

CHAPTER I

INTRODUCTION

1.1 Background

A question in learning science is a need that cannot be denied anymore. Because, questioning activity in education has a very important role to improve learning effectiveness (Series, 2018). The important question in the teaching and learning process is undeniable blindness. Students' questions have an important function in science learning (Herranen & Aksela, 2019). Questions help students increase their understanding of the lessons that they are studying because questions are always used as an instrument in gaining the student's knowledge and in building a process of thinking (Sanggenafa, A.R, Rini, 2016). Question skill in science education is necessary to take better steps and reflect on what has been done so that the scientific field can continue to develop. Things like this reflection will be very useful and needed not only in study design but also to develop students' ability to ask questions, most importantly, working on important questions that can be researched not only plays a role in deepening the theory of science teaching and learning but also contributes to increasing the impact of research on practice in math and science classrooms. Despite many experts' recognition of the importance of a question, the measurement of students' asking skills in science lessons is still low. It has been said that a question can help students to improve their understanding. With so much theory and evidence that there are so many benefits to questioning, the analysis of student learning skills questions should be a separate focus of research. But in fact, in Indonesia, student curiosity is still low, by showing the results of Pratiwi's 2017 observations which say the quality of asking students is classified as low level which indicates that there are no questions belonging to the cognitive level (Pratiwi, Kamilasari, Nuri, & Supeno, 2019). which means that students' asking skills are still low.

Today's education involves teaching how to think, and in particular, how to be a critical thinker. There appears to be no clear consensus on what critical thinking is. Some see it only as 'everyday informal reasoning', while others feel different. Regardless of how one defines critical thinking, it seems clear that asking and answering questions plays an important role in its development (Star, 2011). Good questions help focus on what matters. Until the main values of learning will be presented completely. In our world of constant information overload and electronic connectedness, leaders serve others by

directing attention from our "distraction devices" to what those we lead need to pay attention to (Baker & Gilkey, 2020). In this period, one of the important skills in the teaching and learning process is asking better questions, because quality questions will bring out quality thinking results as well. We all need to strengthen our ability to ask better questions, as with any skill, and listen deeply to what others have to say in response. Improve by developing our skills while asking better questions. Therefore, a detailed in-depth analysis of students' asking skills is part of welcoming learning that can shape their students to become people who have critical thinking. Not only understanding is the main goal of learning because the learning process becomes a process in shaping students to have skills in analyzing.

In fulfilling the 21st century's skill needs, we cannot know whether the obstacles that the alumnus will be faced and what kind of job that the alumnus needed when they entered the workforce (Wrahatnolo & Munoto, 2018) 21st-century skills in their application have more measured and structured benefits in several areas of life, such as critical thinking and problem solving, initiative, creativity, and entrepreneurship, communication, teamwork, metacognition (change in mindset). Especially in terms of education because basically, it will have implications for the student's ability to think and solve a problem from what he feels or what he has to ask. the great curiosity that students need to be ready to live the inner era of their life in the future. In education, many opportunities and opportunities that can compete with the world have to be optimized. In preparing young people who are ready to face a dynamic world such as Industry 4.0 in the 21st century, the way the education system is organized plays an important role. However, the readiness of students in facing the 21st century is still unknown. One of them is critical thinking, the readiness of students who must have a creative way of thinking is not yet known to what extent students in Indonesia are ready to face this era. Critical thinking will be shown one of them from the way they make questions. An in-depth analysis of the measurement of asking students is still low in Indonesia.

In the teaching and learning process, different types of questions will be asked by students. Every student can ask different questions. This can be seen from the questions they asked. Blosser in 1973 formulated a question classification system to support science learning called The Question Category System for Science or hereinafter referred to as QCSS. QCSS consists of three classification levels. In the first level, the questions are

divided into open questions and open questions. In the second level, the questions are divided into four ways of thinking, namely cognitive memory and convergent thinking for closed questions, divergent thinking, and evaluative thinking for open questions. The third level of QCSS is dealing with the way of thinking that questions demand (Blosser, 1979). To measure students' ability to ask questions, QCSS will classify each type of question asked by students and will be grouped into three levels. From these results, it will be known the skills students have in asking questions in the field of science.

In this era, students are challenged with heaps of very much increasing information in everyday life, and coincidentally human experiences and knowledge are enormously flourishing. To arouse students' curiosity, the teacher must provide a learning source that is easy to increase students' understanding, because it will make it easier for students to understand the learning material (Maulida, Firman, & and L Rusyati, 2016). Scientific articles are one of the learning sources that can be used to present learning materials that can arouse students' curiosity about learning material and convey it. Therefore, writing scientific articles is undoubtedly an integral part of academic activities (Lamanauskas, 2019). Because the information is valid and has been proven through research which is following the issue that is currently being discussed is a scientific article. Scientific articles can be used as media to convey learning. However, it is difficult to find source for learning, and scientific articles that are relevant to the learning material at a certain level. Not infrequently researchers try to make research that is latest, impressive, interesting, and complicated to understand for junior high school level students. On the other hand, this will also make students' curiosity or students' curiosity increase.

The use of learning resources that are minimal, and reliable, is very difficult to obtain in this era of global information that gives everyone access to provide opinions. A person who does not have a theoretical basis and even data can state it is a type of writing that can even fool the reader with information that is not necessarily true. Therefore, scientific articles in which discuss the problem of disorders of the human respiratory organs have recently become very much in demand to be used as a learning source. according to the 2013 curriculum contained in the teacher's book "analyzing the respiratory system in humans, and understanding disorders of the respiratory system, and maintaining the health of the respiratory system" (Zubaidah et al., 2017) is included in Basic Competence 3.9. and included in the student achievement index 3.9.7 "describes

the kinds of disturbances in the respiratory system in humans" (Zubaidah et al., 2017) and 3.9.8 "analyzes the impact of air pollution on health in the respiratory system in humans" (Zubaidah et al., 2017). All of that will be easier to convey to students in the form of media attainments using scientific articles. because in scientific articles students can also find out facts as well as issues that are currently being discussed. In addition to making students stimulated in their learning to find out the facts of developing issues, teachers can also easily provide student learning materials about the respiratory system in humans, especially disorders that occur in the respiratory system in humans.

Science education has an important role in preparing children to enter the world of life (Rusyati, Rustaman, & Saefudin, 2013). The importance of students in learning about the respiratory system in humans, not only to follow the recommendations of the 2013 curriculum, on the other hand, is to provide education that can be used in everyday life in maintaining the health of themselves and others. One of the essential materials in the study of the respiratory system in humans in the 2013 curriculum is pneumonia. Pneumonia is an infection or infection of the bronchioles and alveoli, which is caused by infection with viruses, bacteria, or fungi, and other parasites (Zubaidah et al., 2017). Because at this students are facing the entire community in the presence of the COVID-19 outbreak, one of the consequences will cause pneumonia which attacks the respiratory system in humans. This becomes an important basis for students to better understand and be aware of the health of the respiratory system.

The importance of a question in learning is the reason why many researchers analyze the types of questions. Research on the types of questions was conducted by Putri 2017, in which she identified questions in a chemistry textbook. Based on his research, the classification of questions is based on QCSS, because QCSS can measure students' ability to ask questions, QCSS will classify each type of question asked by students and will be grouped into three levels. From these results, it will be known the skills students have in asking questions in the field of science. can be applied by teachers in schools to refine questions that are following the curriculum (Putri, 2017). In addition to researching the types of questions that are in the test book that is used as teaching material, research on the types of questions made by the teacher has also been carried out. The results of the research show that the types of teacher questions are dominated by low-level cognitive questions and the teacher's questioning techniques are not yet effective (Ermasari &

Sudria, 2014). This shows the importance of research on the skill of asking. Not only on learning resources but teachers also on students must have good questioning skills. For this reason, this research is entitled "The profile of 8th junior high school students' question skill based on the question category system for science (QCSS) on human respiratory". The topic of learning the human respiratory system is important not only for learning but also for providing education that can be used in everyday life in maintaining the health of themselves and others. This study tries to analyze students' questioning skills on the topic of breathing in humans using QCSS. Instead of most previous studies which aimed to look at the types of questions in the questions in student textbooks and the types of questions asked by the teacher.

1.2 Research Problem

The research problem of this study is "How the profile of 8th junior high school students' question skill based on question category system for science on human respiratory?"

1.3 Research Question

Elaborating on the research problem, the research attempts to explore the following questions:

- a) How is the classification of questions submitted by students in terms of the results of their grouping based on the Question Category System for Science at the first level?
- b) How is the classification of questions submitted by students in terms of the results of their grouping based on the Question Category System for Science at the second level?
- c) How is the classification of questions submitted by students in terms of the results of their grouping based on the Question Category System for Science at the third level?

1.4 Limitation of Problem

Based on the identification of the problem, it is necessary to limit the problem so that the research can focus on the scope of the problem and focus on the research problem.

The analysis of questions in this study was limited to questions asked by students about the topic of the human respiratory system and pneumonia according to the 2013 curriculum used in one private school in Bandung and one public school in Subang. Analysis of the questions using the Question Category System for Science rules that are used as the basis are three levels based on QCSS. The first level divides the types of questions into open questions and closed questions. The second level is to divide the questions into four ways of thinking, which include cognitive memory, convergent thinking, divergent thinking, and evaluative thinking. The set for the third level is question analysis based on the level of thinking of the questions demand.

1.5 Research Objectives

The main objective of this study is for profiling junior high school student questions skills based on the question category system for science on the human respiratory system, while the specific objectives in this study are to:

- a) To analyse the classification of questions submitted by students in terms of the results of their grouping based on the Question Category System for Science at the first level.
- b) To analyse the classification of questions submitted by students in terms of the results of their grouping based on the Question Category System for Science at the second level.
- c) To analyse the classification of questions submitted by students in terms of the results of their grouping based on the Question Category System for Science at the third level.

1.6 Research Benefit

And this research is expected to provide benefits for the variety pack, namely:

- a) For students

The result can acknowledge students' question skilled and it can give motivation for students to further develop question skilled in science learning. The result can acknowledge their level of question skilled and it can give motivation for students to further develop their question skilled in science learning.

- b) For teacher

This research is expected to become a reference and description regarding junior high school students' questioning skills. Teachers are encouraged to develop

new strategies or ideas to make a meaningful teaching-learning process in the classroom to endorse students' question skills.

c) For Other researchers

This research contributes to a clearer description of the profile of junior high school students' question skills in the human respiratory system topics. Other researchers can also use the information as supporting data and references for future research about students' question skills.

1.7 Research Organizational Structure

The organizational structure in this study explains the writing order of each chapter. This research paper consists of five chapters.

- a. Chapter I explains the following: This chapter contains the research problems identified and addressed as background, also explains the benefits of the research and the research objectives. The research problem in it is limited to the problem boundary.
 - a. Research background
 - b. Research problem
 - c. Research objectives
 - d. Benefits of research
 - e. Research organizational structure
- b. Chapter II includes a literature review and research hypotheses. A literature review has an important role, as a theoretical basis in preparing research questions, research objectives, and research hypotheses, chapter two explains the following things. Also, this chapter discusses the theory and research needed to interpret and describe the presentation of the findings and results following the previous chapter. In it will discuss a literature review that confirms all the study statements for the results of the analysis in this paper. The literature review includes students' questioning skills, QCSS, the Human respiratory system, and scientific articles as learning resources, as well as other relevant resources.
- c. Chapter III this chapter the research methods and designs used in this study are described in detail. Contains a detailed description of the research methodology as follows:
 - a) Research Methods and Design
 - b) Population and Sample
 - c) Operational Definition

- d) Research instruments (objective test, questioning ability rubric)
- e) Research procedures
- d. Chapter VI contains the results of the research and discussion as contains explanations and discussion of the results in the research. This chapter addresses the outcomes and analyzes this research.
- e. Chapter V contains the researchers' interpretations and interpretations of the results of the analysis and research findings. There are there alternative ways of writing conclusions, as follows:
 - a. Conclusion
 - b. Implications
 - c. Recommendation