

ANALYSIS OF THE IMPACT OF THE DISCOVERY LEARNING MODEL ON STUDENTS' LEARNING ACTIVITIES AND CRITICAL THINKING SKILLS

Miftahus Surur¹, Ahmad Zaki Emyus², Indah Yana³, Siti Karunia Dewi⁴

^{1,3,4} STKIP PGRI Situbondo/ Indonesia

² Universitas PGRI Argopuro Jember/ Indonesia

E-mail: ¹surur.miftah99@gmail.com *² Ahmadzakiemyus@gmail.com ³Indahyana543@gmail.com

⁴karuniadewi060102@gmail.com

*Corresponding Author

Article History: Received: Received: Oktober,, 10, 2024; Accepted: nopember, 5 2024; Published: Desember 30, 2024

ABSTRACT

This research aims to determine the effect of model Discovery learning on enhanced critical thinking ability and students' activation abilities. The methods used in this study are literature review methods to analyze the influence of advanced learning models. Data collection techniques using documentation, by searching journals that are relevant to this topic through Google Scholar with the last 5-year period from 2019-2023. Based on the result of 10 analyses of the article that it was obtained Information; 1) the application of the discovery learning model can provide a profound influence in improving and developing students' critical thinking skills; 2) the application of the discovery learning model can provide a profound influence in improving students' learning activities. The conclusion of this study is that fact a discovery learning model can develop critical thinking ability and students' learning activities.

Keywords: *Learning Model, Discovery Learning, Critical Thinking, Students' Learning Activities*



This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

INTRODUCTION

The curriculum is the starting point to the end of the learning experience and must be evaluated dynamically, innovatively, and periodically according to the times (Cholilah et al., 2023). The curriculum imposed by the current government is independent, but, in the field, several schools still use the 2013 curriculum. The Merdeka Curriculum was developed as an effort to deal with the learning crisis during the pandemic. Simplification of the curriculum, liberation and provision of creative space for teaching units to manage their main lessons in making lesson plans are the concepts of an independent curriculum (Ali Mursyid et al., 2023). Although different, the similarity lies in the demands of students' critical thinking in learning.

Student critical thinking is a process and ability used to understand concepts and synthesize and evaluate information obtained or information produced. The ability to think critically can improve their problem-solving skills and increase their potential so that they can achieve educational goals (Nadhiroh & Anshori, 2023). Therefore, educators must always be able to foster students' critical thinking in receiving the material provided and especially establish learning methods to activate students.

In addition to the ability to think critically, there is an important factor in learning, namely student learning activities. To develop critical thinking skills through the learning process, teachers need to encourage students to be actively involved in discussions, ask and answer questions, think critically, and

explain every answer posed. Student participation in the learning process is defined as the learner playing an active role in all classroom activities including brainstorming, taking quizzes or exams, conducting surveys or observations, group debates, presentations, and speeches. The ability of students to think critically is closely related to the activeness of students in the classroom, because students with critical thinking skills will tend to be active in conveying ideas and opinions when learning in class.

During learning, there are several problems regarding the low ability to think critically and actively learn, including there are still students who do not pay attention when the teacher delivers the material if given assignments only some students do and some cheat, students are less directly involved during the learning process. Resulting in learning outcomes that have not been maximized or do not reach the minimum completeness criteria.

Responding to these problems, of course, teachers must be able to choose innovative and interesting learning methods so that students are enthusiastic and active and can stimulate students to think critically. Teachers as elements that play a role in regulating learning activities in the classroom need to design a learning model that can involve all activities in the class. Some learning models that involve student activities in training economic critical thinking skills are discovery learning models. Based on the above problems, researchers understand that choosing the right learning method will overcome these problems, so the discovery learning method is considered relevant to overcome the above problems. Discovery Learning is a learning model that puts students at the center of learning and involves students' ability to discover concepts (Muhammad & Juandi, 2023).

To explore material information, so that students can find knowledge independently in learning must involve students' abilities to the maximum (Mursyid et al., 2023). Pembelajaran yang dimaksud adalah discovery learning. According to opinion Bahtiar et al., (2022) The discovery learning model is a learning model where students are involved to be able to organize themselves. According to Cahyaningtyas et al., (2018) students are emphasized to discover for themselves the concept of knowledge in Discovery learning. Through Discovery Learning students are allowed to be actively involved in discovering concepts through exploration, discovery, and experimentation (Muhammad & Juandi, 2023). The Discovery Learning model is a learning strategy that significantly contributes to improved performance and learning outcomes (Hasanah & Pembelajaran, 2023). So it can be concluded that Discovery Learning is a learning model that focuses on students and emphasizes that students can find their own concepts by exploring, discovering, and experimenting.

The purpose of this study is to describe the influence of discovery learning learning models in improving students' critical thinking skills and learning activities by using. So that the results can be a reference in an effort to improve learning outcomes and also increase the active learning climate. This research certainly contributes to improving students' critical thinking skills and learning activities, and specifically for teachers the application of this learning model will change the paradigm from teacher centered to student centered.

METHODS

This study used systematic literature review method. Conducted by reviewing and analyzing the results of research that has been done before. The articles used are articles with the last 5 years, namely from 2019-2023. Search and collect data by searching e-journals using Google Scholar. Keywords in journal search are: discovery learning, critical thinking skills and student learning activities. Of the 50 articles we reviewed, 10 articles were produced. This suitability is reviewed from the aspect of conformity with predetermined keywords, to produce relevant analysis and reviews.

RESULTS AND DISCUSSION

Results

Based on the results of the article review according to the criteria in the research method, 5 articles were found as follows:

Table 1. Results of literature review *discovery learning* on improving students' critical thinking skills.

No.	Penulis	Metode	Hasil/Dampak Pembelajaran
1	Bahtiar, Maimun, Baig Lily Anggriani W (2022)	Quantitative with One-group pre-test-post-test design	The application of discovery learning in this article has been shown to improve students' conceptual and procedural knowledge, improve inquiry learning skills, improve comprehension, engage students in challenging cognitive activities, and keep students interested.
2	Suajatul Laeni, Zulkarnaen, dan Shelly Efwinda (2022)	Quantitative with Posttest Only Control design	The application of the discovery learning model in this article shows that it can improve students' ability to solve problems, increase learning motivation, encourage active student involvement, train students to be independent and not rash in doing problems, and help in the process of developing students' critical thinking attitudes.
3	H. Agus Rustamana (2020)	Qualitative with class action design (action research)	The application of the discovery learning learning model in this article has had a positive effect on improving students' critical thinking skills. The results showed a significant improvement in students' critical thinking skills after three trial cycles of the model, with the percentage increase reaching 90% in the third cycle.
4	Fahmi, Iswan Setiadi, Diah Elmawati, Sunardi (2019)	Qualitative with a case study approach	The discovery learning learning model has a positive influence on improving students' critical thinking skills. In this model, students are invited to make their own discoveries and formulate hypotheses related to the problems encountered. This helps students in practicing interpretation, analysis, and evaluation skills, which are aspects of critical thinking skills.
5	Grisselda Vania Putri, Erna Noor Savitri, Hernis Setiana (2023)	Qualitative with classroom action research	The use of the Discovery Learning learning model has been proven to show a significant improvement in the category of students' critical thinking skills such as an increase in the percentage of very high categories and an increase in student learning outcomes that reach a level of completeness. In addition, the Discovery Learning model can also help students develop critical thinking skills in dealing with various problems in daily life

Table 2 Literature review of articles on the influence of the discovery learning model on increasing student activity.

No.	Penulis	Metode	Hasil/Dampak Pembelajaran
1	Registiani Awaliyah, Dewi Surani, Ratu Milawati (2023)	descriptive quantitative that is experimental	In this article, it can be perceived that the discovery learning learning model in increasing students' mathematical activity "Agree" can increase students' learning activity according to the criteria for scoring learning activity with a result of 7.52. This is based on the results of an analysis of seven indicators of student learning activity. In the implementation of learning, teachers are advised to always make students active when implementing learning, so that it affects the increase in student activity.
2	Khoirunnisya, Nailariza Umami (2023)	Experiment using Posttest Only Control Design	The use of the discovery learning model has a positive and significant influence on increasing student learning activity in grade VIII of SMP Negeri 1 Boyolangu. Emphasis on active learning, the development of meaningful learning, and the capacity to change attitudes and values towards the subject and self as problem solvers.
3	Made Gautama Jayadiningrat, Kadek Agus Apriawan Putra,	Kualitatif yang bersifat tindakan kelas	The application of the discovery learning model can increase student learning activities and improve student learning outcomes, This can be seen from the increase in the average percentage of student learning activities by 10% from 74% in the moderately active category in

	Putu Septian Eka Adistha Putra (2019)		cycle I to 84% or in the very active category in cycle II and it can be seen from the increase in the average percentage of student learning outcomes by 13% from 75% in the moderately good category in cycle I to 88% or are in the very good category in cycle II.
4	Iin Puji Rahayu1 , Agustina Tyas Asri Hardini (2019)	Quantitative with a classroom action approach	The application of the discovery learning model in this article has succeeded in increasing student activity and learning outcomes from pre-cycle to cycle II because in applying it according to the syntax and teachers have succeeded in provoking students to be actively involved in learning by discovering and organizing their own material concepts so that students can understand the subject matter freely.
5	Soesilowaty Halim , Didimus Tanah Boleng, P.M Labulan (2019)	Quasi experimental design with pretest-posttest control group design	The application of the discovery learning model has been proven to increase student learning activities, increase learning motivation, and value student learning outcomes.

Discussion

According to the results of the literature review conducted, a study was obtained on the Discovery Learning learning model which affects improving:

Students' Ability to Think Critically

The Discovery Learning learning model is suitable learning to improving students' critical thinking skills because the learning needed today is learning that involves students actively in developing their ideas but still under the guidance of the teacher. This is in line with the opinion (Eskris, 2021) explained that Discovery learning is one of the learning models that can improve students' thinking skills where students find and solve learning problems themselves and the teacher as the facilitator. Critical thinking is the main foundation of becoming intelligent humans because they manage to solve the problems faced through a long process until the right solution to the problem is found (Rini et al., 2021).

The syntax in the discovery learning model is: providing stimulus, problem identification, data collection, data processing, proving, and concluding (Aprilianingrum & Wardani, 2021). According to Edi & Rosnawati (2021) The characteristics of the discovery learning model are (1) the teacher sets the stage for knowledge discovery, (2) the teacher provides opportunities for exploration and independent thinking, (3) learners accept the challenge of discovering things with their knowledge, (4) high student participation and interaction, (5) learners use higher-order thinking skills consisting of analysis, synthesis, and evaluation.

According to the results of research that has been conducted by Bahtiar et al., (2022) concluded that there is an influence of the discovery learning model through integrated science practicum activities on students' critical thinking skills. Students who are taught with the discovery learning model through integrated science practicum activities have high critical thinking skills compared to students taught with conventional models.

In addition, according to the results of research that has been conducted by Laeni et al., (2022) It can be concluded that the results of the Ho test have been rejected and Ha accepted, so it can be concluded that there is an influence of the discovery learning model on the critical thinking ability of grade X high school students impulse and momentum material. The application of the Discovery Learning method in the learning process can train students' critical thinking skills because what is found in the search process will be easier to remember and easier to form understanding (Setiadi & Elmawati, 2019). Prasetyo & Abduh (2021) suggests that the application of the discovery learning model consists of six main steps (1) Stimulation, starting the teaching process activities by asking questions, encouraging reading books, and other learning activities that lead to preparation for problem solving, (2) Problem statement, which provides opportunities for students to identify as many problem agendas as possible that are relevant to the subject matter, then one of them is selected and formulated in the form of hypotheses (temporary answers to problem questions), (3) Data collection, providing opportunities for students to collect as much information as relevant as possible to prove whether or

not the hypothesis is true, (4) Data processing, processing data and information that has been obtained by students through discussion, observation, and so on and then interpreted, (5) Verification, which is to conduct a careful examination to prove whether or not the hypothesis set out earlier is associated with the results of data processing, (6) Generalization, drawing a conclusion that can be used as a general principle and applies to all the same events or problems, taking into account the results of verification.

This is because the application of the Discovery Learning learning model in learning emphasizes that students are involved in delivering material so that the application of the discovery learning model can increase individual discovery abilities in addition so that learning conditions that were originally passive become more active and creative (Elvadola et al., 2022). Setiadi & Elmawati (2019) concluded that the application of the Discovery Learning method in the learning process can train students' critical thinking skills because what is found in the search process will become more memorable and easier to form understanding. The same is the case with the results of research from Putri et al., (2023) which shows that the Discovery learning model is proven to improve students' critical thinking skills, where the success indicator of this study is an increase in the average value of mastery of critical thinking skills during learning in each cycle.

Student Learning Activities

Student learning activity can be seen from student involvement in expressing ideas or ideas during the various teaching and learning processes, such as using lecture methods, discussions, responding to material, and making reports on the implementation of tasks. Salo (2017) argues that students' activeness in participating in the teaching and learning process can be seen in (a) participating in carrying out their learning tasks, (b) engaging in troubleshooting, (c) asking other students or teachers if they do not understand the problem at hand; (d) attempt to find the various information necessary to solve the problem; (e) train oneself in solving problems or problems; and (f) assess his or her abilities and the results obtained.

According to Awaliyah et al., (2023) the discovery learning learning model is one alternative in learning to increase student learning activity. This is also supported by the results of research conducted Khoirunnisya & Umami, pada 2023 It can be concluded that by applying the Discovery learning model in science learning can improve the critical thinking skills of SMP Negeri 20 Semarang students. Based on the results of data analysis conducted by Rahayu et al., (2019) The discovery learning model can improve student activeness and student learning outcomes. The percentage of student activity initially only reached 22.73% with only 5 students classified as active, then increased in the first cycle to 54.55% with 12 students classified as active (Rahman et al., 2023).

Evayani (2020) said that the discovery learning model provides an increase in student activeness including Growing and instilling an attitude of inquiry, knowledge lasts a long time and is easy to remember, discovery learning outcomes have a better transfer effect, improve student reasoning and free thinking skills, train students' cognitive skills to find and solve problems without the help of others. Putri concludes that with the application of the discovery learning model students can actively participate during the learning process and from a problem students can find the material taught so that students can more easily understand the learning material.

The Discovery Learning model teaches children to actively find their material concepts or search for information on their own without prior information from the teacher so that what has been discovered by the child himself will be more durable in memory (Rahayu et al., 2019). The results of research conducted by Halim et al. in 2019 produced a comparison of learning activities of the Discovery Learning model with conventional learning activities obtained a sig value $(0.001) < 0.05$, which means that there is a real difference between the two learning activities, there is an influence of the Discovery Learning learning model on the Learning Activities of grade X students of SMAN 3 Samarinda. The influence of the Discovery Learning learning model is positive on the high learning activity of students.

Based on the conclusions of the data analysis results Istikomah dkk., t.t.) With the application of the discovery learning model, students are more interested and motivated to follow learning compared to following learning before action because learning is packaged in groups and teachers provide rewards

for students who actively ask or answer questions, respond to the work of other groups and for groups who are comprehensive.

Analysis results from Aisy (2022) The use of the discovery learning method can increase the activeness of grade 5 students of SD Negeri Boro in the subject of Bahasa Indonesia. An increase in student activeness is shown by an increase in the percentage of student learning activity. In the first cycle, the percentage of student activity reached 31.29%. Then, when continued in cycle II, the percentage of student activity increased to 71.83%. This shows that the percentage of student activity has increased and achieved predetermined success indicators.

CONCLUSION

Based on the literature review results, it can be understood that the Discovery Learning model affects students' critical thinking skills and learning activities. Activities such as problem analysis, hypothesis making, and data collection, which are integral to critical thinking, are effectively implemented through the stages of Discovery Learning, which support the development of students' critical thinking skills. Student learning activities are elevated where this is seen in exploring topics, asking questions, and developing solutions, encouraging a shift from factual memory to conceptual understanding. So it can be concluded that the discovery learning model is very effective in promoting the improvement of learning activities and students' critical thinking skills.

REFERENCES

- Ali Mursyid, Chyрил Futuhana Ahmad, Anggun Kurnia Dewi, & Agnes Yusra Tianti. (2023). Penerapan Kurikulum Merdeka dalam Rencana Pelaksanaan Pembelajaran di Purwakarta. *Al-Fahim : Jurnal Manajemen Pendidikan Islam*, 5(1), 173–187. <https://doi.org/10.54396/alfahim.v5i1.566>
- Aisy, R. R. (2022). Penggunaan Metode Discovery Learning Untuk Meningkatkan Keaktifan Belajar Siswa Kelas 5 Sd Negeri Boro. *Jurnal Kiprah Pendidikan*, 1(4), 279–299. <https://doi.org/10.33578/kpd.v1i4.81>
- Aprilianingrum, D., & Wardani, K. W. (2021). Meta Analisis: Komparasi Pengaruh Model Pembelajaran Problem Based Learning dan Discovery Learning dalam Meningkatkan Kemampuan Berpikir Kritis Siswa SD. *Jurnal Basicedu*, 5(2), 1006–1017. <https://doi.org/10.31004/basicedu.v5i2.871>
- Awaliyah, R., Surani, D., & Milawati, R. (2023). Pengaruh Metode Discovery Learning Terhadap Keterampilan Keaktifan Matematis Siswa. *Jurnal Lebesgue : Jurnal Ilmiah Pendidikan Matematika, Matematika Dan Statistika*, 4(1), 273–285. <https://doi.org/10.46306/lb.v4i1.228>
- Bahtiar, B., Maimun, M., & Baiq Lily Anggriani W. (2022). Pengaruh Model Discovery Learning Melalui Kegiatan Praktikum IPA Terpadu Terhadap Kemampuan Berpikir Kritis Siswa. *Jurnal Pendidikan Mipa*, 12(2), 134–142. <https://doi.org/10.37630/jpm.v12i2.564>
- Cahyaningtyas, D., Wardani, N. S., & Yudarasa, N. S. (2018). *Upaya Peningkatan Hasil Belajar dan Sikap Kerjasama Siswa Melalui Penerapan Discovery Learning*. 59–67.
- Cholilah, M., Tatuwo, A. G. P., Komariah, & Rosdiana, S. P. (2023). Pengembangan Kurikulum Merdeka Dalam Satuan Pendidikan Serta Implementasi Kurikulum Merdeka Pada Pembelajaran Abad 21. *Sanskara Pendidikan Dan Pengajaran*, 1(02), 56–67. <https://doi.org/10.58812/spp.v1i02.110>
- Edi, S., & Rosnawati, R. (2021). Kemampuan Berpikir Kritis Siswa dalam Pembelajaran Matematika Model Discovery Learning. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 5(2), 234. <https://doi.org/10.33603/jnpm.v5i2.3604>
- Eskris, Y. (2021). Meta Analisis Pengaruh Model Discovery Learning dan Problem Based Learning terhadap Kemampuan Berfikir Kritis Peserta didik Kelas V SD. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, 2(1), 43–52. <https://doi.org/10.33487/mgr.v2i1.1722>

- Elvadola, C., Lestari, Y. D., & Kurniasih, T. I. (2022). Penggunaan Model Pembelajaran Discovery Learning dalam Meningkatkan Hasil Belajar Siswa Sekolah Dasar. *Pedagogia: Jurnal Ilmiah Pendidikan Dasar Indonesia*, 4(1), 31–38. <https://doi.org/10.52217/pedagogia.v4i1.732>
- Evayani, N. L. P. (2020). *Penerapan Model Pembelajaran Discovery Learning Dengan Metode Outdoor Dalam Meningkatkan Aktivitas Dan Hasil Belajar*. <https://doi.org/10.5281/ZENODO.4284193>
- Hasanah, L. S., & Pembelajaran, M. (2023). *Model Pembeajaran Discovery Learning Dalam Meningkatkan Hasil Belajar Peserta Didik Pasca Pandemi Covid-19*. 17(1).
- Istikomah, N., Relmasira, S. C., & Hardini, A. T. A. (t.t.). *Penerapan Model Discovery Learning Pada Pembelajaran Ips Untuk Meningkatkan Keaktifan Dan Hasil Belajar Kognitif Siswa Sekolah Dasar*.
- Khoirunnisya, K., & Umami, N. (2023). Penerapan Model Pembelajaran Discovery Learning Dalam Meningkatkan Keaktifan Belajar Siswa Smp Negeri 1 Boyolangu. *ARMADA : Jurnal Penelitian Multidisiplin*, 1(8), 879–883. <https://doi.org/10.55681/armada.v1i8.769>
- Laeni, S., Zulkarnaen, Z., & Efwinda, S. (2022). Model Discovery Learning terhadap Kemampuan Berpikir Kritis Siswa SMA Negeri 13 Samarinda Materi Impuls dan Momentum. *Jurnal Literasi Pendidikan Fisika (JLPF)*, 3(2), 105–115. <https://doi.org/10.30872/jlpf.v3i2.935>
- Muhammad, I., & Juandi, D. (2023). *Model Discovery Learning Pada Pembelajaran Matematika Sekolah Menengah Pertama : A Bibliometric Review*. 11(1), 74–88.
- Nadhiroh, S., & Anshori, I. (2023). *Implementasi Kurikulum Merdeka Belajar Dalam Pembelajaran Pendidikan Agama Islam*. 4(1), 56–68.
- Pendidikan, J., Humaniora, S. D. A. N., Ermawati, D., Anisa, R. N., Saputro, R. W., & Azura, F. N. (2023). *Pengaruh Model Discovery Learning Terhadap Hasil Belajar Matematika Siswa Kelas Iv Sd 1 Dersalam The Effect Of Discovery Learning Model On Mathematics Learning*. 2, 82–92.
- Prasetyo, F., & Kristin, F. (2020). Pengaruh Model Pembelajaran Problem Based Learning dan Model Pembelajaran Discovery Learning terhadap Kemampuan Berpikir Kritis Siswa Kelas 5 SD. *DIDAKTIKA TAUHIDI: Jurnal Pendidikan Guru Sekolah Dasar*, 7(1), 13. <https://doi.org/10.30997/dt.v7i1.2645>
- Prasetyo, A. D., & Abduh, M. (2021). Peningkatan Keaktifan Belajar Siswa Melalui Model Discovery Learning Di Sekolah Dasar. *Jurnal Basicedu*, 5(4), 1717–1724. <https://doi.org/10.31004/basicedu.v5i4.991>
- Putri, G. V., Savitri, E. N., & Setiana, H. (2023). *Lambda: Jurnal Pendidikan MIPA dan Aplikasinya Lembaga "Bale Literasi."* *Lambda Journal, Lembaga "Bale Literasi"*, 3(1), 2809–4409.
- Putri, E. N. (t.t.). *Peningkatan Keaktifan Dan Hasil Belajar Melalui Model Pembelajaran Discovery*.
- Rahayu, I. P., Tyas, A., & Hardini, A. (2019). *Penerapan Model Discovery Learning untuk Meningkatkan Keaktifan dan Hasil Belajar Tematik*. 3(3), 193–200.
- Rini, A. P., Sa'diyah, I. K., & Muhid, A. (2021). Model Pembelajaran Guided Discovery Learning, Apakah Efektif dalam Meningkatkan Kemampuan Berfikir Kritis Siswa? *EDUKATIF : JURNAL ILMU PENDIDIKAN*, 3(5), 2419–2429. <https://doi.org/10.31004/edukatif.v3i5.641>
- Setiadi, I., & Elmawati, D. (2019). *European Journal of Education Studies Discovery Learning Method For Training Critical Thinking Skills Of Students*. 342–351. <https://doi.org/10.5281/zenodo.3345924>
- Salo, Y. A. (2017). Pengaruh Metode Discovery Learning Terhadap Keaktifan Belajar Siswa (Studi Quasi Eksperimen Kelas Vii Smpn 6 Banda Aceh). *Jurnal Penelitian Pendidikan*, 16(3), 297–304. <https://doi.org/10.17509/jpp.v16i3.4825>