Research Trends in the Development of Digital Literacy-Based Scientific Writing Textbooks: Study of *Literature System Review* in Indonesian National Journal

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Abstract. The purpose of this study is to review the literature on the development of academic writing textbooks based on digital literacy. This study uses a systematic literature review (SLR) approach. SLR is a systematic research that involves identifying, synthesizing, and evaluating sequentially to obtain comprehensive and targeted answers. A search using the keywords "development of academic writing textbooks" and "digital literacy" on the page https://openknowledgemaps.org/ resulted in 41 articles, both certified and uncertified. This study shows that the distribution of items has changed over the past 5 years. In 2021 to 2022, there was a significant increase from 4 articles to 18 articles. There was an increase of 14 articles. In 2022 to 2023, the number of articles decreased significantly from 18 articles, from 7 articles to 11 articles. The following data shows that most of the papers found by researchers on the search page, namely 32 papers, were not certified by Sinta. There are 0 or none in Sinta 1. There are 1 articles in Sinta 2. There are 0 or no items in Sinta 3. There are 2 articles in Sinta 4. There are 6 articles in Sinta 5. There are 0 or no articles in Sinta 6. After considering the type of approach in research, the following results were obtained. There are 22 qualitative research papers, 3 quantitative research papers, 2 mixed methods research papers, and 10 development research papers.

Keywords: Research Trends, Development of Scientific Writing Textbooks, Digital Literacy, Literature System Review

1. Introduction

Writing is an activity to convey a message to others using language that is understood by others not face-to-face or in the form of writing that requires a lot of practice and practice regularly so that the writing produced is good and correct [17]. Writing can also be interpreted as the ability to express ideas in written form.

One type of writing is scientific writing. According to Hardi [4], scientific writing fails when learners are unable to write scientific, when teachers are unwilling and unable to be examples in scientific writing. Scientific writing is only limited to being studied, but not done. Let alone become accustomed to scientific writing, training for scientific writing alone is not done. Again, scientific writing is a competency. The method is simple, learners and teachers must practice writing seriously, purposefully, and according to the rules of scientific writing. After that, dare to publish it so that it is useful for readers. Scientific writing must be based on "example", a good example of scientific writing. Then Ilmah Writing is a competency.

The ability or skill of scientific writing has been taught at the basic education level. However, not a few students who have taken the upper secondary education level also do not have this ability. Thus, further studies related to this need to be carried out.

The research that will be carried out by researchers is the development of digital literacy-based scientific writing textbooks for high school students. However, specifically in this paper the researcher focuses on a literature review related to the problem.

2. Method

This study used *a sysmatic literature review (*SLR) approach. SLR is a systematic review that involves identification, synthesis, assessment activities sequentially to produce comprehensive and focused answers [7]. The research steps are by (1) topic identification and inclusion and exclusion development; (2) filtration and extraction; and (3) analysis and synthesis [11]. Data collection is carried out by tracking articles related to scientific writing on the search page for scientific articles *https://openknowledgemaps.org/*. Researchers used the keywords "scientific writing textbook development" and "digital literacy" to focus the search. Relevant articles are obtained in pdf form. and synchronized in reference management in the form of a Research Information System (RIS).

Furthermore, to focus the study, researchers carried out several screenings. Inclusion and exclusion models are used for reporting systematic reviews and meta-analyses. There are several inclusion criteria used to obtain scientific writing articles, which include (1) articles published within the last five years (2018-2023); (2) articles on the development of scientific writing textbooks" and "digital literacy" in Indonesian and English; (3) the article is an article of research and service; (4) derived from journal sources; (5) articles published in national journals, both accredited *Science and Technology* (SINTA) categories 1 to 6 or not accredited.

3. Results and Discussion

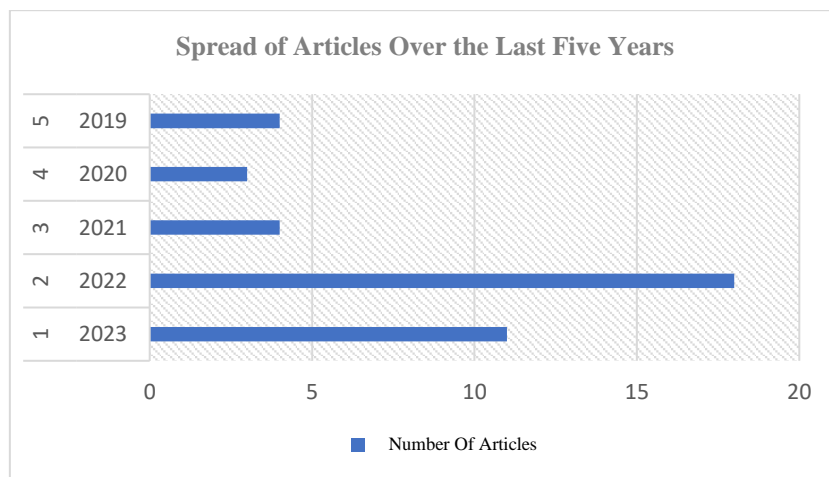### 3.1 Dissemination of the Last Five Years article

Based on the search results on the *https://openknowledgemaps.org/* page with the keywords "development of scientific writing textbooks" and "digital literacy", 41 articles were obtained, both accredited and non-accredited. Furthermore, if mapped according to the period of years, an overview of the number of publications each year during the last five years is obtained as in table 1 below.

Table 1. Distribution of the number of publications in the last five years

No.	Year Published	Number of Articles
1	2023	11
2	2022	18
3	2021	4
4	2020	3
5	2019	4
Total		41

Based on table 1, it is known that the largest distribution of articles is in 2022. The distribution of articles is at least in 2020. In 2021 and 2019 there were the same number of article

distributions, namely 4. To facilitate reading the table, fluctuations in the distribution of the article can be seen on the graph.

Spread of Articles Over the Last Five Years

Year	Number Of Articles
2019	4
2020	3
2021	4
2022	18
2023	11

Graph 1. Spread of Articles Over the Last Five Years

The graph shows that the spread of articles in the last five years has fluctuated. The fluctuation referred to by the researcher is the distribution of articles from year to year has increased and decreased in number. A significant increase occurred from 2021 to 2022, from 4 articles to 18. So, it can be seen that the increase reached 14 articles. A significant decrease also occurred from 2022 to 2023, from the number of articles to 18 articles down by 7 articles to 11 articles.

3.2 Distribution of Articles Based on Sinta Accreditation Theory
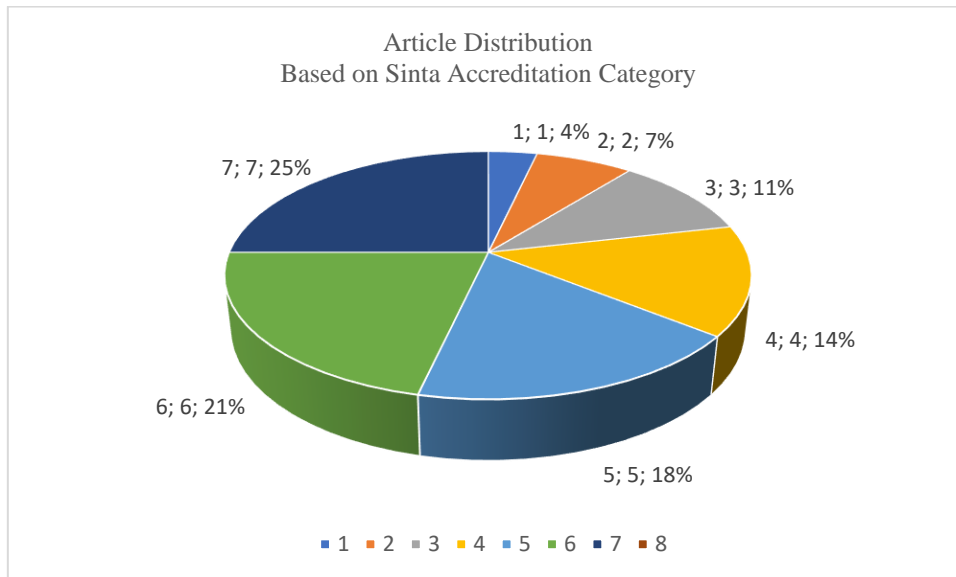
The distribution of articles can also be categorized based on Sinta's national accreditation. The following table shows the number of articles that have not been or have been accredited by Sinta.

Table 2. Distribution of Articles Based on Sinta National Accreditation

No.	Accreditation Categories	Number of Articles
1	Feel 1	0
2	Feel 2	1
3	Feel 3	0
4	Feel 4	2
5	Feel 5	6
6	Feel 6	0
7	Not yet accredited by Sinta	32
Total		**41**

Based on the table, data was obtained that most of the articles obtained by researchers on the search page had not been accredited by Sinta, namely 32 articles. Sinta 1 accredited

articles are 0 or none. Sinta 2 accredited articles are 1 in number. Sinta 3 accredited articles have 0 or no number. Sinta 4 accredited articles are 2 in number. Sinta 5 accredited articles are 6 in number. Sinta 6 accredited articles have 0 or no number. The data in table 2 can be percentaged in the following graph.

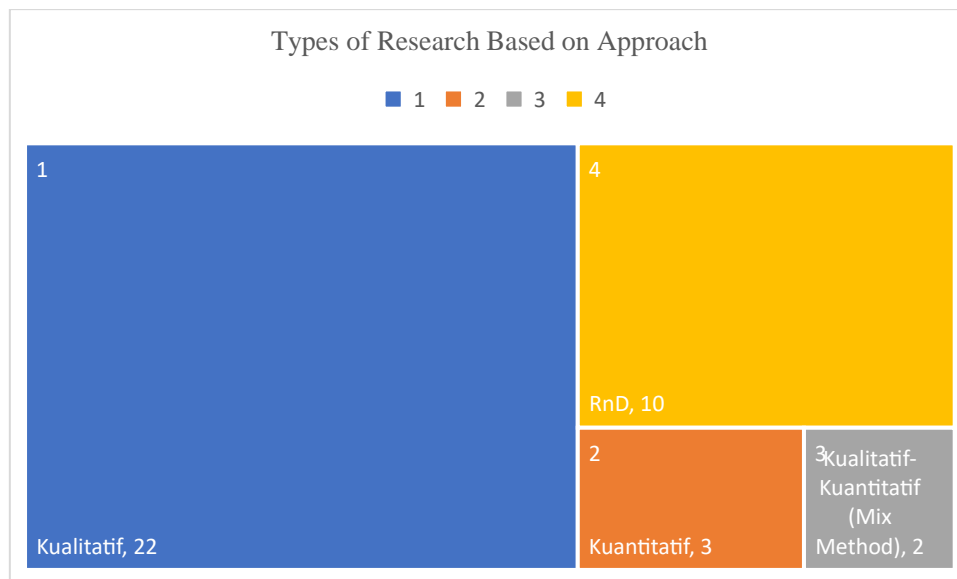**Graph 2.** Distribution of Articles by Sinta Accreditation Category

3.3 Distribution of Articles by Type of Research Approach

After identifying articles based on the distribution of the last five years and Sinta's accreditation category, researchers identified articles based on the type of research approach. Based on these identification steps, data are obtained as in table 3 below.

Table 3. Distribution of Articles by Type of Research Approach

No.	Types of Research Based on Approach	Number of Articles
1	Kualitatif	22
2	Kuantitative	3
3	Qualitative-Quantitative (Mix Method)	2
4	RnD	10

Based on table 3, it is known that qualitative research articles totaled 22, quantitative research articles numbered 3, combined research articles numbered 2, and development research articles numbered 10. So, the largest distribution of articles is qualitative research type, which is 22, while the fewest articles are combined research type, which is 2. For more details, see in the following chart 3.

Types of Research Based on Approach

■ 1 ■ 2 ■ 3 ■ 4

1	4
Kualitatif, 22	RnD, 10
	2 — Kuantitatif, 3	3 Kualitatif-Kuantitatif (Mix Method), 2

Graph 3. Distribution of Articles by Type of Research Approach

The dissemination of the article is displayed as follows.

3.4 Qualitative Research

Qualitative research amounted to 22 articles, including Irianti, et al. [6], Febrina, et al. [5], Effrisanti [3], and Safrudin [13]. The study of the research is described as follows.

Research by Irianti, et al. [6] resulted in a study that the digital literacy training of SMAN 1 Campalagian students received considerable attention from partners and participants. This is because this kind of training is needed by today's generation. This training was attended by 25 students who will be the driving force in the digital literacy movement. Digital literacy knowledge delivered includes an introduction to digital literacy, social media ethics, the ITE Constitution, and poster making training.

The results of Febrina, et al.'s [5] research are in the form of mentoring students through digital literacy, language and finance training activities carried out at SMK Swasta Pencawan Medan. This service activity is one of the community service programs for lecturers as an effort to implement the tri dharma of higher education.

Based on the results of Effrisanti's research [3], it can be seen that religious digital literacy is all forms of reading materials and lessons containing religion that can be a source of knowledge using digital, both audio, audio-visual and video. The urgency of religious digital literacy is a method and media to provide teaching materials that are tailored to the circumstances of students or students who enter the digital generation. The function of Digital literacy refers to digital literacy as a conscious effort to help individuals be more selective in accessing new media, being able to analyze, critical of their content, being able to evaluate, having the ability to respond, and being able to optimize the use of information obtained from new media for things that are productive for their lives.

From the results of Safrudin's discussion [13], it can be seen that religious digital literacy is all forms of reading materials and lessons containing religion that can be a source of knowledge using digital, both audio, audio, visual and video. The urgency of religious digital literacy is a method and media to provide teaching materials that are tailored to the circumstances of students or students who enter the digital generation. While the function of Digital literacy refers to digital literacy as a conscious effort to help individuals be more selective in accessing new media, being able to analyze, critical of their content, being able to evaluate, having the ability to respond, and being able to optimize the use of information obtained from new media for things that are productive for their lives. Safrudin's research [13] uses a type of qualitative research with a literature study approach. According to Zed [10], literature study is a series of activities that include methods of collecting literature data, reading, recording, and then processing the research material

3.5 Quantitative Research

The first quantitative research in this study was conducted by Sikoko and Mazdalifah [14] with the title "Descriptive Study of Digital Literacy Conditions in Suburban Settlements of Gaharu Village, Medan City". The results showed that the condition of digital literacy of children of internet users aged 9-14 years in the suburban settlements of the Gaharu Village railway as a whole was categorized as good with the results of 4 out of 5 competency areas including good categories with areas of creativity and digital innovation having the lowest scores.

The second quantitative research in this study was conducted by Sonia and Yuliani [15] with the title "The Effectiveness of Using Enzyme Interactive E-books as Teaching Materials to Train Digital Literacy Skills". Based on the results of the study, it was shown that interactive e-books on the developed enzyme material were declared very effective for training digital literacy skills. It is based on test results and student responses. The test results showed that the ability of students' digital literacy indicators was included in the very good category (96%). Students gave a very positive response after using the e-book, which was 98.97%.

The second quantitative research in this study was conducted by Sumadi (2023) with the title "Analysis of Digital Literacy Skills of Biology Education Students of FKIP UNTAD". The research was conducted in the Biology Education Study Program FKIP UNTAD in the even semester of the 2022/2023 academic year. The research sample was 108 2nd semester students. The data collection technique is a questionnaire of 15 statement items using the Likert scale to analyze students' digital literacy skills. Data analysis techniques are quantitative descriptive analysis. Research data was obtained by distributing questionnaires to students through google forms. Analysis of research data using descriptive statistical analysis such as mean, standard deviation and variance. The results of the study were obtained by describing the digital literacy skills scores of students of the biology education study program FKIP UNTAD. The achievement of students' digital literacy skills is obtained by using questionnaires or questionnaires with several indicators.

3.6 Mix Method Research (Qualitative and Quantitative)
The first research was conducted by Nurulbayti [9] with the title "Digital Literacy Ability of Lecturers in the Process of Teaching and Learning Activities Entering the Society 5.0 Era in North Halmahera Regency". The results showed that the ability to search and share digital learning information was above average, while assessing the credibility, quality, and concoction of digital information was below average.

The second research was conducted by Desi [1] with the title "School-Based Digital Literacy Movement: Implementation and Strategy". The research concluded that the digital literacy level of the majority of students of SMP Karitas Ngaglik Sleman was at the medium level and had the lowest score on the *repurposing content element.*

3.7 Research and Development (RnD)

Development research is research carried out by developing an existing product. There are 10 R&D type studies, including the following. The first research was conducted by Rahmat and Lestari [10] with the title "Development of Textbooks for Multicultural-Oriented Character Education Indonesian Courses". Textbook development includes the defining stage with results in the form of learning needs maps, the design stage with the results of textbook drafts, and the development stage with results in the form of final textbook models. The quality of the textbooks developed is assessed from the components of material, presentation, language, and graphics.

The second research was conducted by Rofian and Lestari [12] with the title "Development of Digital Literacy-Based Teaching Materials as a Supplement to SBDP Class I Theme 1". The results showed that digital literacy-based teaching materials were suitable for teachers to use as references and companions to teacher books, from the results of the fifth step, there was no revision of the teacher's assessment of the media, both from the results of open questionnaires and the results of response assessments in the form of likert scales, checklist forms. The results of stage I material expert validation obtained a percentage of 96.67%, in the results of stage II material expert validation increased to obtain a percentage of 100%. Meanwhile, the results of media expert validation obtained a percentage of 100%. From the average results of the teacher response questionnaire assessment, the percentage was 89.25%.

The next research is the research of Mildasari, et al. [8] entitled "Development of Teaching Materials for Writing Learning Based on Local Wisdom through Language Games in Elementary Schools". The results showed that the product design was declared feasible to be implemented at UPI Laboratory Elementary School, Tasikmalaya Campus after validation tests by experts. In general, products are suitable to be used as teaching materials that help teachers in carrying out learning based on local wisdom through language games. The reflection of product development is to produce teaching materials in the form of books with the title Learning Complementing Pantun Rumpang Local Wisdom through the Game of Snakes and Ladders Writing Pantun Rumpang.

The next research was conducted by Diana and Wirawati [2] with the title "Analysis of the Need for the Development of Oral Comprehensive Textbooks Based on Islamic Values and Oriented to Digital Literacy". The results of this needs analysis show that students need oral comprehension textbooks that are easy to understand, integrate Islamic values, and there are audio-visual examples packaged in digital technology.

4. Conclusion

Based on the search results on the https://openknowledgemaps.org/ page with the keywords "development of scientific writing textbooks" and "digital literacy", 41 articles were obtained, both accredited and non-accredited. The results showed that the distribution of articles in the last five years fluctuated. The fluctuation referred to by the researcher is the distribution of articles from year to year has increased and decreased in number. A significant increase occurred from 2021 to 2022, from 4 articles to 18. So, it can be seen that the increase reached 14 articles.

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