

Using Quizizz as a Formative Assessment Tool in German Classrooms

Pepen Permana, Irma Permatyawati

Department of German Education
Universitas Pendidikan Indonesia
Bandung, Indonesia
pepen@upi.edu

Abstract—The progress of ICT encourages the presence of various types of online test tools which can bring benefits in learning. One of them is Quizizz, a game-based online test that enables entertaining multiplayer teaching activity and allows learners to practice with their gadgets. By using a quasi-experimental method, this study aims to examine the effect of using Quizizz as a formative test tool in German classrooms. The results showed that the application of Quizizz was effective to be used as a formative test tool in learning German. In addition, students also showed a positive response to the use of Quizizz in the classroom. Thus, in the future, it is necessary that teachers consider the use of innovative, fun test tools so that students can engage more in the learning process.

Keywords: *formative test, German class, Quizizz*

I. INTRODUCTION

Since learning German is considered difficult, German teachers are always looking for the best way to improve the quality of learning German. Efforts to improve the quality of learning should also be reconciled with the competences of the teachers. One of that competencies is the ability to develop innovative teaching that integrates formative tests. The creativity of teachers in delivering innovative formative tests in class could improve the quality of German lessons. Formative tests are very closely linked to teaching practice. Teachers should consider how classroom activities, task submission, and test support the learning outcomes, and also enable students to communicate what they have understood, and then use that information to improve their learning quality (Boston, 2002).

Formative testing is not a new concept, but thanks to technology, formative testing can now be performed more easily. As information and communication technologies become more prevalent in education, several electronic-based assessment forms are being used alongside the emergence of various types of e-learning activities called e-assessment. E-assessments can be approved as assessment forms that are integrated with the technology (Rodríguez-Gómez, Ibarra-Sáiz, Dodero, Gómez-Ruiz, Gallego-Noche, Cabeza, & Quesada-Serra, 2009). This has led to the development of educational applications that support the implementation of online-based assessments, such as Quizizz, Kahoot, iClicker, etc.

Assessment in the classroom is a systematic process that documents and uses empirical data on knowledge, skills,

attitudes, and beliefs to improve learning programs and the quality of learning (Allen, 2004). The data of the assessment can be obtained from the direct assessment of learning work or from other factors that can be considered as the conclusion about learning (Kuh, Jankowski, & Ikenberry, 2014). The assessments are often associated with the provision of tests, although performing an assessment does not always involve testing. Poerwati and Amri (2015) has mentioned that the learning assessment is the process of obtaining information in some form that can be used as a basis for making decisions about students.

The Internet offers various forms of innovative and interactive learning activities. The form of e-learning, which previously consisted of an instructor-centered model, has now become a student-centered model. In the instructor-centered model, the teacher transfers knowledge and information to the student, while the student-centered model focuses more on the learning process. Similarly, the two models have differences in terms of the objectives of the assessment. The assessment in the instructor-centered model is conducted to inform students about their level of performance, in other words, to grade the students. While the assessment in the student-centered model is more likely to be used to study learning problems and find ways to solve them to improve the quality of learning. The use of time and providing feedback is a very important part of the assay in student-centered models (Rashad, Youssif, Abdel-Ghafar, & Labib, 2007).

When ICT and assessments are integrated, we know the term e-assessment. As announced by the Joint Information Systems Committee (2007): "The end-to-end electronic assessment processes where ICT is used for the presentation of assessment activities and the recording of responses. This includes the end-to-end assessment process from the perspective of learners, tutors, learning establishments, awarding bodies and regulators, and the general public ". E-Assessment is an alternative form of assessment that assesses students' learning progress.

The learning tests can consist of various forms, including a formative test, a summative test, and a diagnostic test. A formative test is a test that is performed at the end of each learning material to determine the extent to which students master specific learning material. A diagnostic test is a test that is performed to identify the weaknesses of the students and to

find out the factors that are suspected to be the causes. The purpose of a formative test is to gain an understanding of what the students know and don't know in order to make responsive changes in teaching and learning (Boston, 2002). Therefore, besides the analysis of test scores and homework assignments, some things play an important role that educators must perform as part of formative testing activities. For example, teachers can observe and conduct class discussions as an opportunity to improve students' understanding and knowledge.

One of the applications for e-assessment is Quizizz. Quizizz is a game-based online testing tool that enables fun classroom activities. With this application, students can interactively work on the given questions through their gadgets. Students can get a better learning experience through this application because if they take the test with this application, they can also compete with their classmates. At the same time, students can also find out their place among other players in the ranking list directly. Quizizz can foster student interest and participation in learning (Zhao, 2019) and Quizizz is well-suited to be used as a formative test tool as teachers can download the test report and evaluate student performance after running Quizizz.

Quizizz is an excellent online testing tool that allows students to review their knowledge and learning progress (Bury, 2017). Quizizz is a formative test tool that is suitable for getting information about how the overall class condition in understanding the content of the material being taught. Quizizz is available online at <http://quizizz.com>. This application is free and works in different browsers, including Android and IOS platforms. With its user-friendly interface, Quizizz can help teachers assess their students' language learning skills as well as their curricular skills (Bury, 2017). Quizizz supplies hundreds of quizzes that we can use or create ourselves. Quizizz is a game-based learning tool that can contribute to student concentration, participation, happiness, motivation and student satisfaction (Chaiyo & Nokham, 2017).

Some of the conditions suggested by Rösler et al. (2002) regarding online learning material criteria are interactivity and flexibility, and these criteria have been met by the Quizizz application. To run a test or quiz with the Quizizz, we need to log in as a teacher with our own account. After logging in we can search and choose which usable quiz is available. We can also easily create our own quiz according to our wishes. Then we can even create a set of questions that we have prepared from the Excel file. In every asked question, we can insert a picture if we want. We can also arrange questions randomly or not. We can also determine if our quiz is public or private.

When the quiz is ready, we need to give the students a code number. Students can access the quiz by entering the code number and their name and then answering the questions. The students do not have to log in to take part in the quiz. The current quiz can be in live-game form, which takes place simultaneously in the classroom, or as a homework assignment. Quizizz allows us to create a student-paced formative assessment tailored to the student's speed.

II. METHODS

A. Methodology

This study was conducted from April 2019 to November 2019 at the UPI German Department. This study uses a quantitative descriptive approach with a quasi-experimental technique, namely research that does not use randomization (Fraenkel & Wallen, 2007).

B. Participants

This study involved a group that consists of two classes, namely class A with 32 students and class B with 29 students. The two classes received equal treatment, namely the Quizizz application.

C. Data Collection

The data used for this study are the vocabulary mastery of students before and after treatment and the students' response to the Quizizz application in the classroom. The data on the structure and vocabulary mastery of the students before the treatment were taken from the grades of the students in the subject *Struktur & Wortschatz I* (structure and vocabulary), for which they enrolled in the previous first semester. The grades of students in *Struktur & Wortschatz II* were used as the data for the structural and vocabulary mastery of students after the treatment. The grades were interpreted according to the assessment standard from Nurgiyantoro (2009). The standard includes five grades' categories, namely very good, good, adequate, sufficient, and deficient.

The data collected were statistically reviewed to determine the effectiveness of the Quizizz application in the classroom. The tests for normality and homogeneity were also conducted as a part of the quantitative analysis test procedure. Following the test procedure, the t-test was performed to find the difference between the average scores in the pre-test and post-test. The t-test performed in this study is the paired samples t-test, as this study compares the average scores in the same group. It is also to find out if the difference in the average scores in the pre-test and post-test is the result of treatment (Larson-Hall, 2010).

D. Instruments

To measure students' initial and final abilities in mastering structure and vocabulary, an objective test is used which is equivalent to the A1 level and A2 level CEFR (Common European Framework of Reference for Languages). Initial ability data was measured using the A1 level test, while the final ability was measured using the A2 level test.

To collect data on students' opinions and attitudes to using Quizizz in the classroom, a Likert-scale survey was conducted. The questionnaire is handed out to the students at the end of the learning sequence. This questionnaire generally focuses on the aspects of concentration, enjoyment, motivation, commitment and student satisfaction with the use of Quizizz in the classroom.

Students' opinions and attitudes about the Quizizz application in the classroom were measured by Likert scale

with an even number of rating scales, namely strongly agree, agree, disagree, and strongly disagree. The use of this Likert scale with an even number of rating scale in this study was intended so that there is no escape category that students use when they cannot or will not decide. Using such a Likert scale, students are forced to choose a tendency and position themselves either for or against a statement.

III. FINDINGS AND DISCUSSION

A. Findings

There are 12 Quizizz based quizzes that have been used in this research. This quiz was held once a week during the second semester. Each quiz consists of 30-40 multiple-choice questions with four options and serves as a formative evaluation at the end of each chapter. The topics of the quiz are based on the topics of each chapter in the textbook *Netzwerk A2*. The main focus of the quiz is to measure the structure and vocabulary mastery of the students.

The effectiveness of the Quizizz application was determined by comparing the grammar and vocabulary mastery of students before and after treatment. The students' response to the Quizizz application in the classroom was obtained by analyzing the survey results conducted at the end of the semester.

The data on the grammar and vocabulary mastery of the students before the treatment were taken from the results of the midterm and final exams of the subject *Struktur* and *Wortschatz I*. The results of midterm and final exam of the subject *Struktur & Wortschatz II* were used as the data for the structure and vocabulary mastery of the students after the treatment.

Table I presents the data on students' grammar and vocabulary mastery during pre-test and post-test. With the number of students (n) of 61 people, the lowest grade (min) obtained by the students at the time of the pretest was 21 and the highest (max) was 87 with an average grade of 70. At the time of the post-test, there was an increase in grades. The minimum value becomes 41, the maximum value becomes 98, and the average value also increases to 79.

TABLE I. DESCRIPTIVE STATISTICS OF GRAMMAR & VOCABULARY MASTERY OF THE STUDENTS

	Descriptive Statistics				
	N	Min	Max	Mean	Std. deviation
Pre-test	61	21	97	70	70.36
Post-test	61	41	98	79	79.54
Valid N	61	-	-	-	-

From the data collection, it has been found that the grammar and vocabulary mastery of students before treatment with the average grade of 70 belongs to the category "sufficient". With an average grade of 79 points, the grammar and vocabulary mastery of the students after the treatment belongs to the category "good". From this result, it can be seen

that the grammar and vocabulary mastery of the students improved after the Quizizz application in the classroom.

To find out the significance of the mean scores, paired-samples t-test was performed. Using the SPSS software, the result of the t-test can be displayed as follows on Table II.

TABLE II. PAIRED SAMPLES TEST

Paired Samples Test		
N		Pair 1 Pretest - Posttest
Mean		-9.180
Standard Deviation		8.397
Standard Error Mean		1.075
95% Confidence Interval of the Difference	Lower	-11.331
	Upper	-7.030
T		-8.538
Df		60
Sig (2-tailed)		.000

From Table II, it can be seen that the obtained significance level (2-tailed) is 0.000. After the interpretation of the t-test, there is a significant difference in the average scores between before and after treatment in the classroom when the significance level is lower than 0.05. This means that there is a significant difference in student performance after Quizizz application in the classroom.

The t-value of the test is -8.538. After the two-tailed statistical calculation, a t-value is compared with a t-table. The following rule applies to interpreting: if the negative t-value is lower than the negative t-table, it can be concluded that there is a significant difference between the average scores before and after the treatment. The t-table at df = 60 is -1.9996. The t-value is, therefore, lower than the t-table (-8.538 < -1.9996). It can be concluded that there is a significant difference in the grammar and vocabulary mastery of students before and after treatment. The negative t-value also means that the average grade before the treatment is lower than the average grade after the Quizizz application in the classroom.

B. Discussion

The research results show that the Quizizz application is effective for increasing the performance of students in German lessons. In addition, the statistical calculation shows that this application has contributed to learning success. Quizizz as a game-based learning application certainly brings many benefits to students. With its interactivity, Quizizz can provide direct feedback that is beneficial to students. This is in accordance with what is one of the advantages of using games in learning. Glandon and Ulrich (2005) stated that using a game in class brings an advantage in that students can get direct feedback on their answers. In addition, it gives students clear, actionable tasks and promises them immediate rewards instead of vague long-term benefits (Lee & Hammer, 2011).

The survey result (Figure 1) has also shown that the students show positive opinions and attitudes about the Quizizz application in the classroom. The survey was participated by 59 students. 56 students (95%) confirmed that they enjoy the Quizizz application in the classroom, as we can see in Figure 1. 92% admitted that the Quizizz application can arouse their interest in learning, and 85% of students said that this application motivates them to learn better. All respondents (100%) agreed that the Quizizz application is important in the classroom. 96% of students found that the Quizizz application is fun in the classroom.

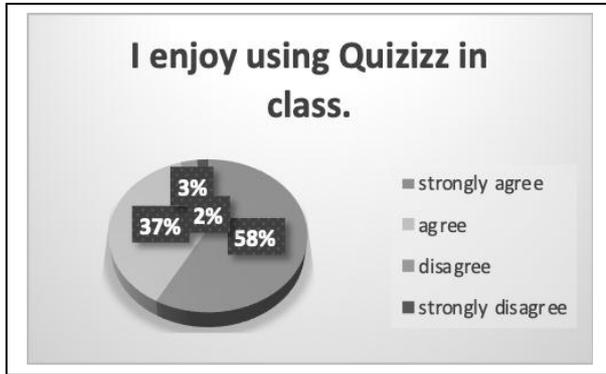


Fig. 1. The joy of students about using Quizizz in class

According to Suo, Suo, and Zalika (2018), lessons based on digital games can effectively promote students' attention, interest, creativity, and social relationships. This is also in accordance with the survey's result that showed 95% of students agreed that the Quizizz application can help them with the self-evaluation (see Figure 2). 81% of those confirmed that the use of this application allows them to participate actively in class.

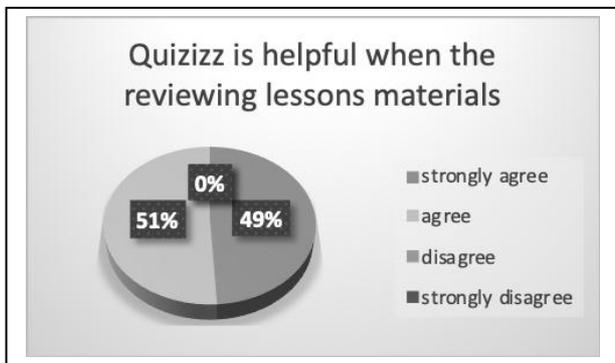


Fig. 2. The role of Quizizz regarding the self-evaluation of students

This application also helps to arouse the competitive spirit among students. With the help of the Leaderboard feature, students can identify their performance status among fellow students and 87% of students like this opportunity. Most students (98%) confirmed that they have always tried to be the best. 92% of students said that they do their best to complete the tasks. 78% admitted that they were disappointed and ashamed (61%) if they got worse results compared to their fellow students.

The survey results also show that students prefer to work on the Quizizz tasks live in the classroom instead of as a

homework assignment. 36% of students are against the idea that the usual form of paper-based evaluation should be replaced by the Quizizz application. Moreover, more than half of the students confirmed that the Quizizz application cannot reduce their test anxiety. In general, most students are of the opinion that the Quizizz application has helped increase the effectiveness of the lesson, so they want the Quizizz application to be applied regularly in upcoming lessons, as shown in Figure 3.

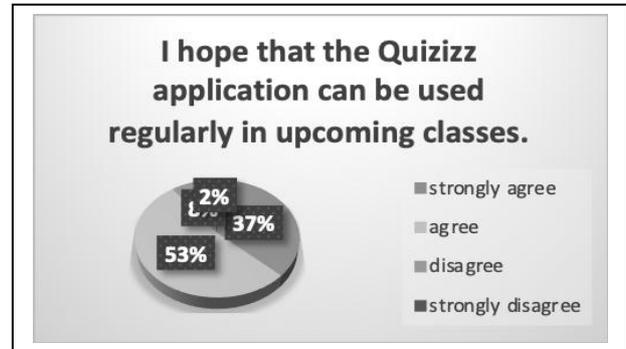


Fig. 3. Students' expectation about the use of Quizizz in the future

IV. CONCLUSION

It can now be summarized that a formative test plays an important role in the classroom. A formative test allows students to repeat the material and get direct feedback on their level of control. Quizizz is one of the tools for a formative test can be used effectively in German lessons, especially to increase the grammar and vocabulary mastery of students. Most students have responded positively to the Quizizz application in the classroom.

As a suggestion for the coming lesson with using Quizizz, the students should be also involved in the preparation process, for example, they are involved in creating quizzes so they can help shape the lesson.

ACKNOWLEDGMENT

We would like to thank all our gratitude to those who have helped in carrying out this research. Our big thanks are especially to the German students of FPBS UPI 2018 who are willing to be the subject of research and provide their responses as a big contribution to this research.

REFERENCES

Allen, M. J. (2004). *Assessing academic programs in higher education*. San Francisco: Jossey-Bass.

Boston, C. (2002). The concept of formative assessment. *Practical Assessment, Research & Evaluation*, 8(9). Retrieved from <http://pareonline.net/getvn.asp?v=8&n=9>.

Bury, B. (2017). Testing goes mobile web 2.0 formative assessment tools. *conference proceedings. ICT for Language Learning* (10th Edn.). 87-91.

Chaiyo, Y. & Nokham, R.. (2017) "The effect of Kahoot, Quizizz and Google Forms on the student's perception in the classrooms response system". *2017 International Conference on Digital Arts, Media and Technology (ICDAMT)*. 178-182.

Fraenkel, J. R., & Wallen, N. E. (2007). *How to Design and evaluate research in education* (6th Edn.). New York: Mc Graw Hill.

- Glandon, K., & Ulrich, D. (2005). Using games as a teaching strategy. *Journal of nursing education*, 44, 338-339. doi: 10.26417/ejsr.v12i1.p208-212
- Joint Information Systems Committee (JISC). (2007). *Effective Practice with e-Assessment. An overview of technologies, policies and practice in further and higher education*. Retrieved from: <http://www.jisc.ac.uk/media/documents/themes/elearning/effpraccassess.pdf>.
- Kuh, G. D.; Jankowski, N.; Ikenberry, S.O. (2014). *Knowing What Students Know and Can Do: The Current State of Learning Outcomes Assessment in U.S. Colleges and Universities (PDF)*. Urbana: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment.
- Larson-Hall, J. (2010). *A guide to doing statistics in second language research using SPSS*. New York: Routledge.
- Lee, J., & Hammer, J. (2011). Gamification in Education: What, How, Why Bother?. *Academic Exchange Quarterly*, 15, 1-5.
- Nurgiyantoro, B. (2009). *Penilaian dalam Dosenan Bahasa dan Sastra (3rd Edn.)*. Yogyakarta: BPFE
- Poerwati, E., & Amri, S. (2015). *Panduan Memahami Kurikulum 2013*. Jakarta: Prestasi Pustaka
- Rashad A. M., Youssif A. A. A., Abdel-Ghafar R.A., Labib A.E. (2008). E-Assessment Tool: A Course Assessment Tool Integrated into Knowledge Assessment. In: *Iskander M. (Eds.). Innovative Techniques in Instruction Technology, E-learning, E-assessment, and Education*. Springer, Dordrecht
- Rodríguez-Gómez, G., Ibarra-Sáiz, M. S., Doderó, J. M., Gómez-Ruiz, M. A., Gallego-Noche, B., Cabeza, D., & Quesada-Serra, V. (2009). Developing the e-Learning-oriented e-Assessment. In *V International Conference on Multimedia and Information and Communication Technologies in Education* (pp. 515-519). Lisbon: Formatex.
- Rösler, D., Chaudhuri, T., Gofman, N., Hain, D., Kamarouskaya, V., Krebs, N., Pusk'as, C., Reichel-Wald, K., Savitskaia, N., Siri, F., Ufer, J., Vasilyeva, V., Vilde, Z. (2002). *Kriterien Katalog für Internet Material Deutsch als Fremdsprache*. Retrieved from <https://www.uni-giessen.de/fbz/fb05/germanistik/iprof/daf/dokumente/kriterienkatalog>
- Suo, Y. M., & Suo Y. J., & Zalika, A. (2018). Implementing Quizizz as game based learning in the Arabic classroom. *European Journal of Social Science Education and Research*, 12(1), 208-212.
- Zhao, F. (2019). Using Quizizz to integrate fun multiplayer activity in the accounting classroom. *International Journal of Higher Education*, 8(1), 37-43.