Volume 8 Issue 6 (2024) Pages 1983-1991
Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini
ISSN: 2549-8959 (Online) 2356-1327 (Print)

The Effectiveness of the Ethno-Nationalist-Based POGIL Model in Increasing the Value of Patriotism and Discipline in Children

Suhari[1]✉,Ibnu Graha Ade Panggestu[2], Harlanda Almaratus Azzahra[3], Rida Novtrisa[4], Kinanda Pandu Listanto[5], Tomi Apra Santosa[6]
Universitas PGRI Adibuana Surabaya, Indonesia (1,2,3,4,5)
Akademi Teknik Adikarya, Indonesia(6)
DOI: 10.31004/obsesi.v8i6.6153

Abstract
The study aims to determine the effect of the ethno-nationalist-based Process Oriented Guided Inquiry Learning (POGIL) model to increase the value of patriotism and discipline in children through meta-analysis. The inclusion criteria in this study are a) research data obtained from Google Scholar; ERIC, ProQuest, Wiley, DOAJ and Springer; b) research must be indexed by SINTA, Scopus or journal indexing portals managed by the Ministry of Higher Education, Research and Technology equivalent to DOAJ, EBSCO and Index Copernicus, c) the topic must be relevant, d) research published in 2022-2024, e) research publications must have a value of (r), (t), or (F), f) research samples must be more than 25 children. The meta-analysis research uses the JASP application for data analysis. The results of the study concluded that there was a significant influence of the effectiveness of the Ethno-nationalist-Based Process Oriented Guided Inquiry Learning Model on the value of the character of love for the homeland and discipline in children with a strong influence category ($p < 0.001$; rRE = 1.034). Furthermore, no publication bias was detected in this study, so it can be scientifically accounted for. These findings show that the Effectiveness Model of Process Oriented Guided Inquiry Learning Based on Ethno-nationalism effectively increases the Character Values of Love for the Fatherland and Discipline in Children.

Keywords: *POGIL Model; Ethno-Nationalist; Love of Country Character; Discipline*

Copyright (c) 2024 Suhari, et al.

✉ Corresponding author: Suhari
Email Address: suhari@unipasby.ac.id (Surabaya, Indonesia)
Received 1 September 2024, Accepted 31 December 2024, Published 31 December 2024

Introduction
Patriotism and discipline are the two main pillars in the formation of the character of the young generation, who are resilient and have integrity(Wang & Feng, 2024; Syakroni et al., 2024). Patriotism, as a form of love for the homeland, is not only a moral foundation in the nation's life but also reflects loyalty and a sense of belonging to the nation. Meanwhile, discipline serves as the key to building an attitude of responsibility, perseverance, and order in children's lives(Kirch & Sadofsky, 2021). Education strategically instils these values, especially in children as the nation's next generation. With a curriculum designed to contain elements of patriotism and discipline, the learning process can be an effective means to build a generation that is not only intellectually intelligent but also strong in national values and morality (Karabulut, 2024);

DOI: 10.31004/obsesi.v8i6.6729

The importance of instilling the values of patriotism and discipline is increasing in the era of globalization which offers easy access to culture and information across borders(Pohan et al., 2024; Orjuela, 2025). These challenges often give rise to the potential erosion of national identity and weak discipline among the younger generation. Lack of awareness of national values can weaken national solidarity and a sense of social responsibility(Ningrum et al., 2020). By integrating character education based on patriotism and discipline from an early age, children can be equipped with relevant values to face the changing times without losing their identity as part of a dignified nation. This not only strengthens social cohesion but also ensures that each individual has an active role in the progress of the nation (Wang & Feng, 2024; Donkoh et al., 2024).

Education that instills patriotism and discipline also has an impact on the development of a strong and competitive national character. Children who have a sense of love for the homeland and a disciplined attitude will grow up to be citizens who are able to contribute positively to society(Silfianah et al., 2024). Not only do they have a deep understanding of history, culture, and national values, but they are also able to apply the principles of discipline in their daily lives (Zahara et al., 2023). Thus, education not only plays a role as a means of knowledge transfer, but also as a medium of character transformation, which makes patriotism and discipline the main foundation in building a highly competitive future nation in the global arena.

Globalization has a significant impact on various aspects of life, including on national values and discipline of the younger generation(Wang & Feng, 2024). Ease of access to information through technology and social media introduces diverse foreign cultures, which are not always in line with local values. In this context, children often become more vulnerable to global cultural influences that can erode love for the homeland(Bekhruz, 2024; Hand, 2011). Interest in modern lifestyles from abroad often replaces appreciation for local and national culture. As a result, national identity is slowly marginalized, and the sense of pride as part of the nation itself is weakened. This phenomenon is a serious challenge to efforts to form the character of the younger generation based on patriotic values (Hariyadi et al., 2023; Nurtamam et al., 2023; Wang & Feng, 2024; Pateda et al., 2024).

In addition, globalization also has an impact on decreasing children's discipline, especially in facing the demands of an increasingly dynamic life. The digital age, for example, has made it easier to access instant entertainment and information, which often distracts children from their primary responsibilities, such as learning or carrying out daily obligations. In the long run, this can decrease their ability to build discipline habits, such as managing time, respecting rules, or working hard to achieve goals. If not addressed, this condition can create a young generation that tends to be individualistic, lacks responsibility, and loses orientation to collective values that are important in the life of the nation and state. Therefore, an effective educational strategy is needed to fortify children from the negative impacts of globalization while strengthening the values of patriotism and discipline as the foundation of their character. Therefore, in the learning process, it is necessary to have a learning model that can encourage the character of learning love for the homeland in children, namely the process Oriented Guided Inquiry Learning (POGIL) model.

Process Oriented Guided Inquiry Learning (POGIL) is a learning model designed to promote deep understanding through a structured, inquiry-based approach (Andriani et al., 2019; Aiman et al., 2020). In POGIL, children not only act as recipients of information, but also as active participants who independently explore concepts through group activities. This approach involves a learning process focused on cycles of exploration, discovery, and application of concepts, where children work in small groups with guidance from an instructor acting as a facilitator (Kussmaul, 2012). This model emphasizes the development of critical thinking, communication, and cooperation skills, all of which are important for building academic competence as well as children's character. With a clear and activity-based structure,

DOI: 10.31004/obsesi.v8i6.6729

POGIL allows children to actively learn and engage in a meaningful learning process (Purnama & Rahayu, 2023; Sanggara et al., 2018).

Furthermore, the ethno-nationalism-based POGIL model provides an opportunity to combine inquiry-based learning with the cultivation of patriotism and discipline values (Kuş, 2024). In this context, the learning materials are contextualized with local cultural values, national history, or national challenges, allowing students to understand the importance of their contribution to the nation (Walker & Warfa, 2017). For example, group activities can be designed to explore themes such as the struggle for independence, local cultural heritage, or national figures who inspire discipline and devotion. Through this approach, students not only gain conceptual understanding but also emotional experiences that reinforce a sense of love for the homeland and discipline (Kussmaul, 2012). By using the POGIL framework, learning is not only a means to develop intellectual skills but also a vehicle to build the character of the younger generation who love the homeland and discipline (Zulyusri et al., 2023; Zulkifli et al., 2022).

Research by Lickona (2019) highlights that learning that focuses on moral and ethical development, when integrated into the curriculum, can shape the character of responsible and high-moral students. In addition, research by Nucci and Narvaez (2018) revealed that educational approaches that involve local and cultural values tend to be more effective in creating student emotional engagement, ultimately strengthening the internalization of those values. Although this study is relevant to instilling character in children, research that specifically examines ethno-nationalism-based learning models (Panggabean et al., 2024), especially in the context of patriotism and discipline values, is still limited in the academic literature. Research by research by Dwi (2021) shows that the integration of local elements in inquiry-based learning models can increase students' awareness of culture and national values. This shows the great potential of the POGIL model if contextualized with elements of ethno-nationalism to support the formation of children's characters. Selanjutnya, penelitian research by Gay (2010) on culturally responsive teaching confirms that cultural contexts integrated into learning are able to strengthen students' emotional connection with national values, even though the approach is more general.

Although various studies have highlighted the effectiveness of the Process Oriented Guided Inquiry Learning (POGIL) learning model in improving students' cognitive skills and cooperation, research on the effectiveness of POGIL in developing character values, such as patriotism and discipline, is still very limited. More specifically, there have not been many studies that integrate ethno-nationalism elements into the POGIL model to support the formation of student character. In addition, most research on ethno-nationalism in education is descriptive or case-study-based without providing comprehensive empirical evidence. To date, no meta-analysis has evaluated the effectiveness of the ethno-nationalism-based POGIL model, which can provide a synthesis of empirical data from various studies to show its impact on character values such as patriotism and discipline. This gap points to the need for a meta-analytic approach to provide a deeper and more thorough understanding. Based on this, this study aims to determine the influence of the etho-nationalist-based Oriented Guided Inquiry Learning (POGIL) process model to increase the value of love for the homeland and discipline in children through meta-analysis

Methodology

This research is a type of meta-analysis research. Meta-analysis is a research approach that analyzes primary studies quantitatively to obtain in-depth and accurate conclusions (Wang & Feng, 2024; Öztop, 2023; Putra et al., 2023; Zulkifli et al., 2022; Santosa et al., 2022). Furthermore, through meta-analysis, the strengths and weaknesses of an analyzed study can be known. This meta-analysis aims to determine the effect of the ethno-nationalist-based Process Oriented Guided Inquiry Learning (POGIL) model to increase the value of patriotism and discipline in children.

DOI: 10.31004/obsesi.v8i6.6729

Eligibility Criteria

The eligibility criteria in this meta-analysis are a) research data obtained from Google Scholar; ERIC, ProQuest, Wiley, DOAJ and Springer, b) research must be indexed by SINTA, Scopus or journal indexing portals managed by the Ministry of Higher Education, Research and Technology equivalent to DOAJ, EBSCO and Index Copernicus, c) the topic must be relevant, d) research published in 2022-2024, e) research publications must have a value of (r), (t), or (F), f) research samples must be more than 25 children. The data selection process through the PRISMA method consists of identification, screening; eligibility and included. In the selection of data, 21 relevant studies were obtained which can be seen in Table 1.

Table 1. 21 Research included in Meta-analysis

Journal Code	N	r	t	F	Index
AK 1	48	0.51			SINTA
AK 2	50		9.04		SINTA
AK 3	76		7.93		SINTA
AK 4	90	0.82			Scopus
AK 5	30	0.66			SINTA
AK 6	200		8.92		SINTA
AK 7	180	0.92			Scopus
AK 8	69			116.57	SINTA
AK 9	80	0.71			SINTA
AK 10	150	0.59			Scopus
AK 11	60		5.18		Scopus
AK 12	80	0.93			SINTA
AK 13	40	0.80			SINTA
AK 14	100			10.44	Scopus
AK 15	90	0.46			SINTA
AK 16	92	0.82			DOAJ
AK 17	48	0.78			DOAJ
AK 18	72		4.29		SINTA
AK 19	136		7.91		SINTA
AK 20	90			11.08	Scopus
AK 21	140	0.88			Scopus

Research Procedure

The research procedure in this meta-analysis is a) searching for articles according to the research topic; b) select articles that meet the inclusion criteria; c) perform data coding; d) change the value of F to t and r, or the value of t to r; f) conducting data normality tests; g) conducting data heterogeneity tests; h) calculate the average value of effect size and standard error; i) calculation of the summary effect size value; j) checking publication bias through funnel plots; Rosenthal Test Fail Safe N and Egger's Test (Hidayah et al., 2023). Data analysis in the study was carried out with the help of the JSAP application. Furthermore, the effect size criteria in this study are guided by Cohen's effect size criteria which can be seen in Table 2.

Table 2. Cohen's Effect Size Criteria

Value	Criteria EffecT Size
0.00≤ES≤ 0.20	Low
0.20≤ES≤ 0.80	Medium
ES ≥ 0.80	High

DOI: 10.31004/obsesi.v8i6.6729

Result and Discussion

Based the 21 studies analyzed that have had r, t and F values obtained from each study. Before the heterogeneity test is carried out on all publications that do not have an r value, the t or F value is converted to an r value. The heterogeneity test results can be seen in Tables 3 and 4.

Table 3. Heterogeneity Test Result

	Q	df	P
Omnibus test of Model Coefficients	89.009	1	< 0.001
Test of Residual Heterogeneity	125.198	20	< 0.001
Note. p -values are approximate			

Table 4. Residual Heterogeneity Estimates

		95% Confidence Interval	
	Estimates	Lower	Upper
τ^2	0.445	5.183	7.129
T	0.592	6.924	9237
I^2 (%)	95.091	97.190	99.093
H^2	8.006	13.093	28.419

Based on Tables 3 and 4, the results of the heterogeneity test analysis obtained a value of Q = 125.198 with a $p < 0.001$; τ^2 or $\tau > 0$ and I^2 are close to 100 %. These findings show that the 21 studies analyzed were heterogeneously distributed. Next, calculate the summary effect size or mean effect size with a random effect model which can be seen in Table 5.

Table 5. Summary Effect Size

	Estimates	Standard Error	Z	P
Intercept	1.034	0.364	11.434	< 0.001

Note.Walt Test

Table 5. The analysis results with a random effect model showed that the ethno-nationalist-based Process Oriented Guided Inquiry Learning (POGIL) model increased the value of patriotism and discipline in children. ($z = 11.434$; $p < 0.001$). The ethno-nationalist-based Process Oriented Guided Inquiry Learning (POGIL) model to increase the value of patriotism and discipline in children. in the high effect size category (r_{RE}= 1.034). Next, check publication bias through plot funnels and Egger's Test. The funnel plot functions to find out the effect size drawn by the points at a certain interval (Romadiah et al., 2022); Checking publication bias for 21 studies through funnel plots can be seen in Figure 1.

Based on Figure 1. The analysis of the 21 effect size cannot yet be known whether the plot funnel curve is symmetrical or asymmetrical. Therefore, it is necessary to carry out Egger's test, as seen in Table 6. Table 6, Egger's test analysis obtained a value of $z = 3.922$; $p < 0.001$, then the plot funnel analysis is symmetrical. These findings explain that the 19 publications of the researchers analyzed did not have publication bias and the results of the study could be declared valid. This article explained that the Ethno-Nationalist-Based Process Oriented Guided Inquiry Learning Model is effective in increasing the Character Values of Love for the Fatherland and Discipline in Children compared to other learning (Vanags et al., 2013). The Process Oriented Guided Inquiry Learning (POGIL) model has been known as a structured inquiry-based learning model that is effective in increasing student engagement, cooperation, and conceptual understanding. In the context of this research, the integration of ethno-nationalism elements into POGIL is a significant innovation. The ethno-nationalism element

DOI: 10.31004/obsesi.v8i6.6729

involves the introduction and exploration of cultural, historical, and national identity values that are relevant to children lives (Bekhruz, 2024). By associating learning with aspects of local culture, students not only learn cognitively but also engage emotionally in understanding the importance of patriotism and discipline as part of their character. This combination is expected to be able to build a deep relationship between children and national values, so that it has a more significant impact than conventional learning approaches (Syafruddin et al., 2024).

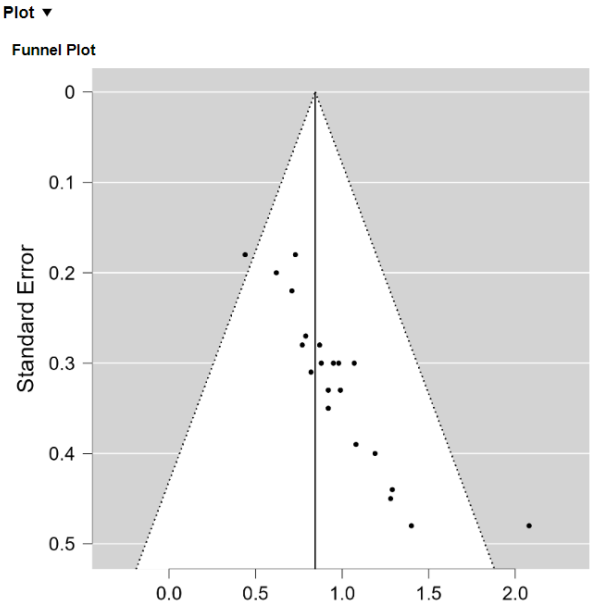

Figure 1. **Funnel Plot**

Table 6. Egger's Test

	Z	P
Sei	3.922	0.001

Patriotism is one of the important elements in character education that needs to be instilled from an early age. By using the ethno-nationalism-based POGIL model, children are invited to understand national values through active exploration and directed discussion. In this process, children are invited to get to know the history of the nation's struggle, national figures, and the challenges faced by the country today(Syakroni et al., 2024). The learning activities designed in POGIL provide space for children to explore these issues collaboratively, thus encouraging the development of a deeper love for the homeland. Previous studies have shown that students' active involvement in contextual learning can increase their understanding and appreciation of national values, which in turn strengthens a sense of patriotism(Hand, 2011; Huseinova, 2024). Discipline is a character that can be instilled through a directed and consistent learning structure. The POGIL model offers an approach that allows children to develop self-discipline through group work, role division, and individual responsibility. In the context of this study, the ethno-nationalist element integrated into POGIL provides additional relevant emotional and social dimensions. For example, children can learn how national figures show discipline in their struggles, or how local communities apply the value of discipline in daily life(Idul & Caro, 2022; Andriani et al., 2019). This process not only helps children understand the importance of discipline, but also provides concrete examples that can be internalized in their lives. The ethno-nationalism-based POGIL model is more widely integrated in school curricula, especially in subjects relevant to character education, such as civic education and history. In addition, further research is needed to test the effectiveness of this model at various cultural contexts and levels of education.

DOI: 10.31004/obsesi.v8i6.6729

Conclusion

From the results of this study, it can be concluded that there is a significant influence of the Effectiveness of the Ethno-Nationalist-Based Process Oriented Guided Inquiry Learning Model on the value of character of love for the homeland and discipline in children with a strong influence category ($p < 0.001$; $r_{RE} = 1.034$). Furthermore, in this study, no publication bias was detected so that it can be scientifically accounted for. These findings show that the Ethno-Nationalist-Based Process Oriented Guided Inquiry Learning Model is effective in increasing the Character Values of Love for the Fatherland and Discipline in Children. These results are consistent with the findings of previous studies that highlight the effectiveness of inquiry-based learning in improving student engagement and understanding of character values. However, the main contribution of this research is to the meta-analysis approach that provides empirical synthesis from various previous studies. This not only strengthens the validity of the findings but also provides practical guidance for educators and policymakers in designing character-based curricula. Thus, this research not only makes a theoretical but also practical contribution in the field of character education.

To implement the ethno-nationalist-based POGIL (Process-Oriented Guided Inquiry Learning) model in schools, teachers can design learning activities that integrate local cultural values and the spirit of nationalism into the inquiry-based learning process. For example, science teachers can invite students to analyze natural phenomena or traditional technologies typical of their region, such as local irrigation systems or traditional food processing, while instilling an understanding of the importance of maintaining environmental sustainability and national pride. In small groups, students collaboratively undergo the POGIL learning cycle, which is exploration, analysis, and application, with worksheets that contain local cultural contexts and national values.

Acknowledgments

The author would like to thank you for participating in this study, so that the research can be published.

References

Aiman, U., Hasyda, S., & Uslan, U. (2020). The Influence of Process Oriented Guided Inquiry Learning (POGIL) Model Assisted by Realia Media to Improve Scientific Literacy and Critical Thinking Skill of Primary School Students. *European Journal of Educational Research, volume–9–2020* (volume–9–issue–4–october–2020), 1635–1647. https://doi.org/10.12973/eu-jer.9.4.1635

Andriani, S., Nurlaelah, E., & Yulianti, K. (2019). The effect of process oriented guided inquiry learning (POGIL) model toward students' logical thinking ability in mathematics. *Journal of Physics: Conference Series*, *1157*, 042108. https://doi.org/10.1088/1742-6596/1157/4/042108

Bekhruz, G. (2024). *Formation Of Spiritual And Physical Qualities In The Upbringing Of Children Of Military Personnel*.

Donkoh, R., Lee, W. O., & Donkor, J. (2024). Teaching Citizenship Education in Ghana Basic Schools: The Quest to Achieve Patriotism and Democracy. *International Journal of Educational Development in Africa*. https://doi.org/10.25159/2312-3540/12221

Edy Nurtamam, M., Santosa, T., Ilwandri, Aprilisia, S., Rahman, A., & Suharyat, Y. (2023). Meta-analysis: The Effectiveness of Iot-Based Flipped Learning to Improve Students' Problem Solving Abilities. *Edumaspul - Jurnal Pendidikan*, *7*, 1491–1501. https://doi.org/10.33487/edumaspul.v7i1.6195

Hand, M. (2011). Should We Promote Patriotism in Schools? *Political Studies*, *59*(2), 328–347. https://doi.org/10.1111/j.1467-9248.2010.00855.x

Hariyadi, S., Rofi'i, A., Santosa, T. A., Taqiyuddin, & Sakti, B. P. (2023). Effectiveness of STEM-Based Mind Mapping Learning Model to Improve Students' Science Literacy in the Era

DOI: 10.31004/obsesi.v8i6.6729

of Revolution 4.0. *Jurnal Penelitian Pendidikan IPA*, *9*(10), 791–799. https://doi.org/10.29303/jppipa.v9i10.5125

Hidayah, R., Wangid, M. N., Wuryandani, W., & Salimi, M. (2023). The Influence of Teacher Efficacy on Education Quality: A Meta-Analysis. *International Journal of Educational Methodology*, *9*(2), 435–450. https://doi.org/10.12973/ijem.9.2.435

Huseinova, E. R. G. (2024). Joint Activity Of Family And School In Formation Of Patriotism. *Humanities Science Current Issues*, *1*(74), 383–387. https://doi.org/10.24919/2308-4863/74-1-58

Idul, J. J. A., & Caro, V. B. (2022). Does process-oriented guided inquiry learning (POGIL) improve students' science academic performance and process skills? *International Journal of Science Education*, *44*(12), 1994–2014. https://doi.org/10.1080/09500693.2022.2108553

Karabulut, M. (2024). Investigation Of Folk Songs In Secondary School Music Textbooks In Terms Of Values Education. *A. N.*

Kirch, S. A., & Sadofsky, M. J. (2021). Medical Education From a Theory–Practice–Philosophy Perspective. *Academic Pathology*, *8*, 23742895211010236. https://doi.org/10.1177/23742895211010236

Kuş, Z. (2024). Teachers' and parents' perspectives on citizenship education in Turkey: Consensus and disagreements. *Education, Citizenship and Social Justice*, 17461979241240451. https://doi.org/10.1177/17461979241240451

Kussmaul, C. (2012). Process oriented guided inquiry learning (POGIL) for computer science. *Proceedings of the 43rd ACM Technical Symposium on Computer Science Education*, 373–378. https://doi.org/10.1145/2157136.2157246

Ningrum, R. W., Ismaya, E. A., & Fajrie, N. (2020). Faktor – Faktor Pembentuk Karakter Disiplin dan Tanggung Jawab Dalam Ekstrakurikuler Pramuka. *Jurnal Prakarsa Paedagogia*, *3*(1). https://doi.org/10.24176/jpp.v3i1.5105

Orjuela, C. (2025). The 'ideal citizen' abroad: Engaging Rwanda's young generation diaspora. *Globalizations*, *22*(1), 34–50. https://doi.org/10.1080/14747731.2023.2275363

Öztop, F. (2023). A Meta-Analysis of the Effectiveness of Digital Technology-Assisted STEM Education. *Journal of Science Learning*, *6*(2), 136–142. https://doi.org/10.17509/jsl.v6i2.52316

Panggabean, T. E., Rizki, S., Walid, A., Yanti, D., Wariunsora, M., Mas'ud, A., & Apra, T. (2024). *The Effect of Mobile Learning on Critical Thinking Skills of Early Childhood Education Teacher Prospective Students: Meta-Analysis 2021-2024*. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 8(6): 1811-1820. https://doi.org/10.31004/obsesi.v8i6.6612

Pateda, L., Saleh, Y. R., Pido, N. W. T., Adam, S., & Wantu, H. M. (2024). The Effect of an Augmented Reality-Based Discovery Learning Model on Students' Language Proficiency. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini, 8(6): 1811-1820.* https://doi.org/10.31004/obsesi.v8i6.6612

Pohan, M., Dewi, S. F., Montessori, M., & Putra, E. V. (2024). The Teacher's Role in Forming Character of Care for the Environment and Student Discipline. *Jurnal Penelitian Pendidikan IPA*, *10*(8), 5807–5815. https://doi.org/10.29303/jppipa.v10i8.8990

Purnama, R. G., & Rahayu, S. (2023). *The role of process oriented guided inquiry learning (POGIL) and its potential to improve students' metacognitive ability: A systematic review*. 030009. https://doi.org/10.1063/5.0113476

Putra, M., Rahman, A., Ilwandri, I., Suhayat, Y., Santosa, T. A., Putra, R., & Aprilisia, S. (2023). The Effect of STEM-Based REACT Model on Students' Critical Thinking Skills: A Meta-Analysis Study. *LITERACY : International Scientific Journals of Social, Education, Humanities*, *2*(1), Article 1. https://doi.org/10.56910/literacy.v2i1.560

Romadiah, H., Dayurni, P., & Fajari, L. E. W. (2022). Meta-Analysis Study: The Effect of Android-Based Learning Media on Student Learning Outcomes. *International Journal of Asian Education*, *3*(4), 253–263. https://doi.org/10.46966/ijae.v3i4.300

DOI: 10.31004/obsesi.v8i6.6729

Sanggara, P. W., Doyan, A., & Verawati, N. N. S. P. (2018). The Effect Of Process Oriented Guided Inquiry Learning Model Based On Virtual Laboraory Toward Problem Solving Abilities Of Physics Student. *Jurnal Penelitian Pendidikan IPA*, *5*(1). https://doi.org/10.29303/jppipa.v5i1.154

Santosa, T. A., Suhaimi, S., & Aprilsia, S. (2022). Analisis Pendekatan Saintifik Dalam Pembelajaran IPA Selama Pandemi Covid-19 di Sekolah Dasar. *Jurnal DIDIKA: Wahana Ilmiah Pendidikan Dasar*, *8*(1), Article 1. https://doi.org/10.29408/didika.v8i1.5776

Silfianah, I., Rahayu, M., & Saputra, B. (n.d.). *Implementation of Value Education in Chemistry as an Effort to Develop Character*.

Syafruddin, S., Wantu, H. M., Muis, A., Sarnoto, A. Z., Hiola, S. F., Agustina, I., Santosa, T. A., Yastanti, U., Nugraha, A. R., Dewanto, D., Solissa, E. M., Sukini, S., Wulandary, A. S. R., Ali, M., & Kurniawan, A. (2024). Effectiveness of Think-Pair-Share and STEM Models on Critical Thinking in Early Childhood Education. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *8*(5), 1320–1330. https://doi.org/10.31004/obsesi.v8i5.6202

Syakroni, A., Setyosari, P., Murtadho, N., & Sulthoni, S. (2024). Developing reinforcement of character education by implementing religious nationalism values. *JPPI (Jurnal Penelitian Pendidikan Indonesia)*, *10*(2), 62. https://doi.org/10.29210/020243819

Vanags, T., Pammer, K., & Brinker, J. (2013). Process-oriented guided-inquiry learning improves long-term retention of information. *Advances in Physiology Education*, *37*(3), 233–241. https://doi.org/10.1152/advan.00104.2012

Walker, L., & Warfa, A.-R. M. (2017). Process oriented guided inquiry learning (POGIL®) marginally effects student achievement measures but substantially increases the odds of passing a course. *PLOS ONE*, *12*(10), e0186203. https://doi.org/10.1371/journal.pone.0186203

Wang, Y., & Feng, D. (William). (2024). Infusing patriotism in popular culture: The multimodal construction of patriotic values in a Chinese main melody film. *Critical Studies in Media Communication*, *41*(1), 68–83. https://doi.org/10.1080/15295036.2024.2313620

Zahara, L., Dewi, N., & Hasanah, N. (2023). *The Contribution Of Heritage Flags In Instilling Nationalist Values In Scout Extracurricular Activities*. *1*(1).

Zulkifli, Z., Satria, E., Supriyadi, A., & Santosa, T. A. (2022). Meta-analysis: The effectiveness of the integrated STEM technology pedagogical content knowledge learning model on the 21st century skills of high school students in the science department. *Psychology, Evaluation, and Technology in Educational Research*, *5*(1), Article 1. https://doi.org/10.33292/petier.v5i1.144

Zulyusri, Z., Elfira, I., Lufri, L., & Santosa, T. A. (2023). Literature Study: Utilization of the PjBL Model in Science Education to Improve Creativity and Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, *9*(1), 133–143. https://doi.org/10.29303/jppipa.v9i1.2555