



Analysis of Student Motivation using Chems sketch on Hydrocarbon Topic in SMA Negeri 2 Merauke

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Abstract

The purpose of this research was to analyze student learning motivations that use Chems sketch in learning process. The type of this research is descriptive research, this research conducted in SMAN 2 Merauke in Papua., total population are 28 students in grade X IPA 2. The data in this research collected by using questionnaire that given for student after finish learning with chems sketch by giving checklist in every item based on what student have from the teacher. Data analysis obtained from the study consist of three result, first are 11 student with percentage 39.28% and categorized very high motivation, second are 16 students with percentage 57.14% and categorized high motivation, and the third is student with percentage 3,5% and categorized medium. Level of student motivation value by using ARCS Model which is at attention is 41%, Relevance 38.45%, confidence 38.07% and satisfaction 42.50%. From the result showed that the use of chems sketch able to motivate student to learn chemistry especially hydrocarbon topic and for teacher can used as an alternative media for teaching.

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Keywords: Chems sketch, hydrocarbon, student motivation.

1. Introduction

The Educational Objectives stated in the National Education System Law state that the quality of education in Indonesia has been good. But in reality there are still many shortcomings that must be addressed in the world of education today, especially in the learning process that is in the classroom. The learning process plays an important role in producing quality graduates. The main thing that must be considered by educational stakeholders is to create quality learning. To catch up all the elements in the field of education must work together to improve the quality of Indonesian education. Media and learning methods have interrelated and integrated relationships and are a unity in learning design [1].

The 2013 curriculum is expected to produce graduates who are productive, creative, innovative and effective through strengthening attitudes and skills [2]. Educational success can occur if the learning process at school runs according to the objectives, the learning used must be appropriate so that students are able to understand what is learned and the learning objectives to be achieved [3].

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The use of interactive learning media is expected to be able to improve students' mastery of concepts and learning outcomes. According to (Handika, et al 2012), learning media have special benefits that can be considered as research material, including: (1) Submission of material can be uniformed, (2) The learning process becomes more interesting, (3) The learning process of students, students student are more interactive, (4) the amount of teaching and learning time can be reduced, (5) the quality of learning of students, students can be improved, (5) the learning process can occur anywhere and anytime, (6) the role of the teacher can change towards more positive and productive[1]. The relevance of education that must be understood from the perspective of students is to strive for student success towards the achievements to be achieved by increasing student learning motivation[4].

In teaching and learning activities the role of motivation is very necessary, so it is important for a teacher to continue to motivate students. Motivation has a function as a driving force for behavior, determining the direction of action, and determining the intensity of an action. According to Nyayu Khodijah [5]" Motivation is an impulse that changes the energy in a person into the form of real activities to achieve certain goals ". Motivation can also be said to be a series of attempts to provide certain conditions, so that someone wants and wants to do something, and if he does not like it. The role of the teacher is very important in terms of motivating students one way is to use appropriate learning strategies or models before learning begins [6], The teacher must also be able to create a pleasant learning atmosphere for students so that students can be confident and active in learning. one of the methods used so that the learning process becomes interesting by involving students directly in the learning process that is centered on students or student center learning[7][8]. The teacher must also be able to create a pleasant learning atmosphere for students so that students can be confident and active in learning. One of the methods used so that the learning process becomes interesting by involving students directly in the learning process that is centered on students or student center learning [9] In teaching, especially chemistry lessons, it is not enough to just give theories, laws and other ideas in word for word without the representation of images or real applications around them [10][11]. Most students consider chemistry as a difficult subject. According to monterola and punzalan researching students' perceptions about the reasons they dislike chemistry because they assume that chemistry has no connection with their immediate environment and is abstract and unreal [12]. In chemistry learning, students often find difficulty in visualizing chemical compounds [13] even for students at college level [14] [15].

Based on the results of previous studies regarding the use of media as an alternative that can increase student motivation conducted by Yanda and Safitri stated that the use of animation in teaching microscopic hydrocarbon material can increase student motivation because animation applied in class is easily understood [16][17], learning by using educational-based games has an impact on increasing student motivation and learning outcomes conducted by partovi and rajavi [18][16].

Chemsketch is software that is used as a tool for drawing chemical compounds. This software is able to produce structural drawings of organic compounds, name chemical compounds based on Lewis structures, display 3D structure models, space filling models and ball and stick models. Based on these problems, this study was conducted with the aim to see the effect of using Chemsketch software as a learning media on the material of hydrocarbon compounds [19].

Based on the results of interviews conducted with chemistry teachers who are in SMA Negeri 2 Merauke, stated that students find it very difficult to understand chemical materials, especially the topic of hydrocarbons. The reason is that it is very difficult for students to interpret the molecular shape described by the teacher on the blackboard and exposure to the theory explained by the teacher through the used chemistry book. In chemistry subject, students often find difficulties in visualizing chemical compounds. In this case the researcher chooses an alternative that can solve the problem in the study of hydrocarbon Kimi. to solve this problem innovations must be made in learning at school, one of which is by using the Chemsketch application to help students to understand hydrocarbon material so as to increase student motivation

2. Methods

The type of this research is descriptive research, this research conducted in SMAN 2 Merauke, total population are 28 students in grade X IPA 2. The data in this research collected by using a questionnaire that given for students after

finishing learning with chemsketch by giving checklist in every item based on what students have from the teacher. Research data adapted from Measurement of learning motivation using the ARCS model consisting of Attention, Relevance, Confidence, Satisfaction. Questioner data made in this study are in table 1.

Table 1. Questionnaire ARCS

No	Aspect	Number of Question (+)	Number of Question (-)	Total
1	Attention	2, 9, 10	16, 18	5
2	Relevance	1, 4	11	3
3	Confidence	3, 5, 7, 13	12	5
4	Satisfaction	6, 8, 14, 15, 17, 19	20	7

How to calculate the percentage of each aspect of ARCS from the student learning motivation questionnaire is as follows[20].

$$M = \frac{X}{Y}$$

with:

M: Percentage of each aspect of ARCS (Attention, Relevance, Confidence, Satisfaction).

X: Score from aspect A (Attention) / R (Relevance) / C (Confidence) / S (Satisfaction) of all student questionnaires.

Y: Ideal score from aspect A (Attention) / R (Relevance) / C (Confidence) / S (Satisfaction) or criteria score from aspect A / R / C / S.

3. Result and Discussion

The use of media as a way to increase student learning motivation on chemical materials especially hydrocarbons can use Chems sketch to help students understand the material delivered by the teacher. In collecting data there are four aspects observed in the motivation including attention, relevance, confidence and satisfaction. Based on the results of the distribution of questionnaires given to students, data on the level of student motivation can be seen in table 2.

Table 2. Percentage of student motivation levels in using Chems sketch

No	Aspect	Percentage
1	Attention	41.00 %
2	Relevance	38.45%
3	Confidence	38.07%
4	Satisfaction	42.50%

Based on the table 1, aspects of the level of student motivation for attention by 41%, Relevance 38.45%, Confidence 38.07% and satisfaction 42.50%. based on the level of motivation that can be based on the results of the questionnaire obtained in the study the highest level of motivation is at the satisfaction level of 42.50% which indicates that the use of chem sketch can increase student learning motivation.

Based on the assessment criteria of the level of student satisfaction with the use of Chems sketch as a learning medium to increase student motivation can be shown in Table 3.

The results of the motivation level of students as many as 11 people showed a percentage of motivational results as much as 39.28, as many as 17 students showed a satisfaction level of 57.14%, and there was only 1 student who had a low motivation level of 3.5%. From the results of research conducted as a whole the number of students who chose a high level of motivation y as many as 17 people, and the level of satisfaction at ARCS as much as 42%. So it can be

stated that the use of Chems sketch can increase student motivation. the perimen showed a better improvement. The results of this study are in accordance with what has been done by Matsuo et al. & Sakat et al. That using technology-based media can increase learning motivation and make learning more attractive, interesting, and enjoyable[15][21].

Table 3. The level of student satisfaction after using chems sketch

No	Category	Frequency	Percentage
1	Very High	11	39.28 %
2	High	17	57.14%
3	Medium	0	0.00%
4	Low	1	3.50%
5	Very Low	0	0.00%

4. Conclusion

Based on the table on aspects of the level of student motivation at attention is 41%, Relevance 38.45%, Trust 38.07% and satisfaction 42.50%. The results of the motivation level of 11 students showed motivation results of 39.28, 17 people showed satisfaction levels of 57.14%, and there was only 1 student who had a low motivation level of 3.5%.

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