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Development of the Website based Chemistry Learning Integrated Evaluation To Measure Students Learning Interest In Colloids Material

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Article Info	Abstract
	The development of technology is currently one of the demands for teachers and prospective teachers to be able to create learning media that appeals to students so that students have an interest in learning. The use of the web-based learning media integrated with evaluation can be one of the solutions in chemistry learning. The purpose of this research is to know the validity and response of students about learning media developed. The development model used in this research is the ADDIE model. The validation of the development product is done by the validator of media experts and chemical material experts, while the trial is conducted by 29 students of class XI IPA 2. The analysis results of the validator state that the quality of the learning media belongs to a very good category with a percentage of 92.78% of the media expert and 83.34% of the material experts. Students ' learning interest percentage of 72.12% is in good category. Learning Media developed in the form of websites integrated with the evaluation of CBT (computer bassed test). The development of learning media contains material in the form of power point slides, learning videos, training of CBT exercises, student presences and student profiles whose functions for students to see the results of training and evaluation.

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INTRODUCTION

The role of technology in education also ease for teachers to give learning instruction and for students to more easily receive the subject matter in a more interesting way (Karsli et al., 2010). Technology in education can improve the quality in the learning process that takes place in the classroom (Fabian et al., 2016). Education currently emphasizes on how to export facts and technologies that is capable to transform the facts applied in daily life so that the role of technology facilitates both teachers and students in learning (Hoogveld et al, 2001). In stroing chemistry consists of inputs and processes. Input in the form of an initial condition affecting the chemical teaching process. The inputs provided can be of pedagogy aspect and technological aspect. Both aspects are influential in the achievement of student learning outcomes, so that in the process of development of technological aspects can be done to encourage some limitations that still exist in some schools (Utama et al., 2014).

Chemistry lessons are often associated with boredom, reluctance, and failure for some students. Chemistry lessons are also classified into difficult and abstract subject groups so that many students have less interesting in learning (Supardi & Putri, 2010). In this condition, it will be difficult for students to receive the material being taught. One factor of the suctions is the lack of variations of the learning model done by the teacher, so that the chemistry learning class is not interesting (Heriyanto et al., 2014). For some reasons, this is the need for innovation and development in the teaching of chemistry (Ika et al., 2017). The use of learning models that is monotonous can cause students having less interest in learning. The research conducted by (Inayati et al., 2014) on learning visualization, auditory, kinaesthetic using media swishmax, it is stated that one of the learning models that suit for the current student conditions by the method of visualization, Auditory and kinaesthetic. This way of learning is through seeing something like video, hearing something like audio and

learning through physical activity and direct engagement. This way of learning utilizes technology as a tool that aids in the process of delivering materials, presenting more clear and attractive material, raising interactions, efficiency of time and energy, foster a positive attitude towards the learning process (Suryana et al., 2018).

The use of technology is used as a media used in the process of delivery of materials so that it looks more interesting because it can describe things that are abstract is becoming more real in the hope of giving a positive influence of student learning outcomes (Listantia & Sumarti, 2015). Media learning that used to be only a book or other printed material can now be created using a Web-based system so that it only displays text and images but can also display multimedia materials such as videos so more interesting students in learning (Supriyono et al., 2015).

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Based on research conducted by (Dolenc & Boris, 2015) to develop e-learning using the website in helping to improve the cognitive students individually. E-Learning like the use of websites has become a top choice in schools all over the world. The developed website is designed in a quality way so that learning can continue to happen actively without the direct presence of the teacher or with a limited explanation from the teacher of the subjects. Research that is relevant to website development is done by (Du *et al.,* 2015) this research to see the perspective of female students in Africa in following online based learning. The Website is used as an online medium for collaborative learning with other users online. The results showed that online media-based websites as a learning environment directly influenced intrinsic motivation. Similar research is done by (Wrigley *et al.,* 2018) this research aims to design an education to be more effective with an integrated framework that is the development of a website for learning. Website design developed for interactive learning and learning evaluation so that it can facilitate students in learning collaboration and to improve students ' interactivity.

The Media is now widely used by teachers in the form of chemistry textbooks based multimedia, flipbook, chemical e-modules, e-books of chemistry, e-LKPD, and android-based chemistry games. Media development is done by researcher because it is based on preliminary researchs results to analyze the needs of teachers and needs of students so that the development of websites that can be accessed on a local network or local area network (LAN) is suitable to be applied to conditions in SMA Negeri 1 Soe where the Internet has not been established in SMA Negeri 1 Soe so that the development of media focuses on the offline based websites media. The problems to be answered in this research is: (a) How valid is the learning media based website developed? (b) How are students responses to learning media that is developed in relation to student learning interests?

METHODS

This research is an ADDIE model of research and development (Molenda, 2007). Product development that is oriented to the learning software in the form of web-media. The web-media is an interactive media that can be accessed and used by both students and teachers offline using a local area network (LAN). The steps of this model include analysis, design, development, implementation, and evaluation. The subject of this research is the students of XI IPA SMA Negeri 1 Soe. The types of data in this research include qualitative and quantitative data. The instruments used in the research include test and non-test instruments. For data analysis techniques, researcher uses qualitative and quantitative techniques depends on the type of data used.

RESULTS AND DISCCUSION
Validation Results Of Learning Media

Before testing learning devices to students, validation has to been done by the media experts to know the feasibility of the product development. Validation is done using a poll that contains questions about different aspects of product eligibility. The poll contains 18 criteria of questions using the 1-5 scale. The validation assessment results from both experts get a percentage of 92.78% which means it included in the criteria is very valid. This means that the media of website that is developed deserve to be used as learning media. the validity category can be seen in Table 1 and the media expert validation data can be seen in Table 1.

Table 1. Validation Category

No	value (%)	Criteria
1	$80 < x \leq 100$	Very valid
2	$60 < x \leq 80$	Valid
3	$40 < x \leq 60$	Quite valid
4	$20 < x \leq 40$	Less valid
5	$0 < x \leq 20$	Invalid

Assessment of the media experts are used to analyze the validity of learning media developed. the value of media validity is calculated by the formula:

$$p = F/N \times 100\%$$

where:
p = value
F = number of score earned
N = number of score maximum

The results of validation indicate that the integrated website-based chemistry learning evaluation is valid and feasible to be used as one of the learning resources used in SMA N 1 Soe school. Result of media learning development is valid because it has fulfilled the criteria of media eligibility. According to (Purwanto & Yuliani, 2007) the selection of the media should be adapted to the development of learning systems in the school so that the selection of media can follow the importance of the development of the learning system, where the media as one of learning components of the learning system.

Table 2. Validation Result Of Media Expert

Aspects assessed	Score	Score Max	Percentage (%)
Substance Of Matter	37	40	92.5
Learning Design	46	50	92
Visual Communication Display	55	60	91.67
Software Utilization	29	30	96.67
Total Score Assessment	167		
Maximum Score Amount	180		
Total Percentage	92.78		

Validation Results of Learning Media

The assessment was given by two material experts done by giving a poll that contains a variety of questions about the material feasibility aspect in the development

media. The poll sheet contains 46 criteria of the questions using a scale of 1-5. The validation assessment results from both experts get a percentage of 87.17% which means included in the criteria is very valid. This means that the material in the web-based media development deserves to be used as a learning material. Data results from the expert validation can be seen briefly in Table 3.

Table 3. Validation Results of Material Experts

Aspects	Score	Score Max	Percentage (%)
Content Eligibility	152	170	89.41
Presentability	95	110	86.36
Contextual Assessment	79	90	87.78
Linguistic worthiness	75	90	83.34
Total Score of Assessment	401		
Maximum score Amount	460		
Overall percentage	87.17		

The Trials on Learning Media

At the stage of trials on learning media aims to see the readability of learning media and also to find out if there is any mistake or error when students will use web-based learning media. The researcher do not do a trial in small-scale on the number of users who are more than 5 people, so researcher need to do a readability trials of this website. besides knowing the level of error, researcher also want to know the student's response to the developed media. The student's response is related to the interest in using the development media as a source of chemistry in schools obtained from a live interview of students who have done trials and polls. Because chemistry subject never used similar media in the school to this development media so students are pleased if the chemistry subject is also given a learning resource except a

printed book and a monotonous explanation from the teacher. Learning media is used easily during the trial because in the training and evaluation section using the CBT system that they have also used for semester exams at school. The display of the login page, registration page and home page of the learning media can be viewed on Picture 1.
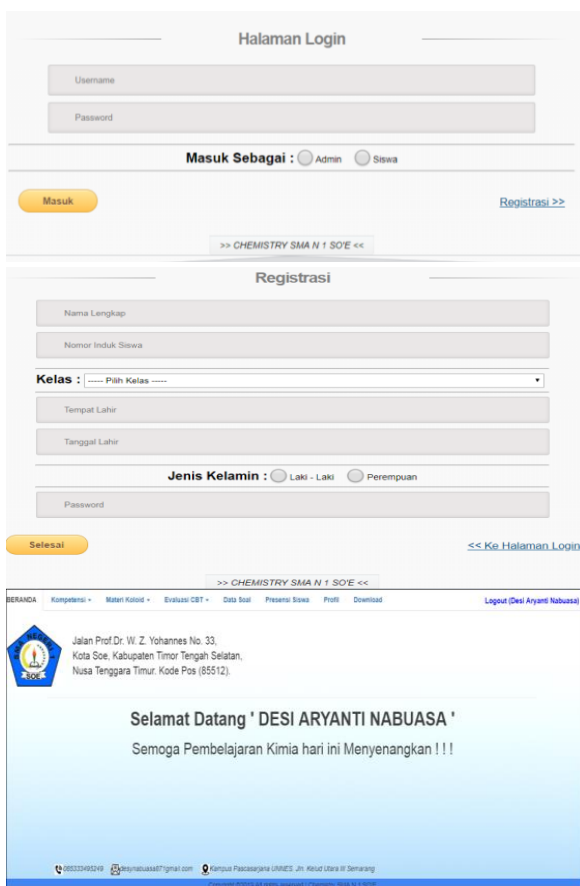

Figure 1. Login Page, Registration dan Home

Analysis Results of Students Learning Interest

The result of student response is obtained by analyzing the poll sheet of student responses given at the end of the learning process. There are several indicators in measuring the learning interests of students including their attention, pleasure, interest and students participation. Analyze student interest based on polls that contain questions related to several indicators of learning interest. Poll sheet contains 16 questions by using scale 1-5. The percentage of interest gained from students of class XI IPA is 72.125%,. It means that learning media that is developed is able to stimulate students learning interest in studying chemistry. The percentage of interest score obtained very high. Interest score criteria can be seen in the Table 4.

Table 4. Criteria of students Interests Score

Percentage of Interest Score	Criteria
80-100	Very high
61-79	High
41-60	Medium
21-40	Low
0-20	Very low

The results of development of learning media can be used as one of the effective learning resources to measure students interests in learning. According to (Yektyastuti & Ikhsan, 2016) the acceleration of increased knowledge is currently supported by the application of media and digital technology. The use of learning devices, such as website based media is also included in the learning style of 21st century. According (Chuang & Chen, 2007) computerized problems and digitization is already a behavior of children in the 21st century for example children prefer to play games, prefer to read electronic books, YouTube, etc. Seeing the situation, educators should seize the same opportunity by developing learning media related to digitalisation to increase student interest in learning chemistry.

On the principle of learning with the help of media is intended so that students can know the relation between the chemical material that is studied with information or facts around. In this kind of learning activities, the media is used as an interactive learning resource, innovative, fun, motivating students to have a good interest in learning (Yahya *et al.,* 2015).

CONCLUSION

In detail, the conclusion of this research is: (a) The results of the validation of the website-based chemistry learning integrated with evaluation to measure the learning interest

of students in colloidal materials that is developed to obtain very valid criteria to be used as a media of learning with a percentage of validity according to media experts for 92.78% and validity according to material experts 87.17% (b) The results of poll analysis of the learning interest of students after using the website-based learning chemistry is at a high interest percentage of 72.125%.

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