JURNAL MULTIDISIPLIN MADANI (MUDIMA)

Homepage: https://journal.formosapublisher.org/index.php/mudima
ISSN: 2808-5639 (Online)
Research Article

Volume 3, No 12, December (2023)	DOI: https://doi.org/10.55927/mudima.v3i12.3437	Page: 2468-2482

Research Patterns on Critical Thinking Skills in Indonesian Language and Literature Journals in PPJB-SIP

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ARTICLE INFO

Keywords: Critical Thinking, Skills, Language and Literature, Journals Research Patterns

Received : 2 *November*
Revised : *16 November*
Accepted : *16 December*

ABSTRACT

This research is aimed to describe (1) types of research (2) types of quantitative research that is used to analyze critical thinking skills, (3) research subjects that is used by the researchers to examine critical thinking skills, (4) data collection instruments that is used by the researchers to determine critical thinking skills, (5) data analysis methods that is used by the researchers researchers to determine critical thinking skills, and (6) research profiles of critical thinking skills from year to year. The research used content analysis. The data obtained in this research were 26 articles written in journals incorporated in the PPJB-SIP website and database, so that the data in this research were the result of content analysis of research articles on critical thinking skills. The instrument used in this research was content analysis guidelines. The results showed that (1) the dominant type of research used by the researcher was quantitative research, (2) the experimental research design was the most dominant research design used, (3) the research subjects used were dominated by students, (4) the test instrument was the most frequently used instrument to investigate critical thinking skills, (5) the more dominant data analysis method was the t-test, and (6) the research on critical thinking skills was conducted from 2010-2021 with the highest results in year 2019. Finally, this research will be useful in providing valuable information about patterns of critical thinking skills, as well as the basis for familiarizing critical thinking skills in the information age and digital technology

INTRODUCTION

The 21st century is an era where the development of technology and education forces people to move forward. In line with this Ibda, (2019) explained that critical thinking skills are very relevant as the requirements in the 21st century. In the 21st century or in the industrial revolution 4.0 era, every human resource must have 4C skills including (1) creative thinking ability; (2) critical thinking and problem solving; (3) communication; and (4) collaboration (Partono, Wardhani, Setyowati, Tsalitsa, & Putri, 2021). The 4C ability is an important requirement for every individual in facing global competition in the 21st century, one of them is the ability to think critically which serves to help problems solving in everyday life (Jannah & Atmojo, 2022). Thus, the ability to think critically is very important since it becomes a demand in the changing world of work as a result of the development of information and communication technology (Uyun, Ali, & Badarudin, 2021).

The development of technology and information requires the users to be selective in using it, so that people are expected to be able to process the information obtained (Nuraeni, Feronika, & Yunita, 2019). Therefore, critical thinking skills are needed to deal with the advances development of technological and information (Maryam, Kusmiyati, Merta, & Artayasa, 2020). By having the ability to think critically is expected to be mastered in (1) processing; (2) filtering; and also(3) concluding the information, so that the information is valid (Munawwarah, Laili, & Tohir, 2020). Hence, the ability to think critically becomes an important capital and requirement to face challenges and technological advances (Hamdani, Prayitno, & Karyanto, 2019). This happens because the ability to think critically is a very important capability for individuals to be able to face various problems in social and personal life (Nuryanti, Zubaidah, & Diantoro, 2018). Critical thinking is the competence to analyze situations based on facts and evidence, so that a conclusion is obtained (Agnafia, 2019). Critical thinking is important to be developed as it improves the quality of thinking for an individual to be competent in analyzing, assessing, and reconstructing what is on his mind, thereafter it is useful to solve problems (Nugraha, Suyitno, & Susilaningsih, 2017). In addition, this critical thinking ability is very important to be mastered by students, so that students are more skilled in constructing an argument, analyzing the credibility of information sources, and making decisions on an issue (Sulistiani & Masrukan, 2017).

Based on several descriptions of critical thinking skills, it can be concluded that critical thinking skills are important in education. It is supported by Rachmantika & Wardono (2019) who explained that critical thinking is one of the thinking skills that must be possessed by everyone, including students. However, this reality is still far from expectations. There are a lot of data proved that literacy and critical thinking skills in Indonesian students are still low (Anisa, Ipungkarti, & Saffanah, 2021). The same case has also been experienced in research conducted by Satwika, Laksmiwati, & Khoirunnisa (2018) which found that students' critical thinking skills were still limited. Another study conducted by Shanti, Sholihah, & Martyanti (2017) showed that students' critical thinking skills were still very low and needed to be developed. These two studies that a have been conducted revealed that the low critical thinking ability of the students was caused by the teacher-centered learning process and memorization method, so that the optimalization of students' critical thinking skills was still very little.

Coming from these two studies, the government should focus on the developing of critical thinking skills, so that students can practice and express their understanding of the material from a problem (Azizah, Sulianto, & Cintang, 2018). This is important because critical thinking skills can improve student learning outcomes (Susilawati, Agustinasari, Samsudin, & Siahaan, 2020). As well as being able to improve the learning outcomes, critical thinking skills have an essential part in (1) life; (2) work; and (3) other effective points (Jamaluddin, Jufri, Muhlis, & Bachtiar, 2020). The more students mastering critical thinking skills, the

better and high expectation in developing thinking patterns of the younger generation in the future, so that they are able to compete at a global level (Novtiar & Aripin, 2017). Based on the explanation that has been described, it is necessary to improve critical thinking skills as the requirement in the 21st century.

Regarding the importance of critical thinking skills, several studies on critical thinking skills have been done. The most frequently studies conducted in investigating critical thinking skills were in the form of quantitative research such as a research conducted by (Fitri & Zahari, 2019; Gultom, Rasyid, & Rafli, 2020; Hidayat, Akbar, & Bernard, 2019; Irwansyah & Munasiah, 2018; Sobari, Abdurrakhman, & Azzahra, 2019). Other studies on critical thinking skills in the form of Classroom Action Research (CAR) were conducted by (Mondolalo, 2019; Uli & Lizawati, 2019). In addition, studies on critical thinking skills in qualitative form were also conducted by (Bachtiar & Sihes, 2016; Partinem, 2019; Ratnaningsih & Suyoto, 2019; Rizal, 2020), as well as research conducted by Sholeh, Kadaryati, Bagiya, & Winanti (2020) which observing critical thinking skills with the R & D model. However, studies there are no publication about articles that is focused on the pattern of critical thinking research. Therefore, this research will be very useful in revealing information about critical thinking skills and become an important foundation in designing learning that emphasizes students' critical thinking skills. In addition, the information generated from this research will be used as an evaluation material regarding the extent to which critical thinking skills are optimized at the Elementary School to University Level. This study aims to answer the questions of (1) what type of research is used to analyze critical thinking skills? (2) what type of quantitative research is used to determine critical thinking skills? (3) how are the research subjects used by researchers to determine critical thinking skills? (4) What are the data collection instruments used by researchers to determine critical thinking skills? (5) How is the data analysis method used by researchers to determine critical thinking skills? (6) What is the research profile of critical thinking skills from year to year?.

METHODS

This study was focused on the findings from various studies that have been published in scientific journals in the Association of Indonesian Language and Literature Journals and Teachings Manager (PPJB-SIP) by using a content analysis model. The research method used in this study was adapted from the research conducted by (Setiawan & Musaffak, 2021; Susetyarini & Fauzi, 2020; Fauzan et al., 2022s). In addition, this research used qualitative research. The data in this research derived from collections of the content analysis results conducted on research articles on Indonesian Language and Literature Education. The all articles were taken from Indonesian Language and Literature Education journals that have been registered with the Indonesian Language and Literature Journal Management Association and Teaching (PPJB-SIP) in May 2022. In total, there were 32 articles discussing critical thinking skills published in Language Education Journals and Indonesian Literature in the PPJB-SIP database (https://ppjb-sip.org/senarai). Furthermore, the all articles discussing about critical thinking skills were collected from each Indonesian Language and Literature Education Journal registered at PPJB-SIP. From all the articles that have been collected, there were 27 articles discussing about critical thinking skills, which those 27 articles were analyzed in this study.

The research instrument used in this study was an analysis that contain aspects related to the articles observed as shown in Table 1. There were six main aspects which are reviewed and analyzed in this research. These aspects included (1) types of research, (2) types of quantitative research, (3) research subjects, (4) data collection instruments, (5) data analysis methods, (6) year of article publication. The items that became the instruments in Table 1 were adapted from the research model (Setiawan & Musaffak, 2021; Susetyarini & Fauzi, 2020; Fauzan et al., 2022). Besides, the aspect of the type of research was broken down into two sub-aspects which consist of the type of research in general and the design of quantitative research.

Table 1. Aspects and Categories Used as Indicators for Conducting Content Analysis

Aspects	**Category**	
Types of Research	1.1 R and D	1.3 Qualitative Research
	1.2 CAR	1.4 Quantitative Research
Quantitative Research	2.1 Observation Study	2.5 The Real Experimental Design
	2.2 Correlation Research	
	2.3 Survey Research	2.6 Quasi Experimental Design
	2.4 Pra-Experimental Design	2.7 Expose Facto Design
		2.8 Others
Research Subject	3.1 Class VII Junior High School Students	3.7 University Students
		3.8 Post Graduate Students
	3.2 Class VIII Junior High School Students	3.9 Junior High School Teachers
		3.10 Senior High School Teachers
	3.3 Class IX Junior High School Students	3.11 Lecturer
	3.4 Class X Senior High School Students	3.12 Others
	3.5 Class XI Senior High School Students	
	3.6 Class XII Senior High School Students	
Data Collection Instruments	4.1 Questionnaire Sheet	4.4 Interview Sheet
	4.2 Observation Sheet	4.5 Others
	4.3 Test Sheet	
Data Analysis Method	5.1 Mean	5.6. ANCOVA
	5.2 Percentage	5.7 Correlation
	5.3 N-Gain	5.8 Unidentification
	5.4 T-test	5.9 Others
	5.5 ANOVA	
Year of Article Publication	6.1 2014	6.5 2018
	6.2 2015	6.6 2019
	6.3 2016	6.7 2020
	6.4 2017	6.8 2021

RESULTS AND DISCUSSION

The results of the research on the pattern of critical thinking ability showed the similar information as stated in the research objectives including (1) the type of research used to analyze critical thinking skills, (2) the type of quantitative research used to determine critical thinking skills, (3) research subjects used by researchers to determine critical thinking skills, (4) data collection instruments used by researchers to determine critical thinking skills, (5) data analysis methods used by researchers to determine critical thinking skills, and (6) profile critical thinking skills research from year to year. Furthermore, a description of each data was described as follows.

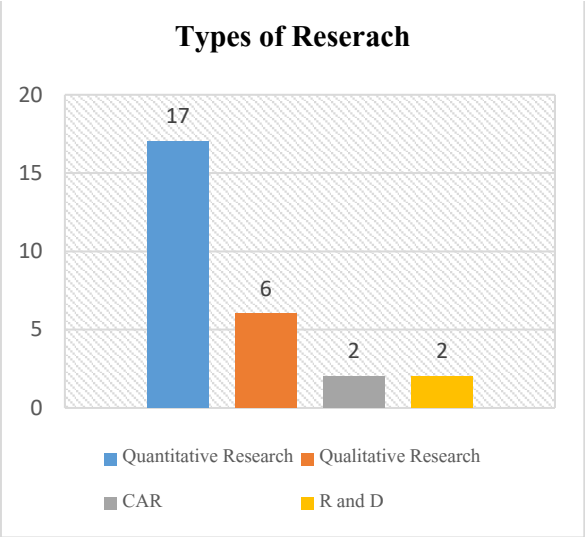

Figure 1. Types of Critical Thinking Ability Research

Figure 1 showed that the type of research that is dominantly used to investigate critical thinking skills was quantitative research. The amount of quantitative research presented a very high parameter compared to other types of research. This was in line with the research conducted previously, that quantitative research was the most dominant research chosen by the researchers in the education field of study in doing research (Andriani, 2021; Goktas et al., 2012; Prastyo, Ardiyanto, & Hidayat, 2020; Rachmawati et al., 2020). Based on these conditions, it illustrated that the types of research were (1) qualitative; (2) CAR; and (3) flotation was still a novelty in educational research (Sharma, 2013). However, recently, the trend of the pattern of qualitative research has begun to show an increase, one of them was in the educational research by (Mohajan, 2018). Based on the reality, the type of qualitative research has chance and opportunity to be used in analyzing educational phenomena and concepts in detail (Arsyad, 2017). Thus, by the minimum amount of research using the type of qualitative research, it can be a good opportunity to conduct research that focuses on critical thinking skills.

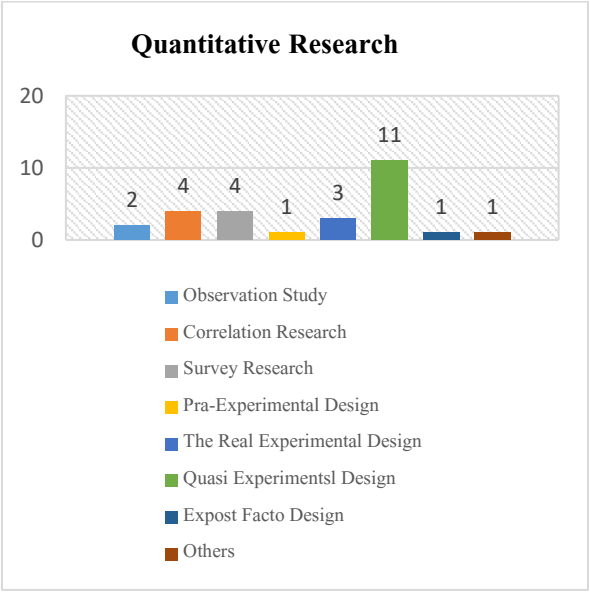

Figure 2. Types of Quantitative Research on Critical Thinking Ability

Based on Figure 2, the pattern of critical thinking research using quantitative research was dominated by a quasi-experimental design. The used of this quasi-experimental design showed that researchers more tend to use the appropriate type of research to review educational problems (Julia & Hartati, 2015; Mulyani, 2013; Subiyakto et al., 2021; Suciati, Mailili, & Hajerina, 2022) more specifically in regard to critical thinking skills research. This was based on the fact that the type of quasi-experimental research provided more concrete and clear research results than other types of quantitative research (Mulyani, 2013; Silviana & Mardiani, 2021). Besides, quasi-experimental research has several advantages, especially in the absence of randomization limits, and at the same time it can also control obstacles or threats that come from the level of validity (Juanda, 2018; Rahmawati, 2017). Based on the results of this study, the follow-up that can be done by researchers to further research was to conduct research using other types of quantitative research to explore information about critical thinking skills. This is expected to complete the profile of research on critical thinking skills that have been done previously.

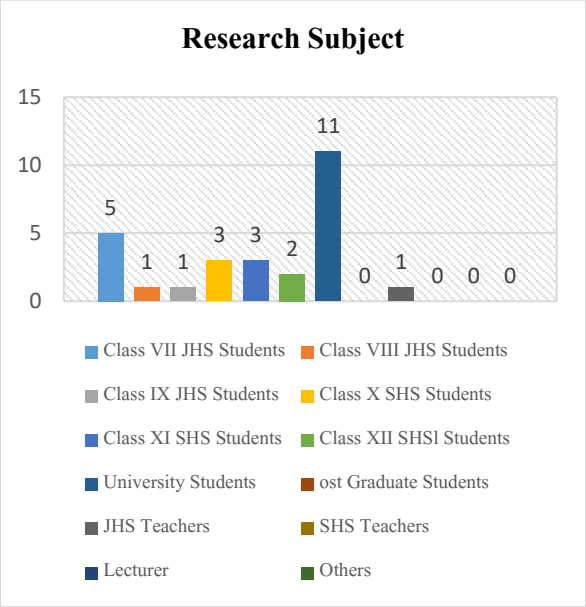

Figure 3. Research Subjects on Critical Thinking Ability

The graph in Figure 3 showed that the research subjects used in this research were more dominant in students' level. Then followed orderly from students in the University level, grade VII Junior High School students, class X Senior High School, class XI and XII Senior High School, class VIII and IX Junior High School and the last were teachers in Junior High School level. In order, there were 11 researchers involved in University Students level as the research subjects. Then followed by class VII with five researchers, Junior High School students used it as the research subject. The next position was class X Senior High School as the research subject with three researchers and followed by class XI and XII Senior High School with two researchers. Class X in Senior High School was the next, with three researchers, followed by class XI and XII Senior High School with two researchers. The following research subject was students of class VIII and IX of Junior High School in the fifth position. The last, which the sixth position were Junior High School teachers with one researcher.

Those orders showed that there was a significant amount of inequality in the used of research subjects where students becoming one of

the most dominant research subjects used in research on critical thinking skills. This was in line with what Ariyati (2010) & Fakhriyah (2014) explained that critical thinking skills were very relevant to be taught to students. In addition, the ability to think critically was one of the main things for students in dealing with the problems of phenomena that occur both in themselves and in society (Marlena, Dwijayanti, Patrikha, & Parjono, 2017; Nurrohmi, Utaya, & Utomo, 2017). This was based on the reality that life in the 21st century required critical thinking skills in order to explore information and communication technology (Hartini, 2017). Thus, the ability to think critically became the main foundation in dealing with the times (Wijaya, Sudjimat, & Nyoto, 2016). Therefore, students needed to be biased in increasing critical thinking skills to be more ready and swiftly in facing the development of the era (Nadeak et al., 2020).

This critical thinking ability research provided an overview of information about the research subject used by researchers. Based on Figure 3, it showed that students dominate as the most frequently research subject used. This condition emphasized that critical thinking skills must be taught to students as a requirement to face the era of globalization (Nadeak et al., 2020). Based on the results of this study, the research subjects were still dominated by students, so that further research on critical thinking skills could use class VII students at Junior High School level or students at a more advanced level as the research subjects.

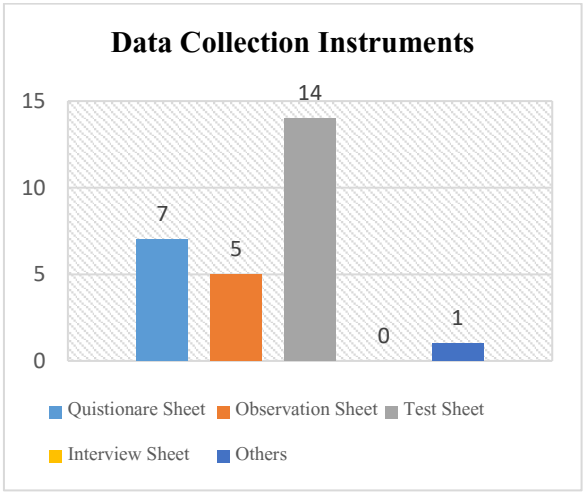

Figure 4. Data Collection Instrument on Critical Thinking Ability

Based on the graph in Figure 4, the information showed that the most data collection instrument widely used by researchers to determine critical thinking skills was the test sheet. This was in line with the opinion of Mulyadi (2011) that any research conducted must require an instrument used to collect data. The existence of this instrument was very important since it helped and facilitated researchers in collecting data, especially on critical thinking skills. The data collection instrument in the form of a test sheet was the most widely used instrument in measuring critical thinking skills as done by (Firman, Sari, & Firdaus, 2021; Hidayat, Akbar, Bernard, et al., 2019; Yunita, Rohiat, & Amir, 2018; Zetriuslita, Ariawan, & Nufus, 2016). The instrument in the form of a test sheet was used to measure students' critical thinking skills in discussing or solving a problem that is asked (Marudut, Bachtiar, Kadir, & Iasha, 2020; Oktaviani, Kristin, & Anugraheni, 2019; Susilo, 2012). In addition, the research instrument in the form of a test sheet was an objective data collection tool (Lestari et al, 2017) compared to other data collection instruments such as questionnaire sheets and observation sheets (Purwati et al., 2016).

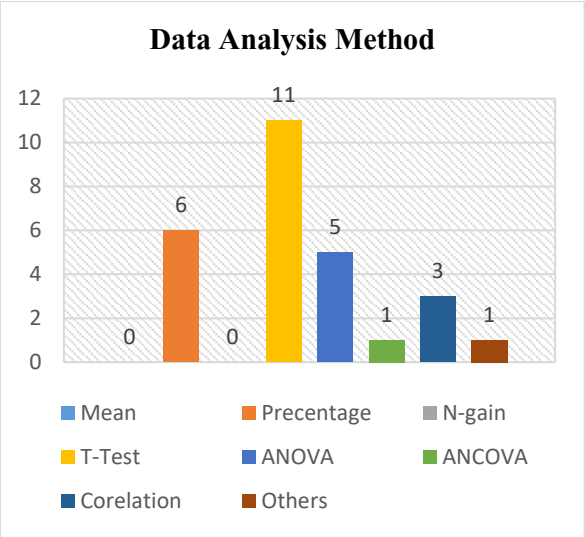

Figure 5. Data Analysis Method on Critical Thinking Ability

Data analysis method was the main part in determining the validity of a study. Figure 5 showed that the t-test was the data analysis method most often used by the researchers. This finding has clarified that researchers usually used the t-test as a comparison of the achievements of the two classes as the object of the research (Ahmatika, 2016; Yustyan et al., 2015). Based on the data finding, it can be said that researchers have their own pattern in using the t-test as the hypothesis test (Yustyan et al., 2015). In addition, figure 5 showed that the ANCOVA data analysis technique was still rarely used, so that the researchers recommended further researchers to be able to use ANCOVA data analysis as the analysis of quasi-experimental research design. This wais since the researchers cannot directly choose them as research subjects. By using ANCOVA data analysis technique in the real situation, the researchers can control external variables that may have an influence on the relationship between the independent and the dependent variable (Ulfa, 2019). In addition, the used of ANCOVA data analysis technique can possibly identify the differences that occur in the groups of research subjects shown in the pre-test data (Ariyani, Munif, & Ayunin, 2019). Based on the above description, it can be concluded that the ANCOVA data analysis technique was recommended in further quasi-experimental research which included pre-test and post-test data (Aprilianingrum & Wardani, 2021; Evi & Indarini, 2021; Leniati & Indarini, 2021).

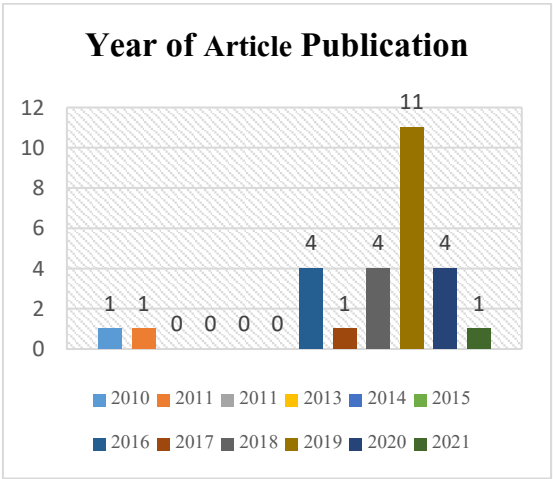

Figure 6. Year of Critical Thinking Ability Research Publication

The number of studies on critical thinking skills that have been collected in this study occurred over a certain period. In the graph of Figure 6 explained that the article on critical thinking skills that has been reviewed is from 2010. The graph in Figure 6 also showed that research on critical thinking skills has increased in the last 6 years. Further, it was proven by the data shown in Figure 6 that in the last three years from 2018-2020, there was an increase in critical thinking ability research during 2018. There were 4 studies investigated critical thinking skills, then it increased in 2019 as many as 11 studies discussing about critical thinking skills. However, in 2020 there was a significant decline with the number of studies as much as four, and one research in 2021.

Based on graph 6, it showed that many critical thinking studies done with the aim of preparing community resources in the 21st century (Partono et al., 2021). This was based on the assumption that in the 21st century, critical thinking skills were needed to analyze information and various social problems (Maryam et al., 2020; Nuraeni et al., 2019). Besides, research on critical thinking skills that have been done can be considered in improving training or research on critical thinking skills in the future. In addition, research on critical thinking skills can be improved in the scope of education as education was the main point in preparing human resources to face the development of technology and information in the 21st century (Nugraha et al., 2017; Rachmantika & Wardono, 2019).

CONCLUSION

Based on the result of the study, it shows that the pattern of critical thinking ability research can be seen based on (1) the type of research, (2) the type of quantitative research used, (3) the research subject, (4) the data collection instrument, (5) the method of data analysis, and (6) the year of publication. The research results which are in accordance with those described in the objectives are described as follows. (1) the pattern of critical thinking skills research based on the type of research used shows that the type of research that is most often used by researchers is quantitative research. (2) The type of quantitative research conducted shows that most studies are dominated by using a quasi-experimental design. (3) the dominant research subjects used in critical thinking research articles are students, and this condition is since critical thinking skills are very appropriate to be taught to students to become provisions in analyzing information in solving problems. (4) The most dominant data collection instrument used by researchers is the test instrument. The research instrument in the form of test serves to measure the critical thinking skills mastered by the research subject. (5) The most frequently used data analysis method in critical thinking skills research is the t-test. This finding clarifies that researchers predominantly use t-tests to compare the performance of two classes or groups. (6) research on critical thinking skills that has been done starting from 2010-2021, where in 2019 is the year of the most research on critical thinking skills with a total of 11 studies conducted. This type of research produces valuable information about patterns of critical thinking skills, as well as a basis for activating critical thinking skills in the world of education as the main requirement for students in the 21st century.

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