

## Improving Critical Thinking Skills of Early Childhood Through Inquiry Learning Method

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### Abstract

21st-century skills that children must have, namely the ability to collaborate, create, communicate and think critically. This study aims to improve critical thinking skills in children to adapt to their time through inquiry learning method. This research was conducted in group B of the Kindergarten in Madinah Pamulang, South Tangerang with a total of 12 children. The research method uses classroom action research with 2 cycles. Collecting data by means of observation, interviews, documentation and the data obtained were analyzed using data reduction, data display dan concluding drawing/verification. The results showed that the activity during the two cycles given to children's critical thinking skills increased from pre-cycle by 39.83%, then cycle I increased to 62.75% with an increase of 22.92% and in cycle II increased to 80.92%. with an increase of 18.17%. Thus the indicator of success has been more than the specified criteria, namely 75%, which means that the inquiry learning method is effective and can improve critical thinking skills of early childhood.

**Keywords:** *inquiry learning method; critical thinking; early childhood.*

### Abstrak

Keterampilan abad 21 yang harus dimiliki anak, yaitu kemampuan kolaborasi, kreatifitas, komunikasi dan berpikir kritis. Penelitian ini bertujuan untuk meningkatkan keterampilan berpikir kritis pada anak untuk dapat beradaptasi di zamannya melalui metode pembelajaran inkuiri. Penelitian ini dilaksanakan pada kelompok B Taman Kanak-kanak Madinah Pamulang, Tangerang Selatan dengan jumlah sebanyak 20 anak. Metode penelitian menggunakan penelitian tindakan kelas dengan 2 siklus. Pengumpulan data dengan cara observasi, wawancara, dokumentasi dan data yang diperoleh dianalisis dengan cara reduksi data, penyajian data dan penarikan kesimpulan / verifikasi. Hasil penelitian menunjukkan kegiatan selama dua siklus yang diberikan terhadap keterampilan berpikir kritis anak meningkat dari pra siklus sebesar 39,83%, selanjutnya siklus I meningkat menjadi 62,75% dengan peningkatan sebesar 22,92% dan pada siklus II meningkat menjadi 80,92% dengan peningkatan sebesar 18,17%. Dengan demikian indikator keberhasilan telah lebih dari kriteria yang ditentukan yaitu 75% yang artinya metode pembelajaran inkuiri efektif dan dapat meningkatkan keterampilan berpikir kritis anak usia dini.

**Kata Kunci:** *metode pembelajaran inkuiri; berpikir kritis; anak usia dini.*

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## INTRODUCTION

21st-century education is a challenge in preparing students to become superior and quality individuals. Children must get guidance through the tools or equipment needed in the form of skills and life skills to face the challenges of the future, where the progress of the times is so fast (Yunita et al., 2019).

One thing that future generations need to master in facing the industrial era 4.0 is critical thinking. This is in line with the opinion Fernández-Santín & Feliu-Torruella, (2020), the skills needed in the 21st century are critical thinking skills. Critical thinking skills are a component of children's cognitive abilities. Thinking skills should be honed as early as possible so that children have problem-solving skills that have been honed through a series of simple experimental activities at school.

Critical thinking has been broadly defined in educational research (Cottrell, 2017; Florea & Hurjui, 2015; McPeck, 2016; Paul & Elder, 2019). Critical thinking is described as an active process of analyzing choices, combining ideas and taking mental risks to build connections, and evaluating the steps taken to arrive at reasonable conclusions and answers.

Critical thinking is a high-level cognitive ability. The ability to think critically of children can be seen from the many questions about new and unexpected things submitted by children. Critical thinking to children can be trained from an early age by observing problems, analyzing, solving problems (Dewi et al., 2019).

Education is a means of facilitating children in honing their critical thinking skills. Every parent wants the best education for children to be able to develop all aspects of their development, therefore children are submitted to the early childhood education unit to obtain learning through learning stimulations. However, currently, many schools have not trained critical thinking skills (Hidayat & Nur, 2018).

This statement is in line with the results of observations made at Kindergarten in Medina, even though they have used the center learning model, the children's critical thinking skills have not developed properly. As a result of direct observation in learning activities in group B, TK Madinah identified: a) the child still does not have the initiative to ask questions, b) the child is less interested in activities that involve critical thinking skills, c) low analytical skills, d) always acts waiting for teacher directions, e) has not been able to create something through ideas emerges from himself always stimulated by the teacher first.

From the observation of the problem above, the researcher wants to try to develop critical thinking skills by using a child-centered learning model. Child-centered learning can be done by inquiry learning. Inquiry learning forms children to be totally involved in learning to carry out systematic, analytical, and critical investigations (objects or events) in giving questions so that children can believe in the findings they have formulated (Rohayani, 2018). The role of the teacher in inquiry learning is as a facilitator for children in the process of looking for and finding problems from the learning material.

Krogh & Morehouse (2020), inquiry learning method is one of the effective ways that can help children improve thinking skills by using higher mental processes and critical thinking skills. This is also supported by Padilah (2019), the guided inquiry learning method is one of the learning methods that actively participate in exploring and discovering their own knowledge. This is supported by Ngura et al., (2020), One of the goals of teaching and educating is to foster critical thinking skills through the implementation of learning tasks.

Many studies have proven the benefits of inquiry learning for early childhood development. The results of research conducted by Suryaningsih et al., (2016), found that early childhood creativity can be improved through the implementation of game-based guided inquiry learning methods. Another study by Daulay (2016), also found that the guided inquiry learning model was proven to be effective in developing better primary school student learning outcomes, especially learning Social Education because in the learning process students were trained to solve problems and encourage learning motivation and be challenged to find out which makes children more active in learning activities in class.

The results of research conducted by Ulfah & Khoerunnisa (2018), the use of learning strategies that affect early childhood naturalist intelligence, the application of inquiry learning strategies consists of stages that present questions or problems make hypotheses, experiment, conduct experiments to obtain information, and analyze data, and make conclusions. The results of other research also found that inquiry learning was not only used in the preschool unit but could also train PGPAUD students in improving creative thinking skills. This is in line with Sariana (2020), which found that increasing students' creative thinking skills could be done through inquiry learning strategies in solving problems and asking questions at a higher thinking level.

Based on the relevant research results that have been presented with the same variables as research based on critical thinking skills. The novelty in this study is different from previous studies, this study emphasizes inquiry learning in strategies to improve early childhood critical thinking skills. Based on the explanation that has been, the researchers are interested in conducting research with regard to "Increasing critical thinking skills through inquiry learning in group B at the Kindergarten of Madinah Pamulang, South Tangerang

## METHOD

The research subjects were children at Madinah Pondok Cabe Kindergarten with a total population of 12 grade B children. The research site was in Madinah Kindergarten Pondok Cabe, Pamulang, South Tangerang City. The time of the research was carried out from 21 October 2019 to 01 November 2019. The research implementation time was for 2 weeks with Cycle I (21 October-25 October 2019) for 5 days with the topic "Wind.", And Cycle II was carried out (28 October-01 November 2019) with the topic "heavy and light objects".

This study involved peers who acted as participants who took part in the observation process, who acted as collaborators who were teachers of the 5-6 year age group. The method used in this research is action research which refers to the model of Kemiss and Mc. Taggart. The research procedures in this research are planning, acting and observing, and reflecting. The action criteria in this study refer to the criteria determined by Mills, which states that the action has a target proportion of 71% after taking action on the research subject. This means that this research is said to be successful if 71% of the total children in the class have met the standards set by the collaborators, namely 75% by considering the situation and conditions of the school. Collecting data by means of observation, interviews, documentation. The data obtained were analyzed using data reduction, data display dan concluding drawing verification.

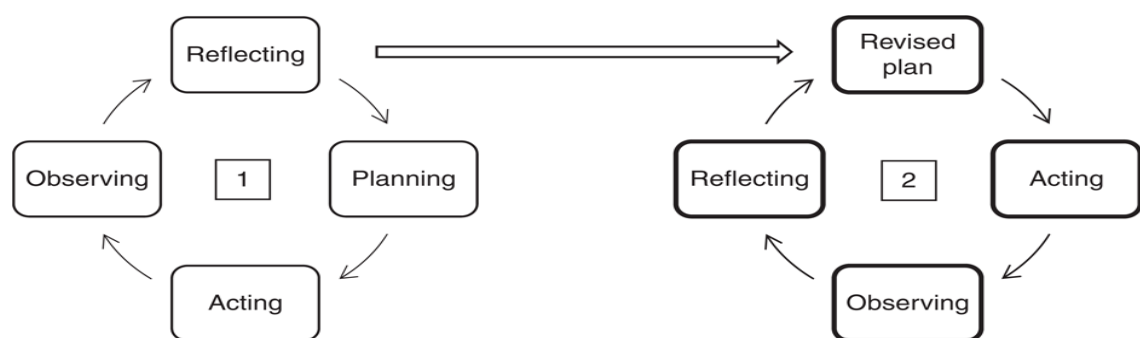


Figure 1. Model of Action Research  
Cycle I (Source: google.com)

### Description Per Cycle in Learning Improvement

Description per cycle of learning improvement that researchers do in 2 (two) cycles and each cycle consists of planning, implementing, observing data and reflecting.

**Table 1: Cycle I Assessment Instruments**

<b>DAYS</b>		<b>ACTIVITIES</b>	<b>ASSESSMENT</b>
<b>I</b>	Topics	Corona	Observation
	Learning objectives	The child can see the spread of the virus and the importance of washing hands.	Performance
	Activity	A simple experiment is analogous to a virus with tools / materials in the form of pepper, water and hand soap and various materials for washing hands	Documentation
<b>II</b>	Topics	The wind is blowing	Observation
	Learning objectives	Children can recognize the types of wind origin and understand the concepts of light and weight	Performance
	Activity	Children do a simple experiment by doing a direct activity project of objects that can float and sink	Documentation
<b>III</b>	Topics	Sock doll	Observation
	Learning objectives	enhance children's creativity with role playing activities	Performance
	Activity	children play roles by developing their own imagination from their work of making dolls from used socks	Documentation
<b>IV</b>	Topics	Ice Palace	Observation
	Learning objectives	Children get sensorial experiences through ice cubes	Performance
	Activity	The child experimented with ice cubes and was given various kinds of food coloring that were splashed on the ice cubes	Documentation

**Table 2: Cycle I Assessment Instruments**

<b>DAYS</b>		<b>ACTIVITIES</b>	<b>ASSESSMENT</b>
<b>I</b>	Topics	I love My Family	Observation
	Learning objectives	Children Know the Core Family and Creativity with used materials	Performance
	Activity	the children and their families make castles from used cardboard and paste family photos on the cardboard walls	Documentation
<b>II</b>	Topics	Cardboard Fortress	Observation
	Learning objectives	Increase children's creativity by working using cardboard	Performance
	Activity	children role-playing with their parents at home telling about heroes	Documentation
<b>III</b>	Topics	Making salt dough	Observation
	Learning objectives	enhance children's creativity with role playing activities	Performance
	Activity	The child did the salt experiment by mixing various kinds of liquids such as water and oil mixed with dyes	Documentation
<b>IV</b>	Topics	My rainbow	Observation
	Learning objectives	Improve the ability of children to think about the rainbow process, introduce colors	Performance
	Activity	Children play experiments with colorful candy mixed with water	Documentation

Reflection plans are carried out after each repair. The reflection is made as if it were used as an activity to reflect on all the events that have passed. Reflection is carried out to see the strengths and weaknesses. Data obtained from observation, and interview documentation using quantitative and qualitative. Next, conclude inductively.

## RESULT AND DISCUSSION

The outcome of child assessment in the cycle is the final step in the improvement activities for each cycle. The assessment is carried out starting from the opening of the event,

the core, and the closing. In this case, the researcher uses product indicators for underdeveloped children (BB), children who are starting to develop (MB), children whose abilities develop according to expectations (BSH), and (BSB) children who are developing very well (BSB).

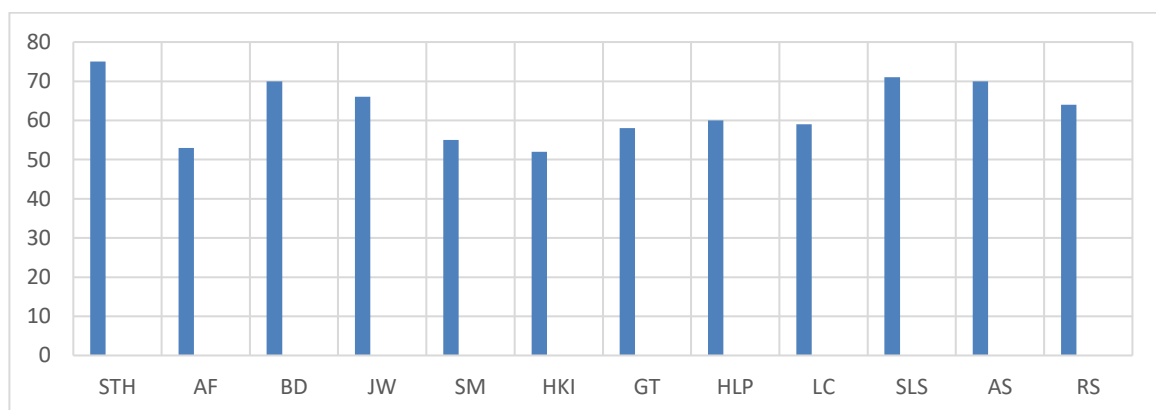
### Cycle I

Based on the implementation of the repair cycle I on Monday-Friday, and the results of the observations, can be seen the strengths and weaknesses during repair activities. The results of improving learning and increasing children's abilities in table 3.

**Table 3: Recapitulation of Cycle I Assessments**

No.	Initials of the Child	Siklus I	
		Child TCP	Category
1.	STH	75	BSB
2.	AF	53	MB
3.	BD	70	BSH
4.	JW	66	BSH
5.	SM	55	BSH
6.	HKI	52	MB
7.	GT	58	BSH
8.	HLP	60	BSH
9.	LC	59	BSH
10.	SLS	71	BSB
11.	AS	70	BSH
12.	RS	64	BSH
<b>Total</b>		753	
<b>Average</b>		62,75	<b>BSH</b>

Figure 2 is a graph of the results of critical thinking skills through inquiry learning model activities during the cycle I.



**Figure 2. Percentage Recapitulation Graph Cycle I**

After the design of activities in my cycle was carried out, critical thinking skills through learning with the inquiry model on the first day there were still many children who had not developed and were still assisted by the teacher. Children are very interested in doing experimental activities. From the 5 days of activities in cycle 1, there has been progressing, although there are still many who need motivational assistance. Researchers trying to continue the improvement in the second cycle with a better strategy.

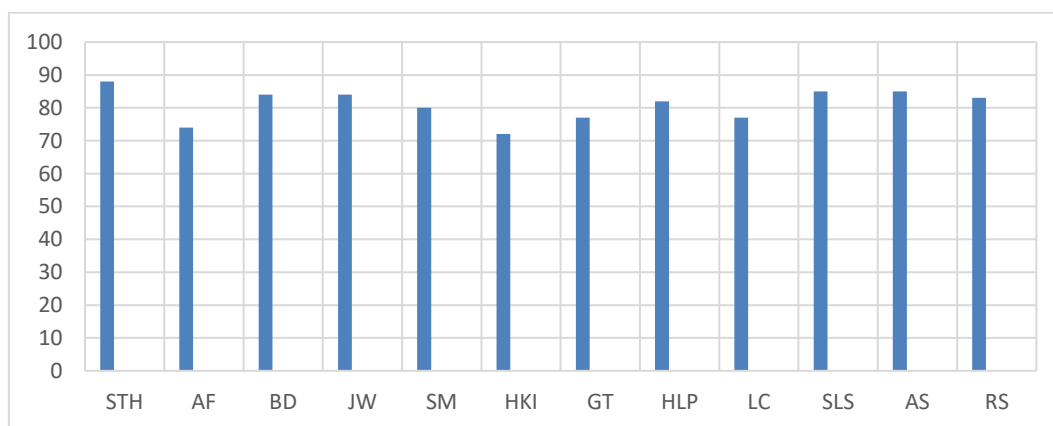
## Cycle II

Based on the implementation of repair cycle 2 on Monday-Friday, and the results of the observations can be seen the strengths and weaknesses during repair activities. The results of improving learning and increasing children's abilities in table 4.

**Table 4: Recapitulation of Cycle I Assessments**

No.	Initials of the Child	Siklus I	
		Child TCP	Category
1.	STH	88	BSB
2.	AF	74	BSB
3.	BD	84	BSB
4.	JW	84	BSB
5.	SM	80	BSB
6.	HKI	72	BSH
7.	GT	77	BSB
8.	HLP	82	BSB
9.	LC	77	BSB
10.	SLS	85	BSB
11.	AS	85	BSB
12.	RS	83	BSB
<b>Total</b>		<b>971</b>	
<b>Average</b>		<b>80,92</b>	<b>BSB</b>

The Figure 3 is a graph of the results of critical thinking skills through the Inquiry learning model during cycle II.



**Figure 3. Percentage Recapitulation Graph Cycle II**

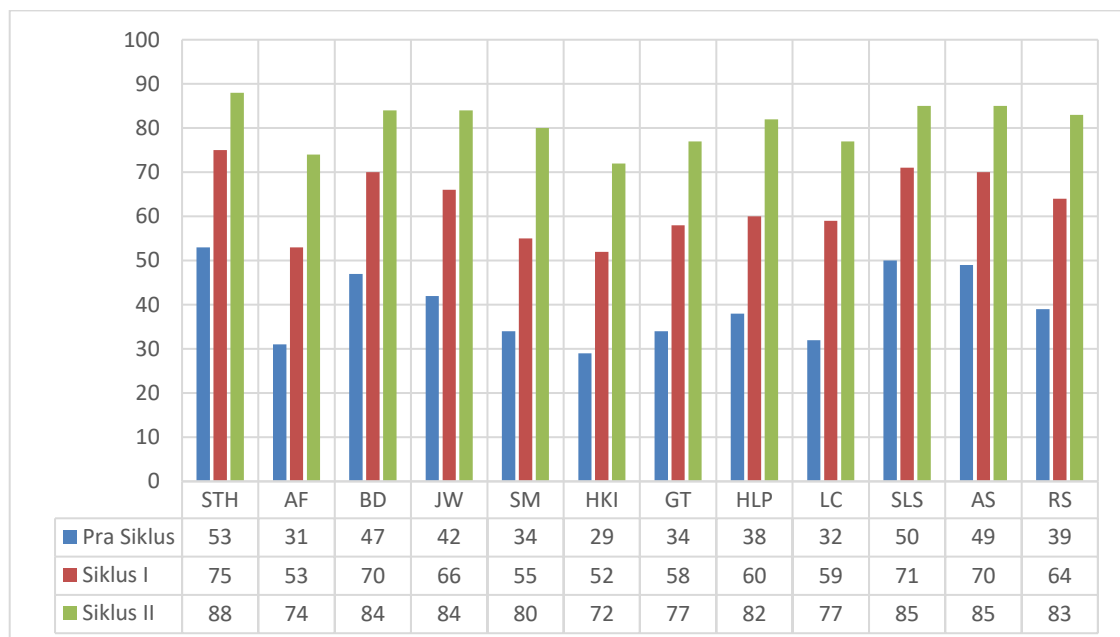
## Comparison of Cycles I and II

Based on the data above and observations from cycle I and cycle II, the children's ability to think critically shows a significant improvement. Critical thinking as a strategic ability that requires a continuous process will be maximized if the environment is created to shape this critical thinking ability. If an individual has the ability to think critically, he will be able to face life's problems. Critical thinking skills that can be developed through six aspects of early childhood development need to be nurtured and accustomed to without the child being aware. Children are invited to explore, solve problems, express something which are activities that hone children's critical thinking skills (table 5 and figure 4).

The results obtained from the findings of this study illustrate theoretically that the increase in critical thinking in early childhood can be stimulated through inquiry learning which is carried out through activities that are attractive to children where the child can



observe, questions, reason, and communicate what is known, felt, and obtained based on a simple experiment with the teacher and his friends. Inquiry learning is a series of learning activities that emphasize critical and analytical thinking processes to seek and find answers to a question in question (Agus et al., 2017).



**Figure 3. Percentage Graph of Cycle I and Cycle II Assessment**

The result of the graph in Figure 3 is an evaluation in cycle II, it is obtained data on the improvement of critical thinking skills through the daily inquiry learning model. In this study, the results showed that in cycles I and II children's early math abilities increased in each cycle. Based on the results of quantitative data analysis, this study has increased from the TCP children's early math abilities in the pre-cycle of 39.83, an increase in the first cycle with the average number of TCP all children in one class reaching 62.75, and then it has increased again. in the second cycle with the average initial math ability of all children 80.92. So that the increase in the total math ability of children from pre-cycle, cycle I to cycle II is 41.09, namely from 39.83 to 62.75 and in cycle II to 80.92. It is proven that the application of the inner circle technique with some visual media can improve children's beginning math skills.

Inquiry learning strategies for children are not only required to master the subject matter, but also how they can use their potential. Children who only master lessons may not be able to develop their thinking skills optimally. In fact, children will be able to develop their thinking skills when they can master the subject matter. Inquiry learning strategy is a form of child-oriented learning approach (Hidayati, 2017).

Through the inquiry learning model will enable the ability to think critically from an early age. The ability to think critically is a cognitive level in a blom taxonomy that contains a higher level. Thinking Skills (HOTS) includes reading (C1), understanding the application process (C3), analyzing (C4), and finally creating (C6) (Sutama et al., 2021).

The results of this study are supported by research conducted by Mas'udah (2016), the guided inquiry learning model can influence the application of problems to children in group B. These results are in line with research conducted by Budiwirman (2018) Budiwirman (2018) found that the skill of constructing waste materials into works of art can be done with a guided inquiry model in early childhood. The process of learning to think creatively and helping children develop through finding solutions for the implementation of activities carried out together.

This finding is in line with research conducted by Fajar et al., (2020), found that teaching and learning activities through STEAM and loose part play strongly support the inquiry learning model, whose processes include children's responses, processing, creating, sharing, and evaluation in children's activities while experimenting, analyzing and exploring. In line with the results of research conducted by Nursyifah (2019), it was found that the application of the inquiry learning model is suitable for use in building critical thinking skills of elementary school students. The inquiry learning model is suitable for building the critical thinking skills of school students in helping students make problematic decisions.

## CONCLUSION

The results of activities to improve children's critical thinking skills through activities in the second cycle mean that the efforts that teachers can make in improving children's critical thinking skills in the PAUD unit are one of them through the inquiry learning model. Activities to improve critical thinking skills can be done by storing, asking, reasoning, and communicating which are skills needed in the 21st century. Thus, inquiry learning activities can be the choice of teachers in learning in the PAUD unit to stimulate high early childhood skills with Higher Order Thinking Skill (HOTS).

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## REFERENCES

- Agus, M., Sriyono, S., & Rakhman, M. (2017). Penerapan Strategi Pembelajaran Inkuiri untuk Meningkatkan Hasil Belajar Siswa. *Journal of Mechanical Engineering Education*, 4(1), 74. <https://doi.org/10.17509/jmee.v4i1.7444>
- Budiwirman, B. (2018). Keterampilan Mengkonstruksi Bahan Limbah Menjadi Karya Seni Rupa dengan Model Inkuiri Terbimbing pada Anak Usia Din. *Jurnal PAUD*, 1(1). <https://doi.org/http://dx.doi.org/10.17977/um053v1i1p19-26>
- Cottrell, S. (2017). *Critical thinking skills: Effective analysis, argument and reflection*. Macmillan International Higher Education.
- Daulay, M. I. (2016). Penerapan Model Inkuiri dalam Meningkatkan Pembelajaran IPS di Kelas IV SDN 013 Tampan Pekanbaru. *Jurnal PAUD Tambusai*, 2(1), 46–53. <https://doi.org/10.31004/obsesi.v2i1.48>
- Dewi, A. C., Hapidin, H., & Akbar, Z. (2019). Pengaruh Model Pembelajaran dan Kemampuan Berpikir Kritis terhadap Pemahaman Sains Fisik. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 3(1), 18. <https://doi.org/10.31004/obsesi.v3i1.136>
- Fajar, N., Munawar, M., & Kusumaningtyas, N. (2020). Analisis Model Pembelajaran Inquiry untuk Menstimulasi Kemampuan Berfikir Kritis Anak Usia 4-5 Tahun. *Jurnal Ilmiah Pesona PAUD*, 2(2020). <https://doi.org/https://doi.org/10.24036/110847>
- Fernández-Santín, M., & Feliu-Torruella, M. (2020). Developing critical thinking in early childhood through the philosophy of Reggio Emilia. *Thinking Skills and Creativity*, 37, 100686. <https://doi.org/10.1016/j.tsc.2020.100686>
- Florea, N. M., & Hurjui, E. (2015). Critical Thinking in Elementary School Children. *Procedia - Social and Behavioral Sciences*, 180, 565–572. <https://doi.org/10.1016/j.sbspro.2015.02.161>
- Hidayat, S., & Nur, L. (2018). Nilai Karakter, Berpikir Kritis Dan Psikomotorik Anak Usia Dini. *JIV*, 13(1), 29–35. <https://doi.org/10.21009/JIV.1301.4>
- Hidayati, A. U. (2017). Melatih Keterampilan Berpikir Tingkat Tinggi Dalam Pembelajaran



- Matematika Pada Siswa Sekolah Dasar. *Terampil: Jurnal Pendidikan Dan Pembelajaran Dasar*, 4(2). <https://doi.org/https://doi.org/10.24042/terampil.v4i2.2222>
- Krogh, S. L., & Morehouse, P. (2020). *The early childhood curriculum: Inquiry learning through integration*. Routledge. (Third). Routledge.
- Mas'udah, A. Y. H. M. (2016). Pengaruh Model Pembelajaran Inkuiri Terbimbing Terhadap Kemampuan Kognitif Pemecahan Masalah Sains Anak Kelompok B. *PAUD Teratai*, 5(1), 1-8.
- McPeck, J. E. (2016). *Teaching critical thinking: Dialogue and dialectic*. Routledge.
- Ngura, E. T., Laksana, D. N. L., Bude, Y. H., & Mogi, M. (2020). Program Kegiatan Pendampingan Belajar Anak Paud Di Rumah Pada Masa Pandemi Covid-19 Dengan Menggunakan Strategi Pembelajaran Berbasis Inkuiri. *Jurnal Abdimas Ilmiah Citra Bakti*, 1(2), 105-110. <https://doi.org/10.38048/jailcb.v1i2.111>
- Nursyifah, E. (2019). Penggunaan Model Pembelajaran Inkuiri Dalam Membangun Kemampuan Berpikir Kritis Siswa Sekolah Dasar. *Seminar Nasional Pendidikan, FKIP UNMA 2019 "Literasi Pendidikan Karakter Berwawasan Kearifan Lokal Pada Era Revolusi Industri 4.0,"* 810-817. <http://prosiding.unma.ac.id/index.php/semnasfkip/article/view/116>
- Padilah, P. (2019). Peningkatan Kreativitas Melalui Metode Pembelajaran Inkuiri (Penelitian Tindakan Anak Usia 5-6 Tahun Di Paud Sps Arrayan Tahun 2017). *PERNIK: Jurnal Pendidikan Anak Usia Dini*, 1(01), 53. <https://doi.org/10.31851/pernik.v1i01.2625>
- Paul, R., & Elder, L. (2019). *The miniature guide to critical thinking concepts and tools*. Rowman & Littlefield.
- Rohayani, F. farida. (2018). Model Pembelajaran Inkuiri Untuk PAUD. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, 3(1), 43-52. <https://doi.org/https://doi.org/10.14421/jga.2018.31-04>
- Sariana, S. (2020). Meningkatkan Kemampuan Berfikir Kreatif Mahasiswa Melalui Model Pembelajaran Inkuiri. *Jurnal Usia Dini*, 6(1), 1-12.
- Suryaningsih, N. M. A., Cahaya, I. M. E., & Poerwati, C. E. (2016). Implementasi Pembelajaran Inkuiri Terbimbing Berbasis Permainan Dalam Meningkatkan Kreativitas Anak Usia Dini. *JPI (Jurnal Pendidikan Indonesia)*, 5(2), 212. <https://doi.org/10.23887/jpi-undiksha.v5i2.8559>
- Sutama, I., Astuti, W., Pramono, P., & Ghofur, M., N., D., Sangadah, L. (2021). Pengembangan E-Modul "Bagaimana Merancang dan Melaksanakan Pembelajaran untuk Memicu HOTS Anak Usia Dini melalui Open Ended Play" Berbasis Ncesoft Flip Book Maker. *SELING: Jurnal Program Studi PGRA*, 7(1), 91-101. <https://doi.org/https://doi.org/10.29062/seling.v7i1.736>
- Ulfah, M., & Khoerunnisa, Y. (2018). Pengaruh Penggunaan Strategi Pembelajaran Inquiry Terhadap Keterampilan tingkat tinggi Anak Usia Dini di Kabupaten Majalengka. *Al-Athfal: Jurnal Pendidikan Anak*, 4(1), 31-50. <https://doi.org/10.14421/al-athfal.2018.41-03>
- Yunita, H., Meilanie, S. M., & Fahrurrozi, F. (2019). Meningkatkan Kemampuan Berpikir Kritis melalui Pendekatan Saintifik. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 3(2), 425. <https://doi.org/10.31004/obsesi.v3i2.228>