Critical reading research and its implications for critical reading skills for Indonesian language teachers: A systematic literature review

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KEYWORD	ABSTRACT
Journal articles Indonesian Language Teachers Speed reading skills	The abundance of information sources is the result of rapid technological advances. Rapid technological advances must be balanced with reading skills, one of which is critical reading skills used to filter information sources. This systematic literature review aims to compare the findings of research articles published by the Science and Technology Index (SINTA). The keyword used to find articles in the SINTA database is "critical reading." The search results found 78 articles, then 23 articles were selected that met the criteria for analysis. The reporting items selected for the systematic literature review and meta-analysis were the inclusion and exclusion models. In the last ten years, the number of publications dominated in 2016 with six articles. The types of research used by researchers in reviewing critical reading skills are R & D, quantitative, qualitative, and CAR. The research subjects used by the researchers consisted of class X high school students, class VII junior high school students, class VIII junior high school students, fifth-grade elementary school students, and junior high school teachers. The publication and citation structure reveals that, out of 23 articles, they have been cited 114 times, with the 2016 publication having the most citations, a total of 46 times. Writers who have a track record of publications covering critical reading skills are (1) Nuria Reny Hariyati, (2) Hespi Septiana, and (3) Endah Tri Priyatni, all three of whom have a publication track record of 10 articles. The writing institutions are divided into two institutions, namely schools (13%) and colleges (87%), and the collaboration of writers shows a number that is quite far apart, where 14 authors collaborate and nine single authors. There are eight ideas for reflection by Indonesian teachers in teaching critical reading skills.

Introduction

According to Caviness, (2020); Chandra et al., (2021) reading is an essential ability to acquire knowledge from various sources of information. Through reading activities, new

insights will emerge from accumulating data and information obtained. This new insight will be constructive in responding to the challenges of the 21st century, which is characterized by globalization open access to information and knowledge resources (Musianto, 2004; Saputri et al., 2019). The characteristic of which that sources of information shift from books to screen pages, from print media to online mass media (Brozo & Johns, 1986; Yen, 2012). His condition leads to the fact that every society naturally receives an unstoppable explosion of digital information from ever-changing sources (Brozo & Johns, 1986; Rau et al., 2018).

The explosion of digital information certainly forces everyone to be more selective in selecting and critically reading information sources (Muttaqiin, 2015; Putra, 2015). Critically reading any information obtained must be done before sharing this information with other audiences (Diana, 2014). Through critical reading activities carried out by individuals in this digital era, it is hoped that disinformation will not occur, which will lead to misinformation (Inawati et al., 2021; Rachmawati et al., 2020). However, this situation is not well realized in Indonesia's digital society (Prihatinta et al., 2021). This is evidenced by the low critical reading ability of the Indonesian people (Nurhayati, 2015; Restuningsih et al., 2017) when receiving incoming digital information from news, as well as the function of news providers on each device.

In education, the ability to read critically is essential. This is supported by Nofitria et al., (2017), which states that all educational efforts are more concerned with reading skills. This condition follows the Standard Nasional Pendidikan (SNP), which states that teaching reading and writing is mandatory in schools (Pratama, 2016). The addition of reading skills to the Standard Nasional Pendidikan (SNP) is a sign that the reading skills of the Indonesian people are not in good condition (Setiawan & Musaffak, 2021). In addition, another example related to the urgency of including reading skills in the SNP is that modern society has contracted a lazy reading disease (Priyatni, 2014). This is directly related to the fact that all information is currently presented in written form, which is not conducive to the continuity of education in Indonesia (Nofitria et al., 2017). This confirms the need for the government to pay attention to the process of learning to read and its evaluation (Priyatni, 2014).

Based on these conditions, one way to improve the quality of education is to accommodate all means to maximize students' abilities in learning to read (Abiyanti, 2017; Fauzan et al., 2022; Setiawan & Musaffak, 2021). Many studies have been conducted to understand how to improve the quality of education and the learning process to maintain its quality from time to time (Nurani et al., 2017; Setiawan & Musaffak, 2021). Some of the findings from this research have been used as a starting point for developing policies and lesson plans

for teachers and lecturers, especially critical reading skills. Following the Standard Nasional Pendidikan (SNP), students must have a basic understanding of critical reading skills from junior high school to high school. The standard for critical reading ability is that students do not just understand the content of the reading but involve emotions so that students can analyze and provide an assessment of the text (Diana, 2014). In addition, critical reading is a type of reading that is done wisely, considerately, deeply, evaluatively, and analytically (Ardiasri et al., 2017; Cahyanto et al., 2016). These two statements further support the idea that critical reading is one of the skills that must be possessed in the 21st century (Bosley, 2008; Syahmaidi et al., 2019).

Regarding the importance of critical reading skills, several researchers have previously examined critical reading skills. The most common research on critical reading skills is conducted using the R&D type of research (Ardiasri et al., 2017; Cahyanto et al., 2016; Hariadi et al., 2018; Inawati et al., 2021; Lestari, 2020; Nofitria et al., 2017; Perdana & Kriswantara, 2021; Pratama, 2016; Priyatni, 2014; Wardoyo et al., 2016; Yono et al., 2017). Other research on critical reading skills was also carried out in the form of Classroom Action Research conducted by (Usman, 2015); other types of research on critical reading skills were carried out in the form of descriptions (Cahyono et al., 2019; Diana, 2014; Ibda, 2019), as well as those carried out in the form of experimental research both fundamental and pseudo (Andra, 2019; Hariyati, 2019; Muttaqiin & Sopandi, 2016; Putra, 2015; Restuningsih et al., 2017; Sariyem, 2016; Utami et al., 2012; Yulianda et al., 2012). To the author's knowledge, there has never been any research that examines critical reading skills in the form of a systematic literature review (SLR). Thus, this research is expected to provide an overview of how the findings relate to the results of research articles that discuss critical reading skills.

Such research will yield invaluable information further to enhance critical reading skills in digital information flows. The purpose of this research is to review and compare various studies on journal articles on the topic of critical reading skills. Some of the points that became the target of this study included (1) year of publication, (2) type/method of research, (3) research subjects, (4) structure of publication and citation of critical reading skills, (5) authors and keywords, (6) institutional and collaborative writers, (7) the contribution of critical reading skills to Indonesian language teachers. This study is expected to contribute to a more comprehensive design for developing critical reading skills and provide a basis for research focusing on non-research texts.

Method

Research Framework

This research is a type of systematic literature review (SLR). Systematic literature review (SLR) is a technique for identifying, evaluating, and analyzing various relevant, up-to-date information in the literature/references to answer research questions (Snyder, 2019; Xiao & Watson, 2019). Systematic literature review (SLR) research helps condense and summarize the latest knowledge on a particular topic systematically and transparently (Lohmann et al., 2021).

Research Question

Defining research questions determines the scope of developing a clear focus for research. This question was developed in response to the needs of the selected problem, namely: "how does research on critical reading skills affect Indonesian teachers' critical reading skills?"

Article Search Process and Appropriate Manuscript Criteria

The process of searching for articles is carried out by researchers using the term "critical reading" in the search menu of each journal that is part of the Science and Technology Index (SINTA). The search process uses the "Search" menu in each journal that is a member of SINTA (https://sinta.kemdikbud.go.id/). Researchers only use the keyword "critical reading" to focus the search. The search engine will find all articles that contain the word "critical reading" in the title, abstract, content, or references. The data obtained is in the form of *PDF*, which is then synchronized into the Reference Manager (Mendeley) in the form of *RIS*.

Furthermore, to visualize data to be more transparent and communicative, researchers use VOSviewer software. By using the keyword "critical reading," the researcher found 23 articles. Inclusion and exclusion models were used as reporting items in a systematic review and meta-analysis (PRISMA) (Gallagher et al., 2016). In addition, researchers also use the scope review method or the scoping review method, which aims to answer questions from the research topic determined by using various sources of research articles (Booth et al., 2021). Furthermore, the research articles that have been collected are then grouped and followed by the process of concluding. The inclusion criteria used by researchers in searching for critical reading articles include (1) articles published between January 2010 and December 2021; (2) articles published in Indonesian and English; (3) the article is a research article; and (4) articles related only to critical reading. The inclusion criteria in the article search are depicted in Figure 1 .
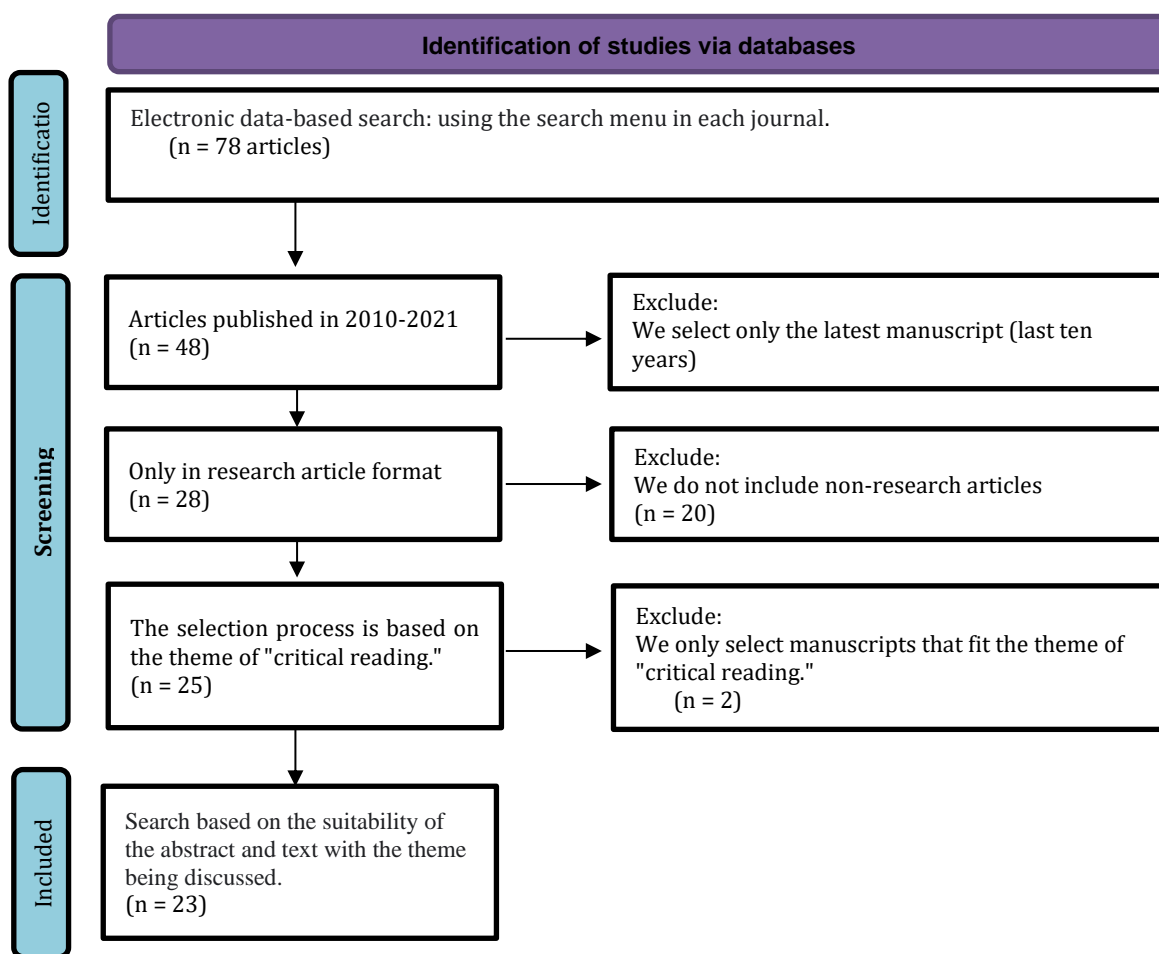
Setiawan, Arif, et.al (Critical reading research)

Fig 1. Systematic Review Flowchart (PRISMA Flowchart for Systematic Literature Review)

Fig 1 represents the sequence of manuscripts that meet the criteria and those that do not meet the criteria used by the researcher. According to Fig. 1, the researcher found 78 articles during the initial search. Next, the researcher examines articles published between 2010 and 2021; at this point, 48 articles meet the criteria, which means that 30 articles do not meet the requirements. Followed by the selection process on the type of research article; in this process, 28 articles that met the criteria and 20 articles that did not meet the criteria were obtained. In the next stage, the researcher uses criteria based on the theme discussed, "critical reading," to ensure that the required reading skills are critical. As a result, 25 articles met the criteria, and two articles did not meet the criteria. The researcher defines the critical reading skills needed as material for selecting the manuscripts to be used in this study. This is because in the selection process using the keyword "critical reading," several articles were obtained, but in substance, they did not meet the criteria for "critical reading" following the research theme. Finally, the researcher re-examined the existing articles to ensure suitability with the

predetermined theme. As a result, researchers got 23 articles that fit the theme of "critical reading," published in Indonesian and English.

Results and Discussion

The results of research on research on critical reading skills using a systematic literature review obtain information following research objectives which include (1) year of publication, (2) type/method of research, (3) research subject, (4) structure of publication and citation of critical reading skills, (5) authors and keywords, (6) institutions and collaborations of authors, (7) the contribution of critical reading skills to Indonesian language teachers. The description of each data is described as follows.

Year of Publication

Fig. 2 presents several articles published from 2012 to 2021. Figure 2 shows the distribution of publications from 2012-2021, publications on critical reading have not changed significantly. In 2016 and 2017, the number of publications on critical reading increased significantly, with five articles published. This condition was not followed in 2018-2021, where publications decreased to 1 publication in 2018, 3 in 2019, 1 in 2020, and 2 in 2021. The details of the year of publication can be seen in Fig 2.
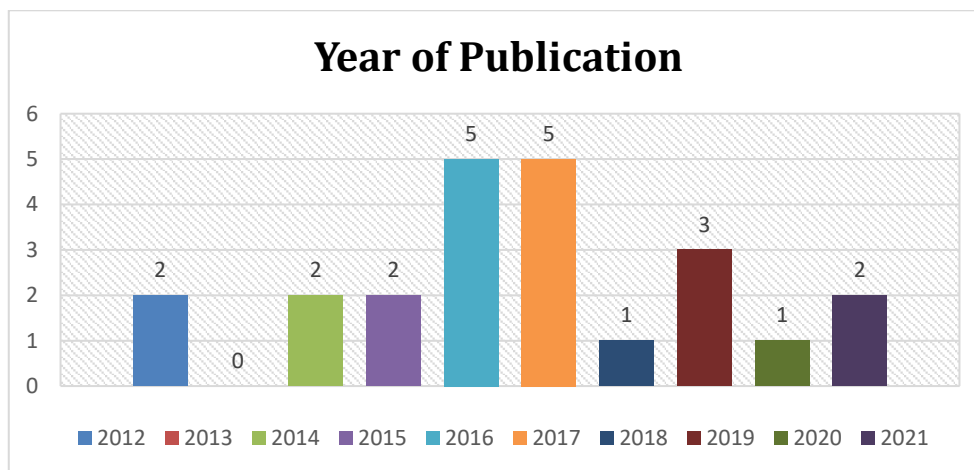

Fig. 2. Year of Article Distribution

Based on Fig 2 shows that more research that is done on critical reading skills will have an impact on the preparation of human resources in the 21st century. The preparation of human resources in the 21st century relies on obtaining information quickly, having a comprehensive understanding of digesting a large amount of information, and carefully processing the information obtained (Goatly & Hiradhar, 2016; Wallace & Wray, 2021). The concept of critical reading is reading that involves a process of analysis and evaluation, so

readers need to consider the quality of the content and style of the text read based on justifiable criteria (Priyatni, 2014). In addition, critical reading skills involve an evaluation process of the quality of writing following predetermined standards on aspects of substance and writing style (Cahyanto et al., 2016; Priyatni, 2014). In the evaluation activities, it is very demanding for readers to read carefully, actively, analytically, and reflectively. It is characterized by the reader having to start thinking critically by not readily accepting the truth of the contents of the text, then carefully examining the contents, dissecting them into their constituent parts to identify the logical arguments, repeating the arguments, and then evaluating the quality of the arguments as a whole (Cahyanto et al., 2016; Nofitria et al., 2017; Priyatni, 2014). Thus, critical reading skills must be possessed by students in the current technological era so that each individual will obtain valid and credible information. Based on the results of research on critical reading skills that have been carried out from 2012 through 2021, it is hoped that this can be used as evaluation material to improve critical reading research in the future so that it can make a high contribution to preparing human resources in the technological era.

Research Types/Methods

Table 1. Types of Research with Critical Reading Themes

No	Type of Research	Amount	Reference
1	Quantitative	8	(Andra, 2019; Hariyati, 2019; Muttaqiin & Sopandi, 2016; Putra, 2015; Restuningsih et al., 2017; Sariyem, 2016; Utami et al., 2012; Yulianda et al., 2012)
2	Qualitative	3	(Cahyono et al., 2019; Diana, 2014; Ibda, 2019)
3	Action Research Class	1	(Usman, 2015)
4	Research and Development	11	(Ardiasri et al., 2017; Cahyanto et al., 2016; Hariadi et al., 2018; Inawati et al., 2021; Lestari, 2020; Nofitria et al., 2017; Perdana & Kriswantara, 2021; Pratama, 2016; Priyatni, 2014b; Wardoyo et al., 2016; Yono et al., 2017)

Research trends using the theme "critical reading" are presented in Table 1. Studies on critical reading are more likely to be carried out using Research and Development (R&D) types (eleven articles). Furthermore, this type of critical reading research conducted by quantitative methods ranks second with eight. In the third place, research was conducted using qualitative research with three articles. One article examined the final order of critical reading skills using the Classroom Action Research (CAR) type.

Research on critical reading skills is most dominantly approached using Research and Development (R&D) types. This is in line with the opinion expressed by Ardiasri et al., (2017); Nofitria et al., (2017) that research and development (R&D) can produce very valid products. This product results from a long process and a series of tests from experts in their fields,

resulting in good, effective, credible, and quality products. These two researchers said that learning models, teaching materials, and teaching modules were needed that could support and develop students' critical reading skills so that critical learning reading could be carried out in an active and fun way (Nofitria et al., 2017). In addition, the use of learning models, teaching materials, and teaching modules is expected to help and facilitate teachers in organizing critical reading learning (Inawati et al., 2021; Nofitria et al., 2017; Priyatni, 2014). Based on the explanation submitted related to research and development (R&D), it can be concluded that the tendency of researchers to use this type of R&D is based on the effectiveness, credibility, and quality of the products that have been produced.

The next type of research used by researchers to study and study critical reading skills is quantitative. The eight studies examining critical reading skills were conducted using experimental research in real and virtual forms. Research conducted in natural or quasi-experiments tries to find relationships between variables, where the results will be analyzed using the T-test (Muttaqiin & Sopandi, 2016; Utami et al., 2012). Apart from being based on the T-test, research conducted with this type of experiment also uses data originating from students' Minimum Completeness Criteria (KKM). Thus, it is easier for researchers to review critical reading skills for this quantitative research. Furthermore, research conducted by Cahyono et al., (2019); Diana, (2014); Ibda, (2019) reviews critical reading skills with this type of qualitative research. This is based on research that has been carried out with more emphasis on using media in learning critical reading.

The findings in this study are that research that examines critical reading skills using Classroom Action Research (CAR) is only conducted by one researcher. This is based on the fact that the purpose of Classroom Action Research (CAR) is to improve and improve the quality of learning and to help empower teachers in solving learning problems in schools. Based on this description, it can be concluded that Classroom Action Research (CAR) places more emphasis on increasing the quality of learning. However, improving the quality of learning in critical reading skills is something that is not easy for students to do (Nofitria et al., 2017; Wardoyo et al., 2016; Yono et al., 2017), so not many researchers use CAR to study critical reading skills. In addition, the lack of researchers studying critical reading skills using the CAR type is also based on the condition that almost 60% of students still experience difficulties in critical reading (Nofitria et al., 2017; Wardoyo et al., 2016; Yono et al., 2017), so it is difficult for researchers to improve the quality of learning.

Research Subject

Fig 3 shows that, in order, the research subjects used are more dominated by students. Then followed sequentially by students of class X High School (SMA), students of class VII Junior High School (SMP), followed by students of class V Elementary School (SD), students of class VIII Junior High School (SMP), and students of class XI Senior High School (SMA) with a total of 2. In sequence, it shows that the first position is occupied by students, with a total of 8 researchers who use them as research subjects, followed by five high school class X students who use them as research subjects—followed by students of class VII SMP who are in third place, with a total of 3 researchers who use them as research subjects. Then it was followed simultaneously by students of class V SD, students of class VIII SMP, and students of class XI SMA in fourth place with two researchers each who used them as research subjects. Lastly, it was closed with a junior high school teacher in fifth place with one researcher who used it as a research subject.
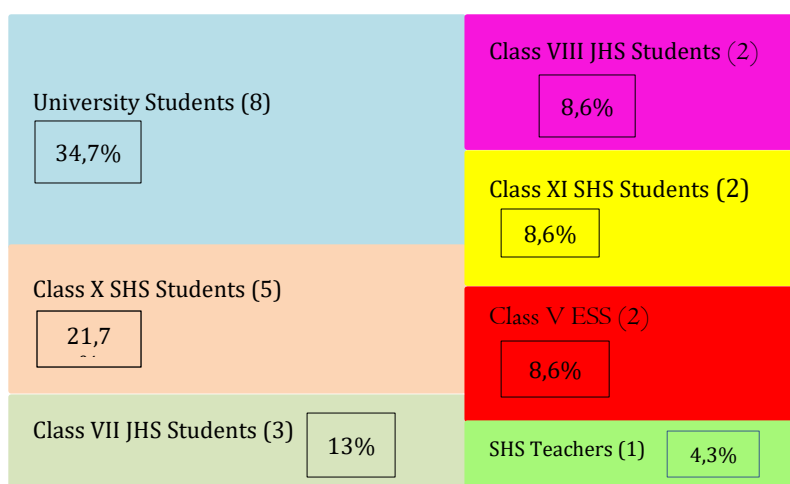

Fig 3. Research subjects that are often used in research on critical reading skills

Based on Fig 3 shows that there is a significant discrepancy in the number of research subjects. Where students become one of the most dominant research subjects used in research on critical reading skills, this is in line with the opinion Wardoyo et al., (2016), and that critical reading skills are a very long reading process because readers are required to understand, analyze, and evaluate the quality of the author's language, reasoning, emotion, structure, and style.

Based on these conditions, it can be said that critical reading skills must be possessed by students at the high school or college level (Diana, 2014; Wallace & Wray, 2021). In addition, critical reading skills are part of an intensive reading process carried out thoughtfully and carefully, thus requiring the reader to evaluate and analyze the content of the reading Akın et

al., (2015); Goatly & Hiradhar (2016). Therefore, critical reading skills are very complex reading skills Muttaqiin (2015); Muttaqiin & Sopandi (2016); Setiawan & Musaffak, (2021), thus making researchers more often use research subjects on students who already have complexity in thinking processes (Cahyanto et al., 2016; Febrianto et al., 2020; Sari et al., 2019). Thus, the habituation conditioned on students to do critical reading makes them more prepared and precise in understanding information from reading sources obtained (Brower, 2013; Brozo & Johns, 1986).

An important finding in this study was the use of research subjects in fifth-grade elementary school students, such as research conducted by Restuningsih et al. (2017); Usman (2015). The two researchers tried to examine critical reading skills using classroom action research and quasi-experimental research. Classroom Action Research conducted by Usman, (2015) found that critical reading skills in fifth-grade elementary school students could be improved by using the CTL method.

Research conducted Restuningsih et al., (2017) looked more at the effect that occurs on critical reading skills on critical thinking skills. Based on the two studies that have been conducted, it can be concluded that the research that examines critical reading skills in fifth-grade elementary school students is only at the level to find out to what extent students already have critical reading skills, so they have not yet reached the level of the development process.

This seems to reinforce what has been said by Akın et al., (2015); Diana, (2014); Goatly & Hiradhar, (2016); Wallace & Wray, (2021) that critical reading skills are very complex reading skills and require seriousness from the reader. Thus, it can be said that research on critical reading skills is better done on students at the high school level (SMA) and students who incidentally already have complex thinking skills (Malik et al., 2019; Takala & Wickman, 2019). Publication structure and citations critical reading skills is served in Fig 4.

Fig 4 shows that the article that reviewed critical reading skills was first published in 2012. The publication process began with two articles written by Utami et al., (2012) and Yulianda et al., (2012), which have significantly contributed to the development of science, particularly regarding critical reading skills. The contribution made by a journal can be determined based on the number of articles published and the number of citations to know the extent of the journal's influence (Campbell, 2008; Svensson, 2010).

During the 2012-2021 period, 23 documents have been published as research articles. Twenty-three articles discussing critical reading skills have been cited 114 times. 2016 and 2017 were the years with the most published articles, with five articles. This year also, the

number of citations has the highest proportion, namely 75. One of the articles with the highest number of citations in 2016 was written by (Pratama, 2016).
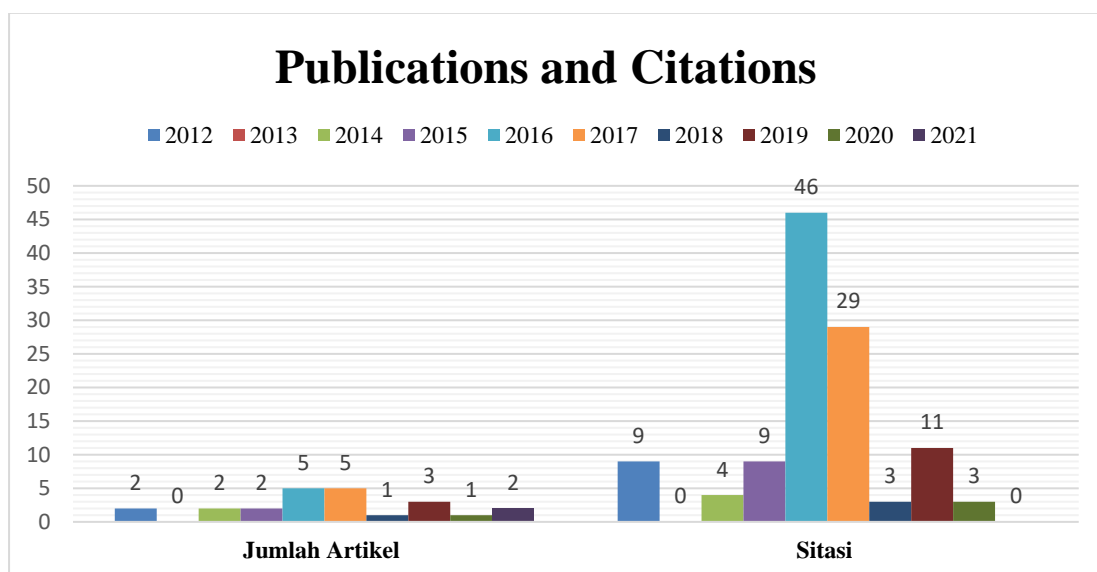

Fig 4. Year of Publication and Article Citation

According to the data on Google Scholar, this article has been cited 19 times and is open access. In addition to the quality of the articles and the substance discussed in an article, the nature of open access can also increase citations because they are not limited to one scientific community only. Researchers have consistently studied critical reading skills from 2012-2021, even though the recapitulation of each year has a different number of articles. 2013 was a year where there were no published articles on critical reading skills, while 2013 and 2018 did not have several citations for articles discussing critical reading skills.

Authors and Keywords

Fig 5 is the distribution of information about authors who have published articles that review critical reading skills. Fig 5 shows an even distribution of writers, and this condition is because of the 23 articles that review critical reading skills written by different authors. There is only one writer, namely Imam Agus Basuki, who has collaborated with five other writers. These data show that critical reading skills are a topic that is still new and has not been widely discussed. This is in line with the opinion Cahyanto et al., (2016); Priyatni, (2014); Utami et al., (2012), which states that critical reading skills are a topic of discussion that is experiencing an increase along with the abundance of information in the digital era.

Fig 5 illustrates the VOSviewer output findings for each author's relationship. Each distribution shows unusual blocks because only one writer reviews critical reading skills. This is one of the findings in this study that research on critical reading skills is still minimally carried out collaboratively by researchers.
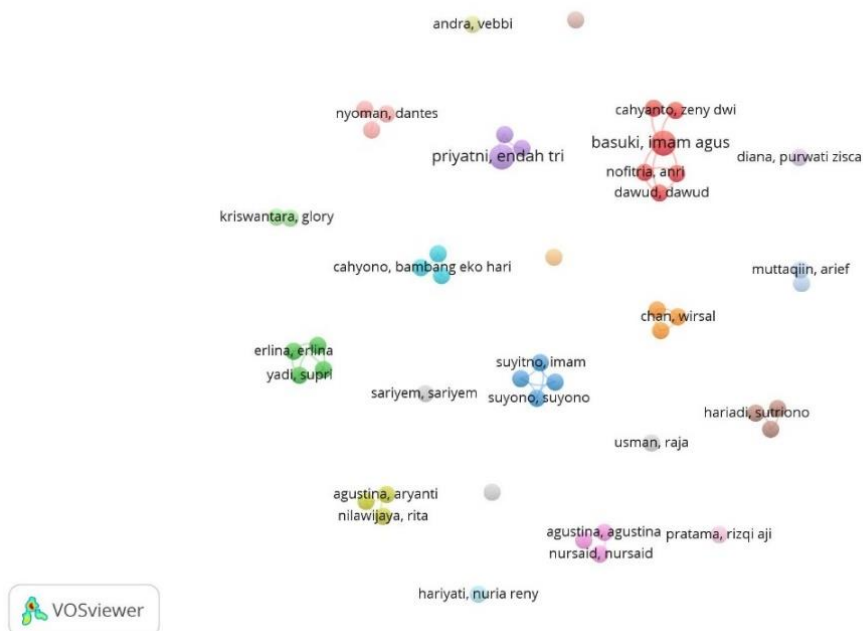
Fig 5. Distribution of Authors in Critical Reading Skills Articles

Fig 5 shows the findings from VOSviewer for writers' backgrounds that are related to the topic of critical reading skills research, namely (1) Nuria Reny Hariyati, (2) Hespi Septiana, (3) Endah Tri Priyatni, (4) Arief Muttaqiin, (5) Imam Agus Basuki, and (6) Zubaedah Wiji Lestari. Of the five authors who have a publication history that reviews critical reading skills in a total of 4 articles are (1) Nuria Reny Hariyati, followed by (2) Endah Tri Priyatni and (3) Hespi Septiana with a total of 3 articles, and in the last position there is (4) Zubaedah Wiji Lestari, (5) Imam Agus Basuki, and (6) Arief Muttaqiin with a total of 2 articles.

The five authors have publication trails that review critical reading skills in both national and national journals accredited by SINTA. Nuria Reny Hariyati has four publication trails that review critical reading skills, including (1) Application of Critical Reading Strategies at the Surabaya Pharmacy Academy to Support Literacy Skills Towards the Era of the Industrial Revolution 4.0 (2018); (2) Textbook of Critical Reading: Radicalism in the Perspective of Critical Discourse Analysis (2019); (3) ASCO (Analyzing, Solving Problems, and Comparing) Implementation of Critical Reading Learning (2019); and (4) Correlation of 4C Critical Reading (Communication, Collaborative, Critical Thinking, And Creativity) with the Ability to Counteract Radical Literacy in Higher Education (2019).

Endah Tri Priyatni has three publication trails that review critical reading skills with the titles (1) Development of responsive intervention-based critical reading materials (2014); (2) Development of responsive intervention-based critical reading materials with multimedia

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(2011); (3) Critical reading and critical literacy (2010). Hespi Septiana has three publication tracks that review critical reading skills with the titles (1) Correlation of 4C Critical Reading (Communication, Collaborative, Critical Thinking, And Creativity) with the Ability to Counteract Radical Literacy in Higher Education (2019); (2) ASCO (Analyzing, Solving Problems, and Comparing) Implementation of Critical Reading Learning (2019); (3) Textbook of Critical Reading: Radicalism in the Perspective of Critical Discourse Analysis (2019).

Zubaedah Wiji Lestari has two publication tracks that review critical reading skills with the titles (1) Perceptions of Critical Reading Learning for Children Through Blended Learning as the Implementation of MBKM Policy (2020) and (2) Analysis of Student Reading in Efforts to Develop Critical Reading Teaching Models (2020). the year 2020). Arief Muttaqiin has two publication trials that review critical reading skills with the titles (1) The relationship between critical reading skills in discovery learning and students' critical thinking skills (2015) and (2) The effect of the discovery learning model with the insertion of critical reading on students' critical thinking skills (2016). Based on the publication track record carried out by the five authors shows that critical reading skills are an essential part of the world of education and can be reviewed in depth.

Nuria Reny Hariyati is a lecturer in Indonesian language studies at the Surabaya Pharmacy Academy. He is interested in developing Indonesian language learning at all levels of education (basic university). Reading and critical thinking skills have become one of the areas that are occupied. This can be seen from the track record of publications that have been carried out so far. In addition, he teaches courses in (1) Indonesian, (2) Planning and development of Indonesian, (3) Indonesian Discourse, and is active in research activities. In her track record of publishing articles on Google Scholar, Nuria Reny Hariyati has an h-index of 4 and 2 Scopus documents based on Google Scholar data (https://scholar.google.com/citations?hl=en&user=SmigkJ0AAAAJ).

Meanwhile, Endah Tri Priyatni is a professor of Indonesian language learning at Malang State University (UM). He is interested in developing Indonesian language learning, especially reading and critical thinking skills. Indonesian language learning, especially reading and critical thinking skills is one of the areas that have been occupied so far. In addition, he teaches courses on (1) language skills, (2) reading skills, and (3) critical thinking skills, and he is active in research activities as well as visiting professors at several institutions. In the track record of article publication at SINTA, Endah Tri Priyatni has an h-index of 11 and has 8 Scopus documents based on SINTA data (https://sinta.kemdikbud.go.id/authors/profile/6003944).

Hespi Septiana is a lecturer in Indonesian language studies at Surabaya State University. He is interested in developing Indonesian language and literature learning at the

secondary-university level. Critical reading skills are one of the research topics she is currently pursuing. This can be proven by the publication track record that has been carried out so far with the number of publications of 3 articles. Hespi Septiana teaches courses (1) learning supervision, (2) Indonesian, and (3) essential BIPA learning. In the track record of article publication at SINTA, Hespi Septiana has an h-index of 3 and has 21 documents on Google Scholar based on SINTA data (https://sinta.kemdikbud.go.id/authors/profile/6010802).
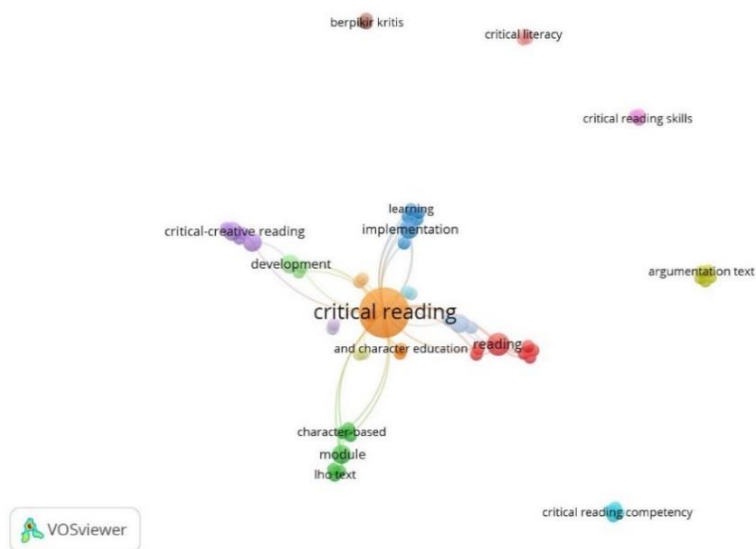

Fig 6. Keyword distribution in critical reading skills articles

Fig 6 presents data on keyword trends often used by writers when reviewing critical reading skills. Based on Fig 6 shows a very even distribution of each keyword. However, the five keywords do not have a network with one another. For keywords that already have a network with one another, indicated by a very even distribution of each keyword, the linked network leads to one big keyword, "critical reading."

Based on the network that has been formed with the help of the VOSviewer application shows that critical reading skills are a long process of processing information into valid and credible information for readers (Bosley, 2008; Brozo & Johns, 1986). Therefore, the keyword "critical reading" is directly related to critical-creative reading; development; learning; implementation; modules; a character based; reading; argument text; critical reading competency; critical reading skills; critical literacy; critical thinking; and education.

Fig 6 shows that the keyword "critical reading" is directly related to critical-creative reading, development; learning; implementation; modules; a character based; reading; and education. This is in line with what has been conveyed by Priyatni (2014); Wallace & Wray,

(2021); Yono et al., (2017) that critical reading is a very complex activity involving a long enough process to process a row of letters into valid and credible information for readers.

In addition, the critical reading process involves evaluating the writing quality following predetermined standards in terms of substance and writing style (Cahyanto et al., 2016; Priyatni, 2014). Therefore, it can be concluded that critical reading skills are one of the skills that students must possess, so it will make students more selective in selecting and sorting out information in an increasingly open era (Diana, 2014; Nofitria et al., 2017).

In line with this statement, Hariadi et al., (2018); Muttaqiin (2015) said that students need critical reading skills to continue to higher education and to live life in the digital information era. So, critical reading skills are very important to teach students because with these skills, students can filter the information they get. Author instituations and collaborations is show in Table 2.

Table 2. Authors and Institutions

No	Author	Institution	Amount
1	Yesi Setya Utami; Ellya Ratna; Wirsal Chan	Padang State University	1
2	Rika Yulianda; Agustina; Nursaid	Padang State University	1
3	Endah Tri Priyatni	Malang State University	1
4	Purwati Zisca Diana	Tamansiswa Yogyakarta Undergraduate University	1
5	Dona Aji Karunia Putra	UIN Syarif Hidatullah Jakarta	1
6	Raja Usman	Pekanbaru Open University	1
7	Arief Muttaqiin & Wahyu Sopandi	Indonesian Education University	1
8	Hadi Wardoyo; Imam Suyitno; Suyono; Sunaryo HS	State Junior High School 2 Bantur & Malang State University	1
9	Zeny Dwi Cahyanto; Imam Agus Basuki; Martutik	Malang State University	1
10	Rizqi Aji Pratama	Indonesian Education University	1
11	Sariyem	State University of Jakarta	1
12	Hamidulloh Ibda	PGMI STAINU Temanggung	1
13	Anri Nofitria; Dawud; Gatut Susanto; Imam Agus Basuki	Malang State University	1
14	Aptia Ardiasri; Endah Tri Priyatni; Kusubakti Andajani	Malang State University	1
15	Subadiyono; Supriyadi; Erlina; Ismail Petrus; Ramli Gadeng	Sriwijaya University & Shia Kuala University	1
16	Anita Restuningsih; N. Dantes; N. Sudiana	Ganesha University of Education	1
17	Sutriono Hariadi; Muakibatul Hasanah; Wahyudi Siswanto	State Junior High School 4 Probolinggo City & Malang State University	1
18	Vebbi Andra	IAIN Bengkulu	1
19	Bambang Eko Hari Cahyono; Lulus Irawati; Devit Tri	PGRI Madiun University	1

No	Author	Institution	Amount
	Candrawati		
20	Nuria Reny Hariyati & Hespi Septiana	Surabaya Pharmacy Academy & Surabaya State University	1
21	Zubaedah Wiji Lestari	Nusantara Islamic University	1
22	Inawati; Rita Nilawijaya; Aryanti Agustina	Baturaja University	1
23	Indra Perdana & Glory Kriswantara	State Senior High School 6 Palangka Raya & Palangkaraya University	1

Based on Table 2, the authors who reviewed critical reading skills were 53 people from 22 institutions, namely (1) Padang State University; (2) State University of Malang; (3) Tamansiswa University of Yogyakarta; (4) UIN Syarif Hidatullah Jakarta; (5) Pekanbaru Open University; (6) Indonesian Education University; (7) State University of Malang; (8) SMPN 2 Bantur; (9) Jakarta State University; (10) PGMI STAINU Temanggung; (11) Sriwijaya University; (12) Syiah Kuala University; (13) Ganesha University of Education; (14) SMPN 4 Probolinggo City; (15) IAIN Bengkulu; (16) PGRI Madiun University; (17) Surabaya Pharmacy Academy; (18) State University of Surabaya; (19) Nusantara Islamic University; (20) Baturaja University; (21) SMAN 6 Palangka Raya; and (22) Palangka Raya University. The articles that have been written are dominated by writers from universities (87%), compared to writers from high schools (13%), while detailed information can be seen in Fig 7.
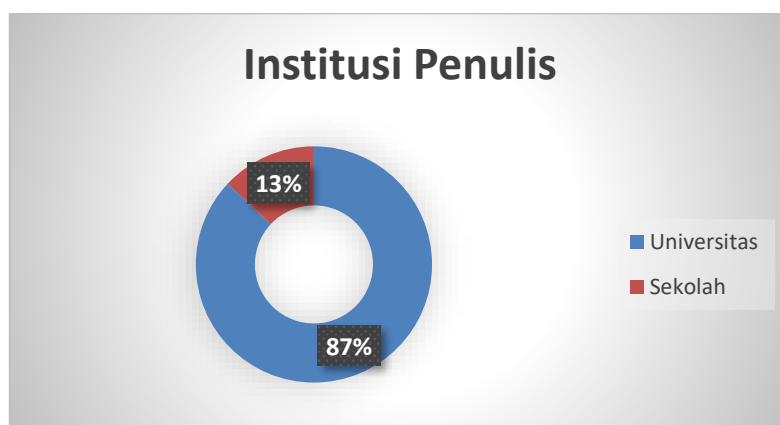

Fig 7. Distribution of Author Institutions

Based on Fig 7, there is an exciting finding that not many writers at the high school level have conducted research related to critical reading skills. This confirms that the research subjects that are often used in research on critical reading skills are more dominated by college students than students in junior and senior high schools. This condition further implies that many teachers in junior and senior high schools do not understand how to conduct research

Arifin (2020); Ulfa (2021) and that research has not become a culture that teachers must carry out besides their primary task of teaching (Evans, 2014; Musianto, 2004; Ulfa, 2019).
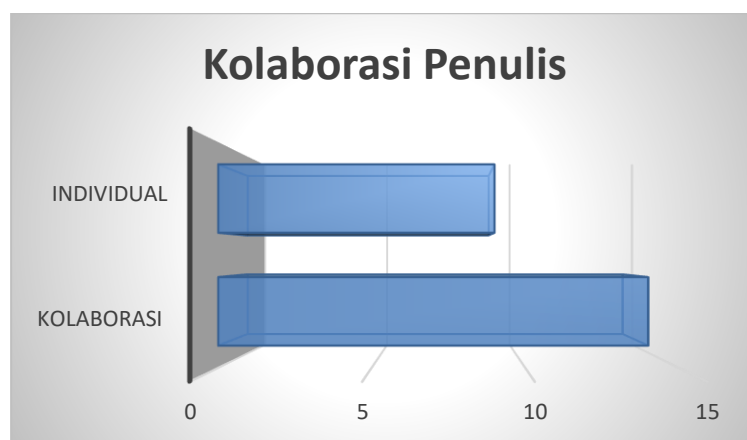

Fig 8. Article Author Collaboration

Fig 8 shows that more articles on critical reading skills were written in collaboration (14 articles), while articles were written individually or by a single author (9 articles). Articles that have been published tend to be written and published by scientists in one scientific field at the university level. This tendency shows that articles discussing critical reading skills are still new and have not been reviewed by many other researchers, thus providing a good opportunity for future researchers to deepen their review of these issues further.

Apart from the substance, the quality of the article is determined based on the collaboration of the authors. Collaboration in the same knowledge or across fields of study will provide a new perspective in reviewing research issues. Nowadays, collaboration in writing articles is essential, especially when dealing with complexities that require integrating knowledge from various disciplines (Eberle et al., 2021). Scientific publication is a construct that presents findings and can be carried out collaboratively, encouraging excellent levels of readability, understanding, and confidence in researchers. This condition is a better way of conducting research collaborations and communicating results in scientific articles (Freeling et al., 2021).

Collaborative research encourages group creativity that exceeds the creativity of each individual in a team so that in the context of publication, it will have a high scientific impact because it is a product across scientific fields (Uzzi et al., 2013). Therefore, publications that are carried out collaboratively encourage the emergence of collective creativity and can maximize original research and have innovation as a result of individual reflection and brainstorming while preparing manuscripts (Oliver et al., 2018). The preparation of publication manuscripts that are carried out collaboratively by involving many authors has

additional challenges, such as the involvement of all authors, fair credit scores, diversity of work styles, and clarity of communication in writing ideas (Frassl et al., 2018). In addition, collaborative drafting has other challenges regarding theoretical and methodological approaches that are understood by all lines within the team (Peffer & Renken, 2016).

The Contribution of Critical Reading Skills to Indonesian Language Teachers

Table 3 illustrates the significant contribution of articles discussing critical reading to Indonesian language teachers.

Table 3. Significant Contribution of Articles on Critical Reading Themes for Indonesian Language Teachers

No	Research Purposes	Research Methods	Results	Contribution of Each Referral	Linkage to Critical Reading Skills
1	1. Describe critical reading skills in class XI students of SMA Negeri Kanali. 2. Describe the relationship between critical reading skills and argumentative writing skills in class XI students of SMA Negeri Kanali.	Quantitative	1. The critical reading skills of class XI students of SMA Negeri Kanali are excellent (80.28). 2. There is a significant relationship between critical reading and argumentative writing skills in class XI SMA Negeri Kanali.	Critical reading skills possessed by students strongly support argumentative writing skills. (Utami et al., 2012)	Indonesian language teachers must understand that critical reading skills are significantly related to argumentative writing skills. This is based on the acquisition of facts that can be arranged into sentences that are logical and can be accounted for.
2	1. Describe critical reading skills in class VIII students of SMP Negeri Pariaman. 2. Describe the relationship between critical reading skills and argumentation writing skills in class VIII students of SMP Negeri Pariaman.	Quantitative	1. The critical reading skills of class VIII students of SMP Negeri Pariaman are excellent. 2. There is a significant relationship between critical reading skills and argumentative writing skills in class VIII students of SMP Negeri Pariaman.	Critical reading skills possessed by students strongly support argumentative writing skills (Yulianda et al., 2012)	

3	Describe the relationship between critical reading skills and argumentative writing skills in class VII students of SMP Negeri 9 Bengkulu City	Quantitative	The results of the study show that critical reading skills have a very close relationship to the ability to write arguments (0.852), meaning that critical reading skills strongly support the ability to write arguments.	Critical reading skills possessed by students strongly support argumentative writing skills. (Andra, 2019)	
4	Knowing critical reading skills in terms of critical thinking skills and reading interest in fifth-grade students at SD Kristen Harapan Denpasar	Quantitative	1. There are differences in critical reading skills in terms of critical thinking skills. 2. There are differences in critical reading skills in terms of reading interest. 3. There is an interaction effect between critical thinking skills and reading interest on critical reading skills. 4. There are differences in the critical reading ability of students who have high critical thinking with students who have high reading interest with low reading interest.	Critical thinking skills have a relationship with critical reading skills (Restuningsih et al., 2017)	Indonesian language teachers must understand that critical thinking skills are inseparable from critical reading skills. Both skills work to analyze what the author intended behind the written information
5	It knows the relationship between critical thinking ability and reading interest with critical reading ability in high school students of public elementary schools in Bogor Regency.	Quantitative	There is a positive correlation between critical thinking skills and critical reading ability.	Critical thinking skills have a relationship with critical reading skills (Sariyem, 2016)	
6	The effect of learning the Discovery Learning model with the insertion of Critical Reading (DL-MK) on the critical thinking skills of class VII junior high school students in Cimahi City	Quantitative	There is a significant difference in improving critical thinking skills in the aspects of strategy and tactics between the two research groups (sig. Ngain = 0.014).	The effect of learning the Discovery Learning model with the insertion of Critical Reading (DL-MK) on the critical thinking skills of class VII junior high school students in Cimahi City (Muttaqiin & Sopandi, 2016)	
7	Describe the level of critical reading skills in students of the Islamic Banking	Quantitative	In general, students of the Islamic Banking Department Semester IV UIN Syarif Hidayatullah	Every individual needs critical reading skills to support critical	

	Department Semester IV UIN Syarifhidayatullah Jakarta Jakarta		Jakarta are pretty skilled at reading a text critically, as evidenced by an average score of 77.35.	thinking skills (Putra, 2015)	
8	Knowing the significance of the influence of the Asco method (Analyzing, Solving Problems, Comparing) on critical reading learning	Quantitative	There is a significant influence of Asco (Analyzing, Solving Problems, Comparing) on learning to read critically	The effect of the Asco method (Analyzing, Solving Problems, Comparing) on critical reading learning (Hariyati, 2019)	
9	Describe the metal movement (reading articles) performed by MI teachers to improve critical reading skills Qualitative	Qualitative	With the metal movement (reading articles), the critical reading skills of MI teachers have increased.	The use of mental movements (reading articles) can improve the critical reading skills of MI Teachers. (Ibda, 2017)	
10	Integration of character education in learning to read using the SQ3R reading technique in students' critical reading	Qualitative	Use authentic assessment to assess character education in learning reading skills on the SQ3R reading technique for critical reading. This assessment can be directly integrated with the process scores obtained by students.	The application of the SQ3R reading technique to students can be practiced and integrated into critical reading skills (Diana, 2014)	Indonesian language teachers must have interesting learning strategies and models for teaching critical reading skills
11	Describe and explain 1. Critical reading learning conditions for students of SMK Negeri 1 Ponorogo 2. Implementation of recreational learning models procreation in learning to read critically explanatory texts	Qualitative	1. Learning to read critically has not been implemented well because of the low interest in reading students and the teacher's inaccuracy in selecting methods, materials, and learning media. 2. Learning to read critically explanatory texts using the recreation-procreation model can create a fun new learning atmosphere for students, encourage the growth and development of critical thinking skills, encourage students to be brave express opinions critically, and improve other language skills.	Learning to read critically using the recreation-procreation model can create a new, enjoyable learning atmosphere for students, encouraging growth, developing critical thinking skills, and encouraging students to dare to express opinions critically. (Cahyono et al., 2019)	
12	Improving the results of learning to read critically determines paragraphs of discourse or reading	Classroom Action Research	The CTL method can improve the learning outcomes of fifth-grade students at SD Negeri 035 Pekanbaru.	Improving critical reading skills can be done using the CTL method (Usman, 2015)	

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	of class V SD Negeri 035				
13	Creating a critical reading teaching model for students that is appropriate and expected to be capable improve students' critical thinking skills	R & D	Students already have critical reading skills that have been done before	Development of teaching models of critical reading skills (Lestari, 2020)	
14	This development research was conducted to produce a Critical Reading model in teaching argumentation texts.	R & D	The Critical Reading Model can be applied in learning to read critically texts arguments.	Development of a Critical Reading Model in learning argumentation texts that have been developed have gone through the validation test and product test stages which are very good and can be applied in learning critical reading (Nofitria et al., 2017)	
15	Developing a program of critical reading activities integrated with a responsive intervention program to improve the critical reading skills of undergraduate students majoring/Prodi of Indonesian language and literature education in a multimedia package	R & D	The product effectiveness test showed that using responsive intervention-based critical reading materials with multimedia improved students' critical reading skills.	The development of responsive intervention-based critical reading teaching language can improve students' critical reading skills (Priyatni, 2014a)	Indonesian language teachers must be able to choose exciting teaching materials, modules, and textbooks to teach reading skills well and have fun.
16	Developing character value-based module teaching materials to improve the critical reading skills of class X students, SMAN 1 Lembang by using a direct instruction learning model	R & D	The test results using one group pretest-posttest showed that the critical reading module with character-based direct instruction improved students' critical reading skills.	Character value-based module teaching materials improve the critical reading skills of class X students of SMAN 1 Lembang (Pratama, 2016)	

17	1. Producing creative-critical reading teaching materials for junior high school students packaged in book form 2. Assess the effectiveness of these teaching materials to improve students' critical-creative reading skills	R & D	The results of expert and practitioner tests stated that the product was suitable for use as a creative-critical reading teaching material for grade VIII junior high school students in terms of content, presentation, and graphics.	Teaching materials for creative-critical reading for Class VII Junior High School students are appropriate to use based on the results of validation tests by experts and practitioners (Wardoyo et al., 2016)
18	To produce teaching materials for reading critical-creative exposition texts based on environmental issues for class X students with valid content criteria, coherent systematics, use of communicative language, and an attractive appearance.	R & D	The results of the feasibility test of teaching materials are divided into four aspects, namely content aspect 81.8% (appropriate), presentation systematics 85.7% (very feasible), language 85.2% (very decent), and 90.5% view (very decent). Based on these results, materials. The teaching materials developed are classified as feasible to implement in learning.	Teaching materials for creative-critical reading for Class X Junior High School students are appropriate to use based on the results of validation tests by experts and practitioners (Ardiasri et al., 2017)
19	1. The need for critical reading teaching materials for lecturers and students 2. Products of developmental critical reading teaching materials 3. Potential effects of ingredients teaching critical reading as a result of development for students of the Language and Literature Education Study Program Indonesia Baturaja University	R & D	Critical reading test results by students also experienced an increase from the average score. 47.00 to 69.26 with a different value of 22.26. Thus, the prototype of the Critical Reading teaching material resulting from the development of researchers can improve students' ability to read critically and is suitable for use in the Indonesian Language and Literature Education Study Program, FKIP, Baturaja University.	Critical-creative reading teaching materials for Class X Junior High School students are appropriate to use based on the results of validation tests by experts and practitioners and can improve students' critical reading skills (Inawati et al., 2021)
20	Producing supporting digital teaching material products	R & D	The validation results from the Indonesian language teacher obtained an average score of 3.65 from the	Teaching materials for creative-critical reading for Class X Junior High

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	reading skills with critical thinking in SMA Negeri 6 Palangka Raya students		content/material, language, presentation, graphics, and media, with a percentage of 73%. The score obtained from the five aspects tested was 4.2, with a percentage of 84%. Based on field tests, the product in the form of an android-based digital flipbook of Central Kalimantan folklore meets the criteria for supporting critical literacy, contains character, is practical, and is effectively used in learning.	School students are appropriate to use based on the results of validation tests by experts and practitioners (Perdana & Kriswantara, 2021)	
21	1. Develop a suitable critical reading textbook with the perspective of Indonesian Language and Literature Education Study Program students 2. We are developing critical reading textbooks based on critical reading substance, learning to read, and implementing.	R & D	1. The results of the substance evaluation show that it is necessary to change the title of one of the chapters in the textbook, change the arrangement of the chapters, and improve writing and grammar. 2. The results of the substance evaluation show that it is necessary to change the title of one of the chapters in the textbook, change the arrangement of the chapters, and improve writing and grammar.	Development of teaching materials based on substance aspects to improve critical reading skills (Yono et al., 2017)	
22	1. Producing a critical reading module on the text of the observation report for class VII students 2. Testing the effectiveness of the module to improve student's critical reading skills	R & D	The results of expert and practitioner tests stated that the product was suitable for use as a model for critical reading of LHO texts, both from content, presentation, language and graphics. Field test results stated that the product effectively improved students' critical reading skills.	Reading module Critical analysis for class VII students is feasible based on the results of validation tests by experts and practitioners (Hariadi et al., 2018)	
23	Producing critical reading assessment instruments and describes the results of the trial to critical reading material experts, assessment instrument experts, practitioner experts, and students	R & D	The results of this research and development are (1) critical reading experts obtain a percentage of 94%, which is feasible and can be implemented, (2) assessment instrument experts obtain a percentage of 80%, namely feasible and	Critical reading assessment instrument that an assessment instrument expert has validated, expert practitioners, as well as students with a decent	Indonesian language teachers must be able to choose the right assessment instrument for teaching critical reading skills

	can be implemented, (3) practical experts obtain a percentage, namely 82 % is feasible and can be implemented, and (4) class X trials get a percentage of 81% and class XI to get a percentage of 76%, which is feasible and can be implemented.	category (Cahyanto et al., 2016)

Based on Table 3 shows the contribution of references that discuss critical reading skills for Indonesian language teachers as follows.

1. Indonesian language teachers must realize that implementing critical reading learning activities is a relatively long and consistent process. This is because students not only capture the explicit meaning but also find the meaning between the lines, and the meaning behind the lines, thus requiring continuous training.

2. Indonesian teachers must actively involve students in learning critical reading.

3. Indonesian teachers must understand that critical reading skills are an inseparable part of critical thinking skills.

4. The Indonesian teacher must understand the initial schemata that students already have in learning critical reading.

5. Indonesian teachers must understand how to choose and use interesting learning strategies and models in teaching critical reading skills.

6. Indonesian teachers must be able to choose exciting teaching materials, modules, and textbooks to teach reading skills well and have fun.

7. Indonesian teachers must be able to choose the right assessment instrument for teaching critical reading skills.

8. Indonesian teachers must understand that critical reading skills are significantly related to argumentative writing skills. This is based on the acquisition of facts from the reading process, which can be arranged into sentences that are logical and can be accounted for.

Based on contributions from references that discuss critical reading skills, researchers can develop several essential ideas, each of which can be used to define its relevance. First, learning critical reading skills in schools requires a long and consistent process. This is in line with the opinion of Utami et al., (2012), which states that critical reading skills are a long process because students not only grasp the explicit meaning but also find the meaning between the lines, and the meaning behind the lines, thus requiring continuous training. In addition to a reasonably long process, critical reading skills understand explicit meaning

Hariyati (2019) and think about the issues discussed and analyze and provide judgment (Cahyono et al., 2019). Second, learning to read critically is expected to involve students actively learning to read. This condition further reinforces that pre-reading, reading, and language proficiency learning methods are not only carried out through conventional learning methods (Cahyono et al., 2019; Diana, 2014).

Third, in organizing critical reading lessons, teachers must understand that critical reading skills are an inseparable part of critical thinking skills. This is in line with the opinion of Cahyono et al., (2019), which states that critical readers absorb what the author expresses and think about the issues discussed and can analyze and provide judgments. Fourth, the teacher must understand the student's initial schemata because each student can be considered an active information processor, and each student has a unique initial scheme concerning efforts to understand the reading text. This is in line with the opinions of Mailizar et al., (2020); Novtiar & Aripin (2017), which state that students will give a wrong understanding and far from what the teacher expects if they do not have an initial scheme in the learning process of critical reading. Fifth, the implementation of learning to read critically at school can be done by Indonesian teachers by choosing learning methods that can help students. Teachers are expected to apply teaching strategies emphasizing student participation in the learning process to improve learning outcomes and support students in the learning process (Halimah et al., 2020). Therefore, teachers need to create teaching strategies that can involve all students in the learning process so that students get to experience that will strengthen their knowledge.

Sixth, the implementation of critical reading learning in schools can be carried out by Indonesian teachers with teaching materials, modules, and textbooks that can help students. In addition to using methods, strategies, or learning models, teachers must also consider selecting teaching materials for learning critical reading. This aims to maximize the initial schemata that students already have Novtiar & Aripin (2017), making it easier and attracting students' attention to be more intense in participating in learning (Ardiasri et al., 2017; Feriandi et al., 2020; Sukardi et al., 2019). Seventh, the implementation of learning to read critically in schools can be carried out by Indonesian teachers by paying attention to the selection of assessment instruments. This is because the assessment instrument is one way that can be used to determine the quality of students' critical reading skills Cahyanto et al., (2016) so that the score obtained follows what is expected by the teacher. Eighth, teachers must fully understand that critical reading skills are closely related to argumentative writing skills. This is based on the acquisition of facts from the reading process, which can be

structured into sentences that are logical and can be accounted for (Utami et al., 2012; Yulianda et al., 2012).

Conclusion

The systematic literature review research provides information on publications in the last ten years of articles discussing critical reading skills. 2016 was the most productive year, with six published articles. In 2020 and 2021, there will be a slight decrease in published articles discussing the theme of critical reading skills. Furthermore, the theme of critical reading skills is more researched using this development research. This is because, in research, the development of critical reading skills will produce products that are very valid, good, effective, credible, and of good quality. The dominant research subjects used in critical reading skills research articles are college students; this condition is based on the fact that critical reading skills are very precisely spaced for students who already have complexity in processing information. During the 2010-2021 period, as many as 23 documents have been published as research articles and have been cited 114 times. 2016 was one of the years that had the most publications, with six articles, and had been cited 46 times.

Furthermore, writers who have a track record of publishing articles that (1) Nuria Reny Hariyati represents review critical reading skills, (2) Hespi Septiana, and (3) Endah Tri Priyatni. All three are authors with a track record of publications (as many as ten articles) addressing critical reading skills. The author's institutions are divided into two institutions, namely schools (13%) and tertiary institutions (87%), thus strengthening the opinion that research has not yet become a culture that teachers in schools must carry out. Collaborative authors show that the number is quite far apart, where 14 authors collaborate and nine single authors. There are eight ideas for Indonesian language teachers to reflect on in teaching critical reading skills. This kind of research will produce invaluable information about critical reading skills and a basis for activating critical reading skills in education as one of the provisions for students in the 21st century.

| **Ethics Approval** | : | Information on Ethical Consent and informed consent statements are required for all articles published on BAHASTRA since 2023. |
| **Additional Information** | : | No additional information is available for this paper. |

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