# Critical Thinking through Teaching at The Right Level Approach using Mind Mapping

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## 1. Abstract

The gap between active student and inactive student in group learning in social science learning make an ineffective learning process. Teachers make group composition differently, besides many students need the same frequency level of ability. This research aims to find out the increase of critical thinking ability through teaching at the right level using mind mapping. TaRL is an approach that uses homogeneity groups in the learning process. This collaborative action research used descriptive quantitative analysis. The sample consisted of 28 students from 5 grade Primary Schools in Yogyakarta. The research was divided into three groups of class, low-level group, medium-level group, and high-level group. The difference result of cycle 1 and cycle 2 shows that every group increased significantly. Every member had a different score on the critical thinking test. The findings showed that the TaRL approach using mind mapping increases critical thinking ability. Students become more active, creative, and easy to understand social studies learning after using mind mapping learning. This learning does not make students feel bored and not too monotonous in understanding learning so that learning becomes more fun.

**Keywords:** *Critical Thinking, TaRL, Mind Mapping, Social Science*

## 2. Introduction

Learning that involves all students is the dream of successful learning. Learning social

sciences in elementary schools formed by groups has not been able to facilitate the understanding of all group members. The learning brought by the teacher collaborates lecture and assignment methods, so that students who dominate are students who have good critical thinking ability, that is, they will be more precise in solving problems. Thus, learning has not been effective because it has not facilitated the understanding abilities of students who are still less active.

Critical thinking is an ability that is needed by students in dealing with progress and challenges. Students who have critical thinking skills can solve problems and actively communicate (Paul & Elder, 2007). Critical thinking does not mean that you have to constantly ask questions, but learning to think critically in schools can start from the basics first. The teacher can start by asking students to re-check the assignments or work they have done (Noddings & Brooks, 2016: 27).

Cottrel (2017: 2) shows several actions, including the following: asking and answering questions about clarification or challenges, identifying the focus of the problem, questions and conclusions, analyzing arguments, observing, concluding, and assessing decisions. The indicators for knowing the critical thinking skills of fifth-grade elementary school students in this study are detailed as follows: 1) Students' ability to ask questions with sub-aspects of students being able to ask reasons for the answers put forward. 2) Students' ability to formulate problem points and solve them with sub-aspects. Students can answer questions with question words why and how. 3) Students' ability to analyze arguments with sub-aspects students can find causes from an effect presented. 4) Students' ability to conclude to uncover data in solving problems with sub-aspects students can identify and classify.

Critical thinking skills can be facilitated by learning with the Teaching at The Right

Level (TaRL) approach, a learning approach that orients students to learn in ability-level-based learning designs (Banerjee et al., 2017; Pratham, 2020). The TaRL learning model does not organize students based on class level and age, but learning is designed in groups according to the characteristics of the student's ability levels. The ability level of students is the main reference in designing the learning process. The TaRL learning model is a learning model initiated by Pratham, an educational figure from India, which was developed specifically to optimize basic literacy and numeracy skills. Students with the same ability level are grouped in a learning process regardless of class level and age. The progress of learning outcomes is measured by carrying out regular evaluations.

Mind mapping makes the learning atmosphere fun. Students can express their creativity through colors and pictures that are by the material being studied Silberman (2006: 200). Mind mapping is a method of storing, organizing information in the form of a network that uses keywords and images, and will store memories specifically and encourage new thoughts and ideas (Buzan, 2007: 4). Mind mapping makes student scores higher than learning using conventional methods. Students become more active, creative, and easy to understand social studies learning after using mind mapping learning. This learning does not make students feel bored and not too monotonous in understanding learning, so that learning becomes more fun (Asfiyanti, et al. 2022).

## 3. Methods

The research was conducted using Collaborative Classroom Action Research with two cycles. The research subjects were fifth-grade elementary school students in Yogyakarta. This research model uses the research design of Kemmis and Mc Taggart (1988) which develops the basic concept of Kurt Lewin. The components of this study are planning,

action, observing, and reflection. Class teachers and tutors as collaborators in this classroom action research. Students have backgrounds, family background conditions, and intelligence that are different from one another.

Learning is carried out in the second semester with data collection instruments in the form of critical thinking ability test sheets taken from Inayah's research (2019) and learning observation sheets. Observations were made to observe the class directly during learning with the Mind Mapping-based TaRL approach. Tests are given to students to determine students thinking abilities.

This research was limited to the application of the TaRL approach using mind mapping in social studies content. The learning model used is problem-based learning. The content of the lessons delivered is the history of Indonesian independence. The data analysis technique was in the form of quantitative descriptive analysis by recapitulating the results of the work done by the students. The indicators observed were changes in the indicators of students' critical thinking skills with achievement criteria being 70 for the upper and middle groups and 50 for the lower groups.

## 4.    Results and Discussion

The Implementation of the TaRL Approach Learning was carried out in two cycles. The implementation of cycle I actions was carried out in 2 meetings. The material in cycle 1 is about the history of the arrival of western nations. The teacher carried out learning activities according to the scenario and lesson plan that had been made by the researcher. The teacher implemented and carried out the TaRL approach with the mind mapping method according to the steps already in the lesson plans. Whereas in cycle two material was given on the topic of Indonesian independence and maintaining Indonesian

independence.

**Table 1. Learning Outcomes between cycles**

| Indicator OF Critical Thinking | Cycle 1 | Cycle 2 |
|---|---|---|
| Asking question | 30 | 60,5 |
| Answer the questions asked | 32,5 | 46 |
| Formulate the main problem and solve it | 22,66 | 31,33 |
| Analyze arguments | 37,5 | 50,5 |
| Draw conclusions | 47 | 65 |

Based on the results above, it can be seen that the Mind Mapping-based TaRL approach can improve critical thinking skills. The components in mind mapping bridge students to think critically to solve problems presented based on the learning that has been implemented. The application of this approach can be seen in the use of mind mapping during learning with many activities that make students actively involved. These activities include using media in groups so that group discussion processes are carried out, in the form of games so that students play an active role in thinking and acting, and students are directly involved in building knowledge independently through mind mapping. Nirbita (2020) says that in learning activities, teachers must adhere to learning principles by facilitating students to build their knowledge independently.

The next indicator of critical thinking skills is the ability to formulate the main problems and solve them, and draw conclusions to reveal data in solving problems. Presentation of mind mapping teaches students to be able to formulate key issues and solve problems in everyday life. In addition, the problems presented come from the environment around students who are very close to students. As revealed by Florea & Hurjui (2015: 566) that critical thinking skills can be obtained from reading, writing, speaking, and listening

activities. Likewise, research by Sari, Handoyo, & Awalya (2020) found that mind mapping can improve students' critical thinking skills.

The next finding is related to indicators of critical thinking skills, namely the ability to analyze and evaluate arguments that are relevant in solving a problem. Through the process of asking questions, listening to opinions from group members, and completing mind mapping, students get various information materials to be analyzed and evaluated. Mind mapping facilitates students to identify and choose various answers choices that have been provided by stating the reasons. This is in line with research by Suardika, et al (2020) that mind mapping can provide opportunities for students to be active in seeking and sharing information from material that has been studied in groups regularly.
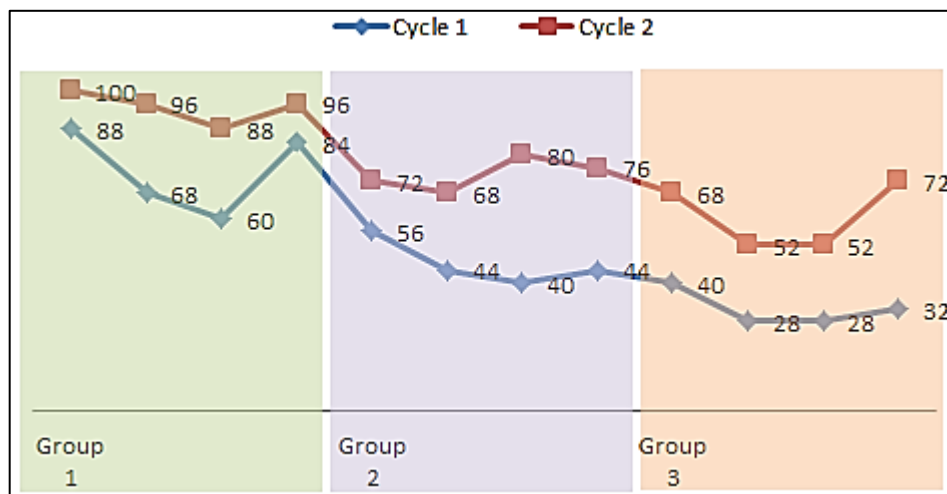


Figure 1. Value Increase in the group

Figure 1 is the acquisition of critical thinking values for group members. In Group 1, the upper group, all groups have scores that are over the limit of 70. They master the concepts

presented through mind mapping. In Group 2, the middle group could master the concept of assisted mind mapping, but there was one student who did not master it. Whereas in group 3, the lower level, they had sufficient mastery of the concept with the teacher mentoring process.

The increase in upper and middle-level students proved that they were able to solve problems that required critical thinking. Group members play an important role in understanding concepts because this group, they interact with each other to form a better understanding. In the lower level group, the authentic finding is that students' abilities at this level get better because they want to have good discussions, even with the teacher's assistance. This is corroborated by the research of Nuraini, et al. (2020) that critical thinking needs to be fostered continuously so that students are trained and skilled. This is to direct students to the next level of thinking. In the process mind mapping is very helpful in their discussions. Oktavianti, et al. (2020) confirm that mind mapping provides a significant improvement in the learning process, especially in group learning on social science topics. This grouping process is following the concept of the TaRL approach which groups students homogeneously according to their level of ability. The TaRL approach implemented understands concepts with various literacy presented by the teacher, this is in line with the research of Nachandiya, et al (2022) and Muin (2022) which is related to increasing literacy skills carried out in the learning process in class.

## 5.    Conclusion

The results of the study showed that the application of the mind mapping-based TaRL approach was able to improve the critical thinking skills of fifth-grade students. This was evident from the research results of each cycle, namely cycle I and cycle II, which had

increased and achieved indicators of success with improvement. The success of this learning is obtained from the learning process which shows the activeness of students in groups.

## 6.　References

Alessio, A. J., & Patton, K. A. (2007*). A year of programs for teens*. Chicago: American Library Assosiation.

Asfiyanti, N. A., Putri, S. E., Sahriani, S., Reskiana, R., Khoirunnisa, A., Ishak, K. A., & Hasibuan, A. P. G. (2022). Pembelajaran IPS Menggunakan Metode Mind Maping di Kelas VI Sekolah Dasar. *Indonesian Gender and Society Journal*, 3(1), 25–30. https://doi.org/10.23887/igsj.v3i1.42529

Banerjee, A., Banerji, R., Berry, J., Duflo, E., Kannan, H., Mukerji, S., Shotland, M., & Walton, M. (2017). From proof of concept to scalable policies: Challenges and solutions, with an application. *Journal of Economic Perspectives*, 31(4), 73–102.

Buzan, T. (2007). *Brain Child: Cara Pintar Membuat Anak jadi Pintar oleh Tony Buzan* (terjemah: Marselita Harapan). Jakarta:Gramedia.

Cottrel, S. (2017). *Critical thingking skills: effective analysis, argument and reflections*. London: Palgrave.

Florea, N. M., & Hurjui, E. (2015). Critical Thinking in Elementary School Children Critical thinking in elementary school children. *Procedia - Social and Behavioral Sciences*, 180(November), 565–572. https://doi.org/10.1016/j.sbspro.2015.02.161

Inayah, A. A. (2019). Pengembangan Media Permainan Dakon Bertema Daerah Tempat Tinggalku Untuk Meningkatkan Kemampuan Berpikir Kritis Dan Rasa Ingin Tahu Siswa Kelas IV SD. *Tesis*. Universitas Negeri Yogyakarta

Muin, F. (2022). Adapting Teaching At The Right Level (Tarl) In English Instruction. *Retco 11 International Seminar Unirow Tuban*

Nachandiya, N., James, B.H., Abdullahi, H., and Jutum, J.I. (2022). Impacts of Teaching at the Right Level (TaRL) Approach on Literacy and Numeracy Performance of Pupils in Adamawa State. *European Modern Studies Journal* (6) 3.

Nirbita, Betanika N. (2020).Critical Thinking For Accounting Students Using Problem Based Learning Integrating With Ict Media. *Economica: Jurnal Program Studi Pendidikan Ekonomi STKIP PGRI Sumatera Barat*, vol. 9, no. 1, 2020, pp. 1-6, doi:10.22202/economica.2020.v9.i1.3935

Noddings, N., & Brooks, L. (2016). Teaching controversial issues: the case for critical thinking and moral commitment in the classromm. *Teacher College Press*. Diambil dari https://ebookcentral.proquest.com/lib/unyebooks/detail.action?docID=4803407

Nuraini, N. L. S., Cholifah, P.S., Mahanani, P., Meidina, A.M. (2020). Critical Thinking and Reflective Thinking Skills in Elementary School Learning. *Proceedings of the 2nd Early Childhood and Primary Childhood Education (ECPE 2020)*, https://doi.org/10.2991/assehr.k.201112.001

Oktaviyanti, I., Nurhasanah, Juwandono, I.S., Rosyidah, A.N.K.(2020). The Effect of Periodization Based on Mind Mapping Learning Model on Students' Understanding in Social Studies in Primary School. *Proceedings of the 1st Annual Conference on Education and Social Sciences (ACCESS 2019)*, https://doi.org/10.2991/assehr.k.200827.064

Paul, R,. & Elder, L. (2006). Critical thinking : the nature of critical and creative Thought. *Journal of Development Education*, 30(2), 34–35.

Pratham (2020). Teaching at the Right Level: From concern with exclusion to challenges of implementation. *Background paper prepared for the 2020 Global Education Monitoring Report*.

Sari, D. R., Handoyo, E., & Awalya, A. (2020). Mind Mapping to Improve Critical Thinking Skills and Learning Achievement of Elementary School Student. *Journal of Primary Education*, 9(1), 7-13. https://doi.org/10.15294/jpe.v11i1.27773

Silberman, L. (2006). Active Learning: 101 Cara Belajar Siswa Aktif. Bandung: Nusamedia.

Suardika, I.K., Abindarda, Hasan, S., Halam, M. (2020). Apakah Model Pembelajaran Dengan Mind Mapping Dapat Meningkatkan Hasil Belajar Siswa Sekolah Dasar?. *Jurnal Riset Pendidikan Dasar*, 03 (2), (2020) 170-180. https://doi.org/10.26618/jrpd.v3i2.4073