

## **Biology Laboratory Profile At Senior High School In West Aceh Regency Academic Year Of 2018/2019**

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**Abstract**— Practical work in Laboratory acts as implementation of government policy in education No. 22 year of 2006. this also implicitly pronounce that Exact is a key of innovation instead of theoretical. the purpose of this study was to survey the relevant information regarding to the laboratory profile related to Laboratory work of biology subject in Three senior high school of West Aceh. The study was conducted using purposive sampling and descriptive using several educational instruments. from the seven observed indicators those three School were dominantly underprivilege namely: equipment (30%), experimental tools (35%), media (30%) while there were three indicators which were classified into satisfactory (70 – 100%) including infrastructure, consumable, educational media. these were concluded from several surveyed parameters those sample are unsatisfactory completed.

**Keywords**— policy, underprivilege, infrastructure and satisfactory

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### **I. Introduction**

Regarding the educational equality, the student is suggested to be able to get the same knowledge wherever school they are registered. this also mentioned that educational system in every part of Indonesia is equal even though in remote area. the implementation of this policy will not be completely fulfilled, due to the fact of it government standardized the minimal which universally obeyed by every school in Indonesia.

In the 21st century, the Education system is required and confronted knowledge which has to be owned by educational student. this supporting the student capability in understanding many subjects and practice that knowledge in their lives. Educational system was driven to new paradigma especially in learning process including natural science. therefore, learning should be designed in active way, self-regulated, self-directed learning and also collaborative (Tan, 2003).

Biology as a subject in senior high school in which every level of education has not been improved yet particularly critical thinking (Mahanal et al 2016). This circumstance shows the low impact of the learning process to the student who is involved in it. Trilling and Fadel (2009) define critical thinking is a crucial student skill to analyze, interpret, evaluate, summarize and gather information. this expected that through it student will be able to think rational in order to find effective reason by using systemic thinking and eventually problem-solving learning. by bearing it student can engage their self to the subject they learn which my create innovation from what they think about subject. this also can be implementation of student-center learning whereby knowledge construction (Connel, 2016).

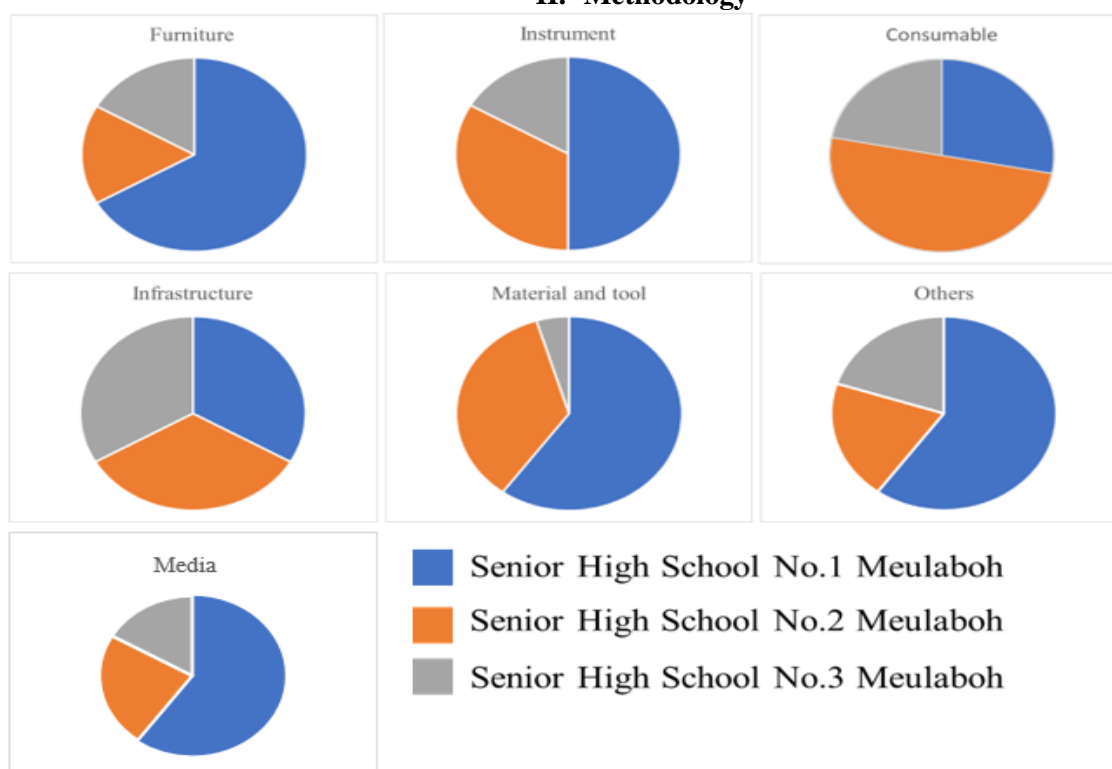
Laboratory plays an active role to promote and elevate critical thinking in effective way related to some skills such as contraction and deep analysis leading to improving student active learning environment (NEA, 2012). Olubu 2015 reported that one of effective way to making learning environment in laboratory was to adopt the actual situation and bring it in laboratory. this was proved that this pedagogy technique can be emerged into the laboratory improving learners performance. other than that, it is obvious to say that infrastructures play important role in laboratory which can transform theory in classroom into the form of simple yet effective.

According to government policy in education No. 22 the year of 2006 hinted the Natural science is not only the study of fact, theory, and concept but mainly innovation process. as the implementation of this policy is the laboratory should be able to provide standard regulated by minister of education. those indicators included are infrastructure, equipment, media, experimental tools, educational media, and consumable. these criteria have to be obviously provided in order to fulfill the requirement of the ideal laboratory for natural science, particularly biology. Laboratory as the center learning of biology plays important role in order to enhance student in understanding biology especially in application of this subject. it also suggested that laboratory is only of fundamental infrastructure which should be provided in every senior high school. Sakiyo and Waziri, 2015 reported through application of concept mapping strategy can enhance capability of secondary school

learners, and recommended to incorporate the teaching of theoretical biology and workshop by applying mapping concept. this study also concluded that there was no difference between male and female capacity in understanding the of biology through that concept. as well as that, laboratory management is one of the important in government for laboratory work. through well-organized laboratory, the student will gain in-depth knowledge in related topic in proper way. this can be pronounced that, laboratory need integrated fundamental matter which emerges student intention for gathering information related to the application of theory in the classroom.

Survey and observation is common strategy to gather the information of actual condition. trustworthy is one of the elements required in having valid data. we observed and enquired the information from several resources in three senior high schools including head of school, teacher and academic employees. the data was analyzed using excel to get the percentage from every observed parameter.

## II. Methodology



**Fig. 1.** Sevent indicator proportion of minimal standard based on Ministry of Education policy in every sample

The research was conducted in Senior high school No. 1, 2 and 3 Meulaboh regency. samples were chosen by using purposive sampling approach where those samples were accredited A in national. this study was descriptive to describe the actual profile of those samples. instrument utilized in this study was anket and observation sheet. supporting data was gained from walk interview with subject teacher, head of every senior high school in each sample, and administration employees. the result was analyzed using percentage in Ms. excel.

## III. Result and discussion

the first activity conducted in this study was Biology laboratory observation in Senior high school No. 1, 2 and 3 in Meulaboh related to the complement of infrastructures. the result is represented in Fig. 1. The most satisfactory school among those three samples was Senior high school No. 1 Meulaboh followed by the Senior high school No. 2 and No. 3. This was obviously seen in the pie chart the largest piece of graph were dominated by Senior high school No. 1 Meulaboh. these dominations where nominated by material and tools, others, media, and furniture. it is implied that among those taken samples Senior high school No. 1 Meulaboh was the best quality laboratory compare to its encounters. Nevertheless, in some parameter, this school was not satisfactory such as consumable and infrastructure. converse to Secondary school No. 1, No. 2 of the sample was just in the sufficient wherein mostly element in every parameter was roughly similar (45 – 55%). The last sample (Senior high school No.3) was pronounced as underprivileged or unsatisfactory.

the minimal standard of Laboratory was satisfactorily fulfilled only in Senior high school No.1 Meulaboh. this will affect the student capability in understanding knowledge leading to low student achievement. Empirical study of engineering laboratory conducted by Nikolic et al., 2015 resulting in that by improving six parameters including 1) overall satisfactory, 2) laboratory notes, 3) learning experience, 4) computer facility, 5) engineering equipment, 6) condition of laboratory these enhanced student performances and achievement 32%. this also suggested that quality of equipment are the most influential factor among others. we also assumed that these requirements should also be provided by biology laboratory in order to build better learning environment.

instrument and material are the necessary elements in the laboratory yet obviously hard to distinguished. In this study, we generalized those indicators in simple way so it can be comparable to those samples. based on the result in fig. 1.

to depict the actual documentation of lab work. we captured some pictures during the learning process. the condition of learning process in school sample is represented in fig. 2.



**Fig. 1.** to depict the actual documentation of lab work



**Fig. 2.** Representation of Actual situation of laboratory work in majority of senior high school in west Aceh, Meulaboh

the picture shows actual situation from sample we taken. this showing not sufficient for sort of secondary school laboratory. although the minimal standard of laboratory can be fulfilled, it can not guarantee that knowledge transfer to student is happen properly. allen and white (1999) explained that some competencies need to be met were 1) critical thinking, analyse, solve the problem, 2) find, evaluate, and using appropriate knowledge resources, 3) cooperate teams and small groups, 4) oral, written skill effectively, 5) use content knowledge and intellectual skill to be a contious learner. Gokhal (1995) explained that cooperative learning is also the best way to reinforce student critical thinking in practical knowledge leading to the success of education process. and cooperative learning can be done by labaratory work when it is supported by good quality and sufficient equipment.

#### **IV. connculution**

Based on minimal standard of biology laboratory profile regulated nationally, Senior high school in West of Aceh were classified in unsatisfactory which enquired special intention of government.

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