

# The Effectiveness of Team Games Tournament Assisted by Quizizz Application to Increase Student Learning Independence

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## Abstract

The objective of this study was to determine whether team games tournaments supported by the quizizz application improved student learning independence. Students from the Jambi University Chemistry Education Study Program took courses in chemistry mathematics in classes A and B in the 2023/2024 academic year. This study is a quasi-experimental study with a non-equivalent group design, with class A as the control class and class B as the experimental class. A questionnaire was used to collect data on students' learning independence both before and after the team games event that was made possible by the Quizizz application to make sure the data from both groups were homogeneous and normally distributed, the initial independent data from both sample classes were checked for both normality and homogeneity. The independent-samples t test is then used to compare data on students' learning independence before and after the team games tournament with the use of the Quizizz application. A significant value of 0.005 in the independent-samples t test results indicated that there was an increase in student learning independence following the implementation of the team games tournament supported by the Quizizz application. Based on these findings, the study came to the conclusion that enhancing student learning independence might be achieved through the use of the Quizizz app in conjunction with a team games event.

*Keywords:* team games tournament, quizizz, learning independence.

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## 1. Introduction

An attempt is made to provide high-quality learning through the use of media and learning models. To raise the standard of education in Indonesia, the Ministry of Education, Culture, Research, and Technology modified the curriculum. Technological developments and changing times require the application of the curriculum to be adjusted to the demands of the existing era (Hendra et al., 2023). Improving the quality of education cannot only come from curriculum changes, but by improving the quality of human resources involved in the learning process such as lecturers and students. One's ability must be continuously improved in the face of increasingly fast-paced changes (Harizon & Ekaputra, 2023). The role of lecturers in delivering interesting and meaningful learning is needed (Haryanto et al., 2023). Learning activities must be able to facilitate students to improve their knowledge and skills (Ekaputra, 2023). Provision of skills improvement through lecture activities needs to be given to students, so that students are able to adapt to the rapidly changing times (Ekaputra & Widarwati, 2023).

Group lecture activities are necessary to help students develop their social skills since, according to observations made at Jambi University Chemistry Education Study Program, these are new activities for first-semester students. Chemical mathematics courses are courses that are considered difficult by students, so an effort needs to be made to improve student understanding. The use of media models and interesting learning needs to be given to improve student learning skills and independence. One of the efforts to increase learning independence is to apply the application of the team games tournament assisted by the quizizz application in lecture activities.

Team Games Tournament is a cooperative learning model that involves student learning activities through peer tutor learning and contains elements of games in learning (Suardin & Andriani, 2021). High learning activity can make learning meaningful because students are directly involved in the learning process (Sanova et al., 2022). The inclusion

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of competitions in learning activities can foster a positive learning environment and healthy competitiveness, which will inspire students to get a deeper comprehension of the topic being covered (Hikmah et al., 2018).

It is imperative that technology-based learning media be used in lecture activities. The application of technology makes lecture information easy to access (Fuldiaratman & Ekaputra, 2023). Consequently, the usage of media based on technology can raise educational standards (Fuldiaratman et al., 2023). Providing media in interesting learning is needed to make the learning process fun, such as quizizz media. Quizizz is an internet-based application used to create quizzes as a learning evaluation tool through interactive games (Mulyati & Evendi, 2020). Based on the background that has been described, this study aims to examine the effectiveness of the application of team games tournament assisted by the quizizz application on student learning independence.

## **2. Literature Review**

### *2.1. Team Games Tournament*

Team games tournament is one of the cooperative learning models that involves students' activities by involving elements of games and reinforcement into learning (Anggraeni & Alpian, 2019). The implementation of Teams Games Tournament consists of five stages of activities which include the presentation of material in class, learning in small groups, games, conducting tournaments, and awarding (Sugiata, 2018). Team games tournament has advantages, among others, making learning activities more interesting, meaningful, learning activities and methods used are more varied (Sulfemi & Setianingsih, 2018).

### *2.2. Quizizz*

The quizizz application is a web tool that can be used to create interactive quiz-based games in learning activities (Sari & Yarza, 2021). The quizizz application is an educational game-based application that is narrative and flexible (Salsabila et al., 2020). The advantage of the quizizz application is that it is able to present in an interesting and easy form in developing educational games (Agustina & Rusmana, 2019).

### *2.3. Learning Independence*

Learning independence is the non-dependence of a person on others to be able to actively engage in the learning process (Dewi et al., 2020). The principle of independent learning consists of a category of self-assessment used by teachers to determine the development of cognitive aspects and learning styles used (Bungsu et al., 2019). Learning independence can be adjusted to the learning style, so that the time needed to understand the material can run effectively (Siagian et al., 2020).

## **3. Research Method**

This research is a quasi-experimental study with a non-equivalent group design. Students enrolled in the Jambi University Chemistry Education Study Program's classes A and B for chemistry mathematics in the 2023–2024 academic year served as the study's sample; class B was the experimental class and class A served as the control class. The independent variables contained in this study are the application of the team games tournament assisted by the quizizz application to student learning independence in the experimental class and the use of conventional learning models in the control class, and there is one dependent variable in this study, namely student learning independence. The technique used to collect data in this study is a questionnaire technique to obtain information about the ability of student learning independence before and after the application of the team games tournament assisted by the quizizz application.

Prior to studying using the Quizizz application-assisted team games tournament, a questionnaire was given out to assess the experimental and control classes' students' capacity for independent learning. After the experimental and control classes completed the learning independence questionnaire, the findings were checked for normality and homogeneity to make sure the learning independence data in both groups was homogeneous and normally distributed. If the test results show that the learning independence data from both classes is greater than 0.05, then the learning independence data in both sample classes is normally distributed and homogeneous.

Team games tournament assisted by quizizz application is applied in four meeting sessions. Students are divided into six groups in each class. Students complete the final learning independence questionnaire after learning through the Quizizz application-assisted team games tournament. The independent-samples t test is then used to compare data on students' learning independence before and after the team games tournament with the use of the Quizizz application. Student learning independence is increased when the team games tournament, supported by the Quizizz application, is implemented and the independent-samples t test yields a significance value less than 0.05.

#### 4. Results and Discussions

The first activity of this research is data collection regarding student learning independence. Data on initial learning independence was obtained using a questionnaire in experimental and control classes. Students fill out the initial learning independence questionnaire before the application of the team games tournament assisted by the quizizz application in lecture activities. Data regarding initial learning independence, normality test results, homogeneity test are presented in Table 1.

**Table 1.** Initial Data

Class	Learning Independence	Normality Test	Homogeneity Test
Experiment	69.68	0.125	0.941
Control	69.33	0.200	

The results of questionnaire filling before the application of the team games tournament assisted by the quizizz application show that the data from both classes have a value of less than 70. The application of the team games tournament assisted by the quizizz application is expected to make lecture activities meaningful and can increase student learning independence. The results of the questionnaire regarding student learning independence were then tested for normality to determine the distribution of student learning independence from the two sample classes. The results of the normality test of the learning independence data from both classes are presented in Table 1, showing a significance value of more than 0.05. Based on these results, the initial learning independence data from the experimental and sample classes are normally distributed. The results of initial learning independence were then tested for homogeneity. Based on the results of the homogeneity test conducted on the learning independence data from the two classes presented in Table 1, the significance value is greater than 0.05, so that the learning independence data obtained from the two sample classes is homogeneous data.

Team games tournament assisted by quizizz application is applied in four meeting sessions. Students are divided into six groups in each class. Experimental class students use the quizizz application in the assessment session to measure the learning outcomes. After learning with the application of the team games tournament assisted by the quizizz application, students fill out the final learning independence questionnaire. The independent-samples t test is then used to compare data on student learning independence before and after the use of the team games tournament aided by the Quizizz program. Table 2 displays the results of the final learning independence test as well as the independent-samples t test.

**Table 2.** Learning Independence Data and Hypothesis Test

Class	Final Learning Independence	Improvement in Learning Independence	Hypothesis Test
Experiment	80.44	10.75	0.005
Control	75.32	5.99	

Based on the final learning independence data presented in Table 2, there was an increase in learning independence of 10.75 in the experimental class and 5.99 in the sample class. The magnitude of the increase in learning independence in the experimental class was due to the team games tournament assisted by the quizizz application that was applied. The data on learning independence was then tested using the independent-samples t test to determine whether there was a significant increase in learning independence after the application of the team games tournament assisted by the quizizz application. Based on Table 2 regarding hypothesis testing, the significance value is 0.005. These results show a value smaller than 0.05 so that it can be stated that the application of the team games tournament assisted by the quizizz application can significantly increase student learning independence.

The increase in learning independence is in line with research conducted by Kurniati et al. (2021) which states that there is an increase in learning independence after the application of the team games tournament. The diverse abilities of students in understanding learning materials are well facilitated through the application of team games tournaments (Astuti et al., 2022). It can promote curiosity about new things by using an exciting team games tournament (Maghfiroh & Arifin, 2021). Based on this, the applied team games tournament provides an opportunity for each learner to contribute to increasing group understanding, so that students improve each other's abilities through independent learning activities to increase active contribution in the group.

The use of the team games tournament in the execution of learning makes use of the Quizizz application. The usage of learning media in the classroom can foster an active learning environment (Ekaputra, 2020). The use of the quizizz application in learning can make students' competence in both aspects of attitudes, knowledge, and skills can be improved (Hastuti, 2021). The utilization of learning media aids in increasing learning activities. Students' participation in lecture activities can be seen through learning activities (Ekaputra, 2022). The high participation of pupils in discussion activities demonstrates significant learning activity (Ekaputra & Hasanah, 2021).

This study demonstrates an increase in student learning independence following the implementation of the team games tournament supported by the Quizizz application, according to the conclusions of the research that has been previously discussed. Based on these findings, the study came to the conclusion that enhancing student learning independence might be achieved through the use of the Quizizz application in conjunction with a team games tournament.

## **5. Conclusion**

The use of a team games competition, aided by the Quizizz application, can boost learning independence by 10.75 percent. The independent-samples t test findings revealed an increase in student learning independence following the implementation of the team games tournament aided by the Quizizz application, as demonstrated by a significant value of 0.005. Based on these findings, the study indicated that the team games tournament, aided by the Quizizz application, was effective in boosting student learning independence.

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