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Trends in Constructivist-Based Independent Curriculum Implementation: A Systematic Review

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ABSTRACT

This research uses a systematic literature review method according to PRISMA 21 rules Scopus and Google Scholar databases from 2019 to 2023 are used as data sources. PRISMA guidelines consist of four phases: identification, screening, and data item determination. PRISMA is relevant to this research because PRISMA presents complete and detailed steps for conducting a literature review. Out of a total of 2017 collected articles, only 69 articles met the specified criteria. The inclusion criteria in this research are article publications from 2019 to 2023, publications in journals and proceedings, and articles published in Scopus and Sinta journals. Meanwhile, the exclusion criteria for this research are article publications since the implementation of the independent curriculum in journals and proceedings that have been indexed by Scopus and/or Sinta. All of these articles' content were analyzed. The research findings show there is a significant increase in research trends about constructivist-based independent curriculum implementation from 2019 to 2023. Qualitative methods dominate, and various scientific disciplines have applied the constructivist approach in independent curricula. Constructivist-based independent curriculum implementation gives a positive impact on achievement, creativity, character, and student learning independence. Based on these findings, this research provides a scientific contribution as a foundation for policymakers to develop similar research by utilizing types of research, educational levels, and fields of study that are rarely explored

Keywords: *Constructivist, Impact, Independent Curriculum, Intervention Objects, Systematic Review*

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INTRODUCTION

The challenges of 21st-century education point towards curriculum implementation as an essential part of carrying out the learning process. This is because the curriculum is also closely related to all educational activities to optimize the quality of education. Indonesia has been implementing an independent curriculum since 2020. Independent curriculum becomes a solution to address challenges in the Industrial Revolution 4.0 era since independent curriculum focuses on improving resources and educational quality, from elementary to higher education levels. PISA data shows that Indonesia's ranking in PISA 2022 increased by 5-6 positions compared to 2018 (Ismawati et al., 2023). This improvement in ranking demonstrates the resilience of Indonesia's education system and the impact of the independent curriculum implementation. The independent curriculum is more simple, allowing teachers to focus on in-depth learning. According to the Ministry of Education, Culture, Research, and Technology, the independent curriculum reduces 30-40% of mandatory material, giving teachers more time to use in-depth, interactive, and project-based learning. Learning with the independent

curriculum is not oriented towards delivering material but honing students' competencies and character (Irawati et al., 2023).

Independent curriculum supports students' creativity, as well as unlimited potential development. This statement is supported by the results of previous studies which mention that students' abilities and creativity after implementing the independent curriculum experienced an average increase of more than 10% in mathematics and language at the elementary school level (Raehang et al., 2024). Structural changes in independent curriculum have influenced learning process in every educational sector. Many aspects require special attention in curriculum implementation, for example, the learning theory used to develop students' abilities and ways of learning. Special attention to learning theory has been highlighted by previous researchers. Learning theory becomes the foundation for designing learning outcomes in the independent curriculum (Nsengimana et al., 2024). The use of learning theories is related to models or methods used by teacher in learning, thus impacting the transformation of students' behavior (Masgumelar & Mustafa, 2021).

The principle of curriculum implementation can be done by teachers by developing constructivist approach. This is in line with the statement of the Minister of Education and Culture, Nadiem Makarim, who stated that the independent curriculum means that students have freedom of thought (Widiyono & Millati, 2021). Constructivist theory is implemented through students' self-development to combine information that has been previously obtained (Sugrah, 2019). In learning, students actively build their own knowledge and reality based on experience, social interaction, and the real world. Activities that reflect the constructivist theory implementation in the independent curriculum include students collaborating in groups to create recycling projects using used materials. Students must design, prepare materials, and present the project collaboratively. This process goes through a phase of social interaction with peers and uses materials available in their surrounding environment. These activities favor students' curiosity, as stated by previous experts who argued that constructivism theory utilizes students' curiosity about the world and how it works (Muzakki, 2021). Constructivist learning conditions the learning process with the basis of students' knowledge assisted by interaction with the environment and their learning focus.

Research related to constructivist-based independent curriculum implementation in Indonesia has been widely conducted from early childhood education to higher education levels. This is inseparable from the benefits of the constructivist approach in their curriculum, such as strengthening students' character and ability through an improved knowledge construction process (Lely et al., 2024). From previous findings, several student abilities have been optimized through the constructivist-based independent curriculum, including increased student independence and creativity (Suryati et al., 2023), problem-solving (Naufal, 2021), and enhanced collaboration and communication skills (Setiyaningsih & Subrata, 2023). The application of constructivist-based independent curriculum implementation becomes fundamental to achieve students' self-taught (independent) understanding. The implementation of constructivist learning in the independent curriculum becomes a lesson for students and teachers to engage in mutual giving and mutual understanding (Tishana et al., 2023). Many benefits are obtained by applying the constructivist approach in the independent curriculum, making it interesting to implement further in learning.

Although research on constructivist-based independent curriculum implementation has been conducted, a comprehensive analysis of the data obtained is not yet available. Then, there is a research gap in the studies conducted by previous researchers, so related research still needs to be carried out. For example, the focus on constructivist-based independent curriculum research using a systematic review approach has not yet been conducted. The phenomenon of implementing a constructivist-based independent curriculum in elementary school learning is still rarely of interest, so information related to this is still very limited. Furthermore, previous researchers have not extensively and deeply investigated research related to constructivist-based independent curriculum at the elementary school level. The limitation of research related to literature studies on constructivist-based independent curriculum is a lack of information that needs to be addressed by researchers through follow-up research.

Similar research is important because the data obtained can provide information on the extent of implementation and benefits of the independent curriculum with a constructivist approach for education in Indonesia. The research data obtained also aims to be a reference for teachers in choosing learning approaches. Teachers can use constructivism theory with project-based learning methods in implementing the independent curriculum. Additionally, these findings can be used as a starting point for future researchers to complement the limitations in constructivist-based independent curriculum implementation. The efforts made are relevant to the main objective of this research, which is to optimize curriculum implementation so that education has a higher quality and positive impacts to human resources according to the needs of the industrial revolution 4.0 and the 21st century.

The research questions asked in this study are: 1) How has the number of research publications on the constructivist-based independent curriculum implementation developed over the last five years? 2) What methods, the various educational levels, and the focus of research in research on the constructivist-based independent curriculum implementation? 3) What is the impact of implementing the constructivist-based independent curriculum on students? This research aims to: 1) identify the development in the number of research publications on the constructivist-based independent curriculum implementation over the last five years; 2) identify the methods, educational levels, and research objects regarding the constructivist-based independent curriculum implementation; and 3) explain the impact of implementing the constructivist-based independent curriculum on students.

METHOD

Research Design

This research is a Systematic Literature Review (SLR). SLR is a systematic research method to collect, evaluate, integrate, and present findings from various research studies according to relevant and interested topics (Salimi & Fauziah, 2023). According to Van Dinter et al. (2021), SLR is a scientific review that focuses on specific questions and uses explicit scientific methods that have been determined to identify, select, assess, and summarize findings from similar studies. The term 'systematic' adopts a methodology that is consistent and widely accepted by society (Pati & Lorusso, 2018). SLR provides clear motivation for new researchers and practitioners through comprehensive evidence to guide decision-making in their work (Al-Zubidy & Carver, 2019). SLR aims to map previous studies on constructivist-based independent curriculum implementation in elementary school learning.

Search and Selection Process of Literature

The stages of searching and selecting articles in this research were carried out systematically, referring to the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines. These guidelines were developed by Page et al. (2022). The use of PRISMA in this study is because PRISMA presents complete and detailed stages for conducting literature reviews. There are three stages used to conduct a literature review according to PRISMA guidelines: identification, screening, and data item determination (Azzahra et al., 2024). The first stage is identification. Identifikasi dilakukan dengan penentuan kriteria inklusi dan eksklusi, serta pencarian literatur. The determination of inclusion and exclusion criteria is adjusted to the research needs. The inclusion criteria are presented in Table 1.

Table 1. Inclusion Criteria

Established Criteria	Reason
Literature published from 2019 to 2023	To ensure article accuracy and reflect recent progress, considering the significant development of the implementation of the independent curriculum with a constructivist approach over the last five years The year 2019 was chosen because the independent curriculum was proposed by the Minister of Education, Culture, Research and Technology at the end of 2019, socialized in 2020, and began to be implemented gradually in

	2021. In 2023, schools have been required to implement the independent curriculum in grades 1, 2, 4, and 5.
Literature published in the form of journals and proceedings.	To ensure that the articles have been extensively reviewed and evaluated by experts
Literature published in Scopus and Sinta journals	To ensure that the articles have undergone a rigorous evaluation process
The literature is an empirical research	To ensure that the research results are obtained through a series of field data-based research so that the data obtained is comprehensive (not presented literature)
Research location is in Indonesia	To expand and enrich research data conducted in Indonesia as a literature review that can be utilized by future researchers
The collected literature is in accordance with the research focus, namely the implementation of the constructivist-based independent curriculum	To focus the collected findings so that relevant data is selected
Literature was published in English	To enrich English-language articles as a tool for global communication and ensure that the writing has been checked by experts in terms of grammar, structure, and other aspects overall

In addition to inclusion criteria, exclusion criteria are also needed as limitations in this research. Table 2 presents the exclusion criteria in this study along with their reasons.

Table 2. Exclusion Criteria

Established Criteria	Reason
Literature published before 2019	The discourse on implementing the independent curriculum only became prominent in late 2019, precisely when Nadiem Anwar Makarim was first appointed as Minister of Education, Culture, Research and Technology
Literature published in the form of papers and reports	Papers and research reports do not undergo detailed checking by experts
Literature published in non-accredited journals, books, and book chapters	Literature from non-accredited journals, books, or book chapters receives less in-depth checking in its writing
Literature is a literature review study	This research requires empirical data that can be compared
Research location is not in Indonesia	This research needs data that informs findings on the development of the independent curriculum in Indonesia, as well as the independent curriculum being a new innovation initiated by the Minister of Education, Culture, Research and Technology
Collected literature are not in accordance with the research focus, namely the constructivist-based independent curriculum implementation	Literature that matches the focus is done to prevent invalid results and reduce the risk of information/data errors
Literature published in languages other than English	Literature using languages other than English is not selected because such literature only receives checking from general language structure without considering more complete

suitability as in English.

In the first stage, researchers also define information sources by searching literature from online databases that have large repositories for academic studies. Articles were obtained using Harzing's Publish or Perish (PoP) softwareThe results of this application are available and can be copied to the Windows clipboard (to be run to other applications) or saved to various output formats for future reference or further analysis (Harzing, 2010). This application is designed to help academics (individuals) present the impact of research even if they have few citations.

Researchers collected data from the Scopus and Google Scholar databases. Scopus was chosen because Scopus is one of the sources of scientific literature data in the form of reputable international journals owned and managed by Elsevier. A total of 247 articles were collected in the first search. A total of 1770 articles were collected from literature searches using the application. The choice of Google Scholar is because Google Scholar is a service that allows users to search for learning materials in the form of text in various publication formats. Google Scholar will help someone identify the most relevant research from all academic research. These articles were collected from the keywords "Independent Curriculum", "independent curriculum implementation", "constructivism-based independent curriculum", "constructivist-based independent curriculum", "independent curriculum with constructivism approach", "independent curriculum with constructivist approach", and "independent curriculum implementation with constructivist approach". Then, further identification of the collected articles was carried out. Researchers reduced duplicate articles from Scopus and Google Scholar sources. From this reduction, 70 articles with the same title were found, so these articles were removed from the required data. In addition, 760 articles were deleted because they did not meet the requirements by automatic tools.

The second stage is screening. Researchers screened the collected articles except for duplicate articles. Screening was done by looking at articles from titles, abstracts, keywords, and indexing. From the 2017 articles collected, 1186 articles passed the initial screening. From this number of articles, 635 articles that did not meet the criteria were still obtained. Thus, 551 eligible articles were obtained. The screening process continued. Researchers reduced articles that did not meet the criteria such as not being conducted in Indonesia and not being empirical research. There were 369 articles whose research locations were unclear and not conducted in Indonesia, and 113 literature review articles. Therefore, 452 articles were removed from the data selection.

The third stage is data selection/determination. A total of 69 articles were determined as articles to be reviewed. On the same day, researchers classified these articles, such as title, author name, method, intervention subject, education level, and research results. On the following day, researchers began analyzing the results of the classification and presenting them in the form of narratives, tables, and figures.

From the presentation of the PRISMA stages above, an illustration of article selection using PRISMA guidelines can be described as shown in Figure 1.

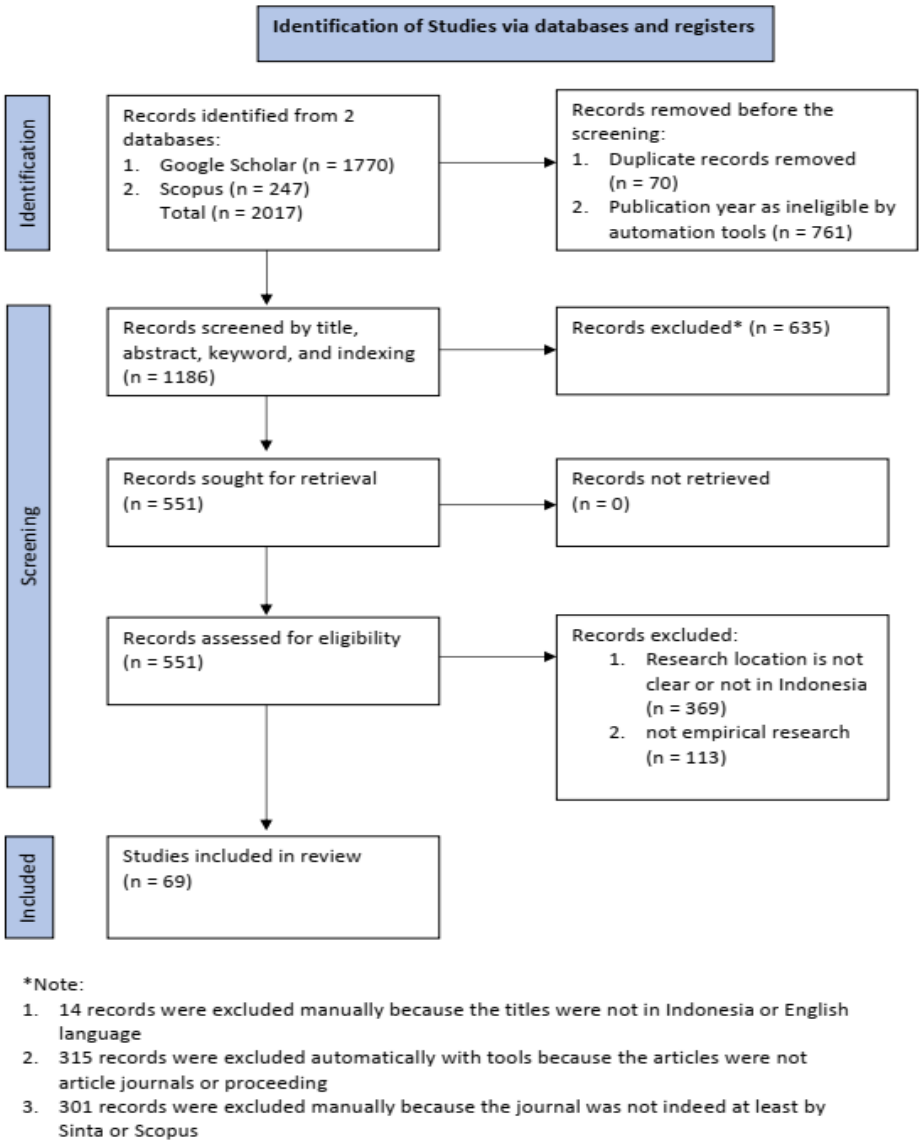


Figure 1. Article Source Search and Selection Procedure

Research Instruments

The research instrument for this research was obtained from the modification of instruments developed by previous researchers (Susetyarini & Fauzi, 2020). The instrument contains the following aspects: the number of article publications on constructivist-based independent curriculum implementation each year; types of methods applied; education level; intervention subjects; and the impact of constructivist-based independent curriculum implementation. Categorization of study focus (types of research methods; education levels; and intervention subjects) was created to facilitate the content analysis process as presented in Table 3. Regarding the number of publications, it was not included in the table because it only looked at the number of relevant studies. Similarly, regarding the impact, it was not included in Table 3 since several possibilities could occur as a result of constructivist-based independent curriculum implementation in learning. These impacts produce data about the abilities and skills acquired by students.

Table 3. Categorization of Content Analysis

Aspect	Category	Reference
Research Method	Quantitative	(Aizzatin et al., 2023; Al Yakin et al., 2023; Budiarti, 2022; Evalina et al., 2023; Irfan et al., 2023; Iswahyudi, 2023; Jupriyanto et al., 2023; Maryati et al., 2022; Sapitri

		& Sukirman, 2023; Thahir et al., 2023)
	Qualitative	(Abidin et al., 2023; Adira, 2023; Aditia, 2021; Adlika, 2023; Ahzim, 2023; Ajeng et al., 2024; Aldi et al., 2023; Amalia & Andriani, 2023; Astari et al., 2023; Atmaja, 2023; Azwar, 2023; Basri et al., 2021; Cantik & Aditya, 2023; Chakim & Basit, 2019; Efendi & Suastra, 2023; Ferdaus & Novita, 2023; Hakim et al., 2021; Imron, 2023; Indraprasta & Pawiro, 2023; Jaya et al., 2023; Karlina & Hindriana, 2023; Lubis et al., 2023; Munira & Suryana, 2023; Muslikh et al., 2022; Perdima et al., 2024; Pertiwi et al., 2023; Prasetyo et al., 2023; S. Purnama, 2023; Purwadianto, 2023; Rahmawati & Saputra, 2022; Ramadhani et al., 2023; Ristiyati et al., 2023; Rohmah et al., 2021; Sabanari et al., 2023; Safitri & Markamah, 2023; Sahlan et al., 2023; Septina et al., 2023; Serungke et al., 2023; Syahid & Arsyam, 2023; Syahruddin & Tambaip, 2023; Widiarti et al., 2023; Yatim et al., 2024; Yulizah et al., 2023; Yunita & Widodo, 2023)
	Mixed Method	(Jufriadi et al., 2022; Mubarok et al., 2022)
	Development	(Nisa & Aryni, 2023; Nursafitri et al., 2023; Qomariah et al., 2023; Sagala & Widyastuti, 2021)
	Meta-Analysis	(Alfaruki, 2022; Ilham et al., 2023; Sholeh, 2022)
	Literature Review	(Ayaz & Şekerci, 2015)
	Classroom Action Research	(Rafiqa et al., 2023)
Educational Level	Early childhood education	(Maryati et al., 2022; Ristiyati et al., 2023)
	Elementary School	(Abidin et al., 2023; Aditia, 2021; Ahzim, 2023; Amalia & Andriani, 2023; Basri et al., 2021; Efendi & Suastra, 2023; Ilham et al., 2023; Imron, 2023; Jaya et al., 2023; Jupriyanto et al., 2023; Muslikh et al., 2022; Pertiwi et al., 2023; Prasetyo et al., 2023; Purwadianto, 2023; Sabanari et al., 2023; Serungke et al., 2023; Syahid & Arsyam, 2023; Yulizah et al., 2023)
	Junior High School	(Adira, 2023; Aizzatin et al., 2023; Azwar, 2023; Budiarti, 2022; Evalina et al., 2023; Hakim et al., 2021; Mubarok et al., 2022; Safitri & Markamah, 2023; Sagala & Widyastuti, 2021; Sapitri & Sukirman, 2023; Sholeh, 2022; Yatim et al., 2024)
	Senior High School	(Adlika, 2023; Aldi et al., 2023; Atmaja, 2023; Cantik & Aditya, 2023; Iswahyudi, 2023; Karlina & Hindriana, 2023; Munira & Suryana, 2023; Nursafitri et al., 2023; S. Purnama, 2023; Ramadhani et al., 2023; Septina et al., 2023; Widiarti et al., 2023)
	Islamic Senior High School	(Marlina et al., 2023; Sahlan et al., 2023)
	Vocational School	(Ajeng et al., 2024; Alfaruki, 2022; Amiruddin et al., 2023; Astari et al., 2023; Ferdaus & Novita, 2023; Ramadhani et al., 2023; Yunita & Widodo, 2023)
	University	(Al Yakin et al., 2023; Ayaz & Şekerci, 2015; Chakim & Basit, 2019; Indraprasta & Pawiro, 2023; Irfan et al., 2023; Jufriadi et al., 2022; Lubis et al., 2023; Nisa & Aryni, 2023; Perdima et al., 2024; Rafiqa et al., 2023;

		Rahmawati & Saputra, 2022; Siahaan et al., 2023; Syahruddin & Tambaip, 2023; Thahir et al., 2023)
Object Intervention	Mathematics	(Budiarti, 2022; Sagala & Widyastuti, 2021; Sapitri & Sukirman, 2023)
	Natural Sciences	(Abidin et al., 2023; Karlina & Hindriana, 2023; Prasetyo et al., 2023; Rohmah et al., 2021; Widiarti et al., 2023; Yulizah et al., 2023)
	Social Sciences	(Amalia & Andriani, 2023; Jufriadi et al., 2022; Munira & Suryana, 2023; Sahlan et al., 2023; Syahid & Arsyam, 2023)
	Arts	(Cantik & Aditya, 2023; Nursafitri et al., 2023; Yatim et al., 2024)
	Islamic Education	(Adira, 2023; Lubis et al., 2023; Prasetyo et al., 2023; Yunita & Widodo, 2023)
	Physical Education	(Pertiwi et al., 2023)
	General	(Adlika, 2023; Ahzim, 2023; Al Yakin et al., 2023; Alfaruki, 2022; Amiruddin et al., 2023; Apoko et al., 2022; Atmaja, 2023; Ayaz & Şekerci, 2015; Basri et al., 2021; Chakim & Basit, 2019; Efendi & Suastra, 2023; Hakim et al., 2021; Ilham et al., 2023; Imron, 2023; Iswahyudi, 2023; Jaya et al., 2023; Jupriyanto et al., 2023; Marlina et al., 2023; Maryati et al., 2022; Muslikh et al., 2022; Perdima et al., 2024; Pertiwi et al., 2023; Purwadianto, 2023; Rafiqa et al., 2023; Rahmawati & Saputra, 2022; Ramadhani et al., 2023; Ristiyati et al., 2023; Sabanari et al., 2023; Safitri & Markamah, 2023; Serungke et al., 2023; Sholeh, 2022; Siahaan et al., 2023; Syahruddin & Tambaip, 2023; Thahir et al., 2023)
	Languages	(Astari et al., 2023; Ferdaus & Novita, 2023; Indraprasta & Pawiro, 2023; Nisa & Aryni, 2023; Septina et al., 2023)
	Vocational	(Ajeng et al., 2024)
	Informatics	(Evalina et al., 2023)
	Civic Education	(Aldi et al., 2023; S. Purnama, 2023)

The collected articles were classified according to aspects and categories as shown in table 3. In classifying aspects and categories, researchers began by compiling the collected article data in the form of a table. For convenience, researchers used an Excel format. In this format, researchers created a table containing a number, author name, title, year, type of research, educational level, intervention object, impact, and general research results. In the beginning, the analyzed data was not in order. Therefore, researchers created a new table to sort articles first based on their type of research. Research types were sorted from quantitative, qualitative, mixed method, R&D, literature study, meta-analysis, classroom action research, and survey.

Then, researchers identified the articles obtained based on their type of research. The same was done when analyzing articles based on their educational level. Researchers created a new table to sort articles based on educational levels. The order is early childhood education, elementary school, junior high school, senior high school, islamic senior high school, vocational high school, and university. Hereafter, researchers created another new table focusing on the category of intervention objects. In this study, the intervention objects are mathematics, natural sciences, social sciences, arts, Islamic education, physical education, general education, languages, vocational subjects, informatics, and civic education. Each category contains the

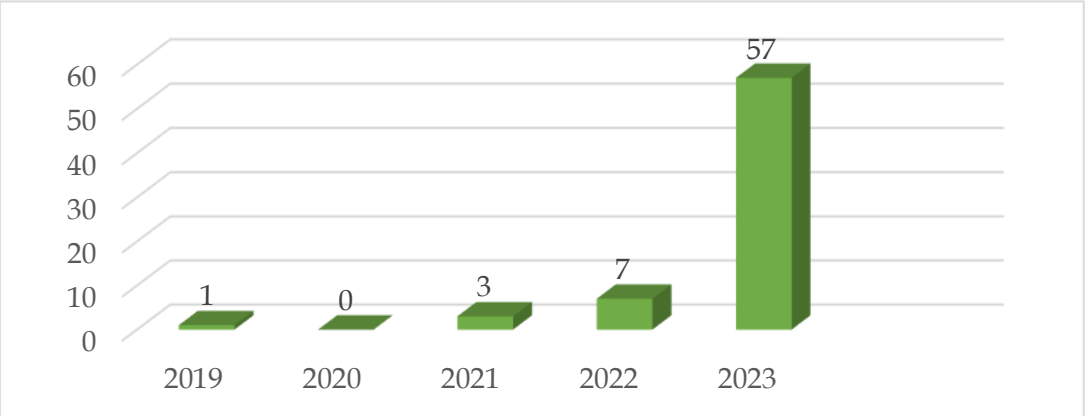
corresponding articles. Then, the results of the count for each category are presented in the form of diagrams and tables so that the data can be easily read.

RESULT AND DISCUSSION

Number of Publications on Constructivist-based Independent Curriculum Implementation

The constructivist approach positions students as active participants by constructing their knowledge from the experiences they receive. Through the independent curriculum, students are trained to find information independently, thus realizing student-centered learning. In line with this, the independent curriculum also offers learning that allows students to choose learning according to their own interests. Research on the independent curriculum and constructivist approach has attracted many researchers, leading them to be interested in further investigating this focus. At least over the past five years, there have been similar studies as shown in figure 2.

Figure 2. Research Trend about Constructivist-Based Independent Curriculum Implementation



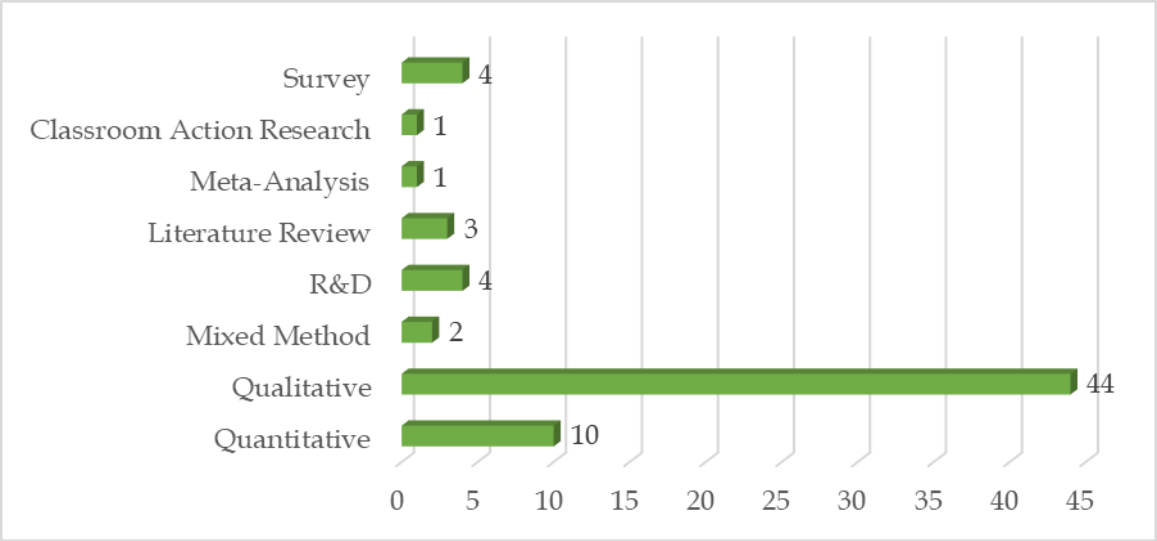
Since 2019, research on constructivist-based independent curriculum implementation has experienced a significant increase, especially in 2023 as the peak year with 57 published research articles. In four years (2019-2022), the number of publications was very stable with no drastic increase. The research trend for the independent curriculum increased in 2023 due to the Ministry of Education's requirement for every school to implement the independent curriculum at every education level (Sulasmi et al., 2023). This surge was also caused by changes in policy or education reform (Pratikno et al., 2024). To welcome the 2013/2024 academic year, the Ministry of Education, Culture, Research and Technology opened a registration for the implementation of the Independent Curriculum in 2023. More than 104,000 educational units were enthusiastic about implementing the Independent Curriculum in the 2023/2024 Academic Year. In the 2023/2024 academic year, educational units can choose options to implement the Independent Curriculum structure. Starting from independent learning, independent change, to independent sharing. To support this, Kemendikbudristek provides six forms of support to assist educational units in implementing the Independent Curriculum. These six supports include the independent teaching platform (PMM), a series of webinars from central and regional levels, a help center (Helpdesk), presenting speakers to share good practices recommended by the center, collaborating with Development Partners, and learning communities. Therefore, research reached its maximum with the rules for implementing the independent curriculum on every school. This increase can be used as material for further research to gain deeper insight into teacher and student acceptance of the independent curriculum at every education level in Indonesia.

Types of Research, Educational Level, Intervention Objects

Research was conducted after the existence of a mandatory to implement the independent curriculum without abandoning previous learning theories. This becomes the researchers' perspective to further highlight the phenomenon of independent curriculum

implementation. The accuracy of method selection also contributes to determine the success of the research. Choosing the right method can help experts to investigate the facts of the independent curriculum, both its problems and challenges. Thus, solutions to the occurring problems can be found. Based on 69 articles, the researchers present the distribution of research methods used in this research. The results are presented in figure 3.

Figure 3. The Distribution of Research Methods Used is Related to Constructivist-Based Independent Curriculum Implementation



The determination of research methods is based on the researchers' needs to solve problems. Figure 3 shows that the number of studies on constructivist-based independent curriculum implementation is dominated by qualitative research with total of 44 articles. Qualitative research becomes the most dominant type of research for several reasons. First, qualitative research becomes an alternative that researchers can use when facing difficulties with specific issues, such as quality, responses, opinions, or elaboration of other information. Second, qualitative research is considered easy for digging deeper information according to the established goals. Third, qualitative research plays a big role when researchers want to study several related contexts, so the independence of research results is better maintained. Fourth, statistical dependency tests are not considered in qualitative research. There is great potential for qualitative research to become a trend in research considering these reasons. The least number of studies are in meta-analysis and classroom action research. Mixed method research is also still very limited, and there is no bibliometric research revealing constructivist-based independent curriculum implementation. Therefore, other researchers can conduct further investigations using bibliometric methods.

Then, research should determine the subject of the research. The determination of subject conducted to know what and who shares the data to the researchers. Through the existing procedure, the implementation of independent curriculum becomes an attraction for academics to analyze or test at every educational level. Data shows that every education level has been used in this research, as presented in figure 4.

Figure 4. The Distribution of Constructivist-Based Independent Curriculum Implementation Based on Educational Level

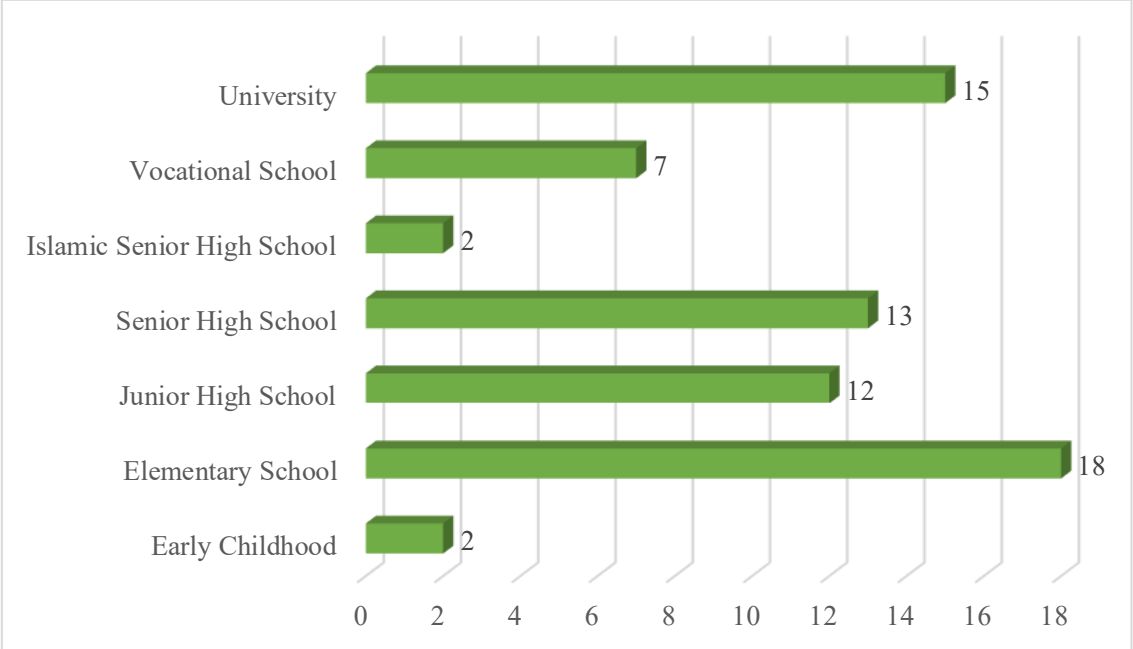


Figure 4 shows that constructivist-based independent curriculum implementation has been researched at every educational level. This means that the distribution of similar research is very diverse, starting from the lowest to the highest levels. The implementation of this research is dominated by the basic education/elementary school level, which has been discussed in 18 articles. Studies on constructivist-based independent curriculum implementation on elementary school has been reserached more often than another level for various reasons. Studies related to elementary school becomes the most dominant is influenced by the characteristics of elementary school students which are different from previous and subsequent levels.

It is clearly visible from the data that no research has been found at the Madrasah Ibtidaiyah (Islamic Elementary School)/Madrasah Tsanawiyah (Islamic Junior High School) level (schools under the Ministry of Religious Affairs). This indicates that these levels are rarely set as research subjects. The limited research at the Madrasah Ibtidaiyah (Islamic Elementary School)/Madrasah Tsanawiyah (Islamic Junior High School) level is due to the regional distribution of these two schools not being as widespread as other public and basic education institutions handled by the Ministry of Education. Additionally, some schools at the Madrasah Ibtidaiyah (Islamic Elementary School)/Madrasah Tsanawiyah (Islamic Junior High School) level have a small number of students. Several islamic schools at the sub-district level are less popular among the community, except for state islamic school at the district level. Although state islamcis schools are currently being an interest for parents to enroll their children, the achievements obtained are not yet comparable to public schools in general. These reasons cause the trend of research at the islamic school level to be less prevalent than at general schools.

Therefore, based on relevant research results, research on constructivist-based independent curriculum implementation is arranged conceptually and empirically with final results that can maximize the learning process and student competencies. The implementation of learning is influenced by the subject content being taught. As stated by previous researchers, the use of learning approaches must be adjusted to the material to be taught (Purnama et al., 2015). Constructivist-based independent curriculum implementation approach can be applied to several objects or subject matters, specifically those taught to students in class. Through this literature, constructivist-based independent curriculum implementation has been applied to different subject contents or disciplines. The results are presented in table 2.

Table 2. Total Distribution and Presentation Based on Objects Intervention

Intervention Objects	Total	Percentage (%)
Mathematics	3	4,35
Natural Sciences	7	10,14
Social Sciences	5	7,25
Social Science	3	4,35
Islamic Education	5	7,25
Physical Education	1	1,45
General	35	50,72
Languages	6	8,70
Vocational	1	1,45
Informatics	1	1,45
Civic Education	2	2,90

Table 2 shows that in general every subject can be implemented in constructivist-based independent curriculum implementation. General material meant is the subject that is mandatory to be learned at every educational level, such as IPAS or integration of natural and social sciences. Besides, general material meant also refers to material object that is reviewed is not only one subject content, but two until three or based on project theme. From the existing findings, the constructivist approach has not been widely applied as a tool to teach vocational subjects, such as informatics, productive subjects, accounting, and others. Field of study that have not existed on several analyzed studies include natural sciences (such as biology, physics, chemistry), applied sciences, engineering sciences (such as civic and mechanical engineering), digital sciences (computer), and vocational sciences. With these limitations, it is recommended that future researchers focus on fields of study that are still rarely researched. These findings become a new opportunity for future researchers to conduct studies focusing on specific subjects at the vocational and sports high school levels. The findings of this research can also be utilized by future researchers to determine other intervention objects that have not been found in this study. Additionally, it can serve as a basis for conducting similar research with a focus on the most frequent intervention objects.

Impact of Constructivist-based Independent Curriculum Implementation

The independent curriculum becomes a platform that must be applied by teachers in every school. The independent curriculum as a new policy is present to test students' competencies, such as numeracy, literacy, and character. Another goal is to improve the next learning process before students complete their education. The independent curriculum is based on competence so that students learn according to their interests and abilities. The independent curriculum scheme allows students to enhance their local potential and compete in the modern era with the freedom they get in class. This can help students be active, creative, and responsible for their own learning. Constructivist learning becomes a theory that is relevant to the concept of free learning. They can gain knowledge from students' experiences and interactions with objects encountered during learning.

Several aspects have emerged in students while constructivist-based independent curriculum implementation. From the 69 articles that have been reviewed, there are several dependent variables specifically mentioned in the research conducted. From the analysis conducted, there are 21 aspects that support and dominantly influences by constructivist-based independent curriculum implementation. The results are presented in Table 3.

Table 3. The Dominant Aspects Influenced by Constructivist-Based Independent Curriculum Implementation

Aspect	Total Articles	Percentage (%)
Independent	9	13,04
Achievement	15	21,74
Creative	8	11,59
Activeness	4	5,80

Interest	3	4,35
Character	7	10,14
Collaborative	2	2,90
Concept Understanding	4	5,80
Motivation	1	1,45
Discipline	1	1,45
Literacy	2	2,90
Emotional Skills	1	1,45
Social Skills	1	1,45
Communication Skills	1	1,45
Critical	2	2,90
Cognitive, Affective, Psychomotor	3	4,35
Religious	1	1,45
Adaptation Skills	1	1,45
Connection	1	1,45
Soft Skill	1	1,45
Management	1	1,45

Based on table 3, information is obtained that constructivist-based independent curriculum implementation impacts the learning achievement of students. This aspect is the variable that most often used as a research focus, with 15 articles using this focus. The achievement aspect becomes the most dominant because this aspect leads to broad matters, including learning outcomes and processes. Student learning achievement becomes the most dominant because it contains broad indicators such as the results obtained and the process experienced by students. Learning achievement is also related to students' cognitive, affective, and psychomotor aspects. However, in this research, there are only three articles that discuss that constructivist-based independent curriculum implementation impacts on students' cognitive, affective, and psychomotor. In this case, the choice of terminology becomes the differentiator between studies focusing on achievement and student learning outcomes (cognitive, affective, and psychomotor).

Other aspects that only obtain one article are motivation, discipline, emotional skills, social skills, communication skills, religious, adaptation, connection, soft skills, and self-management. The limited articles discussing these aspects are due to considerations of the independent curriculum principles. In its principles, the independent curriculum does not touch much on these aspects. The characters targeted in the independent curriculum are limited to: 1) believing in God Almighty and having noble character; 2) global diversity; 3) mutual cooperation; 4) independence; 5) critical reasoning; and 6) creativity. Although the first character points to the religious aspect, most research with religious objects is spread in improving Islamic religious learning. Research on religious character is usually associated with an Islamic approach and carried out in Islamic-based schools.

From the explanation about the impact of the constructivist-based independent curriculum implementation, the findings of this study can be used by future researchers as a reference if they want to conduct similar research. Teachers are also advised to pay attention to these aspects that have not been maximized in learning. From these results, teachers can look for alternative models or learning approaches that can optimize aspects of motivation, discipline, emotional skills, social skills, communication skills, religious, adaptation, connection, soft skills, and self-management of students. For example, using behaviorism, cognitivism, and other learning theories. These results prove that the constructivist-based independent curriculum implementation facilitates students to learn more optimally.

DISCUSSION

Number of Publications on Constructivist-Based Independent Curriculum Implementation

First, identify the number of research publications on the constructivist-based independent curriculum implementation in the last five years. The research trend for the independent curriculum increased in 2023 due to the Ministry of Education's requirement for

every school to implement the independent curriculum at every education level. Most research investigating constructivist-based independent curriculum implementation stems from issues in the field of education. These problems include several opportunities and challenges, such as the unsuccessful implementation of the independent curriculum at some education levels (Irawati et al., 2022). Additionally, some competencies have not been maximally improved (Rohmah et al., 2023), such as problem-solving which has not become a research focus, as well as other educational constraints. This increase is also influenced by the ineffectiveness of learning models that have been applied by teachers and other tools that are less effectively used. In general, the failure of the independent curriculum implementation is caused by the inaccuracy of using models derived from the learning theories used (Brieger et al., 2020). This gap sparks the interest of experts to investigate similar issues with varied research approaches. With investigations about the independent curriculum, several opinions are mentioned by experts as offerings to address the problems that occur.

Proof was carried out in the last two years (2022-2023), there has been a drastic increase in research on constructivist-based independent curriculum implementation. This was proven by the results found in this study that in 2022 the number of studies was only 7 and increased by 50 studies in 2023. Thus, the number of studies in 2023 reached 57 studies. This evidence is adjusted to the relevance of the topic of this research. Other evidence was also presented by previous researchers who mentioned that schools in Indonesia began using an independent curriculum in the 2023-2024 school year (Dewi & Suharyati, 2024).

2023 became the peak of research in Indonesia. These results present a breath of fresh air in the form of benefits felt by previous researchers that the constructivist approach is still in line with the independent curriculum policy (Budiarti, 2022; Mubarok et al., 2022; Yulizah et al., 2023). The use of this approach has also been proven to improve student learning achievement. This evidence becomes a consideration for academics to maintain and advance research on the independent curriculum with a constructivist approach.

Types of Research, Educational Level, Intervention Objects on Constructivist-Based Independent Curriculum Implementation

Second, the identification of methods, levels of education, and objects of research on the constructivist-based independent curriculum implementation. Research method is a academics armory during research implementation. The use of appropriate methods is closely linked to the results obtained. If examined more deeply, the method that dominates on the previous literature is qualitative research. The high number of qualitative research is adjusted to the portrait that academics want to observe. Qualitative research presents phenomena that actually exist in the field (Creswell & Creswell, 2022). The use of qualitative methods has been appropriate because it aims to capture the implementation of the independent curriculum in the field. The improvements that occur due to the implementation of the independent curriculum can also be seen when using a qualitative approach. The portrait presented is more comprehensive, detailed, and complete.

Qualitative research has several benefits in its implementation. Through qualitative research, researchers can recognize the subject, feel what the subject experiences in everyday life (Hancock et al., 2001). Qualitative research involves researchers so that they will understand the context with the situation and setting of natural phenomena according to what is being studied. This is in accordance with the objectives of qualitative research. The purpose of qualitative research is to understand the conditions of a context by directing to a detailed and in-depth description of the portrait of conditions in a natural context (natural setting), about what actually happens according to what is in the study field (Bogdan & Biklen, 1997). Qualitative research has its own variety of approaches, so that researchers can choose from this variety to adjust the object to be researched. The challenge for qualitative research data analysis is how to give meaning to so much data.

It is different with other types of approaches, such as meta-analysis research and classroom action research. The evidence obtained shows that these two approaches are not widely used by academics. This is due to the difficulties that experienced by academics when using the meta-analysis method in research (Dionne et al., 2023). For example, difficulties such

as not all studies providing adequate data for inclusion and analysis. Meta-analysis research also requires advanced statistical techniques. Meta-analysis can show relationships between variables, but it is often difficult to determine cause-effect relationships. This is because meta-analysis can only combine observational results from studies that may not control all confounding variables (Borenstein, 2022; Metelli & Chaimani, 2020).

On the other hand, Classroom Action Research (CAR) research can only be applied to improve classroom learning. The use of this method is still limited since it is usually conducted by teachers or teacher candidates with a clear learning model (Ronen, 2020). There are times when the evaluation of the results of the implementation of the actions taken has not shown the fulfillment of the criteria set. Suwartono (2024) mentioned the bad practice of CAR among teachers. Several things become the theme of the limitations of CAR research, namely: 1) the action scenario is not mature with no formal documentary evidence prepared by the teacher; 2) the data collection instrument is made inappropriately so that it has the potential to threaten validity, reliability, and other quality problems; 3) the role of collaborators is not maximized because involvement in the series of investigations is very limited; and 4) most of the CAR in Indonesia is still oriented towards results rather than learning processes. These practices are the cause of limited quality CAR research.

Research and Development (R&D) research is also still limited. This is because the R&D research scheme is very complex (Schlander et al., 2021). In addition, development research takes a relatively long time because the procedures taken are relatively complex. Development research also cannot be fully generalized because the model of development research is a sample not a population (Richey & Klein, 2014). Development research requires considerable resources and funds because there are products that must be produced. However, if carried out, it will make a great contribution to the successful implementation of the independent curriculum with products that can be utilized. The analysis of these articles shows that the implementation of the independent curriculum is integrated with several learning approaches/models/media such as PBL, Flipped direct instruction, PjBL, electronic teaching modules, and culture discovery learning (Afandi & Hasbulah, 2024; Asfiya et al., 2024; Evalina et al., 2023; Legi et al., 2023; Nisa & Aryni, 2023; Sagala & Widyastuti, 2021). The integration of this model shows an increase in learning achievement and student independence (Evalina et al., 2023; Sagala & Widyastuti, 2021). Development research conducted according to this focus produces e-book that can be used in independent curriculum learning, The resulting product innovation becomes an appropriate and commendable way to improve students' understanding. Innovative product also support the implementation of constructivist approach effectively so that similar research is highly anticipated further and expanded wider. Then, through consideration of the limitations of development research, future researchers can collaborate when carrying out development research, such as publishers so that the funds available to develop products are greater and more products are printed. Thus, the beneficiaries of the development product will be more and more widespread.

Another unique aspect of this research is that the independent curriculum has been applied at the early childhood education level, although in only one research. The connection between the independent curriculum and the constructivist approach from an early age contributes to children's cognitive development and way of thinking (Malik & Sholichah, 2023; Maryati et al., 2022). The environment greatly influences a child's brain development. Early childhood education is very appropriate to be developed because brain growth and development occur very rapidly at this level (World Health Organization, 2020). The constructivist approach can encourage students to build their own knowledge from an early age, thus building a strong and solid foundation for the future. Therefore, the implementation of the independent curriculum with a constructivist approach at the early childhood level becomes a level that deserves consideration and promises rapid development to stimulate children's brain function maximally.

The lack of research at the madrasah (Islamic school) level is caused by the limited number of these educational institutions in some areas, such as in remote and rural areas (Wijaya, 2021). This is different from other education levels (under the Ministry of Education)

such as public elementary schools or public junior high schools that are widespread in several areas. Almost every village has a public elementary school, often more than one. The same applies to public junior high schools available in every sub-district. Thus, academics have no difficulty in choosing locations in public schools compared to religious schools. Research in religious school areas is also a consideration for academics to continue similar research.

Overall, it can be concluded that the implementation of the independent curriculum with a constructivist approach has been applied to several fields of learning. The principles available in the independent curriculum are a major consideration for academics to be applied in research. These principles are also comprehensive so that they can be applied to various disciplines in formal education levels. The constructivist-based independent curriculum implementation has the opportunity to create an active and independent learning process because it allows students to build their own knowledge through interaction and experience (Ariandini & Hidayati, 2023; Hakim et al., 2021; Setiyaningsih & Subrata, 2023). The independent curriculum also aligns with constructivist theory because its implementation gives students the freedom to use applicative ideas while still considering students' potential and work abilities (Darmawati et al., 2023).

Third, the principle of focusing on essential content. This means that learning focuses on the content most needed by students so that teachers have adequate time to conduct deep and meaningful learning. The constructivist approach provides broad and significant benefits to every discipline. Teachers become the main pillar that can maximize the benefits of the constructivist approach in the independent curriculum (Jawad et al., 2021). Teachers need to ensure that all objectives to be achieved are in accordance with the development of students. In line with the concept of the independent curriculum, differentiated learning needs to be considered where teachers must be able to differentiate treatment for each student. Several aspects of students become a focus that teachers need to support, such as learning styles, achievements, and attitudes. Teachers can use varied learning models or techniques according to each student's talents. Teachers should not favor only one outstanding or smart student and neglect the less able ones. This does not reflect the principles of the independent curriculum. From the analyzed findings, teacher treatment affects student learning achievement (Aditia, 2021; Evalina et al., 2023). The results of this study reveal that teachers play a role in understanding students' interests and talents towards the material being studied.

Vocational and sports subject content has been rarely studied over the past five years. In fact, vocational knowledge is beneficial for students to prepare themselves for the world of work. Students who attend vocational schools are equipped to work after school is finished (Veillard, 2022). They are equipped with various work skills that students at the high school level do not have. This is because they are not oriented to continue to college. On the other hand, sports science is useful for improving the physical, mental, and emotional capacity of individuals (Rudd et al., 2020; San Román-Mata et al., 2020). Sports science concerns all aspects of human development including thought and reasoning. If connected with constructivist-based independent curriculum implementation, the establishment of these two disciplines is actually relevant to be applied in schools. This is useful to support student creativity needed in the world of work and needed when optimizing individual physical health. The independent curriculum emphasizes freedom so that students have the opportunity to regulate themselves according to their interests and talents (Pertiwi et al., 2023). For example, when regulating themselves to study sports science or regulating themselves to pursue a field as a provision for work. Constructivist-based independent curriculum implementation can be further expanded by paying attention to the potential of these two elements that are able to accommodate multidisciplinary learning activities.

Impact of Independent Curriculum Implementation with Constructivist Approach

Third, the implementation of an constructivist-based independent curriculum implementation has had an impact on various objects of intervention, but it is dominated by the impact on student learning achievement. This is because learning achievement contains broad indicators such as the results obtained and the processes experienced by students. Other objects of intervention that emerge are soft skills, connections, management, religion, adaptation, and

others in students after implementing constructivist-based independent curriculum. These results are in line with the principles of t he independent curriculum, such as competency and character development, flexibility, and focus on essential content. Character develops in accordance with the learning process that students go through. For example, religious character grows with religious habits applied at schools (Jumriani et al., 2022). Furthermore, creative and critical competencies will be rapidly nurtured through a long process with project-based learning procedures (Nursafitri et al., 2023; Purwadianto, 2023; Sagala & Widyastuti, 2021; Septina et al., 2023). This applies to other impacts resulting from the implementation of the independent curriculum with a constructivist approach.

Various abilities in students grow and develop due to the freedom and flexibility in learning. For example, students become more independent during task completion due to the collaborative learning process implemented by the teacher. Students become less dependent on the teacher and dare to look for other learning resources. This is in accordance with previous findings which prove that students are increasingly independent in problem solving during the independent curriculum implementation (Perdima et al., 2024). Moreover, the content studied by students is not separated from their daily lives, so they can easily analyze and find solution to every problem encountered (Elbes & Oktaviani, 2022; Suryawati et al., 2020). They have had experience in solving problems independently. This has a positive impact on students' learning achievements, in cognitive, affective, and psychomotor domains (Irfan et al., 2023; Sahlan et al., 2023). When connected to 21st-century learning, the independent curriculum contains all the required skills (Irawati et al., 2022). Students are required to master and be able to implement these skills. The constructivist approach also bridges students to optimize their previous competencies (Ahzim, 2023; Hakiky et al., 2023; Nadia et al., 2022). Students are mentally ready and actively build their knowledge structure based on their cognitive readiness and maturity. As per the advantages of the constructivist approach that encourages students to think more imaginatively and creatively (Ali et al., 2021; Lunevich, 2021). They have the opportunity to independently arrange phenomena so that students are able to differentiate and integrate their ideas. This impacts their changing ideas accompanied by the ability to interact with the environment as a provision to face a problem.

Overall, the positive impact of constructivist-based independent curriculum implementation emerges driven by principles inherent through a systematic flow. Both the independent curriculum and the constructivist approach focus on building students' knowledge independently so that students can optimize all their brain functions from their interactions and experiences. Support available in learning, such as models, media, or fun activities, is also able to encourage students to more easily assimilate material optimally. Thus, the independent curriculum and constructivist approach provide a broad impact as a basis and guide for education practitioners to make it an appropriate learning alternative to be applied.

CONCLUSION

This study presents 69 articles published over the last five years focusing on constructivist-based independent curriculum implementation. Information is obtained that this increasing trend from year to year adopts different types of research. Qualitative methods dominate research related to the constructivist-based independent curriculum implementation. Meanwhile, this research has been applied to several student contents with positive results. Each subject content can be applied with a constructivist approach in the independent curriculum. Constructivist-based independent curriculum implementation also provides benefits in the form of student empowerment with various skills that are in line with 21st-century education. These skills include being independent, creative, critical, adaptive, collaborative, communicative, and others. The principle of constructivist-based independent curriculum implementation underlines on maximizing the performance of the human brain in a rapidly changing educational environment and not only encourages student capacity but also develops an active and enjoyable learning atmosphere. The findings of this study can be a basis for educators to use the constructivist approach in learning. Otherwise, future researchers can examine constructivist-based independent curriculum implementation more deeply with other

rarely used types of research, such as meta-analysis research, CAR, and mixed methods. Furthermore, research on the independent curriculum with a constructivist approach is recommended to be widely applied at each level of education with diverse disciplines, especially in religious school areas.

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The author contributed fully to the writing of the manuscript, analysis, editing, collection of research concepts, and the overall progress of the research.

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