The Analysis of Natural Science Virtual Laboratory Media

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Abstract. This research was aimed to analyzed the virtual laboratory media which take a part as supporting the natural science learning in Junior High School. The data analyze techniques which used in small research were both descriptive analyze and presentation. Instrument which used were media instrument analysis questionnaire based on BSNP (National Education Standards Board) which consists of material aspect, view aspect, programming aspect, and language aspect. The result of analysis based on BSNP Virtual Laboratory Media in Junior High School showed : material aspect 54.28% (good enough), View aspect 55.55% (good enough), Programming aspect 50% (good enough) and language aspect 60% (good enough).

1. Introduction
The science learning process consisted on the direct experience given develope the competence in order to be able to search the real accident and understand about natural scientifically. Science has the difference place in education system and it content consisted of three discipline main knowledges, they are physics, chemist and biology. One of them, chemist contained so many the abstract concepts which caused of often a problem in conceptual instruction in chemist learning [2]. Students have difficulty in abstract concept building. Because of that they also have difficulty in chemist subject which has so many abstract concepts. Laboratory activity and application of science virtual laboratory at Junior High School both public and private showed almost all schools had science laboratory which separated with other rooms, but the laboratory activity still rarely done (2) Physically, laboratory building which has been existed at the school which has minimum criteria standart, but the laboratory facility was not complete yet, especially for waste disposal, (3) The availability of non-physical laboratory didn’t fulfil the standard laboratory minimum criteria (4) The availability of laboratory safety didn’t fulfil the standard laboratory minimum of science [4].

The laboratory experiment activity could be handled by using interactive virtual laboratory as substitute for the real laboratory. The laboratory application computer assisted such an alternative for every teachers to handle the limitation of traditional laboratory mentioned. Computerized laboratory experiments such an efficien tool to help understanding the topic which is developed at classroom and laboratory [5].

Virtual Laboratory allowed the students to be active in learning and provide alternative learning method. For students who don’t study well [6]. Furthermore, by the virtual laboratory experiment, students become familiar with the scientific method and the standard laboratory gave the chance to students who wanted to continue their research to the higher level [7].
The chemist virtual laboratory as the compliment supporting learning material which is very necessary in learning persistence both in terms of education and nation’s economy [8]. The result showed in terms of knowledge acquisition, the class which use virtual laboratory was more effective than the class without use dynamic visualization element [9].

Virtual laboratory simulated the real laboratory environment and process, and defined as an environment where students convert their theoretical knowledge become the practical knowledge by learn to do experiment[10]. Virtual laboratory gave students the meaningful experience and concepts, process, and important principles[11]. By the step of virtual laboratory, students have chance to repeat the wrong experiment for deepen the experience [12].

Laboratory virtual couldn’t replace the hand training yet, but the interactive simulation uses give the idea for the students what the real laboratory wants, so that it can increase the time spent for learning [13]. The use of virtual laboratory was effective on student learning result on the science material [14]. The use of virtual laboratory showed the good result on the learning process, so that the media that used become alternative supporting technological advances [15].

2. Materials and Methods
This research was descriptive which is carried out through the analysis activities limited natural science virtual laboratory media. Analysis natural science Virtual laboratory media has been done limited on VIII 2018/2019 which is different, natural science laboratory media analysis activity carried out to analyzed and collected the temporary data for innovative natural science virtual laboratory creation media.

The instruments of the research carried out include (1) The learning device consists of a syllabus, practicum book and semester learning plan , (2) data collection instruments both questionnaires and interviewsIn this research, used percentage description analysis to know about the level of score percentage which obtained from the science virtual laboratory which has been analyzed. The rating scale that will be used is 1 until 5, where the lowest score is 1 and the highest score is 5. The criteria for the average validation analysis that used can be seen on the table 3.1

| Average | Variabel Criteria |
|---------|------------------|
| 4,21-5,00 | Very valid and no need revision |
| 3,41-4,20 | Valid and no need revision |
| 2,61-3,40 | Valid enough and no need revision |
| 1,81-2,60 | Valid less and need to revision |
| 1,00-1,80 | Not valid and must br totally revision |

3. Results and Discussion
The result of this research we conducted for the virtual laboratory media analysis activities limitedly implemented and obtained results in the form of questionnaires and feasibility data for natural science virtual laboratory media. Virtual laboratory media analysis activity was used to analyze and collect the data which be followed up with the development of natural science virtual laboratory media in the odd semester. The researcher next do the analyze of natural science virtual media laboratory on the odd semester, the researcher conducted test based on a (a) feasibility of material aspect, (b) feasibility of view aspect(c) feasibility of programming aspect and (d) feasibility of language aspect.
Natural science virtual laboratory media analysis activities in order to get virtual chemist laboratory media that is better and different from any virtual media that ever existed. The goal was that learning natural science material will not seen boring for teachers and students do that it could be overcome with the practical online laboratory activity which more fun and more efficient based on the safety at work.

Based on the analyze activity which conducted by using advisibility questionnaires and has been validated by the validator based on (a) feasibility of material aspect, (b) feasibility of view aspect, (c) feasibility of programming aspect and (d) feasibility of language aspect. The result of research analyze on the material feasibility can be seen on the picture 1

![Figure 1](image1.png)

**Figure 1.** The result of feasibility analysis of chemical laboratory media based on the material aspect.

The feasibility of the material aspect had seven components, the are (1) curriculum (2) The content of the material (3) The giving of examples in material presentation (4) The Quality of material presentation (5) benefits of delivering the content of the material by using media in the learning practice (6) Suitability of the questions on the evaluation menu with the learning material (7) the media ability in improving students character and thinking skills. Based on the results of the average students assessment of chemical virtual laboratory media analysis activities ia about 54,28% (Good enough)

![Figure 2](image2.png)

**Figure 2.** The result of feasibility analysis of natural science laboratory media based on the view aspect

The feasibility of the view aspect had nine components. they are (1) the background on every media pages (2) font and the size of letter that used on the media page (3) suitability of the color proportions use on the media page (4) the view of the picture on the media page (5) the view
animation on the media page (6) The sound display on the animation (7) the video on media (8) cover design and main menu and (9) supporting view of the media. Based on the result of the average, the assessment of natural science virtual laboratory media analysis activity is about 55.55% (Good Enough)

![Scoring Scale](image)

**Figure 3.** The result of feasibility analysis of natural science laboratory based on the programming aspect

The feasibility of the programming aspect had four components. They are (1) The ease in the programming aspect (2) the display instructions for using media (3) Quality of navigation button and (4) program file capacity. Based on the result of the average assessment of natural science virtual laboratory media analysis activity is about 50% (Good Enough)

![Scoring Scale](image)

**Figure 4.** The result of feasibility analysis of natural science laboratory based on the language aspect

The feasibility of the language aspect had two components. They are (1) language uses and (2) the use of terms and symbols. Based on the result of the average assessment of natural science virtual laboratory media analysis activity is about 60% (Good enough)

4. Conclusion
Based on the results of data analysis the research that has been done at junior High School which has the virtual laboratory media showed that the good enough result on the science learning process at Junior High school. Nevertheless, the result of the analysis of this research didn’t reflect the perfect result. Because the researcher admitted there was still some weakness showed (a) Practicum implementation was only carried out limit test (b) the school equipment facilities when students carried out practicum was not fully adequate in the laboratory (c) the limited for practicum was not enough so that students couldn’t understand the material that related to chemist lesson (d) the appropriate time in practicum was not enough. Because, it was adjusted the school schedule concerned the implementation of the chemist practicum in the laboratory required a longer time than other
methods because this method was in discussion and involved all of students to asked questions and give the opinions. Therefore, the researcher will carry out further analysis of the use of virtual laboratory media

5. References

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