Research Analysis of Self-Directed Learning to Help Adults in Learning: A Systematic Literature Review

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Abstract

As new learning methods continue to emerge, self-directed learning remains a crucial element in the field of education. This research employs content analysis to explore self-directed learning as a central theme within studies conducted in Indonesia, focusing on publications indexed in the Scopus database from 2019 to 2024. The findings indicate a notable rise in related publications over the past three years, with quantitative research methods being the most commonly applied and students serving as the primary subjects. Key variables closely associated with self-directed learning include online learning, blended learning, motivation, higher education, and self-regulated learning, all showing strong interrelationships. Based on these insights, the researchers suggest several recommendations for future research, such as increasing the variety of research methodologies, broadening the scope of study participants beyond students, and enhancing the number of internationally published studies within the Scopus index.

Keywords: *Self-Regulated Learning, Learning Methods, Systematic Literature review*

Introduction

In recent years, the Indonesian education landscape has undergone significant changes, shifting toward a more student-centered and technology-integrated approach. One prominent method gaining widespread attention is Self-Directed Learning (SDL), which focuses on students' ability to actively manage and engage in their own learning processes (Kartikasari & Nuryasana, 2022). This approach is often linked to terms such as autonomous learning, self-regulated learning, and independent learning. SDL became particularly relevant during the COVID-19 pandemic, as the need to adapt educational delivery in the absence of face-to-face interaction pushed students to take greater responsibility for their learning (Irfandi et al., 2023; Wahyu Widodo et al., 2021). The use of digital platforms and tools like learning management systems has played a crucial role in this transformation, allowing learners to access diverse resources, learn at their own pace, and tailor their education to their interests and abilities.

Moreover, learning independence is increasingly seen as a key competency in today's rapidly evolving world. Individuals are expected to take ownership of their learning to keep up with continual societal and technological changes. SDL aligns with this demand, drawing from Humanistic philosophy—which emphasizes personal growth and self-actualization—and Pragmatic philosophy, which values learning that directly relates to real-life goals and practical applications (Morris, 2019).

Given the growing relevance of independent learning, further exploration into this area is essential for driving meaningful improvements in the education system. However, one challenge is the limited number of Indonesian research publications on SDL indexed internationally. This lack of visibility may hinder Indonesia's contribution to the global discourse on education and impede progress in aligning with international developments (Wahyu Widodo et al., 2021).

Therefore, conducting a systematic literature review of SDL research within the Scopus database can not only enhance the standing of Indonesian educational research but also uncover current trends, gaps, and opportunities for future study in this critical field.

Several prior studies have explored the concepts of self-directed and independent learning. For instance, Murad et al. (2010) conducted a systematic literature review to assess the effectiveness of self-directed learning (SDL) in the field of health professional education. Their findings indicated that SDL leads to better knowledge acquisition compared to conventional teaching methods. Another notable study by Beckers et al. (2016) examined the integration of SDL with portfolio use, revealing that such a combination can enhance students' motivation and self-assessment abilities. The portfolios were specifically designed to support goal setting, task analysis, and the execution of learning plans.

Building upon these foundations, the current study aims to address gaps in existing practices of Self-Directed Learning (SDL) by conducting a comprehensive literature review that systematically investigates research trends and identifies variables influencing or associated with SDL. The study emphasizes mapping not only the frequency and methodological approaches employed but also the interrelationships among variables that have been most frequently linked to SDL in Indonesian educational research. By situating the scope within the Indonesian context, this review captures how SDL has been discussed in relation to national educational priorities, particularly the integration of digital technologies, the implementation of the Kurikulum Merdeka, and the broader transition toward student-centered learning approaches. The decision to rely exclusively on Scopus-indexed publications ensures academic rigor and international visibility, while at the same time highlighting the limitation that local non-indexed works are excluded from the dataset.

The significance of this research lies in the increasing recognition that SDL is a fundamental skill for lifelong learning and global competitiveness. In Indonesia, the transformation of the education system requires learners to actively take responsibility for their learning process, aligning with demands for adaptability, creativity, and problem-solving in the 21st century. The findings of this review are expected to provide critical insights for educators, curriculum developers, and policymakers to design strategies that encourage learning autonomy, strengthen learner agency, and foster innovation across educational levels. Moreover, this study calls for diversification of research methodologies, expansion of research subjects beyond undergraduate students, and exploration of under-researched dimensions such as emotional engagement, assessment models, and family involvement in SDL. Ultimately, the goal of this review is to contribute to the continuous improvement of Indonesia's education quality by reinforcing SDL practices, thereby enhancing not only students' independence but also the nation's ability to align with international educational standards and respond to the challenges of a rapidly changing world.

Method

Research Design

This study employs a Systematic Literature Review (SLR) as its primary research method. The SLR approach involves identifying, reviewing, evaluating, and interpreting all available studies related to a specific research topic and questions of interest (Triandini et al., 2019). In this context, the SLR is understood as a structured process for gathering research data, reading and documenting information, as well as organizing and analyzing it in a systematic, transparent, and critical manner (Fauzi & Pradipta, 2018).

To ensure methodological rigor, this review follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, which provides structured guidance for selecting and evaluating relevant articles that align with the research objectives (Haddaway et al., 2022; Tricco et al., 2018). The PRISMA guidelines assist in systematically filtering literature sources to effectively address the predefined research questions.
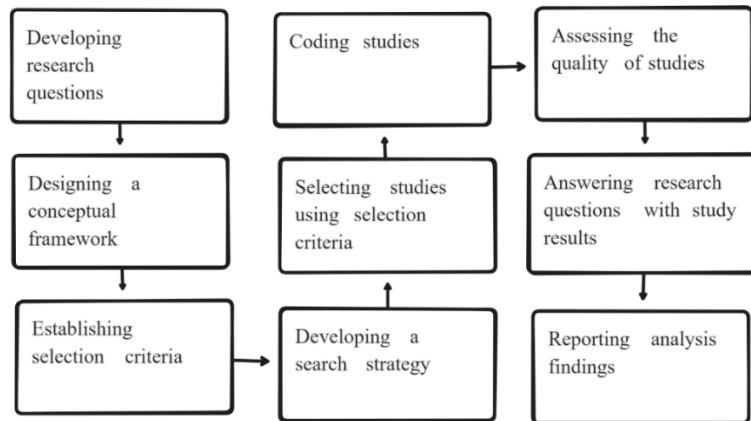

Figure 1. Prosedur systematic literature review

More precisely, Zawacki-Richter et al. (2019) describe the systematic literature review process as a series of structured steps. These include formulating the research question, constructing a conceptual framework, establishing inclusion and exclusion criteria, devising a search strategy, selecting studies based on the established criteria, conducting coding, evaluating the quality of the selected studies, addressing the research question through the findings, and ultimately presenting the results along with their analysis.

Data Source and Search Strategy

This study adopts the PRISMA framework to ensure the literature review is conducted in a structured and comprehensive manner. It focuses exclusively on research articles that are aligned with the formulated research question, using data obtained from the Scopus-indexed database. The data collection was limited to publications up until June 15, 2024, meaning that any studies published after that date were excluded from the review. To carry out the search, the researchers used an advanced query technique that applied specific Boolean operators to refine and target the most relevant studies.

The initial search was conducted using the following query:

(TITLE-ABS-KEY("self-directed learning") OR TITLE-ABS-KEY("self-regulated learning") OR TITLE-ABS-KEY("autonomous learning") OR TITLE-ABS-KEY("independent learning")), which resulted in a total of 20,748 articles.

To refine the results, additional filters were applied in the database search, including publication years from 2019 to 2024, article-type documents, affiliation limited to Indonesia, journal sources only, language restricted to English or Indonesian, final publication stage, and all types of open access. The refined query was as follows: (TITLE-ABS-KEY("self-directed learning") OR TITLE-ABS-KEY("self-regulated learning") OR TITLE-ABS-KEY("autonomous learning") OR TITLE-ABS-KEY("independent learning")) AND PUBYEAR > 2018 AND PUBYEAR < 2025 AND (LIMIT-TO(DOCTYPE, "ar")) AND (LIMIT-TO(AFFILCOUNTRY, "Indonesia")) AND (LIMIT-TO(SRCTYPE, "j")) AND (LIMIT-TO(LANGUAGE, "English") OR LIMIT-TO(LANGUAGE, "Indonesian")) AND (LIMIT-TO(PUBSTAGE, "final")) AND (LIMIT-TO(OA, "all"))

As a result of this filtering process, 246 relevant articles were identified and deemed suitable to proceed to the next stage of the review, which involved evaluating their eligibility based on predefined selection criteria.

Eligibility Criteria

To ensure rigor, this study applied eligibility criteria based on the PICOS framework—Population, Intervention, Comparison, Outcome, and Study Design. The Population comprised articles addressing Self-Directed Learning (SDL) in the Indonesian context. The Intervention focused on studies from 2019–2024, while the Comparison component was not applied. Outcomes included publication trends, recurring themes, research methods, treatments, subjects, and broader implications. Study Design emphasized bibliometric and scientometric approaches using Scopus data.

Exclusion criteria were also established: only articles published up to June 15, 2024, were considered, while studies lacking clarity or not primarily addressing SDL were omitted. This ensured the dataset remained focused, consistent, and of high quality. The entire search and selection process was mapped with a PRISMA diagram, after which data analysis was conducted on the eligible articles. This process provided a structured basis to answer the research questions effectively and reliably.
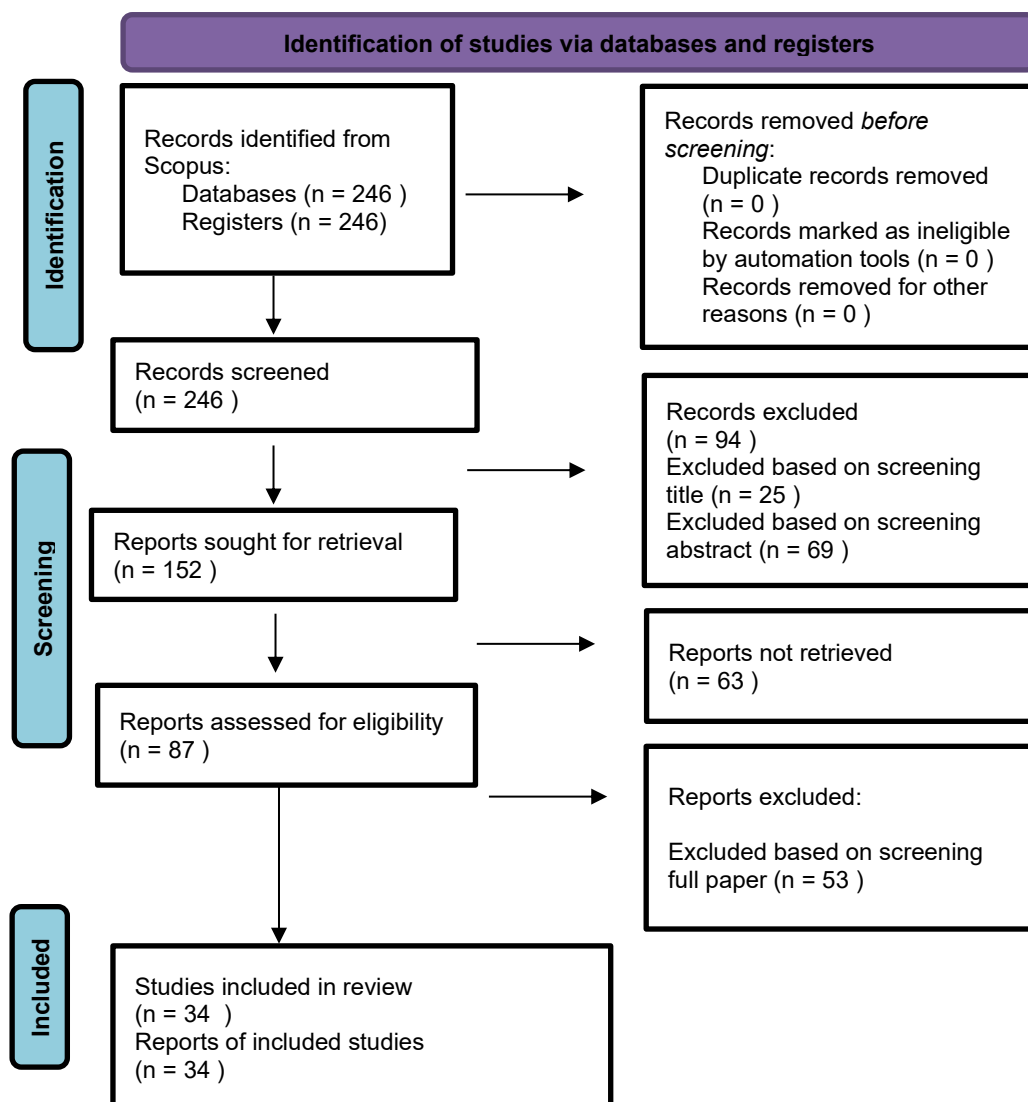

Figure 2. PRISMA Flow

Research Instrument

The instrument utilized in this study is a content analysis guideline that outlines several key aspects to be observed, as presented in the following table. This guideline is adapted from previous research conducted by Uzunboylu and Aşıksoy (2014), with modifications made to suit the requirements of the categorization framework. It is also supported by the study of Susetyarini and Fauzi (2020). The observed components include: (1) the research approach, (2) research design, (3) research variables, (4) data collection methods, (5) data analysis techniques, and (6) the subjects of the research. Additionally, distribution analysis is conducted to examine the number of publications related to variable distribution and frequency, as well as the relationships among variables—these additions are incorporated based on the specific needs of the study.

Table 1. Categories Table

| No	Aspects	Categories		
1	Types of Research / Research Aproach	A-Qualitative B-Quanitative	C-Mixed Method D-Action Research	E-Other & Unknown
2	Research Design	A.1 Literature A.2-Concept Analysis B.1- Fully Experimental B.2- Semi-experimental Weak B.3- Weak experimental B.4- Scan pattern	B.5- Descriptive B.6- Comparative B.7- Correlation C.1- Explanatory C.2- Exploratory D-Others & Unknown	
3	Research Variable	1)- Emotional Dimension 2)- Cognitive Dimension 3)- Success 4)- Education Technology	5)- Teaching Methods 6)- Physics Teacher Training Programme 7)- Assessment and Evaluation	
4	Data Collection Techniques	a-Tests b-Questionnaire	c-Interview d-Documents	e-Observation f-Others
5	Data Analysis Techniques	a.1-Descriptive analysis a.2-Content analysis a.3-Others Descriptive b.1-Frequency/Percentage b.2-Mean/SD b.3- Illustrating Graphics b.4-T-Test b.5-ANOVA/MANCOVA	b.6-Corelation b.7-Factor Analysis b.8-Non-parametric test b.9-Regression b.10-MANOVA/MANCOVA c.1- SEM - PLS c.2- Others / Did not mentioned	
6	Research Subject	1) Lecturers 2) Teacher 3) Postgraduate Students	4) Undergraduate students 5) Senior High School 6) Junior High School	7) Elementary School 8) Families 9) Others/did not mention

Results
Number Publication
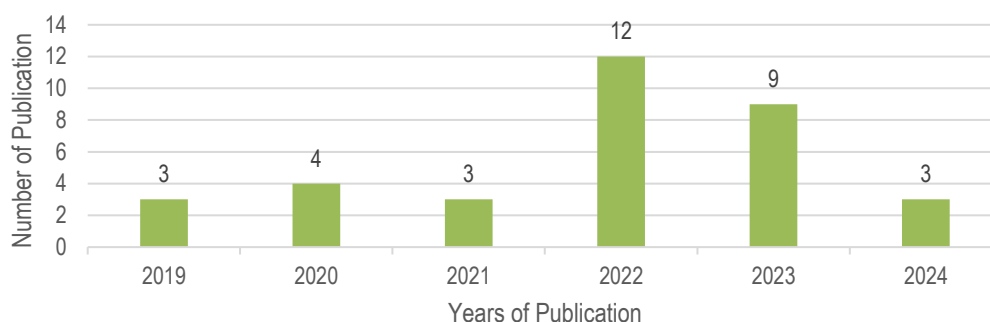
Figure 3. Number of Publication

The data presented in the table above highlights the changing trend in scientific publications on the topic of Self-Directed Learning (SDL) in Indonesia, specifically those indexed in the Scopus database. These trends were observed after applying several filtering and screening processes to ensure only the most relevant studies were included. Over the period from 2019 to 2024, the number of SDL-related publications fluctuated. In 2019, there were only three publications, followed by a modest increase in 2020. However, this was followed by a consistent output of just three publications per year in 2021. A notable surge occurred in 2022, with 12 publications recorded—representing a nearly tenfold increase compared to the previous year. This sharp rise may reflect renewed scholarly interest in SDL, possibly driven by evolving technological advancements and the shift in educational practices during the "New Normal" period post-COVID-19. Nevertheless, in 2023, the number of publications dropped to nine, suggesting a possible shift in research focus or changing educational priorities in Indonesia. As for 2024, only three publications were documented, but this figure is likely not fully representative of the year's total output, as the data collection was cut off in mid-June.

Types of Research
Research Aproach
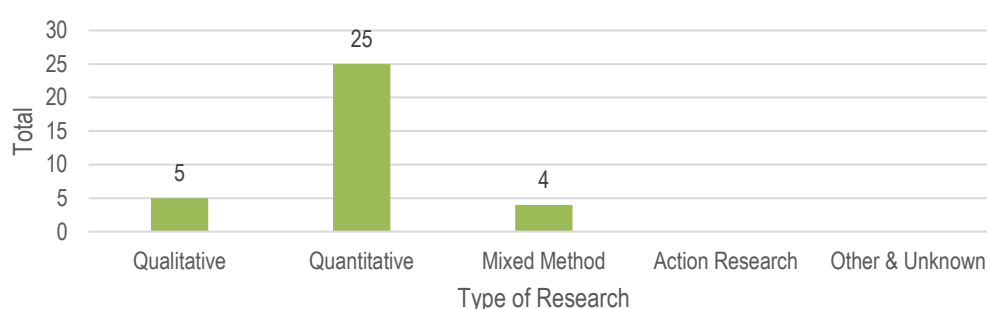

Figure 4. Types of Research / Research Aproach

Based on the data illustrated in the figure, it is evident that the quantitative approach is the most dominant, accounting for 25 out of the total articles analyzed. This trend suggests that many researchers prefer using empirical methods to assess the implementation and effectiveness of self-directed learning (SDL), as it enables them to gather large-scale data and produce measurable, comparable results. Such an approach is particularly valuable when testing educational theories and validating hypotheses.

In contrast, the qualitative approach, though less common, appears in five studies. This method is typically utilized to explore in-depth perspectives, experiences, and contextual factors influencing SDL. By prioritizing the exploration of meaning and interpretation, qualitative research offers richer insights into how SDL is perceived and practiced within the Indonesian educational landscape.

Additionally, four studies employed a mixed-methods design, combining both qualitative and quantitative approaches. This indicates a growing recognition of the importance of understanding SDL from multiple viewpoints, allowing for a more comprehensive analysis of its complexities. On the other hand, there is a noticeable absence of research using the Research and Development (R&D) approach, highlighting an opportunity for future scholars to diversify methodological approaches. Incorporating R&D could be instrumental in producing innovative SDL models or tools tailored to the needs of Indonesian learners.
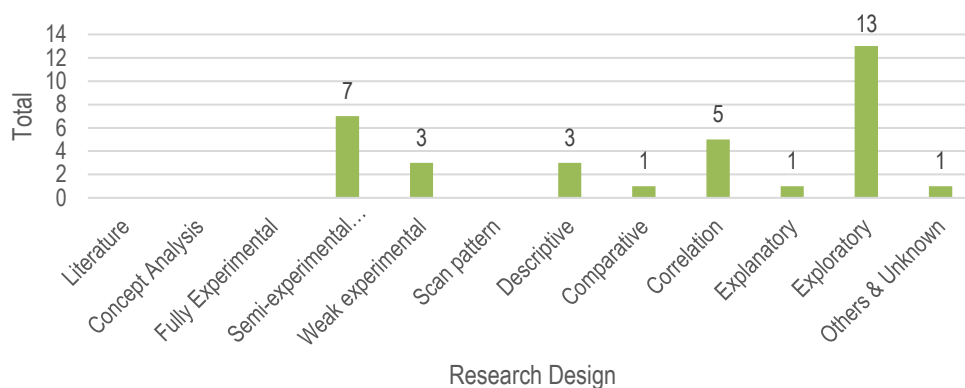
Research Design

Figure 5. Research Design

The analysis of research design is a crucial component discussed further to gain a comprehensive understanding of the approaches employed by researchers in exploring the phenomenon of *self-directed learning* (SDL). Based on a review of the collected articles, exploratory design emerges as the most widely used method, with a total of 13 studies adopting this approach. This suggests that many researchers are still in the preliminary stages of grasping the context and dynamics of SDL in Indonesia. Exploratory design proves valuable in identifying key variables, establishing relationships, and laying the groundwork for more structured research in the future.

In addition, correlational and descriptive designs were employed in 5 and 3 articles, respectively. The correlational approach aims to uncover the relationships between variables that influence SDL practices, such as learning motivation, educational environment, and learning outcomes. On the other hand, the descriptive design is used to document specific conditions or behaviors related to SDL without direct intervention by the researcher.

Interestingly, research utilizing experimental designs remains relatively scarce, with only 3 studies applying weak experimental designs and 7 studies using quasi-experimental designs. This indicates that SDL research in Indonesia tends to prioritize observational and theoretical approaches over experimental ones. Overall, the diversity in research design distribution reflects the fact that SDL is being explored from multiple perspectives. This offers significant potential for future studies to delve deeper and expand methodological variations in an effort to develop more effective SDL practices within the Indonesian education system.

Research Variable Distribution

Table 3. Variable Distribution Frequency

| No	Variable	Frequency
1	Self-Directed Learning (SDL)	15 times
2	Self-Regulated Learning (SRL)	12 times
3	Independent Curriculum	5 times
4	Social Media Usage	4 times
5	Metakognitif	3 times
6	Gamefication	3 times
7	Critical Thinking	3 times
8	Learning	3 times
9	Motivation	2 times
10	Cybergogi	2 times
11	Andragogi	2 times
12	Communication	2 times
13	Learning Method	2 times
14	project based learning	2 times
15	Problem Based Learning	1 times
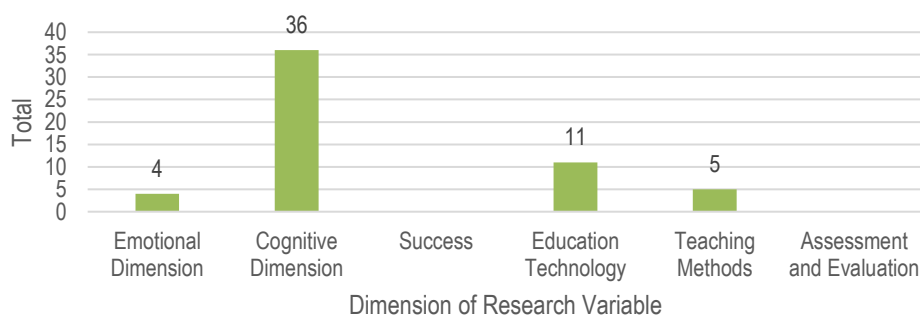
Figure 6. Dimension of Research Variable

In the subsequent findings of this study, the dimensions of research variables are analyzed to provide deeper insights into the thematic focus of self-directed learning (SDL) research. The researchers categorized six dimensions commonly used in these studies, namely: emotional, cognitive, success, educational technology, teaching methods, and assessment and evaluation. Each dimension comprises several variables identified from the analyzed articles.

The cognitive dimension emerged as the most prevalent, with 36 related variables identified. This suggests that a significant number of researchers concentrate on the mental processes and cognitive functions associated with SDL. The prominence of this dimension highlights the educational emphasis on fostering critical thinking, problem-solving, and intellectual independence among learners. In contrast, the emotional dimension was addressed in only four studies, pointing to a research gap in the exploration of emotional engagement and its role in the SDL process.

Another area that received notable attention is educational technology, with 11 studies investigating the influence of technology on SDL. This reflects growing interest in the role of digital tools, online platforms, and technological integration as facilitators of autonomous learning practices. However, some crucial dimensions such as learning success and assessment and evaluation remain unexplored in the selected studies. This absence presents an opportunity

for future research to delve into how these components might interact with or affect the implementation and outcomes of SDL, particularly in the evolving landscape of education in Indonesia.
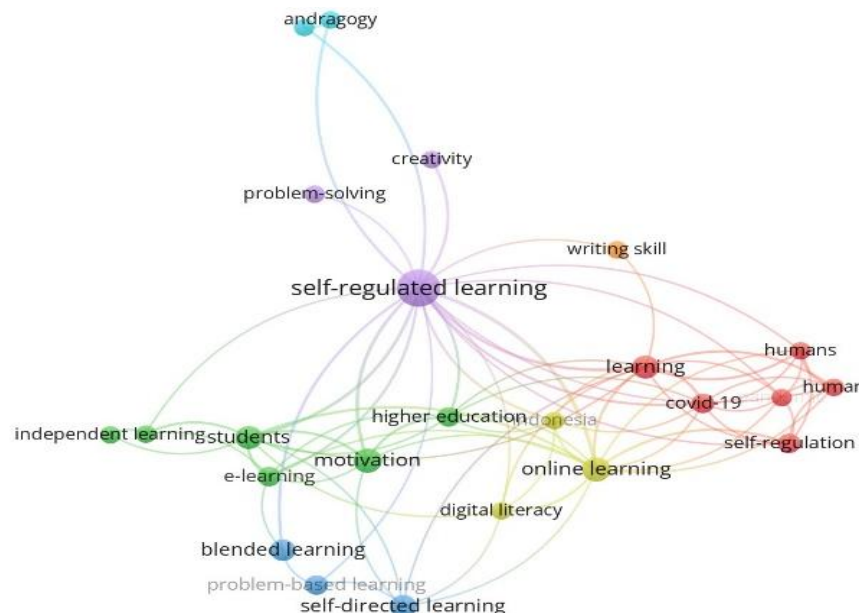
Network Variable Corelation

Figure 7. Network Variable Corelation

At this stage, the researcher compiled all variables related to self-directed learning from the previously selected and filtered articles. Using the VosViewer tool, the researcher then visualized the correlations between these variables to create an accessible and comprehensible graphic representation for readers, as depicted in the figure above. The key findings from the correlation analysis reveal that research on self-directed learning (SDL) exhibits strong associations with concepts such as self-regulated learning, online learning, and higher education. This suggests that SDL is predominantly implemented in online and higher education contexts. Additionally, topics like motivation and problem-based learning frequently appear in studies discussing SDL, underscoring their relevance in this field.

The analysis further highlights significant linkages between SDL-related variables and broader educational themes such as online learning, distance education, and the evolving nature of higher education. These connections indicate that SDL has become increasingly central in contexts where learners are required to manage their own progress, particularly in digital and blended environments. The prominence of such linkages underscores how SDL functions not merely as an individual skill but also as a systemic response to educational challenges that demand flexibility, adaptability, and resilience. Furthermore, the findings reveal the relevance of creativity, motivation, and adult learning strategies in strengthening autonomous learning capacities. By integrating these elements, SDL can foster innovative and personalized pathways that align with diverse learner needs and goals. This suggests considerable potential for expanding SDL research and practice, particularly in developing frameworks that balance technological tools, pedagogical approaches, and learner agency to achieve sustainable educational outcomes.
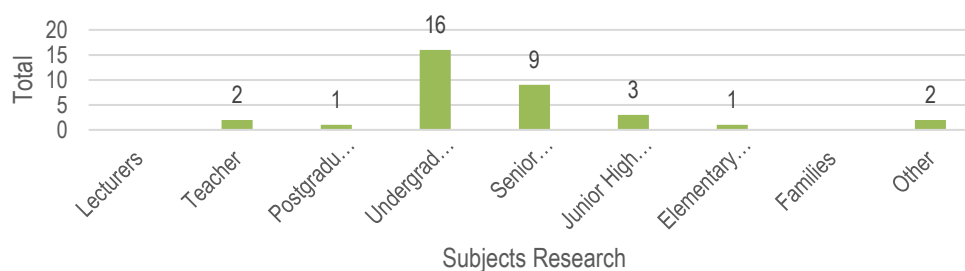
Research Subjects

Figure 8. Research Subject

Undergraduate students emerge as the most frequently studied research subjects, appearing in 16 of the analyzed studies. This reflects their strong suitability for investigations into self-directed learning, as higher education demands a high level of independent learning and personal initiative. Following this, senior high school students are featured in 9 studies, while junior high school students appear in 3. Several other subjects—such as teachers, pre-service teachers, or general learners—are each represented in only one study.

These findings suggest that research on self-directed learning has primarily concentrated on undergraduate and high school students, who are considered the most relevant for exploring this learning model. Nonetheless, there remains a significant opportunity for future research to investigate how self-directed learning can be implemented and supported in other educational settings, including within families and among education professionals.

Treatments

Table 4. Treatment

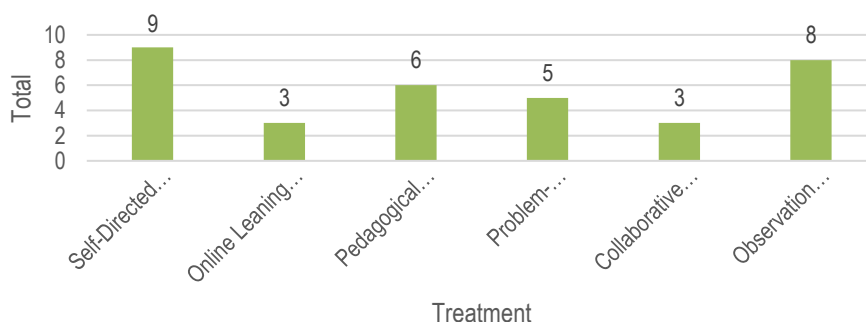| Treatments	Number of articles
Self-Directed and Autonomous Learning	9
Online Leaning and Self-Directed Learning	3
Pedagogical Approaches and Technology-Based Learning	6
Problem-Based and Project-Based Learning	5
Collaborative Learning and Gamification	3
Observation and Non-Experimental Observation	8

Figure 9. Treatment Categories

In this section, the researchers highlight the various treatments employed in studies related to self-directed learning, aiming to present a comprehensive overview of the strategies utilized to support this field of inquiry. The treatment category labeled "Self-Directed and Autonomous

Learning" emerges as the most prominent, appearing in nine articles, suggesting a strong emphasis on fostering learner independence as a core component of SDL research.

Following closely is the "Observation and Monitoring" treatment, reported in eight articles. This category reflects a methodological preference for capturing learning behaviors in natural contexts without direct intervention, offering valuable insights into how self-directed learning manifests in authentic settings. The "Technology-Based Learning" category, identified in six studies, also plays a significant role. This finding underscores the increasing relevance of digital tools and online platforms in enhancing learner autonomy, providing flexible and interactive environments conducive to self-directed learning.

Other categories such as Online Learning, Project-Based Learning (PBL), and Collaborative Learning appear less frequently but still contribute to the diversity of approaches explored in this research domain. Overall, the data illustrates a variety of treatment methods utilized in self-directed learning research, reflecting a multi-faceted approach to fostering independent learning. These diverse strategies signify a growing commitment to innovation and adaptation in education, particularly within the Indonesian context, and suggest promising directions for future exploration.
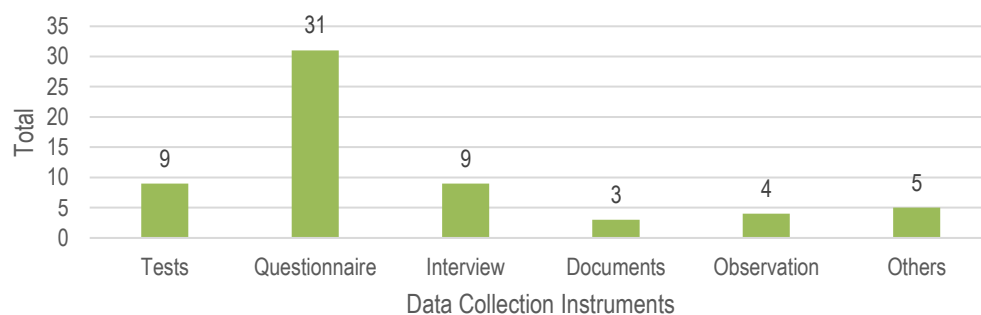
Data Collection Instruments

Figure 10. Data Collection Instruments

The selection of data collection instruments plays a crucial role in determining the depth and quality of analysis in studies on self-directed learning. The data presented highlights the various types of instruments employed across the collected research. Among them, questionnaires are the most frequently used, appearing in 31 studies, which suggests a strong preference for quantitative approaches. This method is widely favored due to its ability to produce statistically analyzable data and capture responses from a large number of participants efficiently.

In contrast, both tests and interviews were each used in 9 studies. Test instruments are typically applied to measure learners' competencies or the progress achieved through self-directed learning, while interviews are used to gain more in-depth insights into learners' experiences, motivations, and challenges. Other instruments such as document analysis and observations appear far less frequently, indicating limited but targeted use for specific research objectives.

Overall, the variation in instrument use reflects the diverse methodological approaches adopted in self-directed learning research. This diversity underlines the complexity and interdisciplinary nature of the topic. Choosing the right instrument is essential for generating accurate and valid findings, which in turn contribute to the formulation of more effective, inclusive, and learner-centered educational strategies.
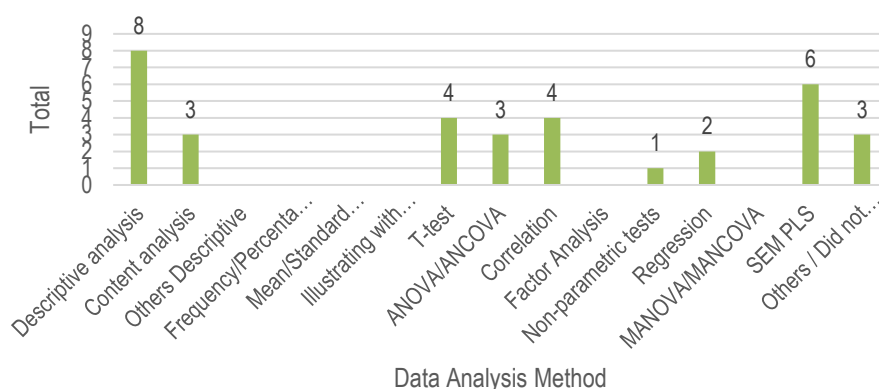
Data Analysis Techniques

Figure 11. Data Analysis Techniques

Data analysis techniques represent the next critical stage following data collection and are inherently interconnected. Choosing the right analytical method is essential to effectively address research hypotheses and ensure valid and reliable findings. In the context of self-directed learning (SDL), the selection of analysis techniques varies widely depending on the specific variables being studied, allowing for a more comprehensive understanding of the concept.

The range of analysis methods used highlights the diversity of scientific approaches in exploring SDL. Based on the table above, descriptive analysis is the most frequently employed technique, appearing in eight studies. This suggests that many researchers prefer to present findings in a straightforward manner without the use of advanced statistical procedures. The second most commonly used method is Structural Equation Modeling – Partial Least Squares (SEM-PLS), which is applied to establish causal relationships and construct models that explain the interactions among multiple SDL-related variables.

Additionally, T-tests, ANOVA/ANCOVA, and correlation analysis are employed in several studies to examine significant differences between groups or to assess the relationships between influencing factors within SDL. Correlation analysis, in particular, is useful in identifying inter-variable connections that shape self-directed learning behaviors. Other analysis methods appear less frequently and are more randomly distributed across studies, highlighting the methodological flexibility available to researchers. This variety in analytical approaches reflects the complex nature of SDL research in Indonesia, showing that scholars utilize diverse methods to interpret different aspects of this learning model. Ultimately, this methodological richness aims to yield accurate, nuanced insights that can contribute to the development of more effective educational strategies and policymaking.

Discussion

The results of various Self-Directed Learning (SDL) studies analyzed using a systematic literature review, in the last 5 years conducted in Indonesia. show that various SDL studies use quantitative methods that make it easier for researchers to further explore each variable factor, then the research design that is widely used is exploratory which indicates that research related to SDL is still in the stage of mapping the problems and dynamics of SDL in education in Indonesia. Many SDL studies in Indonesia are directed at the Cognitive dimension area, and the research subjects are dominated by undergraduate students, this shows that SDL is very important to be carried out in higher education.

In other studies such as Murad et al (2010) pointed to the same direction, namely highlighting SDL which has a positive influence on education and knowledge, also Beckers et al. (2016) to improve SDL various reflective and electronic tools can be used effectively to improve SDL. However, when compared on a global scale, SDL research in Indonesia is still very limited with the application of exploration and mapping that is not broad enough in areas other than cognitive.

This SDL study theoretically contributes by finding that SDL research in Indonesia focuses on the cognitive dimension, but also becomes a marker of the urgent need to encourage the development of SDL in Indonesia in untouched areas, one of which is the affective and social dimensions of education. In practice, these findings can be policy makers in formulating educational guidelines and also guiding educators on how a more balanced SDL can be implemented well—integrating emotional support and collaborative elements alongside self-directed learning strategies.

The scope of this review research search is limited by the search specifically on Scopus-indexed articles, which may omit relevant research published in local journals or those not indexed in the Scopus database. The time limit of June 15, 2024 is also a time limitation meaning that the research may not reflect continuous developments in the future. Methodologically, the overwhelming dominance of quantitative studies limits the depth of understanding of qualitative aspects of SDL—such as personal experiences, cultural influences, and contextual barriers.

Future research should consider diversifying methodological approaches—especially by combining qualitative studies, mixed methods, and R&D (Research and Development). Such approaches may reveal deeper insights into learner motivation, emotional resilience, and sociocultural influences on SDL. Additionally, expanding research subjects to include elementary school students, teachers, and adult learners would provide a more inclusive perspective. It is also recommended to explore underrepresented variables such as assessment methods, emotional engagement, and the role of families in promoting SDL.

The findings of this review indicate that research on Self-Directed Learning (SDL) in Indonesia predominantly employs quantitative approaches, with exploratory and correlational designs being the most widely used. This tendency aligns with the view of Triandini et al. (2019), who emphasize that systematic reviews in education often begin with exploratory mapping before advancing into more rigorous methodologies. Similarly, Zawacki-Richter et al. (2019) argue that the initial stage of SDL research typically involves the identification of key themes and conceptual frameworks before experimental validation.

Furthermore, the dominance of cognitive dimensions in SDL studies confirms the theoretical perspective that SDL is closely tied to intellectual processes such as critical thinking and problem solving. Morris (2019) highlights SDL as a fundamental competence in navigating a rapidly changing world, particularly by enhancing learners' cognitive adaptability. This is reinforced by Beckers et al. (2016), who found that the integration of reflective tools such as portfolios not only supports self-assessment but also strengthens learners' ability to set cognitive goals and manage their progress.

The focus on undergraduate students as the primary research subjects also resonates with previous findings. Bahri et al. (2020) demonstrated that blended learning combined with innovative strategies could significantly improve university students' self-regulated learning skills. Likewise, Ambaryani and Putranta (2022) confirmed that SDL-oriented approaches enhance metacognitive awareness, which is crucial in higher education contexts. These results affirm that Indonesian scholars have primarily targeted populations most likely to benefit from independent learning, even though opportunities remain to expand studies toward teachers, elementary, or adult learners.

Finally, the strong correlation between SDL, online learning, and motivation is consistent with the arguments of Sutarni et al. (2021), who demonstrated that digital learning environments significantly influence academic achievement through enhanced self-regulated learning. This theoretical link also resonates with Rizki et al. (2022), who highlighted the role of SDL in underdeveloped regions of Indonesia, showing its potential to equalize educational opportunities. Therefore, the current review not only maps research trends but also validates that SDL is deeply intertwined with digital literacy, learner autonomy, and innovation—elements that are consistently emphasized in the broader theoretical discourse.

Conclusion

The current study provides a comprehensive review of articles indexed in the Scopus database that focus on self-directed learning (SDL) within the Indonesian context. The analysis reveals that the quantitative research approach is the most dominant, with many studies employing explanatory research designs. Furthermore, the cognitive dimension appears to be the primary focus across most studies, and undergraduate students are identified as the most frequently selected research subjects.

In terms of data analysis techniques, a range of methods is utilized, with descriptive statistics and Structural Equation Modeling using Partial Least Squares (SEM-PLS) being the most commonly applied. These methods have been instrumental in identifying strong correlations among key variables, including online learning, blended learning, motivation, higher education, and self-regulated learning.

Drawing from these findings, several important recommendations are proposed for future research directions. First, there is a need to increase the volume of studies on SDL to strengthen the body of knowledge in this area. Second, experimental research designs should be more widely adopted to improve the rigor and depth of future investigations. Finally, researchers are encouraged to expand the scope of SDL studies to explore its application across diverse educational settings, thereby enriching the academic landscape and contributing to the development of more effective learning strategies in Indonesia.

Acknowledgment

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