International Journal of Educational Research and Development
www.journalofeducation.in
Online ISSN: 2664-7095, Print ISSN: 2664-7087
Received: 06-12-2021, Accepted: 22-12-2021, Published: 07-01-2021
Volume 4, Issue 1, 2022, Page No. 1-3

Development of power point interactive media based on genetic materials for Class IX students SMP Negeri 6 Tondano

Wanda Cristianita[1], Herry Sumampouw[2], Ferny M Tumbel[3]
[1] Master Program Student, Science Education Study Program, Postgraduate Program, Manado State University, Indonesia
[2] Science Education Study Program, Postgraduate Program, Manado State University, Indonesia

Abstract
This study aims to describe the feasibility of metacognitive-based interactive power point media on genetic material for class IX students of SMP Negeri 6 Tondano which has been developed, describe the reactions of students in learning using metacognitive-based interactive power point learning media on genetic material that has been developed, describe improving learning outcomes in the use of metacognitive-based interactive power point media on genetic material that has been made. The research is a "Research and Development" study referring to the research and development steps of the ADDIE model. The field trial subjects consisted of learning material validators, learning media validators, 6 students of class IXB of SMP Negeri 6 Tondano and 20 students of class IXA of SMP Negeri 6 Tondano. The instruments used are questionnaires and learning outcomes tests. The data obtained were analyzed using a significant t-test 0.05. The results of the validation of the material validator products get a value of 95% which is included in the valid category, the results of the validation of learning media get a value of 94.66% which is also included in the valid category, and the results of the limited-scale trial test get very good criteria with a value of 83.33%. The results of the t-test stated that the value of tcount > ttable (17.57>2.09), thus H1 was accepted and H0 was rejected. The conclusion is the feasibility of metacognitive-based interactive power point media on genetic material for class IX students of SMP Negeri 6 Tondano after the validation test is included in the very feasible criteria for use, the reaction or response of students after using metacognitive-based interactive power point media on genetic material for class IX students of SMP Negeri 6 Tondano included in the very good category, learning using interactive media based on metacognitive power point on genetic material improves student learning outcomes.

Keywords: interactive media, power point, metacognitive and learning outcomes

Introduction

The development of science and technology is expected to facilitate the teaching and learning process which is an obstacle in every school and is expected to be able to improve the quality of education. This requires efforts to improve the quality of education, especially starting from teachers, teachers as educators in the line because they are at the forefront of tasks and are directly related to students, educators have the main task of learning science in schools to create a pleasant science learning atmosphere so that it has a positive impact on achievement. student learning (Abdul, 2014:201).

The genetics learning process is a communication process, classroom activities are a place for educators and students to exchange ideas and develop their ideas. However, if there is no reciprocal response from students, there will be no interaction, as happened in SMP Negeri 6 Tondano class IX where the students are less active, perhaps because of their lack of metacognitive factors which must be honed as early as possible.

Genetics is a material that has a high level of difficulty to be absorbed by students. Students only imagine what DNA and RNA look like, how the process of inheritance of traits looks like, so they need the right media to teach this genetic material.

The shape of DNA and RNA, Chromosomes etc. requires an electron microscope or the like which is more sophisticated, while at the junior high school level, especially at SMP Negeri 6 Tondano, only a light microscope is available, so that in delivering genetic material in class, the teacher only explains using textbook sources and sometimes uses media. conventional. If you don't use the right media, during the learning process some students just sleep on the table, fantasize, play and don't pay attention to the teacher's explanation because they are bored and don't understand what is being taught.

Students also feel bored when the learning process takes place due to lack of innovation from educators who do not use learning media. Even if the media is used, the media does not attract the attention of students so that it interferes with the metacognitive of students because they only think about when the learning is finished, it is no longer on the material being taught. So with this the author adds interactive power point media in the learning process so that it can encourage students' interest in learning genetics and they become more active, especially they can understand properly and correctly the genetic material being taught. Because through power points, students can see with the naked eye because of the attractive presentation, there are games of color combinations, letters and interesting animations, both text, images or photos or videos that can stimulate the brains of students to find out more about the material being taught later. messages or materials that are taught visually making it easier for students to understand the material being taught.

Power point is one of the appropriate learning media to be used in the science learning process, especially on the subject of genetics but that alone is not enough to stimulate the activity of students, therefore it is necessary to have the right skills in teaching to improve students' higher-order thinking skills. Likewise, teaching and learning must be carried out in depth. This is what encourages students to have skills as reliable problem solvers. Problem solving and solutions, of course, are not instant but require a process of habituation and practice during learning. Empowering metacognitive skills in learning and teaching will train students to become self-regulated and problem solvers.

When the author made field observations, the author found that during the learning process, the teacher only used the usual (commonly used) power point media, there was no interesting display or new things in the power point.

Based on the above background, the authors are very interested in developing metacognitive-based interactive power point media on genetic material for class IX students at SMP Negeri 6 Tondano, which is expected with a special design from the author to develop this media to make the learning process more interesting and open up the creativity of participants. teach to be active.

Research Methods

The research method used in this research is research and development methods. In this study, teaching materials were developed in the form of interactive metacognitive-based power point media. The subjects of this study were class IX students of SMP Negeri 6 Tondano, 1 expert consisting of 1 lecturer in Biology, Manado State University. The object of this research is a metacognitive-based interactive power point media on genetic material for class IX students of SMP Negeri 6 Tondano. This study refers to the ADDIE model which includes 5 steps: 1) Analysis, 2) Design, 3) Development, 4) Implementation and 5) Evaluation. (Branch, 2009)

Results and Discussion

Validation of Learning Materials

Based on the calculations (Appendix 1), the percentage obtained is 95%, this percentage is included in the very feasible criteria.

Validation of Learning Media

Based on the calculation (Appendix 2), obtained a percentage of 94.66%, this percentage is included in the very feasible criteria.

Field Trial (Limited Scale)

Based on these calculations, the percentage of the 10 score indicators achieved for very good criteria is 83.33%, for good criteria 16.66%, for other criteria each is 0%, therefore students react very well to interactive power media. metacognitive-based points on the given genetic material and there are no changes to be revised at a later stage, then the trial can be continued to the field test stage.

Field Test

The field test was carried out in class IXA as many as 20 respondents were given treatment (using interactive metacognitive-based power point learning media). The results of this field test obtained data on learning outcomes through a pre-test and a post-test, but before that, validity and reliability tests had been carried out (Appendix 5 & Appendix 6). Initial test scores were given before learning (before treatment), and final tests were given after learning (after treatment) and a reaction test to the given media. Data on learning outcomes through written tests on 20 students obtained the highest score was 92 while the lowest was 78. Based on student response data in using power point interactive media based on metacognitive genetic material, the number of criteria is very good (SB) = 82.5%, good criteria (B) = 9.5, criteria is quite good (CB) = 6%, criteria is good (B) = 9.5, criteria is quite good (CB) = 6%, criteria not good (KB) = 2% and the criteria are not good (TB) = 0%. The percentage of 82.5% is included in the valid criteria and is included in the very good category (Appendix 4).

Normality Test

The normality test of the difference data between the Pretest-Posttest treatment classes using the Lilliefors test. Obtained Lcount = 0.12 while the calculation using the formula Ltable = 0.19. This means Lcount < Ltable or 0.12 < 0.19. So H0 is accepted and it can be concluded that the data is normally distributed.

Hypothesis Testing

Hypothesis testing is calculated using Microsoft Exel 2007 software. Based on the above calculations, the t count is 17.57 and the t table is 2.09, then H0 is rejected and H1 is accepted. With the following test criteria: tcount > ttable then H1 is accepted and H0 is rejected. tcount < ttable then H0 is accepted and H1 is rejected. Real Level = 0.05.

Conclusion

Based on the results of the analysis and discussion conducted, the following key can be obtained:

1. The feasibility of metacognitive-based interactive power point media on genetic material for class IX students of SMP Negeri 6 after the validation test is included in the very feasible criteria for use.
2. Students' reactions or responses after using interactive power point media based on metacognitive material for class IX students of SMP Negeri 6 are included in the very good category.
3. Learning using interactive power point media based on metacognitive on genetic material to improve student learning outcomes.

References

1. Abdul IS. Profesionalisme Guru dalam Mengimplementasikan Teknologi Informasi dan Komunikasi di Kabupaten Nganjuk. Jurnal Pendidikan dan Kebudayaan,2014:20(2):200-210.
2. Branch RM. *Intructional Design. The ADDIE Approach.* New York: Spinger, 2009.
3. Khoon Yoong, W. 2002. *Helping Your Student to Become Metacognitive in Mathematics : A Decade Later*. http://Static.Scrib.com/docs/ egkod516n7a78. pdf.
4. Sumampouw M, H. 2012. *Pembelajaran Genetika Berbasis RQA*. Sunandard Pres
5. Sumampouw M H, dkk. 2020. Penerapan Strategi Pembelajaran Reading Questioning And Answering (RQA) Berbasis Media Visual Konsep Sistem Pencernaan Manusia

Untuk Meningkatkan Keterampilan Metakognitif dan Retensi Siswa Di SMA Negeri 1 Amurang. Jurnal Pendidikan, 2020, 1(1)1.

6. Tanti Novita, dkk. 2018. Metakognisi siswa dalam pemecahan masalah matematika siswa SMA dalam pembelajaran matematika berorientasi etnomatematika Rejang Lebong,2018:3(1),44&46.
7. Warkintin, Yohanes B Mulyadi. Pengembangan Bahan Ajar Berbasis CD Interaktif Power Point Untuk Meningkatkan Hasil Belajar Siswa. Jurnal Pendidikan Dan Kebudayaan.2018:9(1)90.