CHAPTER I
INTRODUCTION

1.1 Research Background

The impact of globalization is multidimensional; the impact is also felt in the field of education, especially higher education that directly interacts with the international community. Specifically, globalization is driving the changing role of higher education institutions. Role as a traditional learning institution cannot be maintained and needs to be transformed into a knowledge-creating institution. In the meantime, randomly generated planning must be converted into strategic planning. From the point of view of the challenge, the comparative approach should be transformed into a competitive approach.

Higher education institutions are challenged to change the curriculum in total. Curriculum emphasis is no longer on content or knowledge but on the development of learning, creative skills, and the use of new information and communication technologies. One form of curriculum development that has recently received serious attention is the integration curriculum. It is true that an integrated curriculum is an integral part of instructional innovation that invites students to study and discuss contextually, studying naturally available phenomena.

According to Government Regulation No. 31 of 2014 Article 1 verse 6, that the *Cooperation Education Unit* referred to as *SPK (Satuan Pendidikan Kerjasama)* is an educational unit organized or managed on the basic of cooperation between *Foreign Education Institution* accredited / recognized in the country and the *Indonesian Education Institution* on the formal or informal path in accordance with the provisions of legislation. (*Peraturan Kemdikbud*.2014)

Based on the research by Purnomo (2015), integration curriculum is a curriculum development to facilitate teachers in organizing the learning process. Integration curriculum should be done by a school that applies more than one curriculum. So that learners also have no difficulty in understanding the material given and able to achieve the main competencies in each curriculum very well. To

support it, creativity of teachers is needed in organizing this integrated curriculum in the classroom. The support from principals and vice principals is also needed for the preparation and implementation of the integration curriculum.

Based on the research by Herwandar and Safryono (2014), the evaluation of the Cambridge International Primary Program (CIPP) in Al Azhar School shows that learning a foreign language for students is undoubtedly and belongs to an effective learning because every child has a cognitive ability in learning language. Every language, although different, has the universality and this factor will make it easier for children to learn foreign languages as the second language of their lives.

The integration curriculum is a blend of the current national curriculum in Indonesia (Curriculum 2013) and foreign curriculum (some schools usually use CIE as awarding bodies from England). The integrated curriculum is more concerned that in a subject must be integrated thoroughly. This integration can be achieved through focusing lessons on a particular problem with alternative solutions through the various disciplines or subjects required so that the boundaries between subjects can be eliminated. The existence of the learning process is not focused on studying the subjects, but the subjects are only used as a means to approach the problems that are the focus of the study. This enables each learner to acquire a learning experience appropriate to his or her own interests and talents, and can psychologically be a means of personal development intact. The subjects, however, are subjected to by the educator when the subject takes place as a guide and center for the integration of the topic, so that the learning and teaching spirit does not leave the subjects set by the government to meet national education objectives.

So far, the implementation of integration curriculum in national plus schools has been going well and has a positive impact for all parties. But this integration curriculum also has many shortcomings. Based on the questionnaire and interview from some national plus school teachers, the results are as follows. More than 80 percent of teachers claim that material present on National Curriculum (*Kurikulum 2013*) cannot include material demanded on CIE and the

material contained in CIE can not include the material demanded in National Curriculum (*Kurikulum 2013*). Then the unavailability of teaching materials is adequate for both curriculums simultaneously to be held. Although there is overlapping material, but still there is no cohesion between the two learning materials. Teachers need learning materials that integrate National Curriculum (*Kurikulum 2013*) with CIE in order to teach students better. (Appendix 4)

Usually, the cognitive instruments we use are not in accordance with the abilities that must be achieved by students. The Curriculum 2013 emphasizes the students' scientific literacy skills that should be trained at all times. Data from PISA 2015 indicates that Indonesia is at the level of 62 with a mean performance below the OECD average. (OECD.2016:5)

Another problem is in the ability of scientific literacy is still very low score achieved by the students in PISA (Program for International Student Assessment) in 2006, 2009, 2012, and 2015 respectively is 395, 383, 382, and 403 with the average general score for the whole country is 500. From the results of the above, the ability of our students is still below the average or in the low scientific literacy category.

The low results of PISA are certainly caused by many factors. First, the low ability of scientific literacy caused by the habits of science lesson that ignores the importance of learners' ability in reading and writing science as the competence that must be reached. Second, students are generally poorly trained in solving problems with characteristics such as problems that apply scientific literacy.

Based on the research by Zainab (2017), science lesson has been applied the scientific literacy, but the assessment instrument has not lead to knowledge of scientific literacy and also in conveying the teacher's learning still does not start by presenting scientific phenomena, consequently learners difficulty in linking concepts that have been learned with the phenomena that exist in everyday life. Then the questions given are still limited to the questions that require memory and concepts, consequently learners are not accustomed to working on the problems that lead to the measurement of scientific literacy.

Based on the research by Hartati (2017), the results of scientific literacy aspects to solve environmental pollution problems are classified as "good enough". While the competency aspect for the ability to identify the scientific issues is "good", the ability to use scientific evidence is "good"; while the ability to explain scientific phenomenon is classified as "good enough".

From the description above, researcher will develop the learning material of ecology topic for grade X Science students, so that the researcher plan to conduct the research with title **"The Learning Material Development of Ecology Topic Based on Curriculum Integration to Increase Scientific Literacy Skill of National Plus School Students"**.

1.2 Problem Identification

Based on the background above, then the problem identifications of this study is as follows:

1. The teaching materials based on the integration curriculum used in the national plus school is still not feasible.
2. Teachers have difficulty in teaching the integration curriculum without any feasible learning materials.
3. Learning materials contained in the national curriculum is considered still less increasing students' ability of scientific literacy.
4. The teaching materials has not or less developed to contains four components of scientific literacy.
5. Students' knowledge in ecology topic with teaching materials based on the integration curriculum has not been enriched / facilitated.

1.3 The Scope of Study

1. This research is limited to the topic of ecology and environment with a development of scientific literacy learning material based on the integration curriculum of *Kurikulum 2013* and Cambridge International Examination (CIE).

2. Product of developed learning material will be validated based on content and design by experts.
3. The product will be assessed by some biology teachers to determine the feasibility of learning material that has been developed.
4. The product will be assessed by some students to determine the feasibility of learning material that has been developed.
5. The research focused on the second semester at IGCSE 2 / grade X of senior high students.
6. The effectiveness of the learning material will be assessed by students' learning outcomes before and after using materials based on the integration curriculum that has been developed.

1.4 Research Questions

In accordance with the issues that has been stated, then the problem can be formulated as follow:

1. How is the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *science as body of knowledge* from content expert?
2. How is the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *science as a way of thinking* from content expert?
3. How is the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *science as a way of investigating* from content expert?
4. How is the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *interaction of science, technology and society* from content expert?
5. How is the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on design expert?

6. How is the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on assessment of biology teachers and students' response?
7. How did the student's learning outcomes in the grade X in control and experimental classes after using the teaching materials based on the integration curriculum of ecology topic that have been developed?

1.5 Research Objectives

This study is aimed to:

1. Reveals the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *science as body of knowledge* from content expert.
2. Reveals the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *science as a way of thinking* from content expert.
3. Reveals the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *science as a way of investigating* from content expert.
4. Reveals the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on *interaction of science, technology and society* from content expert.
5. Reveals the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on design expert.
6. Reveals the feasibility of learning material on ecology and environment topics based on scientific literacy and integration curriculum which developed based on assessment of biology teachers and students' response.

7. To find out the results of student learning in the ecology topic in grade X in control and experimental classes after using materials based on the integration curriculum that have been developed.

1.6 Research Significances

1.6.1. Theoretical Significances

1. Providing an information related to the development of learning materials for ecology and environment topic based on the integration curriculum to empower the students' ability in scientific literacy.
2. Encouraging the educators and publisher to create a better learning material based on the scientific literacy and the integration curriculum used in the schools.
3. As a reference to get information for other researchers who want to continue and develop this research.

1.6.2 Practical Significances

1. It can be used as a reference to develop a better quality of learning material for senior high school.
2. As a reference for educators to make students become familiar in real life situation issues, solving complex problem and initiates them to think critically.
3. As an alternative for educators to choose learning materials for ecology and environmental management topics be based on integration curriculum and scientific literacy in Biology course for IGCSE 2 / X grade senior high school students.

1.7 Operational Definition

1. Scientific literacy is the knowledge and understanding of scientific concept and process require that involved science as a body of knowledge, science as a way of investigating, science as a way of thinking and interaction of science, technology and society. Scientific literacy help students to

develop their technical skill, communication skill, personal decision making and build confidence.

2. The integration curriculum is a blend of the current national curriculum in Indonesia and foreign curriculum. The integration curriculum provides the opportunity and the possibility for students to learn, the learning opportunities are designed and implemented with full consideration of the things that have effects, therefore, necessary arrangements, control, guidance, so that the learning process focused achievement goals capabilities expected.
3. Learning material on ecology and environmental management topic based on integrated curriculum is a learning material that developed based on scientific literacy components in Biology course for IGCSE 2 / X grade senior high school students in national plus schools.