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The Urgency of Integrating Environmental Concepts into Lecture of Logic as an Effort to Produce Early Childhood Education Graduates With Environmental Knowledge

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Abstract

The study in this paper refers to the problem that the environmental concepts has not been actualized in the lecture of logic which potentially forming on environmental knowledge to the graduates of early childhood education (ECD). This study was focused to reviewing conceptually the urgency of integrating environmental concepts into lecture of logic, with the intention of constructing the early childhood education (ECD) graduates with environmental knowledge. The urgency of integrating environmental concepts into lecture of logic as an effort to produce early childhood education (ECD) graduates with environmental knowledge, can be shown in three main aspects, as mentioned below: First, to analyze the correspondence and compatibility between the design of environmental concepts and the material coverage on the lecture of logic. Second, to apply guided inquiry-based learning method that supported by the facts, can be used for activities that are factually possible can be used to evaluate changes in competency learning outcomes of cognitive, psychomotor, and affective. Third, the urgency of integrating the environmental concepts into the lecture of logic could be done by combining the suitability of design analysis and learning methods and used to compile the syllabus of logical lecture which was integrated with the environmental concepts.

Keywords: Integration of Environmental Concepts, Lecture of Logic with Environmental Knowledge.

1. INTRODUCTION

1.1 Background Issues

In the context of campus life, the college student community is part of the human resources that are socially considered to have a higher position. The society usually regard the college as a highly educated students, and from these students would be born the leaders and reformers, whom were expected to bring Indonesia into advanced country. Education, in this context the college, has an important role in preparing human resources through the education; people will be educated about various things including the environmental awareness in the education process. In the practical, the environmental education which occurred knowledge and science transfer, it is also provide the knowledge about how humans should behave towards the environment where they lived, especially the danger of pollution for human health.

The integration of environmental concepts into logical lecture teaching materials will bring the learning situations of students with critical thinking, creative, and rational, contextually with everyday life. With these efforts, early childhood education (ECD) students, expected to be a professional and comprehensive the environmental concepts. This is confirmed by the results of a research concluded by Arkam (2009: 19), which there is a positive relationship between the level of student’s knowledge of the environmental with their’s attitude to the environment. Children who have a high environmental knowledge tend to have better attitude towards the environment, corresponding with the infrastructure developments, environmental problems faced by human nowadays are more complex, the environment in which humans live, deteriorated in quality.

Then the effort to solve the problems only by certain groups, was not enough. Every science and discipline should take a part in supporting and anticipate environmental problems, including the science of early childhood education, in this context. Graduates of early childhood education expected to guide the children in learning early age, and to install the environmental friendly attitude to them since the early stage. To achieve this goal, learning innovations needed in the lecture bench. In this case, integrating environmental concepts into lecture of logic which its object are scholar of early childhood education, considered as an urgent condition.

1.2 Focus Issues

From the fact that there is a growing environmental problem that getting worse every day in our daily life, the specific objectives of this research are: which concepts that can instill the environmental knowledge to the learners, to be integrated into the subject of logical lecture?

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1.3 Benefits
The results of this study expected to provide a strong conceptual basis about the urgencies of integrating environmental concepts into the classes, in this case, logical lecture. Furthermore, the colleges are expected to produce early childhood education (ECD) graduates with the environmental knowledge.

2. CONCEPTUAL STUDY
In the course where ongoing learning process, including approaching concept, teaching methods, and several other component that constantly being developed. The main objective of the learning process are the achievement of learning objectives by the learners which can be indicated by the success of the students in order to get better knowledge in a particular subject. Likewise, its applies also to the logical lecture in early childhood education (ECD) program. In this conceptual study, one method of learning that will be studied are guided inquiry.

Described by Ong and Borich (2006) as cited Zuhaidah, et al (2014: 59), guided inquiry is learning process through a variety of activities including observation, ask questions, find and use information to know clearly the events through experiments, using tools to gather, analyze, and interpret data, ask questions, explain and predict, and communicating the results. General overview in inquiry learning, ideally require a subject of study to identify and assumptions, the utilization of critical and logical thinking, and consideration and explanations of the alternatives. In the lecture that using method of inquiry, the lecturer gives the formulation of the problem investigation, and students designed the inquiry procedure, conduct an investigation to examine the problem investigation and produce an explanation from the issues.

Mindset development in the scientific method are shown with two logical thinking, namely: deductive logic that produces hypotheses be a prediction of an event or phenomenon which further continued with the procedure of inductive logic which used to test the predictions, in order to obtain a decision whether or not the hypothesis can be accepted (Shuttleworth, 2009).

According to Aragon (2007: 9), the scientific method is: "systematic process for acquiring new knowledge that uses the basic principle of deductive (and to a lesser extent inductive) reasoning. It's considered the most rigorous way to elucidate cause and effect, as well as discover and analyze less direct relationships between agents and their associated phenomena." It is regarded as the most accurate way to explain the relationship of cause and effect, as well as finding and analyzing the indirect relationship between the agent and the related phenomenon.

Empirical facts about the success of the scientific approach in learning process reported by Mulyono, et al (2012: 47), that the scientific approach in learning process of the environmental issues about waste production of tempe was successfully solved by fermentation technology with skill based learning method which includes syllabi, lesson plans, teaching materials, learners discussion sheets, and the scientific assessment skill sheet. The analysis showed a very valid, effective, and practical applied learning tool. Scientific approach in learning process brings the process of obtaining such knowledge is also done through experimentation. Furthermore encourages students to learn research methods. The implications of this turned out to be positive, there are some studies that show that learning about the research methodology can improve their way of thinking in other scope of life.

The analysis showed a very valid, effective, and practical applied learning tool. Scientific approach in learning process brings the process of obtaining such knowledge is also done through experimentation. Furthermore encourages students to learn research methods. The implications of this turned out to be positive, there are some studies that show that learning about the research methodology can improve their way of thinking in other scope of life.

Environmental knowledge as a character of a person's, should be observed from a system of development that embraced by the community. The nations around the world do development from time to time to achieve a better degree of prosperity. Environmentally friendly behavior according to Zimbardo (2001) is a human behavior, an action or real acts of a person to adapt to the environment, in the context of the treatment and the specific social (behavior and social setting). With this development strategy, required an atmosphere that is extroverted, honest, and all the parties which is involved can obtain information continuously. In the context of development, environmental friendly behavior can be used as a medium for building a healthy physically and spiritually, then they can shared collective force other human beings in order to build a healthy human environment as well. WALHI (2008),
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A sustainable development process is the realization of a healthy civilization over a humanity healthy environment, good, and having environmental friendly behavior. Revaluation of development in this regard, environment-friendly behavior can inspire people and communities to establish itself, as a factor that can contribute to development. Through the values, ideas, and measuring instrument, even as a criticism for the goodness of development process that friendly to the environment.

The principle of fairness is more talk about how people should behave courteously to others (in relation to environment) and how the social system must be set in order to have a positive impact on the environmental sustainability. In public life, it can be seen there are efforts of environmental management which done consciously, but not recently. Usually seen in people's behavior in managing environmental aspects, for example people start to reorganize household garbage, cleaning a water channel, taking care of plants, and more. Individuals and communities efforts to care and preserve the environment needs special attention from the government, as well as the efforts are environmental friendly behavior.

According to Barow (2006: 164), the environmental friendly behavior are someone or people activities as an action with the environment that includes: utilizing, maintaining, and managing the environment that based self-consciousness about they also a part of the environment, which is oriented towards development moral to achieve the goals in ecological, social, and economic sector. In the study and practice of sustainable development is necessary to create a good environmental management, which can also be interpreted as self-making under uncertainty. Thereby, the environmental knowledge in a person will act as a guide of an conscious behavior in their functions of life, both in use and manage the natural resources without damaging environmental damage.

IDENTIFICATION OF ENVIRONMENTAL CONCEPTS

The results of literature study referring to the syllabus and subjects that covered by logical lecture, essentially identifying the environmental concepts that relevant to be integrated towards the logical coverage, there are ten essential concepts of the environmental concepts which outlined in the table below:

### 1. Identification Results of Environmental Concepts for Materials Integration in Logical Lecture

<table>
<thead>
<tr>
<th>Learning objectives</th>
<th>Material Description of Logical Lecture</th>
<th>Environmental Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students can explain the difference between formal logic and the logic of the material.</td>
<td>The concept of Logic (Formal Logic and Logic Material)</td>
<td>Living environment</td>
</tr>
<tr>
<td>Students can make an assessment of the learning subject to applying the principles of critical thinking.</td>
<td>Critical thinking</td>
<td>environmental issues</td>
</tr>
<tr>
<td>Students can analyze the fallacy in the argument.</td>
<td>Error (Falafel)</td>
<td>The typology of of human development</td>
</tr>
<tr>
<td>Students can understand about decision-making mechanisms and propositions.</td>
<td>Decision-Proposition</td>
<td>Biotic and abiotic components</td>
</tr>
<tr>
<td>Students can analyze components in developing a definition.</td>
<td>Definition</td>
<td>Living environment</td>
</tr>
<tr>
<td>Students can perform the process of inductive reasoning.</td>
<td>inductive reasoning.</td>
<td>ecosystem</td>
</tr>
<tr>
<td>Students can perform the process of deductive reasoning.</td>
<td>deductive reasoning.</td>
<td>Natural resources</td>
</tr>
<tr>
<td>Students can perform the process of reasoning using the scientific method.</td>
<td>The scientific method</td>
<td>sustainable development</td>
</tr>
<tr>
<td>Students can understand the process of drawing oppositional conclusions and conversion.</td>
<td>Concluding oppositional and Conversions</td>
<td>Interaction of all components in the ecosystem</td>
</tr>
<tr>
<td>Students can create a conclusion concept with the principles of syllogism.</td>
<td>Concluding with the principles of syllogism.</td>
<td>Green development</td>
</tr>
</tbody>
</table>
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From those ten environmental concepts described above, which were the subjects that will be integrated into the logical lecture teaching material, each concept can be used to compile the draft as the basic material for creating the syllabus based on the synchronization analysis of the environmental concepts and Logical lecture teaching material coverage, the urgency of integrating the environmental concepts to compile the syllabus draft of Logical lecture teaching material can be shown in the following table (Table 2)

Table 2. Draft of Environmental Concepts Integration for Materials Logical Lecture

<table>
<thead>
<tr>
<th>No.</th>
<th>Learning objectives</th>
<th>The Description of Logical Lecture Material</th>
<th>Integrated Environmental Concept</th>
<th>The Design of Learning Method*</th>
<th>Evaluation design</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Students can understand the pattern and coverage of the Logical lecture material.</td>
<td>The introduction of Semester Class Plan Semester and Class Contract.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Students can explain the difference between formal logic and the logic of the mate-rial.</td>
<td>The concept of Logic (Formal Logic and Logic Material).</td>
<td>Living environment</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Students can make an assessment of the learning subject to apply the principles of critical thinking.</td>
<td>Critical thinking.</td>
<td>Environmental issues</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Students can analyze the fallacy in the argument.</td>
<td>Error (Falas).</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Students can perform a decision-making mechanisms and propositions.</td>
<td>Decision-Proposition.</td>
<td>Biotic and abiotic components</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Students can analyze the components involved in developing a definition.</td>
<td>Definition</td>
<td>Ecosystem</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Students can perform the process of inductive reasoning.</td>
<td>Inductive reasoning</td>
<td>Natural resources</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Students can perform the process of deductive reasoning.</td>
<td>Deductive reasoning</td>
<td>Sustainable development</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Students can perform the reasoning process by the scientific method.</td>
<td>The scientific method.</td>
<td>Interaction of components in the ecosystem</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Students can do the process of drawing the op-positional and conversion conclusions.</td>
<td>Oppositional and Conversionconclusi on</td>
<td>Green development</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Students can create conclusion con-cept with the principles of syllogism.</td>
<td>Concluding with the principles of syllogism.</td>
<td>Conservation</td>
<td>Guided Inquiry</td>
<td></td>
</tr>
</tbody>
</table>

Information:
C = cognitive
P = psychomotor
A = affective

4. CONCLUSION

The urgency of integrating environmental concepts into lecture of logic as an effort to produce early childhood education (ECD) graduates with environmental knowledge, can be shown in three main aspects, as mentioned below: First, to analyze the correspondence and compatibility between the design of environmental concepts and the material coverage on the lecture of logic. Second, to apply guided inquiry-based learning
method that, supported by the facts, can be used for activities that are factually possible can be used to evaluate changes in competency learning outcomes of cognitive, psychomotor, and affective. Third, the urgency of integrating the environmental concepts into the lecture of logic could be done by combining the suitability of design analysis and learning methods and used to compile the syllabus of logical lecture which was integrated with the environmental concepts.

REFERENCE