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RESEARCH ARTICLE

Pengembangan Media Pembelajaran Powtoon Pada Materi Ikatan Kimia di Kelas X Tingkat SMA/MA Sederajat

Development of Powtoon Learning Media in Chemical Bonding Subject for Class X SMA/MA Equivalent Student

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ABSTRACT

This research on Powtoon learning media development aims to explain the feasibility of Powtoon media development in chemical bonding subjects for class X SMA/MA equivalent students. This type of research is development (Research and Development, R&D) with 4D development models that include the Define (Definition), Design (Design), Development (Development), and Disseminate (Deployment) stages. The data collection instruments used are through media expert validation sheets, material expert validation sheets, teacher response sheets, and student response sheets. The data analysis technique used is to calculate the judgment percentage score of experts. Research results show that the developed Powtoon learning media met the valid category with a presentation of 89,5% from 2 media experts, while that of the 2 material experts received a presentation of 86%. This learning media also met the good categories from 3 teacher responses of 87.3% and of 10 students of 87.9%.

KEYWORDS

Chemical Bonding, Development, Media, Powtoon

ABSTRAK

Penelitian pengembangan media Powtoon bertujuan untuk mengetahui kelayakan pengembangan media pembelajaran Powtoon pada materi ikatan kimia untuk siswa kelas X SMA/MA Sederajat. Jenis penelitian ini adalah pengembangan (Research and Developmend, R&D) dengan model pengembangan 4D yang meliputi tahap Define (Pendefinisian), Design (Perancangan), Development (Pengembangan), Disseminate (Penyebaran). Instrument pengumpulan data yang digunakan adalah melalui lembar validasi ahli media, lembar validasi ahli materi, lembar respon guru dan lembar respon siswa. Teknik Analisis data yang digunakan yaitu dengan cara menghitung skor persentase judment para ahli. Hasil penelitian menunjukkan bahwa media pembelajaran Powtoon yang dikembangkan memenuhi kategori valid dengan persentase 89,5% dari 3 ahli media, sedangkan dari 3 ahli materi memperoleh persentase 86%. Media pembelajaran ini juga memenuhi kategori baik dari 3 respon guru sebesar 87,3% dan dari 10 siswa sebesar 87,9%.

KATA KUNCI

Ikatan Kimia, Pengembangan, Media, Powtoon

1. INTRODUCTION

Information and communication technology has rapidly and revolutionarily changed human mindset and civilization. With the development of information and communication technologies, we can use them positively, wisely, and responsibly, especially in the field of learning, both formal and non-formal[1]. The use of information technology in education can be achieved through the application of learning media, the use of computer systems, both in-class learning and in general educational settings, and the use of internet networks that can support effective education and learning[2].

A learning medium is an aid to the teaching process. Everything that can be used to stimulate the learner's mind, feelings, attention, and skills so that it can encourage learning[3]. Through the use of learning media, teacher and student communication can be carried out smoothly so that material can be delivered to the maximum. One medium that can be used is learning video. It can accommodate both the audio and visual learning characteristics of students. The use of learning videos can support learning goals[4].

In some schools, learning media has not been used as a support in the learning process. One of them is SMA Negeri 1 Teluk Kuantan, especially in chemistry. This is based on observation results, that during the learning process, the teacher uses teaching materials such as books, whiteboards, or PowerPoint media which are delivered orally by the learning teacher, but due to a lack of interest in learning students are less effective.

One effort to overcome the problems above is to utilize Powtoon-based learning media which aims to attract students' interest. Powtoon is an online service that can be accessed anywhere and everywhere to create learning videos. Having Powtoon learning videos will help the learning process to be effective. Because video is a medium that involves two senses, namely sight and hearing. Learning material that will be seen by the eye and heard by the ear, will be easier to remember than just reading or listening. Moreover, the Powtoon application can present various kinds of animations so that it can attract students' attention. How to make videos in the Powtoon application is quite easy because all the features such as animation are available in the application[5].

2. METHOD

The type of research used is development research which refers to Research and Development (R&D). The subjects of this study are 4 lecturers of Kuantan Singingi Islamic University, 3 chemistry teachers, and 10 students of SMA Negeri 1 Teluk Kuantan. The research techniques of distributing questionnaires are useful for providing an assessment of the learning media that will be developed. This research will be assessed for its feasibility by media experts and material experts and its practicality will be tested based on student responses and teacher responses.

In this study the instruments used were: 1) Media experts' instruments are used to determine the feasibility of Powtoon's application as a chemical learning medium in terms of design. 2) Material expert instruments are used to determine the level of suitability of the Powtoon application as a learning medium in terms of material. 3) Teacher's response instruments are used to obtain data in the form of products that are reviewed by the level of practicality of the media as their users. 4) Student response instruments are used to obtain data in the form of products reviewed by the media interest rate and students' satisfaction as users.

The data analysis technique used in this study is the formula used to calculate the percentage of the Likert scale, the score obtained compared to the highest score, then multiplied by 100%. The formula is shown below:

$$\% P = \frac{\sum x}{\sum xi} \times 100\%$$

Description:

P = Percentage of validity and

$\sum x$ = total number of answers /item

$\sum xi$ = maximum number of scores /item

100% = constant

To make it easier to read the results of the study, the percentage table can be described as follows.

Table 1. Percentage Analysis Feasibility Criteria

PERSENTASE	DESCRIPTION
81% - 100%	Good/ Valid/ Proper
61% - 80%	Good Enough/Valid Enough/ Proper Enough
41 % - 60%	Less Good/Less Valid/ Less Deserving
21% - 40%	Not Good (Replaced)

The greater the percentage of data analysis results scores, the better/valid the product feasibility level of development research results[6].

3. RESULT AND DISCUSSION

3.1 Research Results

The portion of learning media developed is by the structure of the material taught at school, which discusses atomic stability, ionic bonds, covalent bonds, and metallic bonds. Then Powtoon's learning media was judged by media experts and material experts. The

expert will fill in the validation sheet that has been prepared. This validation aims to provide assessments, suggestions and some input to the learning media before being tested. For media experts, it is judged by 2 lecturers of the Faculty of Engineering at Kuantan Singingi Islamic University. The media is judged by several aspects, namely display aspects, operation

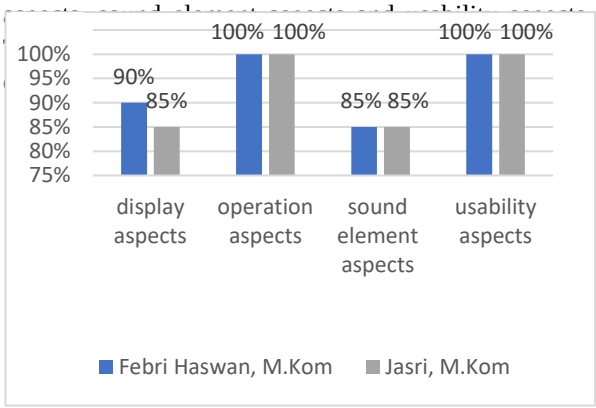

Figure 1. Media Expert Score Diagram

The average value of the score given by the media expert is 89,5%, which means that Powtoon learning media is valid for use. Furthermore, this learning media is judged by material experts, namely 2 lecturers of the Tarbiyah Faculty and the Kuantan Singingi Islamic University College. This media is assessed from several aspects, namely aspects of content feasibility, linguistic aspects, and aspects of usefulness. The results obtained can be seen in the following diagram:

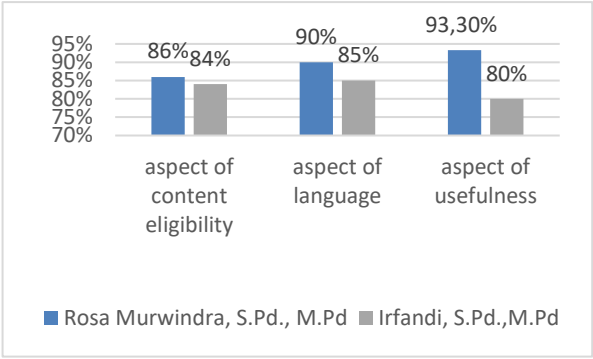

Figure 2. Material Expert Rating Score Diagram

From the two experts, an average score of 86% was obtained, which means that the powtoon learning media that has been developed is valid. After the powtoon learning media is revised according to the suggestions and input from the judges, then proceed with the product trial stage. The trials used in this study are either small trials or limited trials. The test was conducted by chemistry teachers and students as users of the underdeveloped learning media, which aims to assess whether the media is good/desirable to use. The teacher's response was assessed by 3 chemistry teachers from SMA Negeri 1 Teluk Kuantan. This learning media was assessed from several aspects, namely content suitability, operational aspects, linguistic aspects, and practical aspects. Of the three teachers' responses, the average score was 87.3% which means that the portion learning medium was responded to well by teachers as a learning medium. Furthermore, for students' responses, 10 students from SMA Negeri 1

Of the three teachers' responses, the average score was 87.3% which means that the portion learning medium was responded well by teachers as a learning medium. Furthermore, for students' responses, 10 students from SMA Negeri 1 Teluk Kuantan, this media is judged from several aspects, namely media look/design aspects, operating aspects, usability aspects, and language aspects. The results are shown in the following table:

Table 2. Student Response Rating Score

No.	Student Name	A Value Aspect			
		Percentage			
		Look/ Design	Operating	Usability	Language
1	KA	86%	95%	80%	86%
2	DR	90%	95%	86%	86%
3	NA	88%	95%	80%	80%
4	WB	90%	90%	93,3%	80%
5	ERM	88%	95%	100%	80%
6	N	82%	90%	93,3%	80%
7	MT	84%	90%	86,6%	66,6%
8	ENM	84%	100%	86,6%	86,6%
9	TPR	90%	100%	93,3%	86,6%

From the student's responses, the average score was 87.9%, meaning that the portion of learning media was responded to well by students as a learning media.

3.2 Discussion

There are several aspects that teachers must understand in presenting video as a learning medium, namely (1) proper material presentation (2) proper transmission techniques (3) optimal video production, and (4) video production skills by recent developments[7].

The Powtoon learning medium that researchers have made is already by these aspects, namely, the 4 subsections described in the Powtoon learning medium, namely atomic stability, ion bonding, covalent bonding, and metal bonding. In the ion bonding subsection, for

example, students can clearly understand how Na and Cl atoms can bond and form NaCl through the video shown in the media. Additionally, in each subsection, examples related to the material are given, which feature interesting animations so that students can understand and learn learning easily.

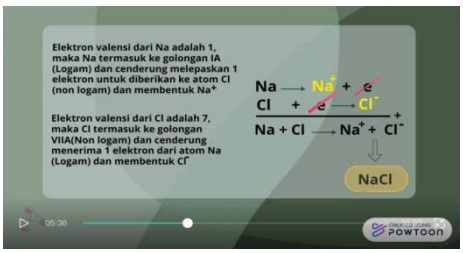

Figure 3. View of the NaCl Ion

The feasibility of Powtoon media is also supported by quantitative data, namely the average percentage obtained from media experts and material experts. The feasibility of powtoon media from media experts received an average value of P = 89.5%, while the suitability of powtoon media from material experts obtained an average value of P = 86%, which means that powtoon learning media meets the criteria for being suitable for use in learning activities. This shows that Powtoon's learning medium is valid and meets the criteria worth using in learning activities. This statement is in line with Margarha Ayu Angel Lestari's study entitled "Development of Learning Media Using Powtoon in Sub Material Arthopoda for Class X SMA" which concluded that learning media using Powtoon application meets the aspect as a learning medium and deserves to be used for the learning process[8].

The same thing also happened to the average value obtained from the teacher response test and student response. The teacher response obtained an average percentage of 87.3% while the student response obtained an average value of P = 87.9%.

The teacher responded well because Powtoon's learning medium on chemical bonding materials made it easier and shorter in the teaching process. This is in line with Audia Perdana's research entitled "Development of Problem-Based Learning Media Using Powtoon Application on Momentum and Impulse Class X Materials in SMA/MA", He concluded that Powtoon's learning medium was considered successful and worth using and had been practically packaged and capable of providing benefits to students and providing understanding to students[9].

Likewise, students' responses can be categorized well because Powtoon's learning medium on chemical bonding materials can attract students, which fall into the category of attracting students' attention are good image and animation display, audio clarity on media, and short, solid material. This is in line with what Rio Ariyanto said in his research entitled "Use of Powtoon Media to Increase Students' Interest and Learning Results in Basic Competencies Describing Economic Operators in the Indonesian Economic System", He concluded that learning using Powtoon's learning medium had an excellent effectiveness on the enthusiasm and interest of students' learning[10].

4. CONCLUSION

Research results show that the developed Powtoon learning medium meets the valid category of media experts at 89.5%, of material experts at 86%. This learning medium also meets the categories of teacher response of 87.3% and 10 students of 87.9%.

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