The Influence of Quizizz and Google Form Applications on Students' Motivation and Cognitive Learning Outcomes on Human Respiratory System Material

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Abstract: This study aims to determine the effect of using the quizizz application and google form on student motivation, determine the effect of using the quizizz application and google form on students' cognitive learning outcomes in the subject of the human respiratory system for class VIII students of SMP Negeri 11 Kaur. This type of research is Quasi-Experimental (Pseudo-Experimental). The research design used in this study is nonequivalent control group design. The data analysis technique used to test the hypothesis in this study is the independent sample t-test. The results showed that there was a significant effect of the use of the Quizizz application and Google Form on student motivation and there was a significant effect of the use of the Quizizz application and Google Form on students' cognitive learning outcomes in the material on the respiratory system in humans compared to the control class. The motivation for using the Quizizz Application and Google Form is better than the control class. This can be seen from the average score of students' motivation using the Quizizz application 82.1, Google Form 75.24 and the control class 58.33, while judging from the cognitive learning outcomes of students using Quizizz application 81.66, Google Form 71.66 and control class 58.33. From the results of this study it can be concluded that the use of the Quizizz and Google Form applications in the experimental class is better than the control class which uses conventional media.

Keywords: Google form; Learning outcomes; Motivation; Quizizz

Introduction

Learning is a system consisting of instructional system components, namely message components, people, materials, equipment, techniques, and settings or environment. According to Dimyanti (2015) the nature of learning is basically not only limited to conveying messages, but a teacher as an educator must be able to demonstrate his basic teaching skills in an integrated manner and create an effective and efficient learning atmosphere. Therefore, in order to achieve good and appropriate educational goals, educators need to create a quality learning process. Quality learning has two important factors including student learning motivation and educator creativity (Muis, 2019). Learning that has high motivation must be supported by the creativity of an educator to be able to increase student motivation, and can lead to successful achievement of learning objectives. Changes in behavior and the ability of students to understand the material taught through the learning process is a learning goal that you want to measure during learning (Uno, 2014).

Learning motivation is a psychological stimulus in a person to gain knowledge or learn (Fauziah et al., 2017). Learning motivation can elaborate on activities and initiatives, this will foster a diligent nature in the learning process (Fauziah et al., 2017). Motivated students will understand the learning objectives, this

causes students to be more enthusiastic or motivated and focus on the learning process. It is very important that the learning motivation of students increases, this needs to be done so that students are able to participate in teaching and learning activities and get maximum and enthusiastic results. Motivation to learn is known from several indicators, including (a) There is a desire and desire to succeed, this can be seen from students' ability to ask questions, pay attention to teacher explanations, responsiveness to questions asked, and the ability to remember subject matter, (b) There is encouragement and needs in learning, this can be seen from the willingness of students to learn, discipline, responsibility for the assignments given, and awareness of the importance of knowledge, (c) There are hopes and ideals, this can be seen from the desire to achieve, willingness report learning outcomes to parents (Uno, 2014).

Learning outcomes are the level of success of students in learning subject matter at school which is expressed in scores obtained from the results of tests to recognize a certain subject matter (Nana et al., 2006). According to Uno (2017) the factors that influence student learning outcomes are divided into two, namely internal factors and external factors. The internal factors in question are factors that come from within the student such as intelligence, interest and attention, learning motivation, perseverance, attitude, study habits, as well as physical and health conditions. Meanwhile, external factors are factors that come from outside which include the quality of teaching and learning media used by educators. In line with the opinion above, the results of research conducted by (Ningrum (2018) also show that if the media used by educators is appropriate, then students' responses to using the media will be better and get higher learning outcomes in the learning process. An educator needs the ability to apply effective and efficient media to be used in the learning process. The role of the media is very important in the learning process so that the material delivered by the teacher arrives quickly and is easily accepted by students (Arsyad, 2013).

The use of media is expected that students will more easily accept or absorb (lesson content) delivered by the teacher. In addition, educators can also use learning media related to technology to broaden and deepen knowledge for themselves and students. The learning media used by an educator must meet the criteria in order to attract students' attention so that students are actively involved during learning (Arsyad, 2013). There is a need for renewal of learning media in the form of game-based media and technology used by teachers to be able to attract students to the fullest. In addition, game and technology-based media following the 4.0 era can be used as an answer to challenges in the

developing industrial revolution era. This provides an opportunity to increase student motivation in learning.

The rapid development of science and technology makes it easier to create online application-based learning media. Various online applications are available, both prepaid and ready-to-use, for educators to use optimally. There are several learning methods that can be used to increase student motivation. One of these learning methods is e-learning. E-learning serves the teaching and learning process and evaluation of learning on a computer basis, even in the industrial revolution 4.0 it makes more use of Android. One of the e-learning-based learning evaluation media is to use quizizz and google forms. Quizizz and google forms is an online application-based learning tool or media consisting of quizzes, surveys, games, and discussion features. Quizizz application and google forms it contains learning material packaged in interactive questions of various themes at various levels, subjects, and others with choices of material content made by the educator himself (Rahman et al., 2020). Not only that, the Quizizz application and Google form This can also be added in the form of interesting learning materials such as learning videos, pictures and music. Quizizz and google forms itself is described as a web tool for creating interactive quiz games that are run using any electronic device owned by students. By using this application the learning process will run conducive, interesting, and fun.

Quizizz and google forms has game characteristics such as avatars, themes, games, and entertaining music in the learning process. Quizizz and google forms also allow students to compete with each other and motivate them to learn. Students take quizzes at the same time and see their live ranking on the leaderboard. Quizizz and google form learning evaluation media also provides data and statistics on student performance, you can even download these statistics in the form of an Excel spreadsheet. The use of quizizz and google form helps educators in conducting evaluations without being limited by places, attractive appearance and arranged time settings lead to student concentration (Ningrum, 2018). Quizizz and Google forms can help educators to monitor and evaluate learning, because quizzes can be given at the beginning and end of learning. Quiz work can also be arranged by educators or teachers themselves, so that it can train students to be precise and fast in answering questions (Solikah, 2020). According to Solikah (2020) facts on the ground show that teachers are not optimal in creating a pleasant learning atmosphere. This study intends to explore the effect of the Quizizz application on motivation and cognitive learning outcomes of junior high school students with the subject matter of the human respiratory system.

Based on the results of observations made at SMPN 11 Kaur, at this time student motivation and cognitive learning outcomes of students greatly decreased. To increase students' motivation and cognitive learning outcomes, good learning media is needed because learning media can influence student motivation and learning outcomes. Teachers need to know the media criteria that must be used in order to be liked and accepted by students, because this will affect the level of motivation and student learning outcomes. Learning media can function to encourage students to be more active in learning. The use of learning media can be used as a teacher at the beginning of learning as an introduction to the material or to open students' insights into the material to be studied. In addition, the use of media can also be used by the teacher at the end of the lesson as material for evaluating the day's learning material. There needs to be an innovative use of media by teachers that can make students not realize that they are learning while playing. There needs to be an adjustment of learning media to the conditions and needs of students. Therefore, this research was conducted with the aim of describing the effectiveness of the application quizizz and google forms on students' motivation and cognitive learning outcomes in the subject matter of the human respiratory system at SMP Negeri 11 Kaur.

Method

This research will be conducted at SMP Negeri 11 Kaur in the even semester of the 2022/2023 academic year, namely from February to March 2023. The sample in this study consisted of 48 students the first class that the researcher chose as class VIII a with a total of 16 students as the control class, class VIIIb with a total of 16 students as an experimental class with Quizizz media and Class VIII c with a total of 16 students as an experimental class with Google Form.

Result and Discussion

Based on Table 1 it shows that the motivation questionnaire with criteria if sig> 0.05 then the motivation questionnaire is normally distributed, if sig <0.05 then it is said to be not normally distributed. Based on the results of calculating student learning motivation data, a significance value of 0.637 is obtained, which means greater than 0.05, so it can be concluded that student learning motivation data is normally distributed.

After the normality test is carried out, the homogeneity test is then carried out. The results of the homogeneity test of the student learning motivation

questionnaire can be seen in Table 2. Based on Table 2, it can be seen that the significance is 0.795, which means it is greater than 0.05 (sig: 0.79 > 0.05). So it can be concluded that the student motivation questionnaire data has a homogeneous variant. Once it is known that the learning motivation questionnaire data is normally distributed and homogeneous, then to see differences in learning motivation scores between treatments followed by the One Way Anova test can be seen from the Table 3.

Table 1. Results of Student Motivation Questionnaire Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residuals
N		48
Normal Parameters[a,b]	Means	0E-7
	std. Devia	11.49
Most Extreme Differ	absolute	.10
	Positive	.10
	Negative	-.08
Kolmogorov-Smirnov Z		.74
asymp. Sig. (2-tailed)		.63

Table 2. Homogeneity Test of Student Learning Motivation

Test of Homogeneity of Variances

Science Learning Motivation

Levene Statistics	df	df	Sig
.23		4	.7

Table 3. *One Way Anova Test Results* of Student Motivation Questionnaire

Anova

Science Learning Motivation

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2547.38	2	1273,688	106.2	.00
Within Groups	539.62	45	11.99		
Total	3087.00	47			

Based on Table 3 it can be seen that the significance value of 0.000 is smaller than 0.05 (sig: 0.000 <0.05). So it can be concluded that it is possible that the Quizizz and Google From applications can increase student learning motivation.

Table 4. Normality Test and Pretest Homogeneity of Students' Cognitive Learning Outcomes

Variable	Normality test	Test Homogeneity
Pre-test		
Class Quizizz	0.123	
Class Google Forms	0.082	0.84
Control Class	0.040	

Table 4 shows that in the control group the mean (37.91), median (36.66), variance (81.29), standard

deviation (9.01), minimum (26.67), maximal (53.33)), the p value (0.040) which means that the data is not normally distributed because the p value $<\alpha=0.05$. So it can be concluded that the data above is not normally distributed. Therefore, because the results of the data normality test were not normal, then a non-parametric test was carried out, namely Kruskal Wallis with the aim of seeing a comparison of effectiveness in the group given quizizz and google form with the control group. Meanwhile, the results of the homogeneity test showed that the significance value of the pretest value in the three groups was $0.841 > \alpha = 0.05$, so it can be concluded that all data variables are homogeneous.

Table 5. Test of Normality and Posttest Homogeneity of Students' Cognitive Learning Outcomes

Variable	Normality test	Test Homogeneity
Posttest		
Class Quizizz	0.10	
Class Google Forms	0.04	0.38
Control Class	0.14	

From Table 5 data normality test showed that the pretest value in the treatment class and control class had several p values $<\alpha = 0.05$. So it can be concluded that the data above is not normally distributed. Therefore, because the results of the data normality test were not normal, then a non-parametric test was carried out, namely Kruskal Wallis with the aim of seeing a comparison of effectiveness in the class given Quizizz and Google Form with the control class . Meanwhile, the results of the homogeneity test showed that the significance value at the pretest value was $0.841 > \alpha = 0.05$ and the significance value at the post t test was $0.387 > \alpha = 0.05$. So it can be concluded that all data variables are homogeneous. After testing the prerequisites, then proceed with testing the hypothesis using the Kruskal Wallis test to see the effect of treatment on students' motivation and cognitive learning outcomes. The results of the Kruskal Wallis test can be seen in the following table.

Table 6. Quizizz Application Giving Test Results and Google Forms Against Junior High School Student Learning Outcomes

Variable	Means	Sig
Quizizz		
Pre- test	37.08	0.00
Post test	81.66	
Google Forms		
Pre- test	37.50	0.00
Post test	71.66	
Control		
Pre- test	37.91	0.00
Post test	58.33	

Table 6 The results of the Kruskal Walls test analysis show that the class that was given the Quizizz treatment had an average pretest before being given Quizizz, namely 37.08, while the posttest average value after being given the Quizizz application increased to 81.66 with a Sig value of $0.000 < \alpha = 0.05$, meaning that giving the quizizz application is effective on the motivation and learning outcomes of junior high school students. Whereas in the class given the Google application form was analyzed using Kruskal Walls , obtained an average pretest value of 37.50 and after being given an intervention using the Google application form the posttest average value increased to 71.66 with a p-value of $0.000 < \alpha = 0.05$, meaning that the Google application effective form on the motivation and learning outcomes of junior high school students. In the control group , Kruskal Walls did it , the average pretest was 37.91 and after the posttest it was 58.33, with a p-value of $0.001 < \alpha = 0.05$, meaning that the intervention in the control group was effective on motivation and outcomes study junior high school students.

Table 7. Comparison of the Effectiveness of Giving Quizizz and Google Applications Form for Junior High School Student Learning Outcomes

Variable	N	Mean Ranking	Sig
Post test scores			
Class Quizizz	16	36.75	
Class Google Forms	16	25.75	0.000
Control Class	16	11.00	

From Table 7 the Kruskal Walls test to see a comparison of effectiveness in the class given quizizz and google form with the control class. The results showed that the mean rank in the class group with quizizz was 36.75, Google form was 25.75, and the control group was 11.00. In conclusion, giving the quizizz treatment is more effective than the other two treatments on the motivation and learning outcomes of junior high school students. Meanwhile, the results of the One Way Anova test obtained the p-value of the three interventions, namely $0.000 < \alpha = 0.05$, meaning that the application of quizizz, google form, and intervention in the control group was effective on motivation and learning outcomes of junior high school students

The results showed that there were differences in motivational scores between class VIII a as a control, namely 58.33, class VIII b using Google Form media 75.24 and class VIII b using Quiziz with a questionnaire score of 82.12. This is reasonable because the three classes have not received different treatment regarding learning materials. After the learning process is carried out by giving treatment with Quiziz media and Google Form in the experimental class and treatment with conventional learning media in the control class, showed

that the results of the final motivation scores of the three groups experienced differences. From the average value of the questionnaire, it can be seen that the results of the questionnaire score for the experimental class were higher than the control class. Based on the results of research conducted at each meeting, in the experimental class students can play a more active role in obtaining the opportunity to gain knowledge so that they gain a deep understanding and in the learning process are more varied in understanding learning material.

The increase in student learning motivation by using Quizizz and Google Form media can be seen based on the acquisition of the student learning motivation category, namely "high". An increase in student learning motivation can be caused by the use of Quizizz and Google Form media which causes students to be more enthusiastic about learning. Increasing student learning motivation can be made possible by the existence of student activities playing while learning with the use of Android. One of the efforts to increase student learning motivation is by using learning media, this is in accordance with the opinion of Arsyad (2013) stating that the use of learning media in the teaching and learning process can generate new desires and interests, generate motivation and bring psychological influences to students. When the media is applied during the learning process it will attract the attention of students so that students are more enthusiastic about learning. Furthermore, Sundayana (2015) states that the media has the function of generating passion for learning, more direct interaction between students and learning resources .

Quizziz application in the learning process related to the previous material can increase student learning motivation because by using the Quizziz application , the learning process will direct with students' understanding of the material and there are quizzes that are done directly and the results are visible on the leaderboard. Likewise with learning motivation, the results of the study showed that students' learning motivation belonged to the good category, namely obtaining 71, 89 which was categorized as high. Thus students are happy, interested and eager to learn by using the Quizziz application as a provision of learning materials and quizzes related to the material. This is in accordance with the opinion of Uno (2014) Learning motivation can arise due to intrinsic factors, in the form of the desire and desire to succeed and the encouragement of learning needs, hopes for ideals. Meanwhile, extrinsic factors are appreciation, a conducive learning environment, and interesting learning activities. Based on the opinion above, learning motivation is influenced by intrinsic and extrinsic factors.

The results of the analysis above show that by using game-based learning media can increase learning motivation students during the learning process. This is due to the application Quizizz has very interesting features, such as audio, ava/images, motivational sentences, music, themes, and various types of fun games. This statement is supported by the results of interviews with students, they said that the Quizizz application is fun, can increase enthusiasm for learning, can learn while playing, and is a little entertaining during the learning process. This is in accordance with research by Wijayanto et al. (2017), he said that educational games are able to attract students' interest in learning and make learning more fun. The results of Irwandi et al. (2021) state that learning using Android can increase student interest where students are more active in asking about material or assignments to the learning being delivered. The motivation that students have is very influential in the learning process, the greater the motivation of students, the greater the chances of students succeeding in mastering learning material and learning objectives will be achieved. Great learning motivation encourages students to be more active in understanding and solving subject matter so that it has a positive impact on Primary student learning outcomes (2021). Furthermore, research of Handayani et al. (2022) states that a data analysis obtained results of a data significance of 0.000 which means that there is a significant influence from both classes on student learning motivation in the Quizizz application. The results of the research conducted by Rosiyanti et al. (2020) it is known that the value the table shows the result of 2.131. This means the value of tt count> tt table so that H0 is rejected. Thus, the right decision from the results of the t test is that there is an effect of differences in student motivation between before treatment and after treatment. Increased learning motivation is also supported by the use of appropriate media with the subject matter carried out by an educator, this is in accordance with Hartati's research (2021) which states that there is a significant influence on the use of the quizizz application on student learning motivation as shown by the sig value (2-tailed) 0.002 < 0.05 . Quizizz can be an alternative learning media to support the learning process can generate interest, activity, motivation and student learning outcomes.

The results of the research show that Media Quizizz and Google Form can make it easier for students to understand the learning material being studied. The statistical test results show that student learning outcomes use Quizizz and Google Form media Higher than on students who get conventional learning. The results of this study indicate that to increase student learning outcomes influenced by Quizizz and Google Form media. This is understandable because learning

media that are relevant and according to students' needs can attract students' attention to learning so that they can increase learning motivation things outside the lesson and motivate students to learn.

The results showed a significance of 0.000 <0.05. That is, the results show that the use of Quizizz and Google Form application media said to be used effectively when viewed from the motivation and student learning outcomes. The results of this study are in line with the results of research that was conducted by Aini (2019) which showed that quizizz learning media was effectively used for learning at primary and secondary education levels. Research Purba (2019) also reveals that quizizz media has several advantages, namely making students happy and challenged while working on questions that are equipped with animations in the quizizz application.

The results of the study Wibawa et al. (2019) also show that using the smartphone- based quizizz application as a learning medium can make students more motivated and enthusiastic in participating in the learning process. As a result, when motivation increases, students are more focused and maximize the use of their smartphone as a fun learning medium and facilitate the delivery of concepts.

The results of this study are in line with the results of research that was conducted by Sunardi (2020) which shows that the application of the innovative quizizz learning evaluation media has a very close relationship in improving the learning outcomes of junior high school students. In Sunardi's research it was explained that the quizizz evaluation media provides many benefits to the world of technology and the world of education. In the world of education, this media can increase student learning motivation which in turn has a good influence on student learning outcomes. In addition, this media also makes students more careful and more thorough in determining the choice of answers.

The application of Quizizz in learning science subjects received a positive response from teachers and students. Based on interviews with accompanying teachers, Quizizz media is appropriate to be applied in learning because it makes it easier for teachers to convey learning material, conditions students in class, and increases student motivation in learning. Then for students, Quizizz is considered to be an interesting learning medium, because Quizizz media provides a new atmosphere, makes it easier for students to understand learning material, and there are several features that increase student motivation. Some of the features include; there is a countdown time in working on the questions, there are random awards when students answer the questions correctly, and there is a ranking system so that students are motivated to work

on the questions quickly, correctly, and thoroughly. This opinion is in accordance with the opinion of Zhao (2019) in his research which reads, "...using Quizizz doing in-class exercise is fun, helps them review the course materials and stimulates their interest in learning...", " using Quizizz in class makes practice fun, helps them review course material and stimulates their interest in learning".

From the average posttest score, it can be seen that the learning outcomes of the google form class are higher than the control class. Based on the results of research conducted at each meeting, in the Google Form class students are required to be able to play a more active role in getting the opportunity to build their own knowledge so as to gain a deep understanding and in a more varied learning process such as uploading, downloading or demonstrating the results of their learning practices. The increase in learning outcomes achieved by the Google Form class was due to a more conducive, active learning atmosphere in the class and the interest and enthusiasm of the students was very visible compared to the control class, especially in terms of the distribution of learning materials which were not centered only on the teacher. The learning culture developed in the experimental class is the activeness of students in building their own curiosity, building the character of wanting to help friends who are in trouble, as well as optimal use of time in class because the activities are structured. This is in line with research conducted by Santoso (2019) which shows that the application of Google Form media can improve students' cognitive learning outcomes. The use of appropriate media in the learning process can also determine students' cognitive learning outcomes, this is in line with the opinion of Melda et al. (2019) which states that students' cognitive learning outcomes can be supported by determining the use of appropriate learning media.

Conclusion

Based on the research results of the Effect of the Quizizz Application and Google Form on Students' Motivation and Cognitive Learning Outcomes in Respiratory System Materials in Humans at SMP Negeri 11 Kaur it can be concluded that the use of the Quizizz application and Google Form is more effective in increasing the motivation to learn science in class VIII students of SMP Negeri 11 Kaur. This can be seen from the results of the posttest results of motivation and cognitive learning outcomes of the highest students in the treatment class with the Quizizz application compared to the Google form class and the control class.

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