CHAPTER 1

INTRODUCTION

1.1. Background

Education is the most powerful weapon which you can use to change the world (Nelson Mandela). According to the Law on National Education System (Education Law Number: 20 of 2003) "Education is a conscious and deliberate effort to create an atmosphere of learning and the learning process so that learners are actively developing the potential for him to have the spiritual power of religion, self-control, personality, intelligence, noble character, and skills needed him, society, nation and country ".

One of the efforts to improve the quality of education in Indonesia is through efforts to improve the teaching and learning process at all levels of education. The quality of education in Indonesia is influenced by some elements, such as curriculum, educational content, learning processes, evaluation, teacher quality, school facilities and infrastructure and textbooks.

Curriculum 2013 which is applied right now is a further step of Competency Based Development Curriculum that includes competence attitudes, knowledge, and skills in an integrated manner. The goal is to prepare the Indonesian people that have the ability to live as a person and a better citizen. Curriculum development in 2013 under the provisions of Instruction juridical is President of the Republic of Indonesia in 2010 about character education, active learning and entrepreneurship education should require the development of new

curriculum and the philosophical foundations of empirical grounding (Kemendikbud, 2013).

Learning science in the curriculum of 2013 was developed as an integrative science subjects and not as a discipline. Learning science is a learning process that emphasizes the nature symptoms and relation between these symptoms, so that in the process of learning science does not only emphasizes cognitive aspect, but also encompasses attitudes, processes, products and applications must be done thoroughly.

Learning science requires a skill in linking between concepts and quarrying evidence. Science is largely built on the basis of want to know, not only about objects to be researched, but also a role as Researchers and personal transformation process during investigation (Mutveia and Mattssonb, 2014).

Science is a learning process activities include observation, made hypotheses, plan and implement experimentation, evaluation of measurement data, and so, while learning science products is the result of the process in the form of facts, concepts, principles, theories, laws, etc. (Cavus and Alhih, 2014), so as to master of Natural Science (IPA) is not quite simply obtained by learning from book or just listen to the explanation of downloading others, however, required a learning activity that involve an activities of the process to produce a certain product.

Based on Maya (2014), science learning is expected to encourage students to work by their own initiatives, formulate the hypothesis and encourage students to think critically. The expectation is to have a balance between theory and practice so the talent and ability of each student will be unearthed deeper. One of

practical forms in learning is doing experiment in laboratory and environment. Experiment is done to prove theory in textbook.

In doing experiment, obviously experimental guidance is needed. Experimental guidance acts in developing students' attitude and scientific performance. The appropriate and related model with students' scientific attitude is inquiry strategy. The importance of experimental guidance is: experimental guidance can be supporting learning sources when do the experiment, it can increase students' interest in experiment, and students know how to do the experiment and they know the system how to make experiment report.

The will to make an ideal learning teaching activity in the classroom and require a big amount of material which the students must accomplish, the teachers sometimes get difficulties in arranging qualified experiment. Based on some done experiments (Tuysuz, 2010 and Desy, 2013), there is constraint in implementing experiment in school, include non-provided chemical laboratories module which can cause students cannot do the experiment maximally, the teachers also don't have guidance in scoring students' scientific skill and attitude, besides material and expensive equipment for chemistry laboratories also become a problem in school chemistry laboratories implementation.

Researches related to laboratories utilization effectivity had been done by many researchers before. Laboratories utilization significantly increase students' interest and understanding in chemistry learning, but there are also some problems, which are: the lack of experimental guidance which specially designed to develop students' experimental skill. Besides, surrounding environment utilization in doing experiment is not maximal yet.

Based on observations and interviews the eighth grade science teacher at a junior high school in Medan, obtained information that in the process learning in the classroom has been equipped with Science book in which there are experimental guidance. However, the contents of the lab manual limited to certain materials. Case occurred because the background of a science teacher at the school is different disciplines e.g. biology, chemistry or physics, so that the good integrated science practical guide to grip teachers and for students is limited. Integrated study gives students a solid foundation for science studies further education that will show an interest in offering lesson core (biology, chemistry, and physics).

Based on the problems above, the writer is interested to conduct a research titled "**The Development of Natural Science Practicum Guidance Based on Guided Inquiry Integrated Scientific Process Skills"**

1.2. Problem Identification

Based on the background, some problems can be identified as the following:

1. There is no appropriate natural science practicum guidance for Junior High School students.
2. Practicum guidance are still in students' worksheets which are attached in Science textbook.
3. Students' science worksheets which are arranged by teachers as science practicum guidance has not fulfil BSNP standard yet.
4. Students' learning result has not fulfil KKM standard yet.
5. Students' science worksheets which are attached in Science textbook is not based on guided inquiry.

6. Students' science worksheets which are attached in Science textbook is not integrated by scientific process skills.

1.3. Problem Limitation

Considering researcher's limitedness, so it is needed to make limitation on problems below:

1. Science textbooks which will be analyzed are one book.
2. Subjects of this research are Junior High School students class VIII in semester I.
3. Practicum guidance materials which will be developed and tested are "Additive and Addictive Substances"
4. Developing natural science practicum guidance follows BSNP standard.
5. Natural science guidance which will be developed is based on guided inquiry guidance to improve scientific process skills.
6. Natural science practicum guidance will measure students' learning result observed from cognitive, affective and psychomotor aspects.

1.4. Problem Statements

To give the direction of this research, the problem statements in this research are as follows:

1. How is the analysis result of science practicum guidance which is being used in the school right now?
2. Is the natural science practicum guidance which is developed for class VIII junior high school semester I suitable based on BSNP?

3. How is the influence of the natural science practicum guidance development result based on guided inquiry to improve scientific process skills?
4. Is there difference in the learning outcomes of learners between those who were taught with the result of development natural science practicum guidance with science practicum guidance in school?

1.5. Research Objectives

The general objective of this research is to produce an integrated science guidance. While the specific objectives of this study are:

1. To find out the result of the analysis of the natural science practicum guidance in the school.
2. To know the feasibility of natural science practicum guidance which is developed.
3. To find out the influence of natural science practicum guidance based on guided inquiry can improve scientific process skills.
4. To know the difference of learning outcomes of learners between those who were taught with the result of development natural science practicum guidance with science practicum guidance in school.

1.6. Research Benefit

The benefits that expected from this research are: This research is useful both theoretically and practically. The theoretical benefits of this research are as a contribution of scientific information on the development of an integrated natural

science practicum guidance. While the theoretical benefits of this research are: (1) The natural science practicum guidance can be used as guidance for science teachers and students in carrying out integrated science practice; (2) Provide consideration and alternatives for teachers and schools about the importance of guided inquiry based on learning in science learning as a supporting tool in science learning in the laboratory to motivate students in learning; And (3) as input for other researchers to make practicum guidance in accordance with applicable curriculum requirements.

1.7. Operational Definition

1. Development is improving the natural science practicum guidance which was not provided in the school based on guided inquiry integrated scientific skill process.
2. Natural Science Practicum Guidance (NSPG) is the teaching materials that contain guidelines for carrying out practicum activities in the laboratory with the aim of creating optimal practicum activities in a lesson.
3. Guided inquiry model is a model that investigates with the help of teacher guidance that involves students' mental processes with several activities, namely (1) asking questions, (2) stating the problems found, (3) stating hypotheses, (4) designing and doing experiments, (5) collecting and analyzing data, and (6) making conclusions honestly.
4. Scientific process skills are include observation, measurement, classification, conclusion, prediction and communication.