

IMPLEMENTATION OF PROBLEM BASED LEARNING AND TEACHING AT THE RIGHT LEVEL (TaRL) APPROACH COMBINED WITH GAMES FACTS ABOUT ME AS AN EFFORT TO IMPROVE STUDENTS' HIGHER LEVEL THINKING SKILLS

Jihan Roidah Affifah*, Siti Zubaidah, Rika Melati

PPG, Sekolah Pascasarjana, Universitas Negeri Malang

Jl. Semarang No. 5 Malang, Jawa Timur, Indonesia

*Corresponding author, email: jihan.roidah.2331297@students.um.ac.id

doi: 10.17977/um066.v3.i7.2023.1

Keywords

Problem based learning

TaRL

Higher order thinking skills

Educational games

Abstract

The implementation of the Merdeka Curriculum necessitates the development of high-level thinking skills, a crucial aspect of 21st-century competencies. This research aims to enhance students' higher-order thinking skills by applying the Problem-Based Learning (PBL) model in conjunction with the Teaching at the Right Level (TaRL) approach and educational games. The study focused on seventh-grade students at SMP Negeri 16 Malang. Employing a qualitative research design, the case study method was utilized to gain in-depth insights. Data were collected through observations conducted by the researchers and several observers during the learning activities. The findings from the observations indicated a significant improvement in students' higher-order thinking skills following the implementation of the PBL model and TaRL approach. Additionally, integrating educational games proved to be an effective strategy for engaging students and facilitating a deeper understanding of complex concepts. This research underscores the potential of innovative teaching methods to foster critical thinking and enhance educational outcomes in contemporary learning environments.

1. Introduction

The Curriculum Merdeka requires students to be able to apply high-level thinking skills. High-level thinking skills are high-level thinking which not only refer to the ability to memorize but also connect with logical skills (Ramadhani & Sukenti, 2023). In the current era of global competition, quality learning is required which provides opportunities for students to develop skills and abilities directly as preparation for facing global challenges. It should be noted that these high-level thinking skills are activities related to the cognitive level of the Revised Bloom's Taxonomy which includes analysis (C4), evaluation (C5), and creation (C6). Students need to train and develop higher-order thinking skills to improve their learning abilities and overcome everyday problems. Students who have high-level thinking abilities can decide what to believe and do, generate new ideas, make predictions, and solve problems. Higher order thinking skills require students to think more deeply and broadly about their learning (Wahyuni et al., 2021).

The Problem Base Learning (PBL) learning model is a learning strategy that supports students to develop critical thinking abilities and problem solving skills so that they can carry or use these skills throughout their lives. PBL is a model where learning is focused on students by providing real-world problems at the beginning of learning (Ramadhani & Sukenti, 2023). In PBL, students are placed as the focus in teaching and learning activities, students are given assignments that are relevant to real life contexts, and they are required to find solutions through various steps of analysis and problem solving. In implementing the problem-based learning (PBL) model, teachers use topics in the environment as discussions in learning which can encourage students to think critically when facing problems that occur around them. In addition, problem-based learning (PBL) encourages students to be more active and involved in their learning (Wulandari et al., 2022).

TaRL (Teaching at the Right Level) is a learning approach that orients students to carry out learning according to their cognitive level. Each student certainly has a different cognitive level, including low, medium and high levels of ability. The TaRL (Teaching at The Right Level) approach has been implemented in various countries, one of which is India. A learning innovation organization originating from India which introduced the TaRL (Teaching at The Right Level) approach based on research results which revealed that students' literacy and numeracy were lacking. With the TaRL (Teaching at The Right Level) approach, learning pays attention to the capacity and needs of students. By implementing the TaRL (Teaching at The Right Level) approach, teachers must carry out initial assessments as student diagnostic tests to determine the characteristics, needs and potential of students so that teachers know the students' abilities and initial development (Ningrum et al., 2023).

Learning media continues to develop along with advances in technology and the world of education. Technology and education are two things that cannot be separated. Learning that has media content as an effort to facilitate learning can stimulate students' intellectual activity. One of the interactive learning media that can be applied in learning is games. A game is an activity where participants, referred to as players, carry out competitive activities that are specifically designed with a goal and have certain rules. By integrating games educative is expected to involve more students in learning activities. Games can also build students' enthusiasm to do their best in order to become winners(Yulianti & Ekohariadi, 2020).

2. Method

Case study research method is a type of research that can answer several issues of a phenomenon. Case studies are used as a research design with a qualitative approach to evaluate events or situations in the real situation. Several steps in designing a case study are determining and describing research questions, selecting and determining research designs and instruments, determining data collection techniques and carrying out data collection activities, making data analysis, and preparing the final research report(Sri Yona, 2006).

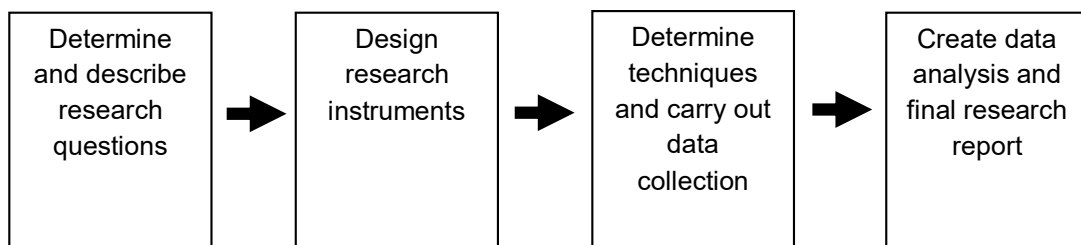


Figure 1. Research Procedures

The research subjects were class VII students at SMP Negeri 16 Malang. This research uses a qualitative approach that aims to describe and explain the results of improving students' high-level thinking abilities in terms of the process of asking, arguing and communicating. The technique used in collecting research data is observation carried out by researchers and learning practitioners. The student observation sheet uses a Likert scale with a score of 1 to 4 which is described in the following table(Budiaji, 2018).

Table 1. Likert Scale Scoring Criteria

Score	Information
1	Very less
2	Not enough
3	Good
4	Very good

Furthermore, in determining the percentage increase in the number of students who have been able to improve their higher level thinking skills, the following formula can be used.

$$\text{Percentage} = (\text{Final amount} - \text{initial amount}) / \text{initial amount} \times 100\%$$

3. Results and Discussion

3.1. Results

Implementation of *Problem Base Learning* with the TaRL approach combined with educational games (Fact About Me) aimed at improving students' high-level thinking skills. In the implementation process, the case study method is used which consists of several steps including determining and describing research questions, selecting and determining research designs and instruments, determining data collection techniques and carrying out data collection activities, making data analysis, and preparing the final research report. In the initial stage, observation activities and filling out questionnaires (diagnostic tests) are carried out to analyze the problems and initial needs of students. Observations and filling out questionnaires were carried out during learning activities at several meetings. During observation activities, it showed that students were still unable to develop high-level thinking skills to the maximum. This is shown by the small number of students who dare to ask questions, submit opinions and communicate the results of their work. The activities of asking and arguing are included in the critical reasoning aspect of high-level thinking skills. Then a research question was generated in the form of what efforts can be made to improve students' higher order thinking skills. In the aspect of students' cognitive abilities, during the observations carried out, the results showed that there were differences in cognitive levels between students. So when giving the same treatment with different cognitive levels it causes some students who have low cognitive levels to become less active. Under these conditions, a learning approach is needed that can increase students' activeness so that they can develop higher level thinking skills.

In the next stage, the design and research instruments are selected, where using observation data collection techniques, student observation sheets are needed. The observation sheet was designed using a Likert scale with a score range of 1 to 4. Based on the observation results, data was obtained on the increase in students carrying out activities of asking questions, giving opinions and communicating work results after implementing the PBL model with the TaRL approach combined with educational games.

Table 3. Observation Results of Increasing Students' Higher Level Thinking Abilities

No	Indicator	Before	After	Percentage increase
1	Asking question	4	12	200%
2	Submit an opinion or idea	5	16	220%
3	Communicate work results	4	12	200%

Meanwhile, the diagnostic test results produced a mapping of students with high, middle and low cognitive levels as follows.

Table 4. Results of Mapping Students' Cognitive Levels

No	Cognitive Level	The number of students
1	High	16
2	Middle	12
3	Low	7

3.2. Discussion

Observation activities focus on aspects of the ability to ask questions, express opinions and communicate the results of students' work. The ability to ask questions and argue is included in the critical reasoning aspect, while communicating work results is included in the communication aspect which is also a skill requirement in the 21st century. Students need to train and develop high-level thinking skills to improve their learning abilities and overcome everyday problems (Ramadhani &

Sukenti, 2023). Then, to determine students' cognitive abilities, cognitive and non-cognitive diagnostic tests are also carried out so that students can be mapped. Based on the results of observations and diagnostic tests, the cases found focused on developing students' high-level thinking abilities which can be trained by applying certain models, methods and learning approaches.

Based on the theory put forward by Ramadhani & Sukenti (2023) in the journal, the Problem Base Learning (PBL) learning model is a learning strategy that supports students to develop critical thinking abilities and problem solving skills so that they can carry or use these skills throughout their lives. Then obey Ningrum et al (2023) It was also explained that the TaRL (Teaching at The Right Level) approach can orient students to carry out learning according to their cognitive level. Based on this theory, PBL was implemented using the TaRL approach to improve students' high-level thinking skills. Apart from that, to add color to learning, educational games are also implemented, namely "Fact About Me", which can be integrated into the investigation syntax of the PBL learning model.

The results of observations using a Likert scale are due to reviewing the different cognitive levels of students so that the quality of questions, opinions and ways of communicating also vary. The observation results show that the quality of questions, opinions and ways of communicating are included in the range of very good and good. Then in general there was an increase in the number of students asking questions by 12 students, raising opinions increasing to 16 students, and communicating work results increasing to 12 students. This is by theories related to the PBL model which can develop high-level thinking skills and theories related to the TaRL approach which can make it easier for students to learn well.

4. Conclusion

Implementation *Problem Base Learning Approach Teaching at the Right Level (TaRL)* combined *games* Educative can improve students' higher order thinking skills. Based on the percentage increase in each aspect, namely asking questions 200%, asking opinions 220%, and communicating work results 200%. This shows that the implementation of PBL and TaRL can be said to be effective in improving students' higher order thinking skills.

Acknowledgments

We would like to express our gratitude for the direction and guidance provided by the field supervisor, Prof. Dr Siti Zubaidah, M.Pd and tutor Rika Melati, S.Pd during the Practical Field Experience (PPL) activity for Pre-Service Teacher Professional Education. Apart from that, we would also like to express our thanks to colleagues who have helped to discuss in the process of designing learning implementation.

5. References

- Budiaji, W. (2013). Skala pengukuran dan jumlah respon skala likert. *Jurnal ilmu pertanian dan perikanan*, 2(2), 127-133.
- Ningrum, M. C., Juwono, B., & Sucahyo, I. (2023). Implementasi pendekatan TaRL untuk meningkatkan motivasi belajar peserta didik pada pembelajaran fisika. *PENDIPA Journal of Science Education*, 7(1), 94-99.
- Yulianti, A., & Ekohariadi, E. (2020). Pemanfaatan media pembelajaran berbasis game edukasi menggunakan aplikasi construct 2 pada mata pelajaran komputer dan jaringan dasar. *IT-Edu: Jurnal Information Technology and Education*, 5(01), 527-533.
- Ramadhani, D. D. S., & Sukenti, D. (2023). Dampak penerapan model problem based learning dalam meningkatkan kemampuan berpikir tingkat tinggi siswa. *Journal of Education Action Research*, 7(3).
- Yona, S. (2006). Penyusunan studi kasus. *Jurnal Keperawatan Indonesia*, 10(2), 76-80.
- Wahyuni, K. S. P., Candiasa, I. M., & Wibawa, I. M. C. (2021). Pengembangan E-LKPD berbasis kemampuan berpikir tingkat tinggi mata pelajaran tematik kelas IV sekolah dasar. *PENDASI Jurnal Pendidikan Dasar Indonesia*, 5(2), 301-311.
- Wulandari, A., Patta, R., & Guru Sekolah Dasar, P. (2022). Peningkatan kemampuan berpikir tingkat tinggi melalui penerapan model problem based learning (PBL) Pada Siswa Kelas III. *Pinisi: Journal of Teacher Professional* <https://ojs.unm.ac.id/TPJ>