Vol. 6, No. 1, 2025, pp. 1-10
DOI: https://doi.org/ 10.29210/07essr524400

Contents lists available at Journal IICET

Education and Social Sciences Review
ISSN 2720-8915 (Print), ISSN 2720-8923 (Electronic)

Journal homepage: https://jurnal.iicet.org/index.php/essr

Quizizz-assisted case and team-based project: a pathway to enhance problem-solving and digital literacy

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Article Info

Article history:

Received Nov 12th, 2024
Revised Dec 20th, 2024
Accepted Jan 2th, 2025

Keyword:

Case Method
Digital Literacy
Quizizz
Problem-solving abilities
Team-Based Project

ABSTRACT

The study aims to improve students' problem-solving skills and digital literacy by implementing the case method assisted by Quizizz. This research was conducted on fifth-semester economic education students. This research is a descriptive qualitative research. The research instruments used tests, observations, and interviews. The population in this study were 50 people. The research used purposive sampling, resulting in a sample of 30 participants.The results of the study were that there was an increase in the Student Learning Completeness Score (KPM) at 3 meetings. Learning completeness has an average of 74% with an average increase of 14%. There are 4 aspects assessed in problem-solving skills. 100% have been able to find problems in the case, in aspect 2, 83.33% of students mastered the aspect of transforming information. 50% of students have been able to developed a problem-solving plan, and 26.67% of students can conclude a solution to the problem. Meanwhile, through the application of the Quizizz application, 60% of students who experienced an increase in digital literacy and the rest could not connect to the internet network. To improve learning effectiveness, instructors can integrate the case method with interactive digital platforms such as Quizizz or others. This approach allows students to analyze real-world cases relevant to course material, including business and economic phenomena, followed by in-depth discussions. Quizizz can serve as a tool to assess students' understanding of the theories and concepts related to these cases, while also increasing engagement and interaction in the classroom

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Introduction

Education in the 21st century demands learning innovations to prepare individuals who are capable of collaborating, thinking critically, creatively, and communicatively, as well as problem-solving and mastering technology. In line with this, it is essential to implement learning approaches that cultivate these skills. The case method and team-based project approaches are effective in enhancing problem-solving and collaboration skills (Andayani et al., 2021; Utari & Muadin, 2023).

Cases are stories, scenarios, curated data samples, or statements that present complex, unresolved issues or questions (Indiana University Teaching Handbook, 2005). The case method is a participatory, discussion-driven learning approach where students develop skills in critical thinking, communication, and teamwork. As a form of problem-based learning, it is commonly used in professional fields like medicine, law, and business,

and also successfully applied in disciplines such as engineering, chemistry, education, and journalism. Students can analyze a case in class either collectively or in smaller groups. case method is based on real events, both events from the present and the past (Nugroho & Bramasta, 2019). Cases require learners choosing what theories or concepts to apply in conducting case analysis. The case method is learning related to case analysis as the basis of the learning process (Hasyim & Andreina, 2019).Learning with case studies will provide contextualized learning experiences for students because students learn following real situations in everyday life so that students can understand the correlation between the material taught and situations that occur in real life (Hodijah et al., 2022).

From the definition above, the case method is fostering a collaborative partnership between students and instructors, as well as among students. It also enhances contextual learning and promotes long-term retention, relies on students' ability to discover answers independently, addresses not only about "how" but also the "why" behind issues, and allows students to explore the problem from multiple perspectives.One of the efforts that can be implemented (Burner,2022). Case method can develop the problem-solving skil that often require analytical and creative approaches to find effective solutions (Situmorang & Kaize, 2024). Problem-solving ability is closely related to students' numeracy literacy The application of the case method to learning in higher education is reported to hone and improve students' problem-solving skills and communication skills (Amalia & Radiansyah, 2023) . Case method implemented using for business case analysis or economic life phenomena in the social world can be used as a tool to teach principles and concepts. In this method, students can learn concepts and principles through discussion and analysis of real cases, solving problems, and making decisions (Supriatnaningsih, 2021). Case-based teaching in economics has a long history and has proven effective in enhancing the understanding of economic concepts. This approach enables students to develop analytical and problem-solving skills by applying theory to real-world situations. Empirical evidence shows that this method can increase student engagement and learning outcomes, making it a relevant approach in economics education (Volpe, 2015)

Practical experience as a side effect of implementing the case method is believed to strengthen the concept building that has been reconstructed, become a validation tool for their understanding, and help students apply theoretical concepts to real situations. The success of the case study method can be attributed to its distinctive ability to develop good mental habits for students (Fatmawati et al., 2021, 2022; Harlanu, 2024). In addition, this method is also reported to strengthen critical thinking and problem-solving skills, as well as strengthen the ability to adapt and collaborate with others (Alfiyah, 2020; Mulyanti et al., 2023).

Digital literacy is also important to enhance life skill. Integrated digital in case method and team based such as Quizizz can improve student's critical thinking, collaboration and creavite skill. It continuous engagement in planning, teaching, and analyzing lessons together, teachers were able to integrate technology more effectively with pedagogy and content knowledge. The study highlights the importance of collaborative professional development in fostering teachers' ability to use technology in ways that are meaningful and impactful for student learning. It is concluded that lesson study serves as a valuable approach for supporting EFL teachers in developing their digital literacy, ultimately contributing to more effective and innovative teaching practices (Basori et al., 2023). The statement above is in line with digital-based learning media training effectively enhances teachers' digital literacy. Through the implementation of the training, teachers are able to utilize technology more optimally in the learning process, which impacts the improvement of teaching quality and the ability to adapt to the developments in educational technology (Nurhayati et al., 2022, 2024).

Digital research in educational science encompasses complex and interconnected dimensions, including technical, methodological, and pedagogical aspects ,the interaction becomes more intuitive and responsive, (Frolovičeva, 2024; Todino et al., 2023).The digital literacy competency of elementary school teachers highlights the importance of enhancing technological skills to support the learning process. Based on a systematic literature review, the development of teachers' digital literacy should focus on continuous training and the integration of technology in teaching to improve the effectiveness of learning in the digital era (Ibda et al., 2023).

Method

This research is a qualitative classroom action research. CAR is a type of research based on inductive thinking patterns based on objective participatory observations of social symptoms. CAR is a practical investigation to improve teaching in the classroom. This improvement effort is carried out through the implementation of actions to find answers to issues that arise from the daily tasks of teachers in their classrooms. The issue is a factual situation faced in the field, not a made-up problem (Azizah, 2021, Anisa). The data collection techniques were conducted using tests, observation, and documentation. The population in this study consisted of all 50 fifth-semester students of the Economics Education program at Musamus

University. The sample for this study was determined using purposive sampling, involving 30 students enrolled in the *Indonesian Economy* course.

Seven aspects were observed in teacher and student efforts, each with four assessment categories of excellent, good, fair, and poor. There are four aspects observed in Problem-Solving Abilities. Students receive two types of learning outcomes: group and individual learning outcomes. Group learning outcomes consist of problem-shaped tasks that are included in group worksheets, while individual learning outcomes consist of evaluation questions consisting of ten questions in the form of five description questions.The indicator of the success of class action is considered successful if the teacher activity observation sheet gets a score in the value range of 23-28 which is very good.

Results and Discussions

Planning Stage

The first stage, Before conducting the research, the researcher developed a semester learning plan using a case and team-based project approach. The researcher also developed the material to be discussed using the case method and tea-based project, created the observation sheet, and the test for assessment of Quizizz. Before implementing the test, the researcher discussed and validated the test with the senior lecturer.

Learning Process

In the learning process, the researcher conveys learning objectives and achievements to students and motivates and reminds them of previous learning materials. After that, the researcher guides the process of working on personal / group assignments. In the learning process, researchers gave awards in the form of points to students who played an active role. After the discussion session was over, the researcher gave assignments through the Quizizz online learning platform. However, previously the researcher also guided students to register an account via personal e-mail so that students had a Quizizz account. Researchers distributed Quizizz links and completed practice questions in the form of cases. During the implementation of learning, researchers still provide assistance to students who have difficulty in analyzing problems and finding solutions to these problems.

At the learning stage, researchers first conducted a pretest to determine students' initial abilities before being given treatment using the case method and team-based project. Learning is carried out by providing national income learning materials. then students were given cases of implementing national income and held group discussions. The researcher made observations and assessed students' problem-solving abilities on the observation sheet that was made To measure students' problem-solving abilities, students are then given an assignment in the form of a field survey regarding the income of the community and/or business actors in Merauke City and make a report which is presented in groups. The expected output from this activity is an activity video and a mini-research report. Next, students are given a post-test using the Quizizz learning platform.

Student Activities, Based on table 2, student activity by applying the case method assisted by Quizizz from meeting I to meeting III has increased. Aspect A is student activity in accessing learning materials from Quizizz. In this activity, students understand the material that has been provided and dominantly record and analyze the material being discussed.

Aspect B is the activity of students dividing the group. Students' activities at meetings I and II looked active in dividing their groups, which was marked by students starting to conduct group discussions to discuss their findings. Aspect C is the activity of students conducting investigations. The investigation is in the form of worksheets in Quizizz which are done in groups related to APBN material. At meeting I students looked quite active, this was due to the long enough time needed by students to do the tasks they got. At meetings II and III, students were very active in carrying out the investigations given by the lecturer.

Aspect D is the activity of students carrying out presentations. This activity is in the form of students presenting each of their findings in front of the class. Students are also active in conducting discussions and questions and answers to criticize, compare and provide input to the answers of the group that is presenting. Aspect E is the activity of students listening to the answers delivered by the lecturer to clarify the answers, opinions, or input given by each group during the discussion process.

Aspect F is the activity of students answering the post test. In this activity students will answer the post test through the Quizizz application provided by the researcher. then each group will write the answers on HVS paper. The assessment in aspect F is to see students' problem solving skills with the Polya approach. In this activity, students were very active in recording post test questions.

Table 1. Student Activity Observation Results

Meeting	Active Participation (%)	Problem Analysis (%)	Solution Finding (%)	Quizizz Completion (%)
1	60%	70%	50%	80%
2	75%	80%	65%	85%
3	90%	90%	80%	95%

Analysis of Problem-Solving Ability consists of Description of Student Problem-Solving Ablities test results, Student Problem - Solving Abilities

Description of Student Problem-Solving Ablities test results, Based on student answer sheets, it is obtained that the results of student KPM tests in the form of quizzes can be described in the form of table 2.

Table 2: Student learning completeness

Value Range	Assessment	PSA		Percentage	
		Before	After	Before	After
90 < x ≤100	Very good	3	8	10%	26,67%
80< x ≤ 90	Good	5	8	16,67%	26,67%
70 < x ≤ 80	Simply	5	9	16,67%	30%
60 < x ≤ 70	Bad	8	5	26,66%	23,33%
50 < x ≤ 60	Very Bad	9	-	30%	0%

Based on the student learning completeness table above, it shows that of the 30 students who took part in learning with the case method, there was an increase in learning completeness, before the case method was implemented, there were 3 students or 10% who had excellent KPM, there were 5 students or 16.67% who had good KPM, there were 5 students or 16.67% who had sufficient KPM, there were 8 students or 26.67% who had poor KPM, and there were 9 students or 30% who had very poor KPM.

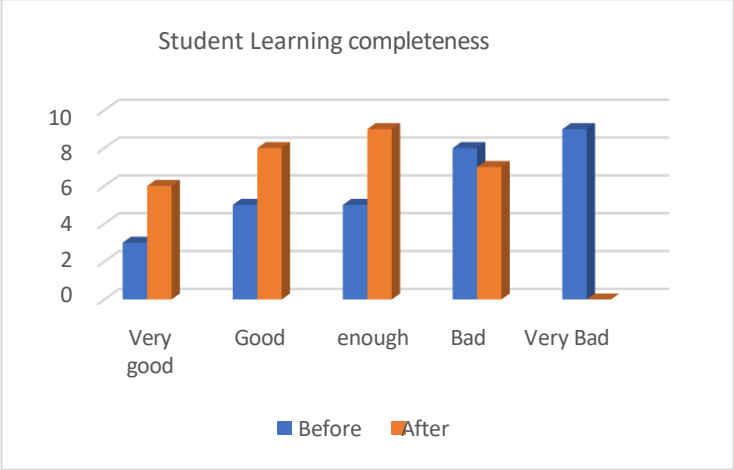

Figure 1: Student learning completeness

However, in the next stage after implementing the case method assisted by Quizizz, there was an increase in Student Learning Completeness, namely there were 6 students or 26.67% who had very good KPM, there were 8 students or 26.67% who had good KPM, there were 9 students or 30% who had sufficient KPM, there were 5 students or 23.33% who had poor KPM, and no students had very bad KPM.

The improvement in problem-solving abilities before and after the implementation of the case method can be seen through a comparison of students' skills in analyzing and solving the given problems. Before the implementation of the case method, students tended to rely more on the theories taught without relating them to real-world situations. They may have struggled to identify appropriate solutions for complex problems and often relied on basic understanding. After the implementation of the case method, students became more actively engaged in the learning process through the analysis of cases that reflect real-world situations. They were trained to identify problems, analyze influencing factors, and formulate more realistic and applicable solutions. Through group discussions and case-based problem-solving, students were able to sharpen their critical and creative thinking skills, which, in turn, significantly enhanced their problem-solving abilities. The use of the case method provided students with opportunities to learn from practical experiences, develop

analytical skills, and apply the concepts learned in more relevant and complex contexts. As a result, there was a significant improvement in students' problem-solving abilities after adopting this approach. This research resulted in the design of student worksheet Problem - Based Learning to help improve students problem-solving ability. Student worksheet design has the potential to improve student problem-solving skills. The defining result is that students prefer learning by using students worksheets, but students expect stu□ dents' worksheets that can lead them to work on mathematical problems actively (Akma & Man, 2018).

Student Problem - Solving Abilities, To measure students' solving skills by using the case method assisted by Quizizz, it is explained through various aspects of assessment based on Polya.

Table 3. Aspects of Problem Solving Ability Assessment for Each Meeting

Aspects of Problem Solving Ability Assessment	Number of Students		
	Meeting I	Meeting II	Meeting III
Identifying the Problem	10	20	30
Transforming Information	8	20	25
Develop a problem-solving plan	5	13	15
Summarize the solution to the problem	3	5	8

The first aspect is Identifying Problems. In this aspect, students are able to identify problems from the given case. Students are able to find various problems in the form of examples of cases given. In this aspect, it can be concluded that students have curiosity and ask various questions to find problems in the case and make plans in solving these problems. At the first meeting, only 10 students were able to identify problems. This means that the other 20 people are still unable to solve problems. After the implementation of the case method assisted by Quizizz there was an increase in problem solving ability, initially there were 10 people to 30 students who already had the ability to identify problems.

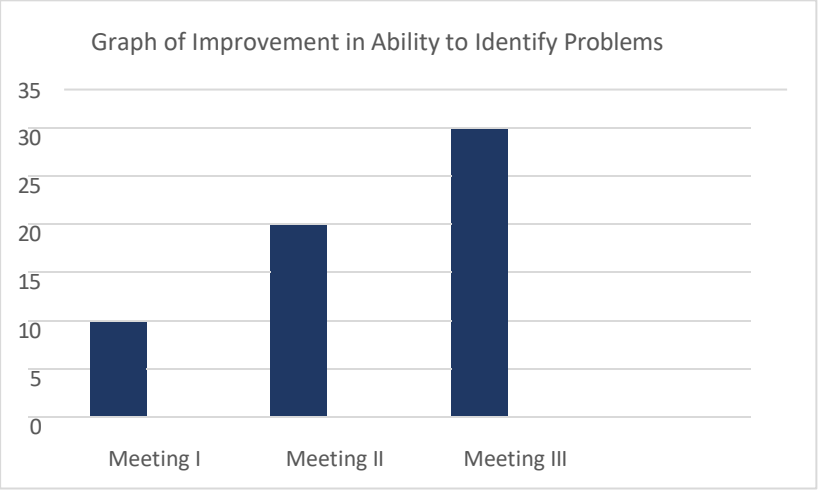

Figure 2: Graph of Improvement in Problem Identification Ability

The second aspect is the ability to transform information. At meeting I, out of 10 students who answered the questions and were able to do the first aspect, only 8 students were able to do the second aspect. However, there was an increase to 20 people at meeting II and to 25 students who were able to transform information. In this aspect, it shows the ability of students who have been able to translate case examples into mathematical form. Students already recognize mathematical symbols and change the case in the form of a mathematical approach.

The third aspect is being able to develop a problem solving plan. At meeting I, there were 5 students who already had the ability to plan problem solving. In meeting II it became 13 people and in meeting III there were 15 students who had sufficient solving skills. In this aspect students search, critically examine, perform

sequential problem solving which includes simplifying the causes of the problem, implementing solutions, and evaluating solutions.

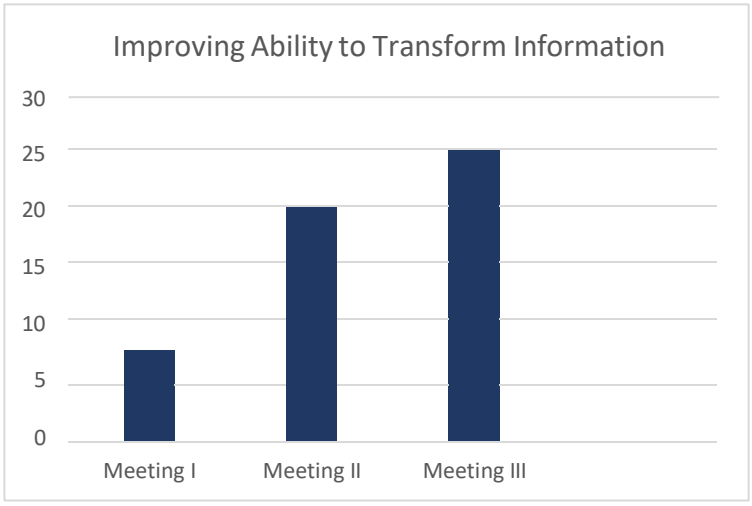

Figure 3: Graph of Ability Improvement Transforming Information

The fourth aspect is to conclude the solution to the problem. This aspect is the highest aspect of problem solving ability possessed by students. At the first meeting, there were 3 students who were able to conclude the solution to the problem. Students think critically and analytically so that they are able to evaluate, reaffirm, and prove their findings. However, in meeting II and meeting III there was an increase to 5 and 8 students.

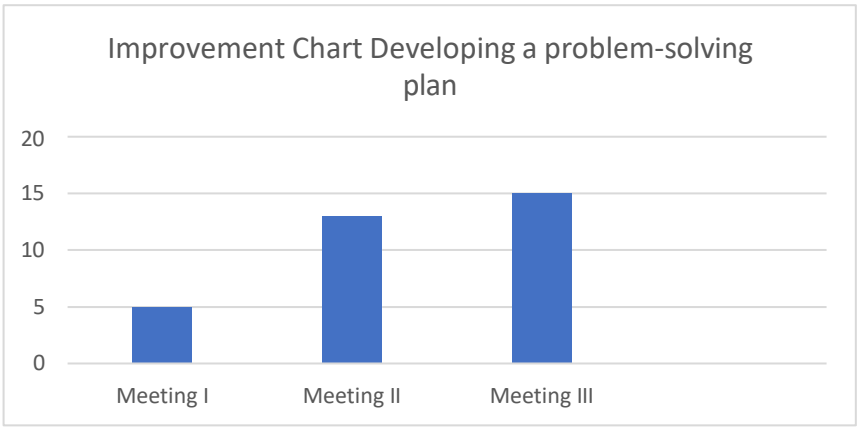

Figure 4: Graph of Improvement Developing a problem-solving plan

Based on the figure 5, it shows that there is an improvement in students' problem-solving abilities from the beginning of the first meeting to the third meeting.This result is consisten with the study explored the development of students' creative thinking abilities through Creative Problem Solving-based learning. The experimental class obtained a significant average value on the indicators of creative thinking fluency (78.00), flexibility (77.00), originality (54.73), 2) fluency control class (60.18), flexibility (55.48), originality (50.18) and conclude that creative problem-solving learning has an impact on students' creative thinking in all indicators with an increasing average value in the experimental class (Fatmawati et al., 2021). in addition, the study of implemented CPS in their learning and discovered that it helps students enhance their creative skills and adaptive reasoning (Kristanti et al., 2018). Similarly, research about utilizing creative problem-solving methods found a significant impact, demonstrating that through creative problem-solving, students are able to identify optimal solutions to their challenges (Wilany & Rahman, 2020)

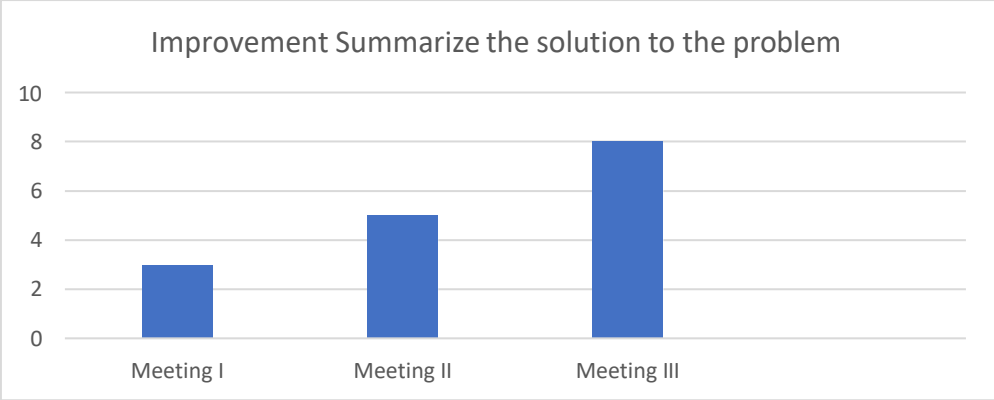

Figure 5: Graph of improvement in summarizing the solution to the problem

Implementation of Quizizz in an Effort to Accelerate Student Digital Literacy, Based on the results of the student questionnaire regarding the use of Quizizz, the material or content provided is in accordance with the learning outcomes. Based on the results of interviews and questionnaires, overall the use of Quizizz is very helpful for students in understanding material, reviewing material, working on questions, and understanding question conventions. Implementation of Quizizz in the lecture process, students get an interesting experience and increase the competitive spirit in students. This can be seen from the increase in student interest and motivation in completing the test.

At the time of the test, the lecturer must administer quizzes in 2 forms, namely Quizizz and paper. Of the 30 students, there were 6.67% or 2 people who did not have a personal cellphone, there were 33.33% or 10 students who had cellphones but failed to connect to the internet, and 60% or 18 people who successfully used Quizizz during the learning process. The following is an illustration of the utilization of the Quizizz application in learning.

Based on the results of interviews with students, information was obtained that using Quizizz in the learning process provides many positive benefits which include the learning process becoming more interactive, interesting, and accessible. In addition, the Quizizz application can be the right solution in increasing student involvement and interaction in learning in the digital era. The use of the Quizizz application can help improve teacher evaluation skills, accelerate the learning process, increase learning motivation, and increase learning efficiency and productivity. Thus, the utilization of the Quizizz application as a learning media can bring many benefits in the digital era. Therefore, educators can consider utilizing the Quizizz application to develop more effective and innovative learning.

The results of this study are consistent with the findings of the research conducted that Students believe that Quizizz is easy and flexible to use because the quizzes can be completed anytime and anywhere using a gadget. The gamification features in Quizizz enhance student motivation, making the quiz-solving experience more engaging and less monotonous (Asidiqi & Adiputra, 2024). The Quizizz application is expected to help students improve their mathematics learning outcomes. This media features an engaging interface that captures students' attention and motivates them to complete the various questions provided by the teacher. The screen displays students' scores in real-time, allowing them to track their ranking. This feature encourages students to actively engage with the questions given by the teacher (Lestari et al., 2022)

Students' Collaboration Abilities, Students During the observation activity, each observer conducted an assessment of the projects undertaken by the students. In this process, the observers filled out the observation sheets provided. The components assessed during the observation included lesson-opening skills, questioning skills, explanation skills, and classroom management skills.

Table 4. Observation of Student Learning Activities

Components Observed	**Score**
Students develop projects	3
Students effectively communicate new ideas	4
Students are responsive to new and diverse perspectives	3
Students incorporate input and feedback	3
Students adopt new ideas	3
Amount	11
Percentage	80%
Categories	Good

Based on table 3 presents the observation results of student learning activities based on five assessed components. Each component is scored on a scale of 1 to 5, with higher scores indicating better performance. Students develop projects that show Students received a score of 3, reflecting moderate performance in project development. And in component Students effectively communicate new ideas, this component achieved the highest score of 4, indicating that students were effective in expressing their new ideas. The third component is students are responsive to new and diverse perspectives, it shows that a score of 3 suggests that students showed average responsiveness to varying perspectives. Students incorporate input and feedback, Students scored 3 in this component, indicating moderate incorporation of feedback into their work. Students adopt new ideas, This component also received a score of 3, suggesting an average ability to embrace new ideas.

The total score for all components is 11, which corresponds to 80% when converted into a percentage. Based on the scoring criteria, the overall performance of the students falls into the "Good" category. This indicates that while students generally performed well, there is room for improvement in several areas to achieve higher levels of performance.

The results of this study are consistent with the findings of the research conducted that project based learning can develop and apply critical thinking skills while working in teams, demonstrating increased engagement and a deeper understanding of the ecosystem topic. However, there are areas for improvement, such as the need for more structured guidance and support to further optimize collaboration (Alfaeni et al., 2022).

Conclusions

Based on the results of the study, it shows that there is a development of students' problem solving skills by implementing the Case method assisted by Quizizz for 3 meetings. However, not all students succeeded in doing 4 aspects of problem solving skills. There was an increase in learning completeness, before the case method was implemented, there were 3 students or 10% who had very good KPM, there were 5 students or 16.67% who had good KPM, there were 5 students or 16.67% who had sufficient KPM, there were 8 students or 26.67% who had poor KPM, and there were 9 students or 30% who had very poor KPM. In the next stage after implementing the case method assisted by Quizizz, there was an increase in Student Learning Completeness, namely there were 6 students or 26.67% who had very good KPM, there were 8 students or 26.67% who had good KPM, there were 9 students or 30% who had sufficient KPM, there were 5 students or 23.33% who had poor KPM, and no students had very bad KPM. In addition to improving problem solving skills, students also gained an increase in digital literacy through the application of the Quizizz online learning application to support the learning process. It is hoped that during the learning process, lecturers and students can continue to collaborate to create creative and interesting learning innovations in exploring students' problem solving skills through case methods supported by digital media.

In the context of developing a technology-based curriculum, this finding has a significant impact on designing learning strategies that not only rely on traditional methods but also incorporate technology to enhance student engagement and motivation. The use of Quizizz as a platform to assess student understanding through gamified quizzes adds an important motivational element, making students more interested in solving the problems presented. Moreover, the case method, which focuses on real-world problem-solving, prepares students to be better equipped to face challenges beyond the academic environment. Based on the findings above, the researcher recommends the importance of digital technology training for students of the Economics Education program at Musamus University. Collaboration among various stakeholders is necessary to conduct technical guidance activities aimed at improving students' digital literacy. Additionally, there is a need for a variety of participatory and collaborative learning strategies to enhance problem-solving and collaboration skills, particularly for students from indigenous Papuan groups. Another recommendation is that faculty members should develop teaching materials using the case method that are tailored to the characteristics of Economics Education students

Acknowledgments

Thank you to LPPM Musamus University for supporting the implementation of this research activity. And also thank you to the economics education department and students who have supported the implementation of this research activity.

References

Akma, T., & Man, S. (2018). The Design of Student Worksheet Problem based Learning to Improve Problem Solving Ability of the Eighth-Grade Students Junior High School in Indonesia. *International Journal of Engineering & Technology*, *7*(4.30), 11–15. https://doi.org/10.14419/ijet.v7i4.30.21993

Alfaeni, D., Nurkanti, M., & Halimah, M. (2022). Kemampuan Kolaborasi Siswa Melalui Model Project Based Learning Menggunakan Zoom Pada Materi Ekosistem. *BIOEDUKASI (Jurnal Pendidikan Biologi)*, *13*(2), 143. https://doi.org/10.24127/bioedukasi.v13i2.6330

Alfiyah, A. H. (2020). Pengaruh Keterampilan Berpikir Kritis Terhadap Problem Solving Siswa Berbantu Media Pembelajaran. *Jurnal IT-EDU*, *5*(1), 236–246.

Amalia, R., & Radiansyah. (2023). Implementasi Model PBL Pendekatan TPACK Media Interaktif Untuk Meningkatkan Aktivitas dan Berpikir Kritis Siswa SD. *Jurnal Pendidikan Tambusai*, *7*(3), 23233–23242.

Andayani, E., Mustikowati, R. I., Setiyowati, S. W., & Firdaus, R. M. (2021). Case Method: Mengoptimalkan Critical Thinking, Creativity Communication Skills dan Collaboratively Mahasiswa Sesuai MBKM di Era Abad 21. *Jurnal Penelitian Dan Pendidikan IPS (JPPI)*, *16*(1), 52–60. https://ejournal.unikama.ac.id/index.php/JPPI/article/view/6973/3460

Asidiqi, D. F., & Adiputra, D. K. (2024). Persepsi Mahasiswa PGSD terhadap Implementasi Quizizz sebagai Media Kuis Interaktif Berbasis Artificial Intelligence. *Jurnal Basicedu*, *8*(1), 568–575. https://doi.org/10.31004/basicedu.v8i1.7168

Basori, Arifani, Y., Sahiruddin, Muhammad, R. N., & Oktaviani, D. K. (2023). Exploring EFL Teachers' Development of TPACK in A Lesson Study: A Case Study. *Journal of Asia TEFL*, *20*(3), 739–747. https://doi.org/10.18823/asiatefl.2023.20.3.18.739

Fatmawati, B., Jannah, B. M., & Sasmita, M. (2022). Students' Creative Thinking Ability Through Creative Problem Solving based Learning. *Jurnal Penelitian Pendidikan IPA*, *8*(4), 2384–2388. https://doi.org/10.29303/jppipa.v8i4.1846

Fatmawati, B., Wazni, M. K., & Husnawati, N. (2021). The Study of Worksheets Based on Creative Problem Solving for Biology Subjects. *Jurnal Penelitian Pendidikan IPA*, *7*(4), 701–706. https://doi.org/10.29303/jppipa.v7i4.831

Frolovičeva, V. (2024). Multidimensionality of Digital Research in Educational Science. *International Journal of Digital Literacy and Digital Competence*, *14*(1), 1–17. https://doi.org/10.4018/ijdldc.335853

Harlanu, M. (2024). *Determinant Model of Case Method and Team-Based Project Learning Models Through Collaborative Class Strategies with Off-Campus Partners*. *5*(1), 43–50. https://doi.org/10.46843/jiecr.v5i1.1424

Hasyim, M., & Andreina, F. K. (2019). Analisis High Order Thinking Skill (Hots) Siswa Dalam Menyelesaikan Soal Open Ended Matematika. *FIBONACCI: Jurnal Pendidikan Matematika Dan Matematika*, *5*(1), 55. https://doi.org/10.24853/fbc.5.1.55-64

Hodijah, S., Hastuti, D., & Zevaya, F. (2022). Implementasi model case method dalam meningkatkan inovasi pembelajaran mahasiswa dan kemampuan berpikir kritis pada mata kuliah teknik perdagangan Internasional. *Jurnal Paradigma Ekonomika*, *17*(2), 477–484. https://doi.org/10.22437/jpe.v17i2.20895

Ibda, H., Syamsi, I., & Rukiyati. (2023). Digital literacy competency of elementary school teachers: A systematic literature review. *International Journal of Evaluation and Research in Education*, *12*(3), 1609–1617. https://doi.org/10.11591/ijere.v12i3.24559

Kristanti, F., Ainy, C., Shoffa, S., Khabibah, S., & Amin, S. M. (2018). Developing creative-problem-solving-based student worksheets for transformation geometry course. *International Journal on Teaching and Learning Mathematics*, *1*(1), 13. https://doi.org/10.18860/ijtlm.v1i1.5581

Lestari, W., Supandi, A., Liberna, H., Ningsih, R., & Eva, L. M. (2022). Penerapan Aplikasi Quizizz Dalam Pembelajaran. *Community Development Journal : Jurnal Pengabdian Masyarakat*, *3*(3), 1462–1465. https://doi.org/10.31004/cdj.v3i3.7863

Mulyanti, N. M. B., Gading, I. K., & Diki. (2023). Dampak Penerapan Model Pembelajaran Inkuiri Terbimbing terhadap Hasil Belajar IPA dan Kemampuan Berpikir Kritis Siswa. *Jurnal Ilmiah Pendidikan Profesi Guru*, *6*(1), 109–119. https://doi.org/10.23887/jippg.v6i1.59276

Nugroho, A., & Bramasta, D. (2019). The Implementation of Case Study Method to Develop Students' Activities and Characters. *JSSH (Jurnal Sains Sosial Dan Humaniora)*, *2*(2), 175. https://doi.org/10.30595/jssh.v2i2.3349

Nurhayati, S., Fitri, A., Amir, R., & Zalisman, Z. (2024). Analysis of the Implementation of Training on

Digital-based Learning Media to Enhance Teachers' Digital Literacy. *AL-ISHLAH: Jurnal Pendidikan*, *16*(1), 545–557. https://doi.org/10.35445/alishlah.v16i1.4029

Nurhayati, S., Noor, A. H., Musa, S., Jabar, R., & Abdu, W. J. (2022). A Digital Literacy Workshop Training Model for Child Parenting in a Fourth Industrial Era. *HighTech and Innovation Journal*, *3*(3), 297–305. https://doi.org/10.28991/HIJ-2022-03-03-05

Situmorang, P. L., & Kaize, B. R. (2024). *Edukasi : Jurnal Pendidikan Dasar Analisis Kemampuan Pemecahan Masalah Dan Representasi*. *5*(1), 25–36.

Supriatnaningsih, R. (2021). Implementasi Project based Learning di Era Digital dalam perkuliahan Kaiwa Chujokyu Kohan. *Pembelajaran Bahasa Jepang Di Era Digita*, *1*(September). https://proceedingsminasan.fbs.unp.ac.id/index.php/minasan/article/view/10/4

Todino, M. D., Campitiello, L., & Di Tore, S. (2023). Simplexity to Improve Human-Machine Interaction in 3D Virtual Reality. *International Journal of Digital Literacy and Digital Competence*, *14*(1), 1–8. https://doi.org/10.4018/ijdldc.330423

Utari, D., & Muadin, A. (2023). Peranan Pembelajaran Abad-21 Di Sekolah Dasar Dalam Mencapai Target Dan Tujuan Kurikulum Merdeka. *Jurnal Pendidikan Islam Al-Ilmi*, *6*(1), 116. https://doi.org/10.32529/al-ilmi.v6i1.2493

Volpe, G. (2015). Case teaching in economics: History, practice and evidence. *Cogent Economics and Finance*, *3*(1). https://doi.org/10.1080/23322039.2015.1120977

Wilany, E., & Rahman, A. (2020). The Effect of Creative Problem Solving Method Towards EFL Students'reading Comprehension. *Anglo-Saxon: Journal of the English Language Education Study Program*, *11*(1), 102–109.