Volume 4 Number 2 (2026)
July – December 2026
Page: 2319-2328

EDUJAVARE: International Journal of Educational Research
ISSN: 3031-2884
https://edujavare.com/index.php/edujavare
DOI: 10.70610/edujavare.v4i02.2076

The Influence of the Teams Games Tournament Model Assisted by Quizizz Paper Mode (Q-Card) on the Motivation and Understanding of Fifth-Grade Students

Faizya Putri[1], Hamidah[2], Diana Ayu Rostikawati[3], Ahmad Mubarok[4]

[1] Universitas Bina Bangsa Banten, Indonesia; faizyaputri93@gmail.com

[2] Universitas Bina Bangsa Banten, Indonesia; shiroimida@gmail.com

[3] Universitas Bina Bangsa Banten, Indonesia; dianaayu0889@gmail.com

[4] Universitas Bina Bangsa Banten, Indonesia; ahmadmubarokb@gmail.com

Article history Submitted: 2026/08/19; Revised: 2026/09/09; Accepted: 2026/10/31

Abstract

The ability to understand concepts is one of the important aspects in social studies learning because students are not only required to remember information, but also to be able to explain and apply concepts in various situations. However, the learning process that is still teacher-centered causes student involvement and motivation to learn is not optimal. This study aims to analyze the influence of the Teams Games Tournament (TGT) learning model assisted by Quizizz Paper Mode (Q-Card) on learning motivation and students' ability to understand concepts in food chain materials. This study uses a quantitative approach with a pre-experimental design method through a one-group pretest-posttest design. The research sample consisted of 30 students in class V of SDN Cisiram who were selected using saturated sampling techniques. Data were collected through concept comprehension tests, learning motivation questionnaires, and documentation, then analyzed using Wilcoxon, N-Gain, and effect size tests. The results showed an increase in concept comprehension ability with an average score increasing from 39.73 to 87.70, an N-Gain value of 0.78 with a high category, and an effect size of 0.617 which showed a strong influence. The application of TGT assisted by Q-Card was also able to increase students' involvement and learning motivation. Thus, the Quizizz Paper Mode (Q-Card)-assisted TGT model is effectively used as an alternative to IPAS learning to improve students' understanding of concepts and learning motivation.

Keywords Concept Comprehension, Learning Motivation, Teams Games Tournament, Quizizz Paper Mode.

© 2026 by the authors. This is an open-access publication under the terms and conditions of the Creative Commons Attribution 4.0 International (CC BY SA) license, https://creativecommons.org/licenses/by-sa/4.0/).

INTRODUCTION

Understanding concepts is an important part of helping students gain meaning from the material studied. Where the ability to understand concepts is one of the most important indicators in the success of learning in the 21st century. Students not only need to know information, but also be able to explain, connect, and apply it in various situations. These challenges are increasingly important in the learning of Natural and Social Sciences (IPAS) which emphasizes understanding of natural and environmental phenomena as a whole. Education itself is designed as a process that develops the potential of students to have

intelligence, skills, personality, and the ability to adapt to the development of the times (Nabila & Hendriani, 2025).

Concept comprehension is understood as the ability of students to reinterpret a concept using their own language, connect various information, and draw meaning from the material being studied (Novanto et al., 2021). Anderson and Krathwohl explain that these abilities include reexplaining concepts, classifying objects, providing examples and non-examples, presenting concepts in various representations, comparing, and applying concepts to different situations (Lestari et al., 2024). Mastery of concepts is an important foundation in learning science because it helps students understand the relationship between concepts, not just remembering facts.

The success of students in building concept understanding is influenced by various factors, one of which is learning motivation. Motivation is an encouragement that makes students more enthusiastic about participating in learning, actively seeking information, and trying to complete the assignments given. Learning motivation affects the ability to understand concepts in science learning (Kusyanto, 2017). According to research by Habsy et al. (2023), motivation is an important factor in improving the quality of students' learning processes. The higher the learning motivation, the greater the opportunity for students to understand the material more deeply.

Facts in the field show that social studies learning in elementary schools still faces various obstacles. The learning process is still dominated by teachers, the use of learning models and media is less varied, and the use of technology is not optimal. This condition makes students less actively participating, which has an impact on low learning motivation and the ability to understand the material, especially on the concept of the food chain (Juliya & Herlambang, 2021). The results of observations in grade V of SDN Cisiram show that students are still less enthusiastic about participating in learning, rarely ask or answer questions, and have difficulty classifying concepts and providing appropriate examples of food chain materials.

Difficulty understanding the material can make students become more passive during the learning process and is related to low interest and motivation to learn (Rostikawati & Yustiana, 2024). When students have difficulty understanding the material, their involvement in learning can also decrease. Therefore, a learning strategy is needed that is able to create a more active learning atmosphere and encourage students to be involved in the process of understanding the material.

Learning that actively involves students is one of the alternatives to overcome these problems. The Teams Games Tournament (TGT) model provides opportunities for students to learn through group cooperation, academic games, and healthy competitions so that the learning atmosphere becomes more interactive. A study proves that the use of Educaplay game media has a significant effect on improving the understanding of concepts of elementary school students, with an average increase in understanding of 58.05% in the experimental class compared to 35.30% in the control class (Ningrum et al., 2025). The use of technology-based

learning media can also enrich student involvement in understanding the material. According to Hamidah et al. (2025), interactive technology-assisted learning can encourage student participation while helping to improve conceptual understanding through active exploration and information processing activities.

The effectiveness of this model can be strengthened through the use of Quizizz Paper Mode (Q-Card) which presents game-based learning activities and is able to increase student involvement. Based on these conditions, this study aims to analyze the influence of the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card) on learning motivation and students' ability to understand concepts in class V food chain materials at SDN Cisiram.

METHODS

This study uses a quantitative approach with the pre-experimental design method. The quantitative approach is used to test the relationship between variables using data in the form of statistically analyzed numbers (Hermawan & Hariyanto, 2022). The research design applied is a one-group pretest-posttest design, which is an experimental design that involves one group without a control group so that measurements are taken before (pretest) and after (posttest) treatment (Susanti et al., 2024). The treatment provided was in the form of the application of the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card) to determine its influence on students' learning motivation and ability to understand concepts. The research will be carried out at SDN Cisiram, Serang Regency, in 2026 involving all 35 students in class V. The sampling technique uses saturated sampling, so that the entire population is used as a research sample. During the implementation of the research, there were five students who did not take part in the entire series of pretests and posttests, so that the effective sample analyzed amounted to 30 students.

Research data was collected through tests, questionnaires, and documentation. The test was used to measure students' concept comprehension ability before (pretest) and after (posttest) the application of the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card). The test instrument was in the form of six essay questions arranged based on indicators of concept comprehension ability. The use of tests aims to measure students' ability objectively in accordance with the research objectives (Magdalena et al., 2021). Data analysis in this study was carried out to determine the influence of the application of the Teams Games Tournament (TGT) learning model on students' ability to understand concepts and learning motivation. The stages of data analysis include normality tests, hypothesis tests, improvement tests (N-Gain), and correlation tests (Effect Size).

The normality test is carried out to determine the distribution of research data as a basis for determining the type of statistical analysis used. Normally distributed data is one of the conditions for using parametric statistics. In this study, the normality test was carried out on pretest and posttest data on the ability to understand concepts and learning motivation of

students using the Shapiro-Wilk test with the help of the SPSS for Windows version 27 program (Kholifah, 2020). The decision-making criterion is that if the significance value (Sig.) is > 0.05, then the data is normally distributed, while if the Sig. value is < 0.05, then the data is not normally distributed.

Hypothesis tests are carried out to determine whether or not there is a significant difference between pretest and posttest results. If the data is not distributed normally, the test is carried out using the Wilcoxon Signed-Rank Test. This test is used to analyze the differences between two paired data groups, namely the scores before and after being given treatment (Sagita, 2020). Furthermore, the improvement in student learning outcomes is analyzed using the N-Gain test. N-Gain analysis is used to determine the level of improvement in students' abilities after participating in learning and to see the effectiveness of the treatment provided (Ismaya et al., 2025). The magnitude of the influence was analyzed using the Effect Size value based on the results of the Wilcoxon test by calculating the correlation coefficient of the value Z (r).

RESULTS AND DISCUSSION

Results

This research was carried out at SDN Cisiram in grade V students to determine the influence of the Teams Games Tournament (TGT) learning model assisted by Quizizz Paper Mode (Q-Card) on learning motivation and the ability to understand concepts in food chain materials. The implementation of learning refers to the teaching modules that have been prepared by the researcher by following the syntax of the TGT model which includes the delivery of material, group formation, games, and tournaments.

The research was conducted in three meetings. In the first meeting, students were given a pretest of concept understanding ability and a learning motivation questionnaire to find out the initial conditions before treatment. Furthermore, learning was carried out using the TGT model assisted by Quizizz Paper Mode (Q-Card). In the second meeting, students participated in group discussions and tournaments using Quizizz Paper Mode (Q-Card). In the last meeting, students were given a posttest of concept comprehension ability and a learning motivation questionnaire to find out changes after being given treatment.



Figure 1. Implementation of TGT Learning Assisted by Quizizz Paper Mode (Q-Card)

Concept Comprehension Ability Data

The students' concept comprehension ability was measured using an essay test of 6 questions that had been tested for validity and reliability. The results of the comparison of pretest and posttest scores of concept comprehension skills are presented in Table 2.

Table 2. Comparison of Pretest and Posttest Results Concept Comprehension Ability

Components	Pretest	Posttest
Total Values	1192	2616
Highest Score	54	96
Lowest Score	25	75
Average Score	39,73	87,70
Number of Students Completed	0	30
The Number of Students Is Incomplete	30	0

Source: Researcher-processed data (2026)

Based on the results of the pretest, students' initial ability in food chain materials is still relatively low with an average score of 39.73, the highest score of 54, and the lowest score of 25. All students have not reached learning completion, namely as many as 30 students are in the incomplete category. After applying the Teams Games Tournament (TGT) learning model assisted by Quizizz Paper Mode (Q-Card), the posttest results showed an increase in concept comprehension skills. The average score increased to 87.70 with the highest score of 96 and the lowest score of 75. All students achieved learning completeness with a total of 30 students completed.

It can be seen from the comparison of pretest and posttest results, there was an increase in the average score of 47.97 points. This increase shows that the application of the TGT learning model assisted by Quizizz Paper Mode (Q-Card) has a positive influence on students' ability to understand concepts in food chain materials.

Normality Test

Before hypothesis testing, the research data was first analyzed through a normality test to determine the appropriate type of statistics. The test was carried out using the Shapiro-Wilk method with the help of the SPSS version 27 program. The data is said to meet the assumption of normality if the significance value (Sig.) is greater than 0.05.

Table 3. Normality Test Results of Concept Comprehension Ability

Variabel	Statistic	df	Say.
Pretest	0,913	30	0,017
Posttest	0,918	30	0,024

The results of the analysis showed that the significance value in the pretest data was 0.017 and the posttest was 0.024. Both values were below the significance limit of 0.05, so the data on the ability to understand concepts did not meet the normal distribution assumptions.

This condition became the basis for the selection of a nonparametric statistical test using the Wilcoxon Signed-Rank Test to test the difference in results before and after treatment.

Uji Hypothesis

Hypothesis testing was carried out to determine the existence of changes in students' concept comprehension skills after participating in learning using the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card). Because the results of the normality test showed that the data was not normally distributed, the analysis was continued using the Wilcoxon Signed-Rank Test on paired data.

Table 4. Wilcoxon Test Results Concept Comprehension Ability

Variabel	Z-value	Asymp.Sig. (2-tailed)	Ket
Test Questions Posttest - Pretest	-4,791	<0.001	ignifikan 0 Declined) 1 Accepted)

From the results of Wilcoxon's test in Table 4, a Z value of -4.791 was obtained with a significance value of <0.001. This value was smaller than the significance level of 0.05, thus indicating a significant difference between the pretest and posttest results. Thus, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. These findings show that the application of the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card) has an influence on improving students' ability to understand concepts in food chain materials.

Uji N-Gain

In addition to testing the difference in learning outcomes, this study also analyzed the level of improvement in concept comprehension ability through the N-Gain test**.** This analysis was used to determine the effectiveness of treatment based on changes in scores obtained by students before and after learning.

Table 5. N-Gain Test Results of Concept Comprehension Ability

Variabel	Number of Students (n)	Rat-rata n-gain	N-Gain (%)	Remarks
Concept Understanding Ability	30	0,78	78%	Height

The N-Gain calculation showed an average score of 0.78 with a percentage increase of 78%. This value is included in the high category, which shows that the use of the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card) is able to improve students' ability to optimally understand concepts in food chain materials.

Correlation Test

Effect size analysis was carried out to determine the magnitude of the influence of the application of the Teams Games Tournament (TGT) learning model assisted by Quizizz Paper Mode (Q-Card) on students' ability to understand concepts. The calculation of effect size was carried out using the Z value of the Wilcoxon test results with the correlation formula (r). Based

on the results of the Wilcoxon test, a Z value of -4.785 was obtained, so that the value of the effect size can be calculated as follows:

$$r = \frac{4,785}{\sqrt{60}} = \frac{4,785}{7,746} = 0,617$$

The calculation results showed a correlation coefficient (r) value of 0.617. This value is in the range of 0.51–0.75 which is included in the category of strong influence (Astuti, 2022). Thus, the application of the Teams Games Tournament (TGT) learning model assisted by Quizizz Paper Mode (Q-Card) not only provides a significant difference in concept comprehension ability, but also has a strong level of influence in improving students' concept comprehension skills.

Discussion

The application of the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card) showed positive changes in the ability to understand students' concepts in food chain materials. This increase can be seen from the difference in pretest and posttest results. In the initial condition, students' abilities were still relatively low and had not reached learning completeness. After being given treatment, all students managed to achieve completeness accompanied by a significant increase in average scores.

The results of statistical analysis further clarify the significant changes. The Wilcoxon test reflects the difference between the results before and after learning, while the effect size value is in the strong category. The combination of cooperative learning and interactive media can create a more active learning experience in helping students understand concepts. The application of innovative learning strategies can create a more meaningful learning experience through modification of teaching strategies that are tailored to learning needs (Rostikawati et al., 2024).

TGT not only places students in groups, but also provides a space for discussion, exchange ideas, and test understanding through tournaments. According to Hamidah and Kusuma (2024), discussion activities can make learning more interesting and help students understand the material more meaningfully, not just memorize it. Through this process, students have the opportunity to process information as well as re-explain the concepts learned, so that understanding does not stop at the reception of the material, but develops through interaction between students (Sinuhaji, 2023).

The role of Quizizz Paper Mode (Q-Card) media also supports the learning experience by providing a more interactive learning atmosphere. This media provides a game-based learning experience with direct feedback, so that students are more focused, motivated, and encouraged to correct mistakes during the learning process (Rini & Zuhdi, 2023). The existence of a game element makes the learning process feel more dynamic because students are not only dealing with problems, but also involved in activities that require attention and direct responses during the learning process. Similarly, Anderson and Krathwohl's theory states that understanding concepts is shown through students' ability to explain, compare, and apply concepts in various situations.

The application of TGT assisted by Q-Card also has an impact on students' motivation to learn. Group discussions, academic competitions, and tournaments present challenges that give students a reason to continue to be involved in learning. The use of Quizizz in gamification-based learning can support learning motivation through learning experiences that involve elements of games and competitions (Sari et al., 2024). This pattern is reflected in the use of Q-Cards that combine learning activities with games and tournaments, so that students do not only participate in passive learning, but are encouraged to participate, answer, and obtain the best results. With the combination of TGT and Q-Card, it forms a learning experience that combines cooperation, challenges, and rewards in one learning series. This kind of learning experience not only supports increased understanding of concepts, but also creates an atmosphere that can encourage student motivation.

CONCLUSION

After conducting research, it was found that the application of the Teams Games Tournament (TGT) learning model assisted by Quizizz Paper Mode (Q-Card) had a positive influence on students' learning motivation and concept comprehension ability in the food chain material of class V of SDN Cisiram. The application of this model was able to improve the ability to understand concepts as shown by increasing the average score of students from 39.73 in the pretest to 87.70 in the posttest, with an N-Gain value of 0.78 which was included in the high category. The results of the Wilcoxon test also showed a significant difference between the results before and after treatment, as well as an effect size value of 0.617 which showed that the TGT learning model assisted by Q-Card had a strong influence on improving students' understanding of concepts. In addition to having an impact on cognitive aspects, the application of this model was also able to increase involvement and motivation to learn through group discussion activities, academic games, and competitions that encouraged students to be more active during learning. Therefore, the Teams Games Tournament (TGT) model assisted by Quizizz Paper Mode (Q-Card) can be an alternative to an effective IPAS learning strategy to create an interactive, fun, and supportive learning process that improves concept understanding and concept understanding for students in IPAS learning.

REFERENCES

Habsy, B. A., Shafira, R. R. R., Rahmawati, M. Y., & Habibah, N. (2023). Peran Motivasi Dalam Meningkatkan Kualitas Pembelajaran Siswa Di Sekolah. Jurnal Penelitian Guru Indonesia, 4(1), 292–307.

Hermawan, S., & Hariyanto., W. (2022). Buku Ajar Metode Penelitian Bisnis (Kuantitatif Dan Kualitatif). In Buku Ajar Metode Penelitian Bisnis (Kuantitatif Dan Kualitatif). https://doi.org/10.21070/2022/978-623-464-047-2

Hamidah, H., & Kusuma, J. W. (2024). Developing ethnomathematical-based learning stages on mathematical communication skills with Kastolan error analysis. Communications on Applied Nonlinear Analysis, 31(1), 150–176. https://doi.org/10.52783/cana.v31.371

Hamidah, H., Kusuma, J. W., Chotimah, S., & Senjayawati, E. (2025). Evaluation of geometry skills: Integrating logic and drawing indicators through GeoGebra-based learning.

Journal of Research and Advances in Mathematics Education, 10(3), 182–199. https://doi.org/10.23917/jramathedu.v10i3.8802

Ismaya, E., Roheni, & Suteja. (2025). Pengaruh Metode Jarimatika Terhadap Kemampuan Berhitung Materi Perkalian Pada Siswa Kelas III Sekolah Dasar. Journal of Primary Education Research, 3(2), 19–25. https://doi.org/10.57176/primer.v3i2.58

Juliya, M., & Herlambang, Y. T. (2021). Analisis Problematika Pembelajaran Daring Dan Pengaruhnya Terhadap Motivasi Belajar Siswa Mira Juliya 1 , Yusuf Tri Herlambang 2. Genta Mulia, XII(2), 1–15.

Kholifah, N. (2020). Pengaruh Penggunaan Alat Peraga Ular Tangga Terhadap Hasil Belajar Matematika Kelas 4 Min 3 Metro Pusat. Skripsi, 7(2), 107–115.

Kusyanto, E., Model, P., & Dan, P. (2017). Pengaruh Model Pembelajaran Dan Motivasi Pengetahuan Alam. Jurnal Penelitian Dan Penilaian Pendidikan, 2(2), 207–221.

Lestari, L., Puspita Rini, C., & Gumilar, A. (2024). Analisis Pemahaman Konsep Dalam Pelajaran Ipa Pada Siswa Kelas Iv Sd. E-Journal PGSD Universitas Pendidikan Ganesha Jurusan PGSD, 3(Analisis Pemahaman Konsep Dalam Pelajaran Ipa Pada Siswa Kelas IV SD), 1.

Magdalena, I., Syariah, E. N., Mahromiyati, M., & Nurkamilah, S. (2021). Analisis Instrumen Tes Sebagai Alat Evaluasi. Jurnal Pendidikan Dan Ilmu Sosial, 3, 276–287.

Nabila, A. F., & Hendriani, D. (2025). Pengaruh Model Pembelajaran Teams Game Tournament (TGT) Terhadap Motivasi dan Hasil Belajar Siswa pada Mata Pelajaran Sejarah di MAN 3 Jombang Jombang , serta potensi dari model TGT , peneliti tertarik untuk mengkaji lebih lanjut pengaruh. Realisasi : Ilmu Pendidikan, Seni Rupa Dan Desain, 2(2), 142–154.

Ningrum, S., Rostikawati, D. A., Al-Fikri, S. R., & Purwatisari, A. (2025). Pengaruh penggunaan media game Educaplay terhadap peningkatan pemahaman konsep materi energi di sekitar kita pada siswa kelas III di SDN Gorda 2. Pendas: Jurnal Ilmiah Pendidikan Dasar, 10(3), 323.

Novanto, Y. S., Anitra, R., & Wulandari, F. (2021). Pengaruh Model Pembelajaran Poe Terhadap Kemampuan Pemahaman Konsep Ipa Siswa Sd. ORBITA: Jurnal Kajian, Inovasi Dan Aplikasi Pendidikan Fisika, 7(1), 205. https://doi.org/10.31764/orbita.v7i1.4665

Putri, A. (2023). Pengaruh Penggunaan Alat Peraga Dekak-Dekak Bilangan Terhadap Minat Dan Hasil Belajar Matematika Kelas I Sekolah Dasar. https://repository.metrouniv.ac.id/id/eprint/8175/1/ANISA PUTRI - 1901030005 -.pdf

Rini, & Zuhdi, U. (2023). Pengaruh Media Quizizz Paper Mode Terhadap Hasil Belajar Materi Penerapan Sikap Pancasila Kelas IV UPT SD Negeri 220 Gresik. Jurnal Penelitian Pendidikan Guru Sekolah Dasar, 11(1), 65. https://ejournal.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/52525/42431

Rostikawati, D. A., & Yustiana, Y. R. (2024). Penelitian survei: Minat dan motivasi belajar mahasiswa dalam perkuliahan pembelajaran IPA. Eduproxima: Jurnal Ilmiah Pendidikan IPA, 6(2), 555–560. https://jurnal.stkippgritulungagung.ac.id/index.php/eduproxima/article/view/4289/pdf

Rostikawati, D. A., Widodo, A., Riandi, Rochintaniawati, D., & Sopandi, W. (2024). Professional development program on innovative teaching strategies for novice science teachers. Pedagogia: Jurnal Ilmiah Pendidikan, 16(2), 59–64. https://journal.unpak.ac.id/index.php/pedagogia

Sagita, E. (2020). Pengaruh Bermain Kereta Angka Terhadap Kemampuan Berhitung Pada Anak di TK Babatan Seluma. IAIN Bengkulu, 1–85.

Sari, P. P., Hamidah, H., & Kusuma, J. W. (2024). Application of Quizizz-assisted gamification model to students' mathematical communication skills and learning motivation. Jurnal Derivat: Jurnal Matematika dan Pendidikan Matematika. https://journal.upy.ac.id/index.php/derivat/article/view/6597

Sari, N. K., Naba, D. M., & Arifendi, R. F. (2025). Inovasi Pembelajaran Pecahan: Pengembangan Dan Efektivitas Modul Ajar Interaktif Berbasis Canva Untuk Siswa Sekolah Dasar. SJME (Supremum Journal of Mathematics Education), 9(2), 265–275. https://doi.org/10.35706/sjme.v9i2.203

Sinuhaji, D. W. B. (2023). Meningkatakan Hasil Belajar Siswa Dengan Menggunakan Model Team Game Tournament Tema 7 Subtema 1 Di Kelas Iv Sd Negeri 043951 Surbaktitahun Pelajaran 2022/2023. In Digital Repository Universitas Quality Berastagi.

Sun'an, U. N., Isnaeni, W., & Khumaedi, M. (2024). Validity of the Ethics Assessment Instrument for Senior High School Students. Journal of Research and Educational Research Evaluation, 13(1), 102–111. http://journal.unnes.ac.id/sju/index.php/jere

Susanti, N., Rinadevi, R, S., & Sukma, E. (2024). Analisis Pembelajaran Berdiferensiasi Pada Mata Pelajaran Bahasa Indonesia Di Sekolah Dasar. Jurnal Review …, 09, 53–54. http://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/31253%0Ahttp://journal.universitaspahlawan.ac.id/index