

# CHAPTER I

## INTRODUCTION

### A. Background

Education is a process of interaction between teachers and their students, it is for improve their mental development become independent person. In general, it can be said that education is a unit of measure that allows the learning and development from one student (Dimiyati, 2009; Amir, 2013). Education in Indonesia has develop in many ways, from the curriculum until the strategies to deliver the lesson in the class. Teachers in the classroom play an important role and is a significant factor in creating a conducive learning environment, facilitating the students as individual to develop their strength becoming a good competency (Amir, 2014). Johnson, Kahle & Fargo (2007) also agreed on the notion that teachers are the significant factor in facilitating the desirable progress of students in learning. Because of the roles, a teacher must has abilities to support him or her in teaching process. Learning process in the class will more colorfull if there is good connection among teacher and the students. Mulyasa (2009) said a good teacher not only good in delivery information or lesson but also has ability to understand the uniqueness of each student in the class, so he can help the student in learning difficulties.

Teaching and learning style have a significant effect on the quality of instruction (Bas, 2010). Every teacher has their own style to teach and should be can accommodate the students learning style since we know every student is unique and has their own strength and weakness. Studies have indicated that teachers need to equip themselves with more flexible approaches in teaching process. These alternative teaching methods strive to cater to the needs of these varies learners by establishing a conducive learning environment for students. Teachers are encouraged to adopt progressive teaching styles to accommodate the varied abilities of students, so as to enable these students excel in their learning.

Students as individuals respond to stimuli around them in unique way, due to their mental capabilities which help them to hold unique perception of knowledge and skills. We will be mistaken if we think that all students come to educational institutions with equal intellectual and information processing abilities, due to the fact that all of them rarely share same biological, cultural and personal backgrounds (Ayesha & Khurshid, 2013). In the case of Science in particular, understanding the variety of learning styles that students bring to a science classroom will not only help some students learn more science, but also help more students to learn any science (Ameyaw & Miller-mwine, 2014). No single teaching method will work for every student, in fact, no single teaching method will work for any one student every day.

Ameyaw & Miller-mwine (2014) explained that teachers who seek to adapt teaching to students, instead of trying to adapt students to teaching should consider attending to student differences; modifying content, process and products because of students' varying points of readiness, interests and learning profiles for their continued growth; and helping each student to be the best he or she can possibly be. The change and modification of teaching approaches is predominantly to enhance students' performances. Hence one of the approaches is to change the emphasis of teacher-directed teaching which is also known as teacher-centered approach of lecturing to more students-oriented (student-center) approach that involve a higher degree of students' active participation in the teaching and learning process. besides student's active participation during the learning process, teachers role as facilitator is considered crucial as they are the key to successful use of such a strategy (Kaur & Samad, 2012). Teacher's creativity plays a fundamental role in the design of student-center activities as well as the key element in the building of scientific knowledge (Sulaiman, Abdurahman & Abdul Rahim, 2010).

Many teachers began to adopt the Multiple Intelligence (MI) approach in the teaching styles where it highlights the idea of individual differences for both teachers and students. The MI approach for teaching will allows teachers to incorporate the element of creativity in their instructional design where student-centered activities could

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be conducted in eight different forms based on the eight types of multiple intelligences proposed by Howard Gardner in 1983 by his book *Frame of Mind*, reaching students with various abilities and styles in learning. The theory of multiple intelligence (MI) encompass the idea that all people have a unique profile of abilities, natural or learned, in which they are proficient and these are rarely the same as other people (Murray & Moore, 2012). Howard Gardner concluded that students should be seen not as a 'stock-standard' child, but rather as a set of abilities, talents or mental skills, which we call intelligence (Murray & Moore, 2012). Helping students learn effectively is a challenge to teachers. Teachers must realize that one type of teaching method is not sufficient (Sulaiman, Abdurahman & Abdul Rahim, 2010). Effective teaching strategies are essential in ensuring successful teaching and learning process.

Since learning approach is changed, it will affect assessment procedures and approaches. Related with the assessment role, (Ramlawati, et al, 2014) stated that the assessment made by the teachers should be comprehensive and continuous. It means that, assessment by teachers covering all aspects of competency by using appropriate evaluation techniques. If teachers still use the traditional assessment approach such as multiple-choice, true-false or matching items, it just promotes students to memorizing rather than conceptual understanding. Also, these tests only provide less useful information about students' understanding and learning are not enough to assess higher order cognitive skills such as problem solving, critical thinking and reasoning (Birgin and Baki, 2007). For this reason, authentic assessment approaches are needed in assessing both learning process and learning outcomes. An authentic assessment usually includes a task for students to perform and a rubric by which their performance on the task will be evaluated (Mueller, 2013). This implies that assessment techniques should focus on assessing what students know as well as what they do not know. These recommendations can be achieved through authentic assessments measuring students' performance and developments in learning process (Birgin and Baki, 2007).

This authentic assessment is used as assessment for learning in the classroom. Assessment for learning is best described as a process by which assessment information

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is used by teachers to adjust their teaching strategies, especially for teaching the difficult lesson just like human circulatory system topic. A new methods of assessment have been developed to exhibit what students learn and their ability to use their knowledge to facilitate their own learning in the classroom (Kaur & Samad, 2012). By using multiple intelligences strategies for teaching approach in the classroom, teacher can also use authentic assessment for identify students' learning needs in a clear and constructive way so they can be addressed. Every classroom activities given can be described as assessment activities. Assessment for learning strategies should be implemented in such a way that quality feedback provided to students based on (Jones, 2005).

One of the alternative methods in education used in the assessment of the students' individual or group performance is portfolio. Portfolio can gives more reliable and dynamic data about students for teachers, parents and also student himself. Also, using this assessment method provides getting clear information about students and fulfilling their weaknesses and helps teachers planning teaching progress. Portfolio assessment is an on-going process which involves a procedure which teachers use to plan, collect and analyse a collection of student's work (Kaur & Samad, 2012). Portfolio assessment is one of the example based on classroom assessment that can be used to determine the level of achievement and competence development of students based on a collection of work from over time (Ramlawati, Liliyasi, Martoprawiro and Wulan, 2014). However, many teachers still did not have enough knowledge and experience about how to use portfolio as assessment.

Based on the problem above, it's needed one research or study to introduce the application of portfolio assessment as alternative assessment in learning process based on Multiple Intelligence Theory in title “ **The Application Of Portfolio Assessment For Grade 8 Students To The Learning Of Biology Based On Multiple Intelligence To Enhance Mastery On Human Circulatory System**”. The learning process will use Multiple Intelligence approach based on Howard Gardner theory and the assessment for learning, which is portfolio will given to the students. We will see the implementation

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of portfolio assessment in this research to improve their understanding toward the lesson given. This is the reason why the research conducted.

## **B. Statement of Problem**

According to the problem above, the statement of problem in this research is “How to apply portfolio assessment for grade 8 students to the learning of Biology based on Multiple Intelligence to enhance mastery on human circulatory system?”

The statement of problem above explained as the research questions as follow:

1. How the Multiple Intelligence profiles from grade 8 students?
2. What are the influences of learning process based on Multiple Intelligence on students’ understanding for topic human circulatory system in grade 8?
3. How the result of application evaluation portfolio assessment on students’ achievement for topic human circulatory system in grade 8?

## **C. Study Objectives**

The study was guided by the following objectives:

1. To determine the Multiple Intelligence profiles from the students grade 8.
2. To analyze the result of learning process based on Multiple Intelligence approach toward students’ understanding on topic human circulatory system in grade 8.
3. To establish the result of portfolio assessment implementation that affect to students’ achievement on topic human circulatory system in grade 8.

## **D. Scope of The Research**

This research has certain framework to make the research more focus to the purposes and problems that I specified. The focuses in this study as follows:

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- a. The learning process will be conducted based on Multiple Intelligence profile of students as strategies to delivery the concept. The students are given Multiple Intelligence test questionnaire before the learning process is begin.
- b. Portfolio assessment given to the students during the ongoing learning process in the class (assessment for learning) by given them some tasks related with the lesson. This portfolio is used for evaluate the students' understanding toward the lesson by using rubric and feedback given. This type of assessment is assessed three aspects of students learning, that are cognitive, affective and psychomotor.
- c. Students as object in this research are middle school students in grade 8 at one private school in Bandung.

#### **E. Significance of The Research**

Teachers as educators are now, confronted with the problem of how accommodate differences needs of the learners as individual, and how to help them them achieve their maximum potential. Gouws (2008) said that many teachers in this world are still teaching in traditional way which is using blackboard-and-chalk and desk-in-rows classroom model. Therefore teaching and learning process need to adapted to a new concept that caters for the demands made by the new educational system. It is believed that by practicing the theory of multiple intelligences (MI) in the classroom, teachers will be able to change their teaching and learning strategies and cater for the individual differences of learners. This theory allows to learn in a way that complies with their particular strengths. This study hopefully can help the teachers to adjust the curriculum especially in Biology subject in order to promote students to achieve their maximum potential to fulfill educational objectives. Also will be a guide for teacher in designing learning experiences and setting future goal for their learners based or their differences needs.

Xie and Lin (2009) stated multiple Intelligences assessment underlined “learn by doing, assess in learning”. In order to stay unbiased, the assessment should be done according to the students' knowledge and performance. It is necessary to assess the

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students' performance as an individual or in a group during the learning process rather than assessment with traditional methods or multiple choice methods. Portfolios are assessment tool based on modern learning approach such as multiple intelligences (MI) theory (Birgin and Baki, 2007). Using portfolio as an assessment tool instead of the traditional tests may help teachers to make better judgement and record student learning and at the same time teachers be able to improve their teaching practices (Kaur & Samad, 2012). Portfolio assessment transforms the role of teacher from the traditional assessment as indirect test with no feedback toward improving student progress via feedback and self assessment. This study offers a new alternative assessment to be used by the teacher as a facilitator in the classroom and is expected to enrich the teachers in exploring the provision of appropriate assessment in accordance with their intelligence.

#### **F. Thesis Organization Structure**

The general pictures of the thesis content can be seen in this thesis organization structures. The writing systematic used is referring to the guidelines of scientific papers at Universitas Pendidikan Indonesia (UPI) 2015. The organization structures of thesis writing used are including of (1) Chapter I is Introduction that covering of background, statement of problem, study objectives, scope of the research, significant of the research and thesis organization structure; (2) Chapter II is the literature review related with the research, covering multiple intelligence theory, MI in learning process, MI assessment, portfolio assessment, advantages and disadvantages the implementation of portfolio assessment, concept mastery, human circulatory system and relevance studies; (3) Chapter III is the research methodology that covering research design, place and time of research, research subject, key of operational definitions, the research stages, research instruments, data analysis, and research scheme; (4) Chapter IV is covering of result and discussion; (5) Chapter V is covering of conclusion, implication, and recommendation.

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