For LPMP that it was to facilitate quality assurance implementing of an integrated science learning. For further research can conduct research related integrated learning.

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