

CHAPTER I

INTRODUCTION

A. Background

Every child is unique in their own way, these uniqueness depends on their intelligences which is defined as a basic aptitude for learning, or it is the ability to gain and apply knowledge or skills. Gardner (1983) emphasizes that each individual has different kinds of intelligences including logical-mathematical, verbal-linguistic, musical-rythmic, bodily-kinesthetic, intrapersonal, interpersonal-social and naturalist intelligence, which individuals used in order to understand concepts, solve problems and create products (Hanafin, 2014). Therefore to make sure that each students are able to comprehend ideas and concepts with their own ways, it is important for teachers to have many different strategies to deliver the concepts in order to have an optimum learning outcome.

In facing these facts, multiple intelligence-based learning plays an important role as an educational approach which considers mostly to the uniqueness in every individual as learners. In which an educator provides several learning activities based on the students' present intelligences. According to previous studies, Armstrong (1994) states that the Multiple Intelligence Theory to be applied in classrooms was concerned with teaching to, for and through intelligences (Tek and Peng 2006). Teachers are encouraged to make full use of ICT and use a variety of seating arrangements, concrete materials, diagrams and charts, newspaper clippings and other educational/teaching resources to make lessons more interesting. Practical activities could include the use of educational games, role play, the construction and use of models and experiments to demonstrate concepts. Group discussions are encouraged to promote active students' participation and interaction (UNESCO, 2016).

This brought the idea of the evolution of a learning approach which leads to the development of teaching –learning strategies that focus on

different intelligences, where the lessons are designed to include activities which rely on movement, visual-spatial activity, group work and reflection, as well as on the linguistic and logical. Therefore, multiple intelligence-based instruction has a significant place in the educational area nowadays. According to Gardner's multiple intelligence theory, multiple intelligence-based learning has important implications for education in general, and can particularly improve students' achievements (Abdi, Laei and Ahmadyan, 2013). Other than that, there were several research which suggest that multiple intelligence based instruction has a positive effect towards students' concept mastery (Hanafin, 2014).

Other than having a suitable teaching strategy, engaging students to become interested in the lesson has become important aspect as well in order for students to master and comprehend the concepts even when it comes into a difficult topic. Getting more students to master and becoming interested in science is now becoming a major challenge for educators and educational researchers. Numerous research found that a lot of young students are not interested in choosing science related professions for their career (Blankenburg, Hoffler and Pachrmann, 2015). Aikenhead (2006) stated that nowadays children's interest in learning science is declining; therefore students become disconnected with their world and lost their interest in learning science. As students grow, their interest in science is decreased. Even there are students with a strong interest in learning science, but it is found that their interest is declining because there are school subjects which are more interesting. Therefore, the new challenge for science teachers is to increase students' learning interest, because students would not be able to learn science effectively without being interested (Osborne, Simon and Collins, 2003). Interest is an essential predictor for secondary course options and therefore become an assumption for further research on science not only as a career choice but also an advice for young generations' decision making in this technologically controlled era (Maltese and Tai, 2011).

Interest determined the quality and effectiveness of educational procedures and programs, effort, achievement and outcomes (Obianuju,

Akuezuilo and Josephine, 2015). Even there are many different definitions of and theories, interest is generally known as a multidimensional formation consisting both cognitive and affective aspects (Renninger and Hidi, 2011; Krapp and Prenzel, 2011). Interest is also specified as the eagerness to get involved in any activity which makes some enjoyment to the person itself. Interest is a strong point of an individual's motivation which is capable of creating and sustaining effort (Obianuju, Akuezuilo and Josephine, 2015). According to the above explanation, it is shown that students' interest plays an important role in order for students to have an effective learning in science. The lack of interest might bring another problem such as low learning motivation and also achievement which can even cause a bigger problem in the educational world nowadays.

In chemistry, matter is one of the very basic chapter and most of chemistry topics are related to matter. From the definition itself, matter is anything which occupies space and has mass. Most matter are extremely small and unseen by a human naked eye, therefore it makes chemistry as one of the difficult subject for students. Chemistry curricula integrates many abstract concepts, which became the central for chemistry and other sciences (Taber, 2002). Meanwhile these intangible concepts are essential in order for students to understand further chemistry or other sciences concepts, students understood little about the particulate nature of matter or about chemical phenomena in their everyday lives. However, the difficulty of a topic, as perceived by students, will be a major factor in their ability and willingness to learn it (Sirhan, 2007).

Based on the above explanation, it is understood that interest has a huge impact on students achievement in students who has different intelligences inside them. This research was also done based on the result of a small survey on Multiple Intelligence Profile done by the researcher which results that the four strongest multiple intelligence area of the sample were 1. Logical-Mathematical Intelligence, 2. Verbal-Linguistic Intelligence, 3. Visual-Spatial Intelligence and 4. Interpersonal (Social) Intelligence. According to the result of the preliminary research, the students were then grouped according to their

strongest multiple intelligence area. Thus, this became our role to give students different types of teaching procedures in order for them to get interested in the subject to help them understand the concepts better. Therefore, this research aims to find out the effect of multiple intelligence based learning towards students' interest and concept mastery in learning matter.

B. Research Problem

The research problem of this study was “How is the effect of multiple intelligence-based learning towards students' concept mastery and interest in matter?”

C. Research Question

According to the stated research problem above, this study was to find the answers of the following research questions:

1. How is the implementation of multiple intelligence-based learning?
2. How is students' concept mastery after learning using multiple intelligence-based learning?
3. How is the students' interest level after learning using multiple intelligence- based learning in matter?

D. Research Objectives

The main objectives of this research is to find out the effect of multiple intelligence based learning towards students' interest and concept mastery in matter. This study is therefore has the following specific objectives:

1. To investigate how multiple intelligence-based learning is being implemented in learning matter.
2. To investigate the students' concept mastery in matter concepts after learning using multiple intelligence based learning.
3. To investigate students' interest level after learning using Multiple Intelligence - Based Learning.

E. Limitation of Problem

In order for this research to be focused, this research was concentrated into the following limitation of problems:

1. Multiple Intelligence in this research was limited to five out of eight multiple intelligences according to the theory of intelligence by Gardner 1993, which includes visual-spatial, logical-mathematical, interpersonal (social) and verbal-linguistic intelligence (Hanafin, 2014).
2. Concept Mastery in this research is limited to remembering (C1), understanding (C2) and applying (C3) according to Blooms' Taxonomy of cognitive level (Anderson, 2001). Concept Mastery in this research is limited to remembering (C1), understanding (C2) and applying (C3) according to Blooms' Taxonomy of cognitive level (Anderson and Krathwohl, 2001). Concept mastery in this research is limited up to C3 is to be adjusted with Brunei Darussalam SPN 21 curriculum.
3. Students' interest in this research was focused based on Dewey's theory of students' interest which is how do students respond towards learning matter using multiple intelligence – based approach (Dewey, 1933 as stated in Bae, 2003).
4. Matter, as the teaching material in this research was limited according to matter syllabus for year 7, which includes matter around us, states of matter (solid, liquid and gas), diffusion and elements, compounds and mixtures as the subtopics of matter chapter.

F. Research Benefit

This research brings several benefits to teachers, students and other researchers:

1. Teachers

Teachers can gain many benefits from this research such as that teachers can find out the strongest intelligence area of each student and therefore engage them in learning according to their strongest intelligence.

Other than that, teachers would have new ideas of teaching strategies and

media to be used in teaching. Teachers can also inform the parents about their child's multiple intelligence profile and therefore parents get to understand their child better.

2. Students

Not only teachers, this research also gave benefits to students as well. Such that students get a different learning experience than usual and therefore they enjoy learning and get to find out what are they good at. Then students can also develop their existing intelligence and improve their mastery and skills.

3. Other researchers

Other than teachers and students who can gain benefits from this research. Other researchers might also get some benefits from this research, such that they can do a research on Multiple Intelligence based learning in other subject areas other than science and other topics other than matter.

G. Research Paper Structure

This research paper consists of five chapters which includes the following:

1. Chapter I : Introduction

Chapter one includes background, research problem, objective and benefits. Chapter one is the basic of the research which then produces discussions in this research.

2. Chapter II : Multiple Intelligence-Based Learning, Concept Mastery, Interest and Matter

Chapter two consists of the literature review of this research which explains the theory which were applied in this research. The theories which were used in this research includes the Theory of Multiple Intelligence – Based Learning, concept mastery , students' interest and the concept of matter.

3. Chapter III : Research Methodology

Chapter three focused on the methods which were used in this research. This chapter states the detailed information about the research method, design, research population and sample used, research hypotheses and instruments of this research.

4. Chapter IV : Result and Discussion

Chapter four concerns about the data gathered during the research, it gives a detailed information on the analyzing and data processing in order to answer the proposed research questions.

5. Chapter V : Conclusion and Recommendation

Chapter five states the conclusion of this research according to the gathered data which has been analyzed and processed in the previous chapter which is chapter four. Chapter five also consists the recommendation from the author or researcher to the reader of this research paper which could be other researcher, students and others.

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***THE EFFECT OF MULTIPLE INTELLIGENCE - BASED LEARNING TOWARDS STUDENTS' CONCEPT MASTERY
AND INTERES IN MATTER***

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