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The Effect of Using the Reading, Questioning, and Answering (RQA) Assistance of the Quizizz Media Learning Model on the Science Literature Ability of Students

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Abstract: This study aims to determine the effect of using the Reading, Questioning, And Answering (RQA) Learning Model Assisted by Quizizz Media on the Scientific Literacy Ability of Class XI MIPA Students at SMA Negeri 3 Wajo. This research was conducted at SMA Negeri 3 Wajo. This research method is a quasi-experimental design with a pretest-posttest control group design. The sample taken is class XI MIPA SMA Negeri 3 Wajo, more precisely class XI MIPA 2 and class XI MIPA 3 with a total of 50 students as experimental class XI MIPA 2. Based on the data analysis, the student's cognitive learning outcomes for the reproductive system material were obtained. The results of the hypothesis on post-test data show that data processing uses hypothesis testing (t-test) using the EXCEL program which obtains values (sig.2-tailed) with a significant level of 5% (0.05). The results of testing the hypothesis (t-test) show the final result that H0 is rejected and H1 is accepted. The average student learning outcomes using the Quizizz learning media are higher.

Keywords: Reading; Questioning; Answering; RQA; Quizzizz media

Introduction

The development of the 21st century resulted in a rapid change in the fields of Science, Science, Technology, and Science (IPTEKS) for human survival (Aslamiah et al., 2021). 21st century education can provide a solution to solve these problems, one of which is by providing skills in the 21st century to the next generation. One of the skills needed in the 21st century is scientific literacy (Santos, 2017).

Science literacy skills are very important for students in Indonesia. However, the facts prove that the scientific literacy achievement of students in Indonesia is still relatively low. As reported by the Program for International Student Assessment (PISA), which is a study that aims to determine the results of the education system related to the literacy ability of students at the age of 15 years. PISA studies were carried out in several developed and developing countries starting in 2000 at three-year intervals. Fields of study that are researched and assessed include reading literacy, mathematical literacy, and scientific literacy.

Based on the results of observations during the Field Experience Practice (PPL) at SMA Negeri 3 Wajo, information was obtained that science literacy skills and reading literacy in students during biology learning were still relatively low. The low scientific literacy skills of students can be seen based on the ability of students who are only able to identify some problems in everyday life that are related to the learning process. The low level of scientific literacy skills is also influenced by the low interest in reading and the student's ability to read science. This problem occurs because of the ability of a teacher who has not been able to apply a learning model that can improve students' scientific literacy and reading literacy skills.

One material that is considered important for measuring scientific literacy skills is the material on the

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reproductive system. The reproductive system is a breeding activity to give birth to offspring. It aims to maintain the process of survival of species in the world. The reproductive system or genital system is the ability to live things to produce new offspring. The goal is to maintain and preserve the species so that it continues and does not become extinct. What we know in humans, the reproductive organs differ between women and men.

Based on the above problems, the ability of scientific literacy needs to be possessed by a student by the demands of 21st-century skills. Scientific literacy is a requirement that must be possessed by students in solving a challenge that occurs in fast-changing times so that in the learning process scientific literacy is practiced. simultaneously with the development of life skills (Holbrook et al., 2009). Scientific literacy skills remain a major challenge to be improved through an active learning model. The learning model that is considered to be able to meet the criteria for the scientific literacy component is the Reading Questioning And Answering (RQA) learning model. The Reading Questioning and Answering (RQA) learning model is a learning model based on the constructivist learning theory (Lashari et al., 2018).

This model is aimed at students by providing opportunities to construct their knowledge, by the demands of the 2013 curriculum. In its learning activities, this model asks students to be active in reading material and makes students active to ask questions about material that is not known or not yet known, and understood. Reading, asking, and answering activities in the Reading Questioning And Answering (RQA) learning model, are expected to be able to improve scientific literacy skills (Astafiria et al., 2021; Susanto et al., 2022). As said, through reading habits, a person can be trained to choose authentic information, practice critical thinking skills, and develop skills, especially analytical skills (Bahri, 2016).

The Reading Questioning and Answering (RQA) learning model is a learning model based on a constructivist learning theory (Haerullah, 2013). This model is centered on students by providing an opportunity to construct their knowledge, by the demands of the applicable 2013 curriculum. In learning activities, this model asks students to be more active in reading material and makes students more active to ask questions about material that is not yet known or material that has not been understood.

One of the obstacles that occur in learning is an error in receiving information that is conveyed by the teacher to students so that the concepts received by each student become different. Learning media is one of the important things in the learning process. One of the success factors in learning is the role of learning media as a forum for delivering learning messages from learning sources or sources of information to recipients. This is inseparable from the role of an educator. To overcome this misperception in communication, a tool is needed in the learning process called media. Learning media that can be created and utilized from the Quizizz application is in the form of interactive multimedia (Salsabila et al., 2020; Anggraini, 2022). This Quizizz has advantages that can be used as learning evaluation material, for example, there is data and statistics on student performance where the results can be used as material for evaluation of follow-up in learning. Quizizz is a game-based educational application using Quizizz application, students can do exercises on their electronic devices (Hidayati et al., 2021). Quizizz has game characteristics such as avatars, themes, memes, and entertaining music in a learning process. The use of the Quizziz application in giving quizzes to students is one of the targets for students to be more active in learning and provide additional motivation to learn when learning now (Pusparani, 2020; Astafiria et al., 2021).

Based on the above background, it is deemed necessary to research to examine a potential Reading, Questioning, and Answering (RQA) learning model, evaluated in improving scientific literacy in students assisted by the Quizziz learning media on the Science Literacy abilities of students in class XI MIPA SMA Negeri 3 Wajo to activate students in the learning process, identify, analyze, and conclude, based on what is understood by students. The purpose of this study was to determine the effect of the use of the Reading, Questioning, and Answering (RQA) learning model on the scientific literacy abilities of students in class XI MIPA SMA Negeri 3 Wajo. This study aims to determine the effect of using the Reading, Questioning, and Answering (RQA) learning model with the help of the Quizziz learning media on the Science Literacy ability of students in class XI MIPA SMA Negeri 3 Wajo.

Method

The research used is quasi-experimental (quasi-experimental). This study consisted of two groups of students whose purpose was to reveal the influence of biological science literacy through the Reading, Questioning, and Answering (RQA) learning model and the Reading, Questioning, and Answering (RQA) learning model based on the Quizizz media for students of class XI MIPA SMA Negeri 3 Wajo.

The research design used is the pretest-posttest control group design. This design involved two groups, which were chosen randomly, then given a pretest to determine whether there was a difference between the experimental group and the control group in the initial state. There are two experimental groups in this study, the first group is the first experimental group learns with the Reading, Questioning, and Answering (RQA)

learning model assisted by the Quizizz learning media and the second group is the control group which learns with the Reading, Questioning and Answering learning model (RQA) without Quizizz media which can be seen in the following Table 1.

Table 1. Research Design Pretest-Posttest Control Group Design

Group	Pre-test	Treatment	Post-test
Experiment	O_1	X_1	O_2
Control	O_3	X_2	O_4

Information:

O1 : Pre-test experimental group
O2 : The final test of the experimental group
O3 : Pre-test control group
O4 : Control group final test
X1 : Treatment of Reading, Questioning, and Answering (RQA) learning model assisted by Quizizz learning media (Treatment)
X2 : Treatment of the Reading, Questioning, and Answering (RQA) learning model without the help of Quizizz (Treatment) learning media

Result and Discussion

This study uses 2 classes, namely class XI MIPA 2 as the experimental class and class XI MIPA 3 as the control class. During the learning process that took place in both classes the sample material used was the reproductive system. The results of the scientific literacy ability of students in the control class and experiment class can be seen in Table 2. Analysis of the data used is the N-Gain test, normality test, homogeneity test, and hypothesis testing can be seen in Table 3.

Table 2. Pretest and Post-Test Data for the Control Class and Experiment Class

	Control class		Experiment	
	Pre-test	Post-test	Pre-test	Post-test
Highest	45	65	60	100
Lowest	15	30	15	60
Average	34	51.8	38.20	90.60

Table 3. N-Gain Science Literacy Ability Control Class and Experiment Class

Class	Pre-test average	Post-test average	N-Gain	Classification
Control	34	51.80	0.26	Low
Experiment	38.20	90.60	0.86	High

Table 4. Pre-test and Post-test Normality Test

Class	Pre-test		Post-test		Interpretation
	Count -t	Table-t	Count-t	Table -t	
Experiment	0.91	0.173	0.95	0.173	Normal
Control	0.86	0.173	0.94	0.173	Normal

Table 5. Pre-test and Post-test Homogeneity Test

Class	Pre-test		Post-test		Interpretation
	Count -F	Table-F	Count-F	Table -F	
Experiment	2.632	1.98	1.646	1.98	Homogeneous
Control	2.632	1.98	1.646	1.98	Homogeneous

Table 6. Hypothesis Test Results

Class	Posttest		Pretest	
	Count -t	Table-t	Count -t	Table-t
Experiment Control	17.03	1.71	1.30	1.67
Results	Count-t > Table-t		Count-t < Table-t	
Test Decision	H1 accepted		H0 rejected	

Based on the results of the research above, the quantitative data shows the results of the pretest and posttest in the two sample classes. Where the average value of the control class before treatment got 34 and after being given the treatment it got an average of 51.80. Similar to the experimental class, the average score before being treated was 38.20 and after being treated, the average score was 90.60

Based on Table 2, it can be seen that the average value of the pretest in the control class is 34 and the posttest is 51.80 with an N-Gain acquisition of 0.26 so it is included in the low N-Gain classification category. Meanwhile, in the experimental class, the pretest average value was 38.20 and the posttest was 90.60 with an N-Gain value of 0.86, so it was included in the high N-Gain classification category.

Based on Table 3, it can be seen that the results of the pretest normality test in class XI MIPA 2 were 0.91 (Count-L) < 0.173 (Table-L) and the posttest obtained a value of 0.95 (Count-L) < 0.173 (Table-L). While in class XI MIPA 3, the normality test results were obtained for pretest 0.86 (Count-L) < 0.173 (Table-l) and posttest 0.94 (Count-L) < 0.173 (Table-L). So, from the results of the two sample classes, it can be seen that the data are normally distributed. Based on the results of the homogeneity test above, the two classes showed homogeneously distributed data. Where the pretest in class XI MIPA 2 and class XI MIPA 3 got 2.632 (Fount-F) < 1.98 (Table-F), and the posttest in class XI MIPA 2 and class XI MIPA 3 got 1.646 (Count-F) < 1.98 (Table-F).

Based on the data in table 5 shows Count-T > Table-t that is 17.03 > 1.71. By the criteria in the hypothesis test, it can be said that H1 is accepted and H0 is rejected and the results of the hypothesis test of the pretest value in both classes show Count-T < Table-t which is 1.30 < 1.67 then Ho is accepted and H1 is rejected. This indicates that using the Reading, Questioning, and Answering (RQA) learning model with the help of Quizizz media can have a good influence on the scientific literacy skills of students in class XI MIPA SMA Negeri 3 Wajo.

Based on the explanation above, it can be said that the Reading, Questioning, and Answering (RQA)

learning model assisted by Quizizz media on reproductive system material on the results of students' scientific literacy skills (Susanto et al., 2022). The Reading, Questioning, and Answering (RQA) learning model is a learner-centered model by providing an opportunity to construct knowledge, by the demands of the 2013 curriculum (Nasrudin et al., 2019; Kristanto et al., 2021). One of the learning models that accommodates the questioning activity is RQA learning model (Reading, Questioning, Answering). This model is intentionally created to provide the students' initial knowledge before entering the classroom, and to trigger them to arrange questions and answers independently. The first syntax done by the students is to summarize the material that has been determined into a brief summary but containing the essence of the material. Based on this activity, students are asked to make questions about the material that had not been understood yet during the summarizing process, or if they have any idea related to the arranged concept needed to be elaborated (Lisa et al., 2021; Ardini et al., 2022).

In its learning activities, this model asks students to actively read the material and make students active students to ask questions about material that is not yet known or not understood. especially in biology learning has integrated Science, Technology. This applies to material that deals with real-life facts such as the Reproductive System material. The obstacles found by the researchers when the research took place were that during 2 meetings there were students who were not present, thus making the researchers unable to record the results optimally. Only students who take part in all learning meetings data can be processed by researchers.

The same research has been conducted by Akmalia et al. (2016) showing that the RQA learning model can improve student learning outcomes. The implementation of RQA is proven to be able to force students to read the assigned material so that the designed learning model can be implemented and understanding of the learning material has been successfully improved by almost 100%. RQA is expected to improve learning outcomes in the cognitive, psychomotor, and affective domains of students. Quizizz is a web tool or smartphone-based application that can create interactive quizzes in the form of games used in the learning process both in and/or outside the class or in distance learning (Nasution et al., 2021). Quizizz can be used in the learning process both in and outside the classroom or distance learning. The questions that can be made in Quizizz are questions that can hone critical thinking skills associated with learning science in elementary schools (Amalia, 2020; Suharsono, 2020).

The Reading Questioning Answering (RQA) model, the responsibilities assigned can certainly create a deep understanding of a specific topic, allowing the ability to reason, provide arguments, evaluate, and formulate problems on the topic of discussion to be realized (Jamro, 2017). Based on these viewpoints, it can be concluded that employing RQA learning strategies in the classroom can allow students to construct their knowledge independently through learning experiences, thereby improving critical thinking skills and becoming more engaged in the teaching and learning process (Mulyati et al, 2020).

Conclusion

Based on the results of the research that has been done, the results of data analysis and discussion can be concluded that there is an effect of the Reading, Questioning, and Answering (RQA) learning model assisted by the Quizizz media on the scientific literacy skills of students, especially in SMA Negeri 3 Wajo class XI MIPA 2 even semester of the academic year 2021/2022. It is said that there is an effect if Count-t > Table-l, then HO is said to be rejected and H1 can be said to be accepted. This is evidenced by hypothesis testing which shows a Count-t of 17.03 and Table-t of 1.71. There is an increase in students' scientific literacy skills. This is evidenced by the results of the pre-test and post-test of each class with the N-Gain of the experimental class (XI MIPA 2) 0.86 with a high classification and the control class (XI MIPA 3) being 0.26 with a low classification.

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