



## Students' perceptions of the use quizizz as an online learning media for biology

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### ABSTRACT

During this covid-19 pandemic, Quizizz, as an Android-based educational game application, can be used to encourage students to be active and motivated in distance learning. This study aims to determine students' perceptions of the use of quizizz in motivating the students to study biology during online learning. The study population was all students of class IX MTs As-Saadah. The total number of respondents was 48 students. Data analysis was performed using the quantitative descriptive percentage technique. The research data was obtained by distributing questionnaires using the google form application. The questionnaire showed that 79.2% and 54.2% of students' perceptions regarding using the most preferred and good learning media were Quizizz. 45.8% of students showed interest in taking biology lessons using quizizz. 62.5% and 47.9% of students are motivated and enthusiastic about getting high scores. 89.6% and 66.7% of students agree that quizizz can improve their learning outcomes and concentration. 66.7% of students answered that the level of difficulty of quizizz questions was moderate, and 64.5% of students chose to agree that quizizz provided a new learning experience. The use of quizizz in online biology learning is a media recommendation that is appropriate, interesting and fun for students.

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## INTRODUCTION

During the Covid-19 pandemic that was hitting Indonesia, it was not possible to hold teaching and learning processes in schools. These conditions make the world of education have to implement distance learning which is carried out online. According to Zaitun et al., (2021) the impact of online learning on student learning motivation tends to be negative due to the unpreparedness of various parties, including teachers, parents, students, and school. Students still prefer classroom classes over online classes due to many problems they face when taking online classes, such as lack of motivation, understanding of the material, decrease in communication levels between the students and their instructors and their feeling of isolation caused by online classes (Alawamleh et al., 2020). Purwanto et al., (2020) found the incident, there are several obstacles encountered by science teachers and students in online teaching and learning activities, namely that there is a decrease in the online learning process by 93.3, teachers have never done as much online learning as 43.3, a lack of concentration of students in the learning process which can reach 76.7. Online learning ineffective up to 70 and 63.3 of the core competency of learning in the natural sciences are not fully transmitted.

Natural Science (IPA) subjects at the Madrasah Tsanawiyah or equivalent are currently using the 2013 curriculum. The subject matter in Science consists of two discussion materials, namely Biology and Physics. For some students of MTs As-Saádah Cakung, Biology subject is often seen as a subject that has a lot of memorization of scientific names so that it is difficult to remember, resulting in students not being motivated and not enthusiastic about taking distance learning. Another cause of the difficulty of students learning biology is the teacher's monotonous teaching style, lack of learning resources and students' negative perceptions of biology lessons that are not relevant to everyday life (Putranadi et al., 2021). Therefore, teachers must be creative and innovative in designing online learning media that are simple and effective by utilizing the right online tools or media and the material being taught (Rahimah et al., 2021)

Biology learning carried out remotely will be more interesting and clearer if the material is presented with the support of images, animated videos, practicum in the laboratory and in the field (Jayawardana, 2017). Well-designed and creative learning by utilizing multimedia, within certain limits will be able to increase the likelihood of students to learn more to remember what they learn, be better, and improve student performance in order to increase competency attainment (Miftah, 2013).

According to Arsyad (2011) one learning medium that can be implemented is interactive quizzes. Learning with the Interactive quiz technique based on android is a very interesting and fun technique (joyful learning) to be applied. So that the use of interactive quizzes can generate new desires and interests for students, arouse learning motivation and have a psychological influence on students.

One of the interactive quiz game applications that can be used is Quizizz. Where the questions will be displayed on the screen and students work using the help of cellphones. By using Quizizz, students can do practice questions / quizzes according to the choice of time they want and can be done anywhere they are connected to the internet. The existence of a leaderboard on the Quizizz application allows students to find out the grades and ratings of other students. Just like playing a game (Namara & Murphy, 2017), students will not get bored, motivated and interested in participating in online biology learning. Jayawardana (2017) states that the learning process that is less enjoyable can reduce students' learning motivation. The application of monotonous learning methods, a learning process that is too serious and boring can also cause delays in the process of constructing students' mindsets. For that it is very important to developing critical thinking skills will help student to see one's potential, good and bad so that they are able to solve various problems faced, including seeing the extent of their abilities (Nashar et al., 2021).

Previous research describes various ways of implementing Quizizz that can be used to organize classroom activities and prepare tests (Namara & Murphy, 2017), as applied by Mohamad (2020) that quizizz as an revision medium for students learning to become a teacher and prepare the practice questions. Darisman et al., (2020) states that there was an effect of the Quizizz application on student learning outcomes on plant tissue material. Another study also proves that assessment using quizizz can increase the average learning rate in the scope of Biology from 71.64 to 77.92, an increase in the percentage of completeness by 20%. Learning outcomes have increased because the assessment using quizizz is very interesting and fun so that students are motivated by the learning material (Noor, 2020). This is evidenced by the research conducted by Setiawan et al., (2019) on students who studied mathematics experienced an increase in student learning outcomes from cycle I by 95 and cycle II by 96, an increase in students' process skill by 81 in cycle I and by 92 in cycle II and there is a positive responds from students by 80% in cycle I and cycle II by 93 %.

The urgency of this research is the unattractiveness of the learning media used causes a lack of interest and motivation of students in participating in online learning. Thus, the problem encountered in the implementation of the assessment of biology lessons is the low-class average score obtained by students during the assessment of both quizzes, daily tests, and end-of-semester exams. The literature on learning biology using Quizizz is still lacking in information. In addition, the use of Quizizz has never been done at MTs As-Saádah Jakarta during online learning. Therefore, information about students' perceptions and appropriate solutions in the use of learning application media are fun, active, interesting, and effective. The purpose of this study was to determine students' perceptions of the use of Quizizz in motivating students to study biology during online learning.

## METHODS

### Research Design

This research uses quantitative by survey methods. The quantitative method where scoring result is gathered and calculated to measure the average score. According to Neuman (2012) survey researchers rely on increasing modes of administration that employ new technologies, such as telephones, computer-assisted interviewing, and internet-web methods. The type of research data is primary data. The research subjects were all students of class IX MTs As-saadah, Cakung, East Jakarta, Indonesia. This study also uses descriptive analysis method by distributing questionnaires in the form of google form to obtain information about students' perceptions of the use of Quizizz in Biology online learning at MTs As-Saadah Jakarta. Making questionnaires using google forms during the covid-19 pandemic is believed to be able to provide opportunities for students to fill out questionnaires from anywhere and anytime, as long as they have a computer, laptop or cell phone that is connected to the internet. In addition, researchers feel helped by the ability of Google Forms in recapitulating the results of student assessments and presenting them in the form of percentages (Batubara, 2016)

### Population and Samples

The population in this study were all odd semester students of class IX MTs As-Saadah Academic Year 2020/2021. The sample in this study was 23 students of IXA class and 25 students of IXB class. So the samples in this study were two classes totaling 48 students. The students consisted of 26 females and 22 males taking study implemented Quizizz in their daily online quizzes once a week of each platform, within one semester. The most demographic are female students, 15 years old, originally from Cakung, and have a cell phone. The sampling technique used in this study is a purposive sampling technique. At the end of every biology lesson, the teacher will provide an evaluation using Quizizz for quizzes, daily tests and end-of-semester exams. Sampling was done online via google form for two days when the odd semester biology learning activity had ended.

### Instrument

The instrument used in this study included a questionnaire containing 10 questions related to closed questions with alternative answers. The questions adapted from Basuki & Hidayati (2019) and Zhao (2019) then modified by researchers. Questionnaires were distributed to all students via WhatsApp groups in each class group. This measurement instrument has been before tested for validity and reliability by 20 respondents who also including the target sample. The questionnaire consisted of questions in the form of multiple choices. It is tested validity with item analysis, which is to correlate the score of each item with the total score which is the number of each item score with the Product Moment correlation technique. Then, its reliability using the Alpha Cronbach technique. Validity test result show that questionnaires is valid with a correlation probability value smaller than sig. 0.05. The visibility of the research questionnaire is analyzed reliability using scale data is obtained that is ordinal. The distribution of answers in the classification of these values can be calculated. The aspects asked for in the questionnaire are in Table 1.

**Tabel 1**

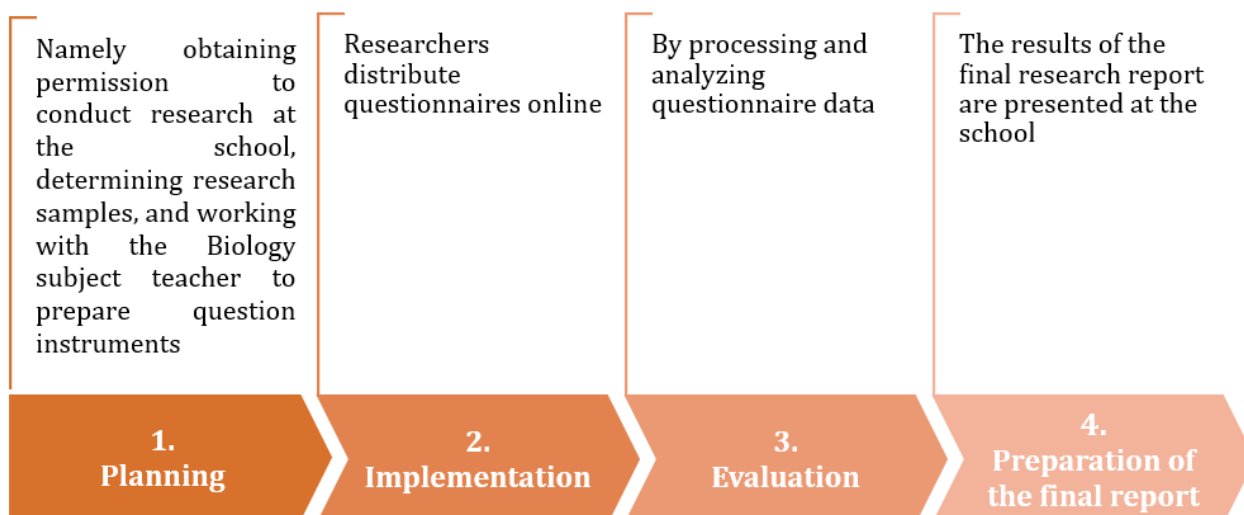
Question instrument in a questionnaire that is given online

Number	Question	Answer Choice
1	The most preferred online learning media	<ul style="list-style-type: none"><li>• Quizizz</li><li>• Google form link</li><li>• Send directly to the teacher's WhatsApp</li></ul>
2	What is your perception of the educational game Quizizz?	<ul style="list-style-type: none"><li>• Very good (SB)</li><li>• Not good (KB)</li><li>• Good (B)</li><li>• Less (TB)</li></ul>
3	I feel media quizizz is the right medium for practicing about Biology	<ul style="list-style-type: none"><li>• Strongly agreed (SS)</li><li>• Don't agree (KS)</li><li>• Agree (S)</li><li>• Disagree (TS)</li></ul>
4	How interested are you in studying Biology with Quizizz from the beginning to the end of the lesson	<ul style="list-style-type: none"><li>• Not interested</li><li>• Less interest</li><li>• Interested enough</li><li>• Interested</li><li>• Very interest</li></ul>
5	Using Quizizz doing in distance learning exercises motivates my interest in learning biology	<ul style="list-style-type: none"><li>• Strongly agreed (SS)</li><li>• Don't agree (KS)</li><li>• Agree (S)</li><li>• Disagree (TS)</li></ul>

Number	Question	Answer Choice
6	The ranking function leaderboard in Quizizz motivates me to studying biology	<ul style="list-style-type: none"> <li>• Strongly agreed (SS)</li> <li>• Don't agree (KS)</li> <li>• Agree (S)</li> <li>• Disagree (TS)</li> </ul>
7	Does practicing questions with Quizizz make your Score higher / better?	<ul style="list-style-type: none"> <li>• Yes (Y)</li> <li>• Not (T)</li> </ul>
8	Using Quizizz help me concentration or focus in distance learning	<ul style="list-style-type: none"> <li>• Strongly agreed (SS)</li> <li>• Don't agree (KS)</li> <li>• Agree (S)</li> <li>• Disagree (TS)</li> </ul>
9	Does the Biology question given have any difficulties?	<ul style="list-style-type: none"> <li>• Hard</li> <li>• Moderate</li> <li>• Easy</li> </ul>
10	By using Quizizz I can gain new experiences in the learning process of Biology	<ul style="list-style-type: none"> <li>• Strongly agreed (SS)</li> <li>• Don't agree (KS)</li> <li>• Agree (S)</li> <li>• Disagree (TS)</li> </ul>

### Procedure

The procedure in this study consisted of four stages including (Figure 1): (1) The Planning stage includes: permission of activities to the principal to collect data in the school about supporting factors and research inhibitors and to work with biology teachers to prepare learning devices and research instruments. (2) Implementation stage: validate the question instrument, and share google form links by copying available links and pasteurizing them to certain media social to be known and visited by student. (3) Evaluation stage, the data collection technique used is the result of Google's form containing questions that lead to students 'perception of media quizizz in biological learning. And (4) Preparation of the final report are presented at the school aims to provide research results information to all interested parties.



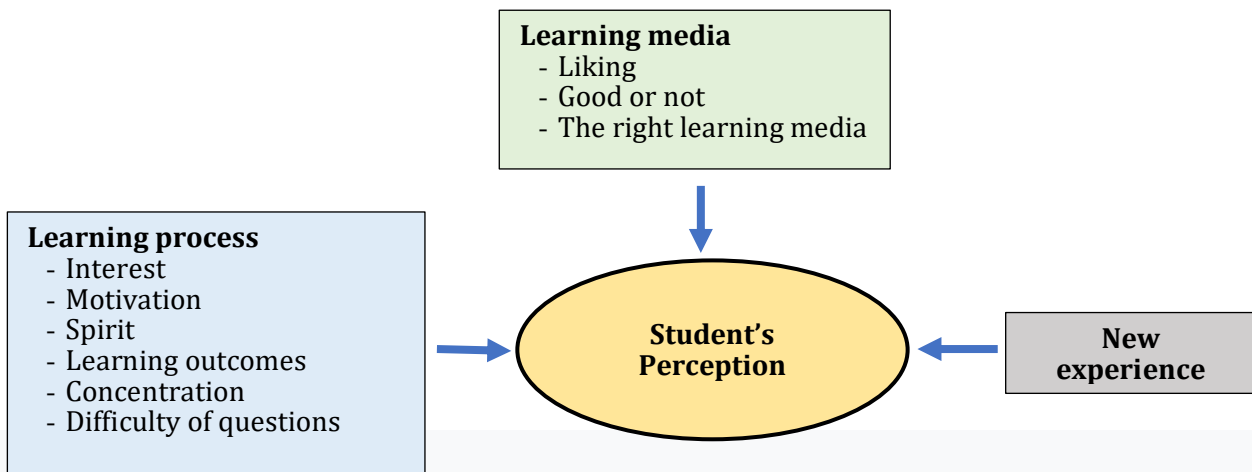
**Figure 1.** Research Procedure

### Data Analysis Techniques

Data analysis was carried out descriptively by: 1) grouping the average score of student answers on the questionnaire based on alternative answers, 2) looking for the percentage of student responses, 3) interpreting student answers based on the percentage results.

### RESULTS AND DISCUSSION

The following is a group of each aspect of MTs As-Saádah students' perception of the use of Quizizz as an online learning medium for Biology (Figure 2).



**Figure 2.** Group perception of each aspect of the assessment

Determination of online learning media used during the Covid-19 pandemic in the MTs As-Saadah School environment is determined by school policy and each teacher in the field of study. The online learning media used include Quizizz, google form and send directly to the teacher's WhatsApp.

Based on student perception data regarding the use of learning media the most preferred is Quizizz at 79.2%, google form links by 18.8% and sending directly to the teacher's WhatsApp by 2.1% (Figure 3a). These results are in line with research conducted by Ridwan & Sari (2020) that it is known that the application preferred by students is Quizizz.

Students really like Quizizz learning media for the reason that they feel like playing games. Quizizz has several features that attract students' attention including the option to activate the background instrument, feedback when answering, score / ranking, and full color color display. The study explains that students prefer Quizizz to be used during online learning regularly and even hope that Quizizz can be used in other subjects. Learning media that are interesting and fun will accommodate student learning styles that are diverse both visual, audio and kinesthetic. The selection of learning models is intended to significantly improve students' critical thinking skills (Nashar et al., 2021).

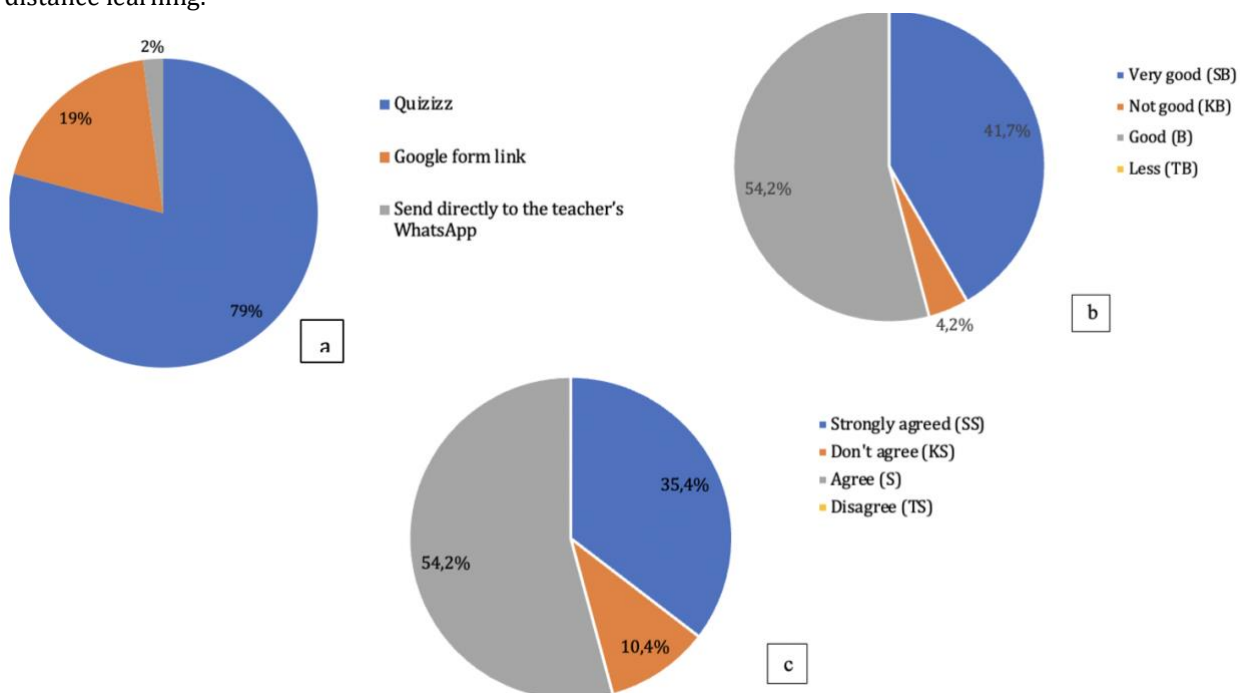
According to Aini (2019) creative, innovative, challenging, and fun games will foster positive motivation for students' desire to learn. Game-based interactive Quizzes can indeed spur student enthusiasm. It is proven that Quizizz learning has also been successfully applied in various subjects, such as Mathematics (Mulyati & Evendi, 2020), Office Technology (Citra & Rosy, 2020), Islamic Religious Education (PAI)(Nur'Amanah et al., 2020) and courses Islamic bank consolidation accounting (Amri & Shobri, 2020).

The condition of the Covid-19 pandemic which is supported by the development of information and communication technology changes the pattern of face-to-face learning systems in class to online, causing a shift in the learning interaction model to meet the needs of cognitive, affective and social integration. The results of the study (Figure 3b) show that most students have a good perception (54.2% have a good perception and 41.7% have a very good perception) of the use of Quizizz in Biology learning. Reports regarding the good perceptions given by students to Quizizz were also reported by (Fadilla et al., 2020). The ease of using Quizizz has an impact on the learning process. Compared to conventional learning, digital game-based learning allows students to improve their memory of the subject matter and have more critical thinking (Ke, 2014).

The use of Quizizz learning media in Biology learning is one solution to various problems related to student interest and motivation, so that later the learning process becomes something real, simple, systematic and clear. Another advantage that Quizizz learning media has is that it involves students actively to develop their thinking skills about natural science concepts. Students agree (S) (54.2%), and strongly agree (SS) (35.4%) that the use of Quizizz is an appropriate learning medium for studying Biology (Figure 3c). According to Junior (2020) Quizizz is a valuable strategy to motivate students and to involve them in learning the subjects required by the school and to help them develop skills.

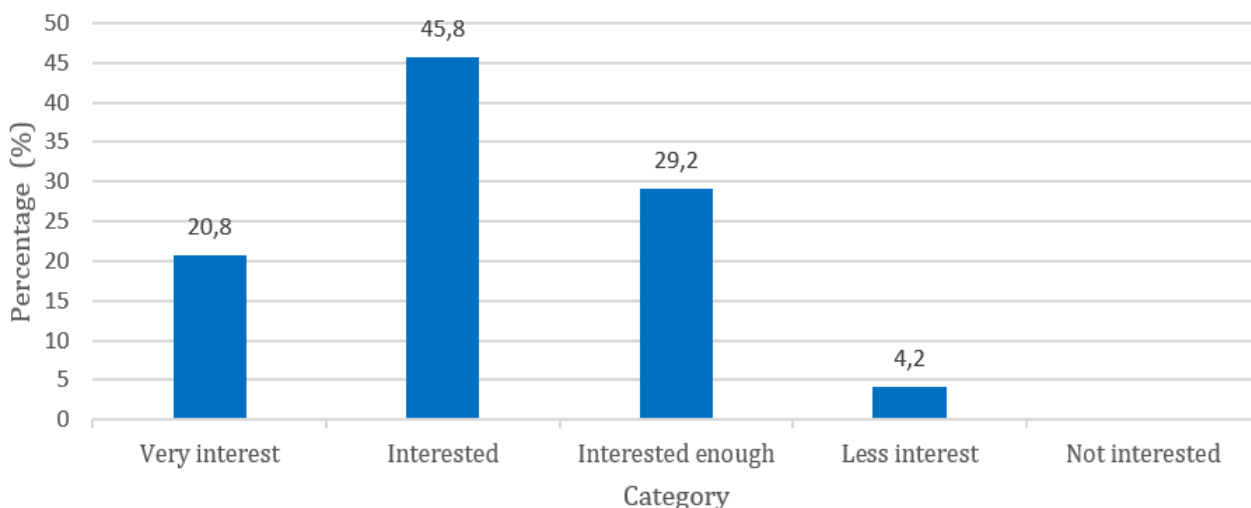
Students generally show an interest in participating in Biology learning activities using Quizizz. The results of data analysis in Figure 4 show that the percentage for each category of interest is 45.8% of students choosing to be interested, 29.2% of students choosing to be quite interested, 20.8% of students choosing very interested and 4.2% of students choosing less interested. In line with research conducted by Mei et al., (2018) that using the Quizizz application succeeded in attracting interest in learning and making the class more focused on learning materials that can improve student learning outcomes. Research result Fadilla et al., (2020) shows that there is a

relationship between students' perceptions of the Quizizz learning media and high interest in Islamic education distance learning.



**Figure 3.** (a) The most preferred online learning media, (b) Perception of the educational game Quizizz, (c) The right learning media for studying Biology

Students' interest and enthusiasm were also shown when giving Quizizz from the beginning to the end of the lesson. As a comparison, the teacher gave questions with google form, but students were more enthusiastic about choosing to solve questions with Quizizz when compared to google form. Meanwhile, students who chose to be less interested were due to constraints in signals and quotas as well as limited time to work on questions.



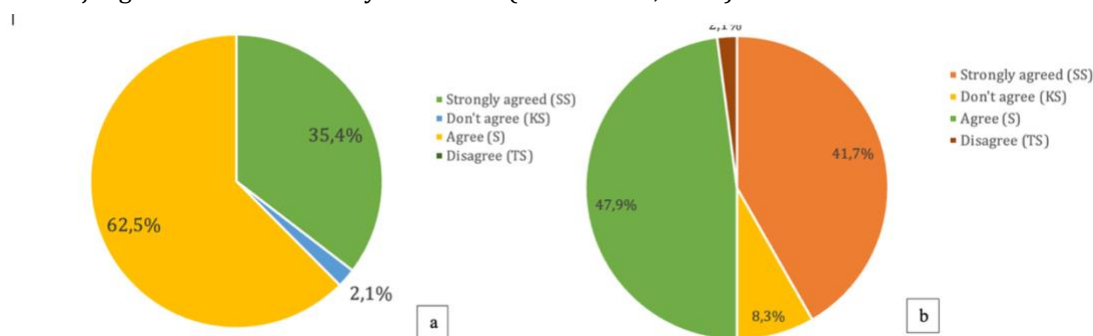
**Figure 4.** Student interest in using Quizizz media

A conducive, relaxed and pleasant learning atmosphere can increase students' interest in the lessons presented, so that it motivates students to learn and enjoy these subjects. Motivation to learn has an important role in student success in learning. The considerable interest of students in taking Biology subjects cannot be separated from the motivation that students have. This is reinforced by the results of the questionnaire analysis which shows the results of students choosing to agree (62.5%) and strongly agree (35.4%) that they are motivated to do practice questions with Quizizz (Figure 5a), it shows that Quizizz can generate student learning motivation in good category. The use of games as a learning medium is more effective in deepening the subject matter (Mahtarami & Ifansyah, 2010). Based on research conducted by Solikah (2020) the use of interactive media Quizizz has an effect on students' motivation and learning outcomes on persuasive text material for class VIII at SMPN 5 Sidoarjo. Other research has proven that the use of Quizizz can have a different impact on students' motivation to learn mathematics (Rosiyanti et al., 2020).

Based on the results of Lestari's observations (2019), the finding on observation in this research, it can be seen that the implementation of Quizizz affected the participation and motivation of students in learning process or tests. It was proven by their participation on the test when the test used Quizizz. The researcher looked that students who were more interested to join the test by using Quizizz than Kahoot!

Quizizz allows students to compete with each other and motivate each other to learn. Indicators of learning motivation according to Nur (2016) include: (1) there is encouragement and learning needs, (2) there are interesting activities in learning, (3) there is a conducive learning environment, (4) there is appreciation in learning, (5) have the intention and desire to succeed, and (6) have hopes and aspirations.

Most of the students chose to agree (S) and strongly agree (SS) (47.9% and 41.7%) that their enthusiasm for learning increased after obtaining high scores when working on questions with Quizizz (Figure 5b). The research results disclosed Rahman et al., (2020), giving Quizizz is proven to increase learning motivation and enthusiasm 5<sup>th</sup> semester student to get the highest score or top ranking, and increase curiosity regarding the material to be studied in the next class. When using Quizizz self-assessments and test scores can be evidence that students can judge how well a test they have done (Brown et al., 2015).



**Figure 5.** (a) Students are motivated to work on questions with Quizizz, (b) The enthusiasm of students to get high scores

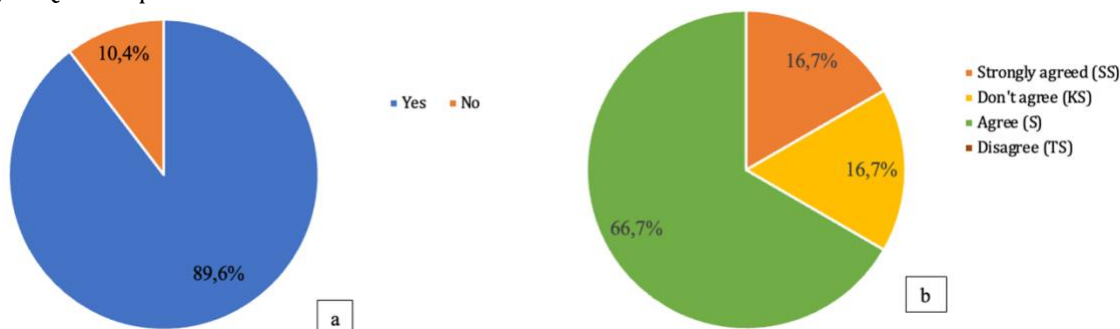
High enthusiasm and increased understanding of the material after using Quizizz made student scores better, this was evidenced by the statement "yes" (Y) by 89.6% of students and a small proportion of 10.4% answered No (T) (Figure 6a). Among the students, there was a desire to compete with their friends when they saw their classmates' names enter the top rank on the scoreboard. With time leaderboards offered by Quizizz creates student engagement due to its sense of competition in authentic learning settings (Rahayu & Purnawarman, 2019). Research conducted by Pusparani (2020) states that there was an increase in the learning outcomes of 6th graders through quizizz media as an application of learning evaluation activities from 37.5% increased to 62.5% in the first cycle. Then, there was an increase in the second cycle of 87.5% at the first meeting and 100% at the second meeting.

Quizizz minimizes cheating because the questions on Quizizz are automatically randomized, so that each student gets a different question. The effect is that students desire to be able to answer questions correctly and quickly because of the urge to get better grades. Quizizz makes students responsible for completing practice questions within the allotted time.

Students who have high learning motivation, tend to trigger success in learning and get better. But students with low motivation, allow students to be slow in getting the results and learning goals they want. Some of the relevant research related to improving learning outcomes with Quizizz, including the results of research conducted by Pusparani (2020) reported that there was an increase in learning outcomes of fourth grade elementary school students after using Quizizz. Likewise, there has also been an increase in mathematics learning outcomes from junior high school students (Mulyati & Evendi, 2020). Another research conducted by Setiawan et al., (2019) stated that the use of Quizizz as a learning medium gave a positive response to improving student learning outcomes and process skills in learning mathematics in class X and Panggabean & Harahap (2020) also stated that there was an increase in student learning outcomes. mathematics education study program in transformation geometry courses. This shows that the use of Quizizz as an application for learning evaluation activities is declared effective and efficient for use by teachers and students at all levels.

In understanding Biology lessons, concentration is very important and needed for students in following the learning process so that the expected competencies can be mastered and achieved. Based on the results of data processing, researchers obtained information that the use of student learning concentration can be improved by evaluating learning using Quizizz. Students who chose to agree (S) were 66.7%, 16.7% strongly agreed (SS) and 16.7% disagree (TS) (Figure 6b). This shows that the student's concentration is good in using Quizizz. The results of this study were supported by (Purba, 2019) that the use of Quizizz learning evaluation was proven to increase the learning concentration of chemistry education students by 0.45 in the moderate category. Research conducted by Chaiyo & Nokham (2017) concluded that Quizizz supports learning and increases student concentration, engagement, enjoyment and motivation. Mulatsih (2020) recommends using Quizizz on memorized material,

because it really helps teachers in creating a happy atmosphere, and increases student concentration when working on Quizizz questions.

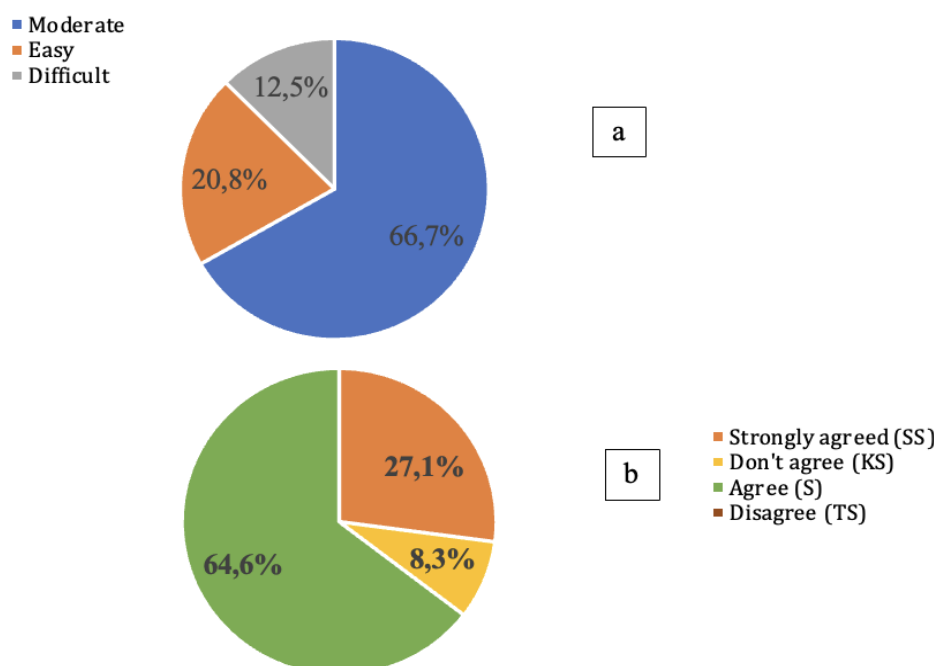


**Figure 6.** (a) Learning with Quizizz improves student grades, (b) Student concentration increases

Learning through Quizizz combines student learning, play and creativity. Learning evaluation which is packaged in the form of a game application provides practice for problem solving and logic in an entertaining and fun way, so that students will not find it difficult to solve it. [Figure 7a](#) shows the questions regarding the difficulty level of the questions given in the Quizizz learning media and answered by students with moderate (66.7%), easy (20.8%) and difficult (12.5%) percentages. In this study, the difficulty level of the questions made in the medium category shows that the items have a balanced difficulty level. A good question is one that is made not too easy and not too difficult for students to answer. The level of difficulty of the questions is seen from the ability and ability of students to answer them, not seen by the teacher as a question maker ([Faturrohman & Sulistyorini, 2012](#)). According to [Göksün & Gürsoy \(2019\)](#) the reason students use Quizizz is because of the student's need for strong stimulation or the desire to receive immediate feedback on how well they did the test. Using Quizizz helps students recognize the difference between productive and unproductive questions ([Boulden et al., 2017](#)).

The selection of learning media with interactive Quizizz makes the delivery of information faster and more transparent, and makes it easier for students to obtain effective and interesting information for studying Biology. Relevant research on the use of appropriate interactive learning media has been carried out by ([Yudasmara & Purnami, 2015](#)) which states that the development of interactive learning media has been able to improve the quality of learning and can increase the average score of students.

Following lessons using Quizizz provides new experiences for students in studying Biology. This is based on the results of the questionnaire which showed that most of the students chose to agree (S) and strongly agree (S) (64.5% and 27.1%), and only 8.3% (TS) disagreed ([Figure 7b](#)). The results of this study are supported by research ([Zhao, 2019](#)) which states that using Quizizz can improve student experience because it is easy to use, practice questions are fun, help review subject matter and stimulate interest in learning. Meanwhile, students who expressed their opinion disagreed because they lacked skills in using gadgets and did not like timing on Quizizz.



**Figure 7.** (a) The difficulty level of giving Quizizz questions, (b) Students get new experiences



During online, the obstacle faced is the student's internet signal. Therefore, it takes its own strategy is needed to get over it. In addition, student often change their email accounts, causing not to synchronize between quizizz account. One of the disadvantages of quizizz is that each question on the quiz has its own duration of time so that sometimes makes students panic and rush while working. Time allocation becomes a weakness of quizizz because each question has its own duration of time so that students who are not good at managing time feel uncomfortable (Rerung & Junita, 2020). In the future, the learning system with media similar things can be continued with different types of question giving, for example quick cards and Essays.

Quizizz provides a learning experience that encourages students to do a lot, observe, interact, communicate and provide direct feedback so that it leads to the creation of learning conditions that are not boring when evaluating learning. With the advantages of this media, it is hoped that students can be motivated and enthusiastic about learning so that optimal learning outcomes can be achieved. This is also supported by the literature in previous research which states that the use of technology-based learning media is generally considered better than traditional systems (Watty et al., 2016). The use of the Quizizz application attracts the attention of students because many of them are familiar with technology applications and the world of digital games (Junior, 2020). Mei et al., (2018) recommend to colleges and schools to use educational games during lessons.

## CONCLUSION

Based on the research results, the percentage of each question item regarding students' perceptions of the use of Quizizz during distance learning averages between 50% - 90%. So it can be concluded that the use of Quizizz based on student perceptions can increase student motivation, interest and enthusiasm for learning so that it has increase influence on learning outcomes because students are motivated to prepare themselves before the material. Based on previous research, it can be said that the use of innovative learning evaluation media such as quizizz can improve student activeness, student thoroughness, student interest and even student attention to be more motivated in the learning process using technology. Quizizz is the right solution for fun, bold learning media with an attractive appearance. Quizizz has advantages that can be used as a forum for delivering learning messages and learning evaluation materials, for example there are data and student performance where the results can be used as material for evaluation of further learning follow-ups. The use of Quizizz as a learning media based on educational games can be applied to Biology lessons. These ingredients are clearly applicable to other subjects and classroom such as Mathematics, Chemistry, English, Islamic Religious Education, accounting, etc.

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