

The Identification of Integrated Learning Misconceptions

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Abstract—Elementary school teacher education (ESTE) students as prospective elementary school teachers must be able to understand, design, compile and apply integrated learning models. The integrated learning model can be understood by examining concepts, skills, and abilities developed in certain fields of study the purpose of this study is to describe and identify the difficulty factors of the concept of integrated learning. This research is qualitative research. The research subjects were the 2015 C class ESTE students at the University of PGRI Adi Buana Surabaya (UNIPA). The procedure performed is conducting interviews, student concept inventories, developing test items, giving tests that have been developed, describing concepts of integrated learning, mapping items. Based on the results of the study, it can be concluded that the 2015 ESTE class C UNIPA Surabaya students experienced misconceptions or misconceptions in learning integrated learning because many concepts were difficult to understand. The causes of the concept are difficult to understand for students to find at the time of the interview students have not understood the concept of integrated learning. Students often answer that the same concepts are integrated. Students have their own interpretation based on what they experience. Students do not master the concept of prerequisites. In conclusion, UNIPA Surabaya ESTE students.

Keywords—*misconception; integrated learning model*

I. INTRODUCTION

ESTE students as prospective elementary school teachers must be able to understand, design, compile and apply integrated learning models. The implementation of integrated learning can succeed if it is properly designed and based on careful consideration. The design of integrated learning needs to identify and determine KI, KD, and indicators for each subject that will be integrated. The content of each core competency and indicator must be understood before integration. Study material needs to be understood in activities so that an integrated learning curriculum that is oriented to mastery of competence can be carried out holistically because that understanding will be the beginning of the successful implementation of integrated learning in elementary school.

Integrated learning is a learning approach in elementary school for students who develop soft skills and hard skills competencies, this learning examines concepts, skills, and

abilities developed in certain fields of study, and is a learning model that brings to the conditions of relevant learning and meaningful. Integrated learning is a learning process that involves various fields of study [1]. emphasized that integrated learning is a learning system that allows students, both individually and in groups, to actively seek, explore and discover scientific concepts and principles holistically, meaningfully and authentically [2]. This means that integrated learning is a reflection of the characteristics of learning in elementary schools, so ESTE students must be able to master integrated learning material so that when they become teachers, so they do not experience conceptual errors.

There are ten integrated learning models, namely; fragmented, connected, nested, sequenced, shared, webbed, threaded, integrated, immersed model, networked [3]. The ten models were studied by ESTE students, but based on the results of observations; it was obtained the fact that most students did not understand the 10 learning models. This is because students experience errors in understanding concepts [4]. Constructs of material or new lessons must be continued with the conception of existing students, or dismantle old conceptions and rebuild. This means that students have difficulty understanding the 10 models because students have different conceptions even though they live in the same environment and follow the same lesson — misconceptions that students naturally can hinder learning in more advanced areas because the conceptions differ from conceptions that are essential to understanding and to learn efficiently [5]. For that, we have to find ways to find misconceptions and replace them with truly scientific conceptions [6]. Students do not understand the characteristics of the 10 integrated learning models, and this makes it difficult for them to explain again from the 10 learning models, and most of them only understand it as a way of connecting the same concepts of subject matter. Based on these explanations the researchers conducted research on the ability to understand the concept of integrated learning models in ESTE UNIPA students in Surabaya. The aim is to describe students' difficulties in understanding the concept of integrated learning and identifying causative factors.

II. METHOD

A. Type of Research

The type of research in this paper is qualitative research, which describes the location, type, and causes of difficulties understanding the concept of integrated learning models and how to correct these difficulties [7].

B. Research Subjects

The research subjects were students of the 2015 C elementary school teacher education UNIPA Surabaya, which locate on Dukuh Menanggal street. The selection of tertiary institutions is based on the researchers themselves as lecturers in primary school teacher education in the area of the university.

C. Research Instruments

The first research instrument is a test item that is expected to be used to determine the location, type and factors causing student errors in solving questions related to integrated learning.

In qualitative research, researchers are the main instruments so that researchers can enter and take advantage of sufficient time in the environment they research. In this case, the researcher is not a tool but is very instrumental in collecting data and conducting the analysis. Supporting instruments are interview guidelines.

D. A Procedure That is Carried Out Namely

The procedures used in this study [8] are as follows:

- Conduct interviews with lecturers who currently teach integrated learning courses; in this case, the interview is used to determine the extent to which the lecturer delivered the subject matter and what books were used as references.
- Conduct an inventory of concepts that students do not understand from various sources such as lecturers, students, and sourcebooks.
- Develop test items to find out whether the wrong concepts also occur in students.
- Give tests to students, namely in the form of material test items 10 integrated learning models that have been developed.
- Describe the concepts of integrated learning whose concepts need to be improved.
- Make a mapping of 21 questions made based on learning achievement and basic competencies to find out the misconceptions that occur in students.

E. Data Analysis

In this study, activity was carried out in the form of sorting data based on errors made by students in solving questions related to integrated learning.

Data analysis carried out in this study consisted of three stages, namely the stage of reducing data, the stage of data presentation, and the stage of drawing conclusions.

III. RESULTS AND DISCUSSION

After conducting the research, the data obtained were analyzed qualitatively. Data analysis in this study included analysis of student test results and combined with the results of interviews (contained in the attachment) to find the location, type and causes of students making mistakes in solving questions related to integrated learning courses.

TABLE I. PERCENTAGE OF 2015 C FORCE STUDENTS THAT NEED TO BE IMPROVED IN UNDERSTANDING INTEGRATED LEARNING PER PROBLEM ITEM

No Problem	Number of students	Percentage of misconceptions
1	37	100%
3	34	92%
4	35	95%
6	27	73%
8	30	81%
9	33	89%
10	32	86%
13	36	97%
15	36	97%
16	37	100%

By using the wrong test items as many as 21 items of integrated learning tests, out of 21 questions, there were 10 questions that experienced misconceptions above 50%, indicating that the concepts that students did not understand were relatively high. Concept errors are found in the concepts captured through number 1, 3, 4, 6, 8, 9, 10, 13, 15, 16.

A. Discussion of the Results of Concept Analysis for Students

From the data, data can be obtained regarding the concepts of right and wrong. These wrong concepts are discussed one by one.

1) *B - S Integrated learning can be carried out in a way that is I am integrating materials from subjects:* Discussion: Based on the results of the test number 1, 100% of students answered correctly and based on the results of student interviews considered "integrated learning integrates one subject with another subject, both in terms of material and in terms of subjects". The answer should be wrong, because integrated learning can be implemented in two ways, namely integrating students and integrating materials [9].

The factors that cause the misconception in students are that students do not understand the concept of integrated learning. This can be seen when the interview is asked about integrated learning, what can be integrated, more often students answer the material and concepts even though not only concepts and material but skills can also be integrated. Because in integrated learning there are 3 possible variations in integrated learning relating to education, namely: i.e. integrated curriculum, integrated day, and integrated learning [10, 11].

3) *B - S Weaknesses of the fragmented model students cannot integrate the same concepts:* Discussion: based on the answers to question number 1, 92% of students answered correctly and based on the results of interviews students always answered that fragmented is separate so that in the same fragmented concepts cannot be integrated. The answer should be wrong, because it is in accordance with the concept of integrated learning that integrated learning can be implemented in two ways, namely integrating students and integrating materials from subjects [12].

The factors that cause the misconception in students are that students do not understand the concept of integrated learning. This can be seen at the time the interview was asked that fragmented means separate but why is included in integrated learning. All students interviewed could not answer; they were confused. Whereas it returns to the explanation of integrated learning that in integrated learning there are 3 possible variations in integrated learning relating to education, namely: integrated curriculum, integrated day, and integrated learning [10, 11]. Although fragmented is separate from the learning process, but in fragmented, there is still an integrated curriculum. It was also explained that fragmented models are characterized by scouting characteristics which are only limited to one subject. For example, in Indonesian language subjects, learning material about listening, speaking, reading, and writing can be integrated into language skills learning materials [12].

4) *B - S In the Nested learning model, students are asked to summarize and state it in the pictures, the Lecturer evaluates students from many sides, not only mastery of subject matter but also changes in behaviour and attitudes:* Discussion: Based on the results of question number 4 test, 95% of students answered correctly, and based on the results of the interview the students answered that "the nested learning model is not only mastery of subject matter but also behaviour and attitude changes." mastery of concept skills in the form of thinking skills (Thinking Skill), Social Skills (Social Skill), organizing skills (organizers) through a learning activity [13]. Nested learning models instil thinking skills and skills to work together in a subject. But a teacher can integrate various life skills in the subject matter so that they have broader values and meanings [3].

The factors that cause the misconception in students are, students do not understand the nested learning concept. Students also do not understand based on the integrated nature of integrated learning divided into three [3]. Integrated learning can be divided into three based on the nature of cohesiveness, namely: (a) Models in one scientific discipline which include connected models and connected nested models. (b) Models between fields of study which include sequenced, shared, webbed, threaded and integrated models; (c) Models in cross-students that include immersed models and networked models.

6) *B - S The Connected model is a model in one scientific discipline, namely Science, Social Sciences, and Language:* Discussion: Based on the results of the question number 6 test, 73% of students answered correctly and based on the results of

interviews the students answered that "The Connected Model is a model in one scientific discipline, namely Science, Social Sciences, and Language". The answer should be wrong because the Connected Model is learning in one subject that uses themes to link the sub-chapter / chapter to one another [3]. The connected model seeks to connect one concept with another concept, one topic with another topic, one skill with other skills, one idea with another idea but still within the scope of one field of study [13].

The factors that are the cause of misconceptions in students are, students do not understand the concept of learning used. Students also do not understand based on the cohesive nature of integrated learning divided into three [3]. Integrated learning can be divided into three based on the nature of cohesiveness, namely: (a) Models in one scientific discipline which include connected models and connected nested models. (b) Models between fields of study which include sequenced, shared, webbed, threaded and integrated models; (c) Models in cross-students that include immersed models and networked models.

8) *B - S The shared model is different from the nested model, where the difference lies is located on themes in scientific disciplines:* Discussion: Based on the results of question test number 8, 81% of students answered correctly and based on the results of the interview the students replied that "The shared model is different from the nested model. The difference lies in themes in scientific disciplines." The answer should be wrong, because of the location of the model shared type integrated learning is a form of learning combination due to the existence of ideas or concepts from two overlapping subjects. To use a shared type of integrated learning model, teachers need to learn two sciences based on the relationship of concepts, attitudes and skills that are the same [3] while the Nested Model is a model that combines various forms of skills, namely social skills (thinking skills) and content-specific skills when discussing a topic [13].

The factors that cause the misconception in students are that students do not understand the concept. The model is shared with the concept of the nested model. It can be seen in question number 3; students do not understand nested or nested models. The shared model is different from the nested model, where the difference lies in the themes and disciplines [3].

The Shared model is different from the Nested model, where the theme covers two subjects, aspects of concepts, skills and attitudes become a unified whole. Whereas in the nested model, a theme only covers one lesson. [3]. Students also do not understand how to choose a theme.

9) *B - S In Sequenced models teachers have the freedom to determine topics or own unit based on priority:* Discussion: Based on the results of question number 9 test, 89% of students answered correctly, and based on interview results in students answered that "Sequenced models teachers have the freedom to determine their own topics or units based on priority. The answer should be wrong because Sequenced models teachers have the freedom to determine topics or the

unit itself is based on priority and is not limited by what is stated in the curriculum [3].

The factors that are the cause of the misconception in students are, students do not understand the concept of Model Equitable [3]. Sequenced models (sequences) are some topics of a subject reorganized and sorted so that they can coincide or be similar. In this model, the subject matter is mixed with different disciplines. Students do not yet understand the interdisciplinary concepts, between disciplines, and interdisciplinary disciplines, so students do not understand that Sequenced Models are between disciplines.

10) *B - S students who do not like to read will lose interest in learning because in the Immersed model students will always find out what is the question for him so that his experience becomes wider:* Discussion: Based on the results of question number 10 test, 86% of students answered correctly, and based on the interview results the students answered that "in the Immersed students model who does not like reading will lose interest in learning because the student will always find out what is the question for him, so that his experience becomes wider " The answer should be wrong, because in the Immersed model students who are not happy to read will get difficulties but not lose interest in learning. This Immersed learning requires a high level of thinking ability because this learning model is designed so that each individual can integrate all data from several fields of science and produce thoughts according to their areas of interest [3]. In this model, all subjects are part of the viewpoint of the expertise of students individually.

The factors that cause the misconception in students are that students do not understand the Immersed Model concept because in this model the integration is in the students themselves. Immersed or immersed models make students filter out all the concepts they learn through the angles of learning and merge or improve themselves in their experiences through the activities they carry out.

13) *B - S The integrated curriculum model presents one approach to crossing subjects similar to the "Shared" model:* Discussion: Based on the results of question number 13 test, 97% of students answered correctly and based on the results of the interview the students answered that "the integrated model and the same material will be integrated as well as shared. curriculum priority is set for each discovery of skills, concepts, and attitudes that overlap those subjects [3]. While the Shared Model is an integrated learning model that is a combination or integration between two complementary subjects and in planning or teaching creates a focus on concepts, skills and attitudes [3].

The factors that caused the misconception to students were that students did not understand the concept of integrated and shared models. Students always answer the concept that is integrated. Students only state that integrating overlapping fields of study, but there are also students who have understood that sharing is a combination of two subjects while integrated can be four subjects or more.

15) *B - S Resources needed in network model learning are obtained from parents or teachers who are considered experts:* Discussion: Based on the results of the test question number 15, 97% of the student's answers are correct and based on the results of the interview the student answers that "The resources needed in learning the network model are obtained from parents or teachers who are considered experts". The answer should be wrong because in the network model the resources needed in learning are not only obtained from parents or teachers who are considered experts, but also from other data sources such as reading books, internet, radio channels, TV, or friends, and siblings [1].

The factors that cause the misconception in students are that students do not understand the concept of the network model. This model includes a student-oriented curriculum model. Students will screen all the topics they learn through the spectacles of their own experiences and build internal or in-depth relationships that will help them create collaborative networks among experts in their fields.

16) *B - S Fragmented models suitable to be applied at the stage of subject majors for example applied at the level of the University or High School which in the learning process there are majors / separation of subjects:* Discussion: Based on the results of the question number 16 test, 100% of student answers are correct and based on the results of interviews the students answered that "Fragmented models are suitable to be applied at the University or High School level which in the learning process there are majors / separation of subjects.". The answer should be wrong, because, in the fragmented model, learning can be carried out not only at the University level or Middle School but also can be carried out at the elementary level, in grades 1-3 SD if the learning is carried out correctly. There is good cooperation between agencies related to elementary school teachers. Training of workshops, seminars, KKG, comparative studies to other schools that become landlords (partners), train teachers more creatively in making teaching aids, schools provide learning media [3].

The factors that cause the misconception to students are that students do not understand the concept of Model fragmented. Students also do not understand the concept of integrated learning, so students' thinking in the curriculum is still rigidly inflexible.

Based on the analysis conducted on the results of student tests and the results of interviews, it is known that there are misconceptions or misconceptions on students and their causal factors. this is because students have not mastered the concept of integrated learning. The factors that cause misconception in students are:

- Students have a concept of learning before participating in integrated learning on campus. The concept possessed by students is deeply rooted, and it is difficult to deny it by logical reasoning and or by showing the difference with actual observations. This concept means that in choosing the concept to be taught, the lecturer must pay attention to students regarding their wealth of

experience, the wealth of concepts they have understood, their environment, and their level of maturity. Based on the preconception's students have, the lecturer needs to develop a strategy that fits the material.

- Students sometimes have difficulty in understanding the sentences and terms explained by the lecturer so that the student gives an interpretation by connecting with the long experience students understand. Based on this, the lecturer should define terms and concepts clearly and unambiguously.
- Students do not master the prerequisite concepts used in answering questions. The concept of the preconditions referred to her includes the concept of integrated learning.
- Based on the results of the test and interview items, it can see that some students make mistakes because they are wrong and in a hurry or want to solve the problem immediately, students try to finish without first reading and understanding the contents of the test items.

Misconceptions can occur one of which is students tend to memorize concepts compared to applying the concept [14].

IV. CONCLUSIONS

Based on the discussion, it can be concluded that the ability to understand the concept of integrated learning models in 2015 PGSD students C UNIPA Surabaya has misconceptions or conceptual errors, this is evident from the results of 21 questions and interviews, there are 10 questions that get a percentage above 50%, namely numbers 1, 3, 4, 6, 8, 9, 10, 13, 15, 16. This is because, there is an integrated learning concept that is difficult for students to understand, that is, of the 10 integrated learning models, students do not understand the concept of integrated learning. Fragmented, Nested, Connected, Webbed, shared, sequenced, threaded, Immersed, network models. The causes of the concept are difficult to understand for students to find at the time of the interview students have not understood the concept of integrated learning. Students often answer that the same concepts are integrated. Students have their own interpretation based on

what they experience. Students do not master the concept of prerequisites.

A. Suggestion

To overcome the difficulties in understanding the concept of Integrated learning, the lecturer should do modules that use exercises to build the concept of students.

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