

Co-Citation Analysis of Pedagogical Leadership Research: A Systematic Literature Review (1998-2023)

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Abstract: Co-Citation Analysis of Pedagogical Leadership Research: A Systematic Literature Review (1998-2023). **Objectives:** This study aims to (1) analyze the development of pedagogical leadership research using bibliographical and co-citation analysis and (2) formulate future research directions related to pedagogical leadership. **Methods:** This study uses bibliometric and co-citation analysis techniques to understand phenomena based on published research. We collected articles from the Scopus repository as it is a significant and credible academic article database. This study collected 126 articles published in English-language journals from 1998 to 2023. **Findings:** The results show the demographics of the articles collected, publication productivity based on country, and five clusters, which discuss in detail the research development and the direction of future research issues related to pedagogical leadership. **Conclusion:** Implicatively, this literature review offers several future research agendas related to pedagogical leadership, which are described in the discussion section. This research agenda can be followed up by scholars and education stakeholders who have the potential to improve the quality of learning and teacher professionalism.

Keywords: instructional leadership, pedagogic, bibliometric.

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■ INTRODUCTION

Pedagogical leadership has been one of the main issues in educational leadership research in recent decades. Scholars explore the latest insights on pedagogical leadership regarding the perspective of distribution of leadership, teacher involvement and skills in implementing pedagogical leadership, and the responsibilities between school leaders and teachers in carrying out pedagogical leadership (Bøe & Hognestad, 2017; Fonsén, 2013; Fonsén & Ukkonen-Mikkola, 2019; Heikka et al., 2016, 2021; Male

& Palaiologou, 2012). Several researchers argue that pedagogical leadership and distributive leadership are intersections to deliver effective learning, in which principals and teachers are committed to improving classroom learning quality (Heikka et al., 2021). So that teachers and principals have pedagogical responsibility for planning, implementing, and assessing student learning achievements. This responsibility is carried out collaboratively by the commitment between leaders and teachers aimed to explore the potential of students. As Heikka et al. (2021)

mentioned, pedagogical leadership is a combination of individual and collaborative work to achieve learning targets.

The relationship between leaders and teachers in implementing government regulations related to national education and achieving its goals is interdependent (Spillane, 2005). Sims et al. (2015) stated that the main focus of pedagogical leadership is the creation and development of shared organizational meaning by all members. Researchers in educational leadership argue that the emphasis on pedagogical leadership for teachers and principals creates interdependence and connectivity between stakeholders through the construction of shared visions and strategies to achieve learning goals.

In the case of teacher-student interaction, Male and Palaiologou (2012) revealed that pedagogical leadership is a collaborative process between teachers, students, and community members. They explain that pedagogical leadership is not only in learning and student achievement but also in students' self-learning, group-student learning, and student learning with the community (Male and Palaiologou, 2012). Moreover, Fonsen (2013) in his research describes four dimensions of pedagogical leadership, namely contextual, organizational culture, director or leader professionalism, and substance management. Pedagogical leadership organizes the roles of students, teachers, principals, and the community, which aims to explore the potential of students where they are involved in developing an attachment to and responsibility for ethics, values, and beliefs, which are the foundation of pedagogical leadership (Jeyaraj & Gandolfi, 2022; Ryan & Goldingay, 2022). According to those previous studies, We argue that the development of pedagogical leadership research is increasingly broad and exciting to be explored further. One of the urgency of this systematic literature study is to offer research developments related to pedagogical

leadership so that it has the potential to become the latest insights for future researchers and strategies for leaders to develop strategic programs related to pedagogical leadership for teachers and school principals.

Pedagogical leadership has the potential to become a competency for teachers and principals through curriculum reform and strategic support programs. Since 2019, the Indonesian Government, through the Program Sekolah Penggerak (PSP) and Program Guru Penggerak (PGP), has initiated pedagogical leadership (Makarim, 2021). Through this program, teachers and principals will undergo a gradual and systematic recruitment process, one of which is pedagogical leadership. These programs aim to improve and enhance the quality of education through the Merdeka Learning curriculum. The existing condition of education in Indonesia has experienced education regulation reform carried out by the Government through the Merdeka Learning curriculum as outlined in Kepmendikbudristek number 262/M/2022 (Makarim, 2022). The regulation describes the Implementation of the Curriculum in the context of Learning Recovery, which contains structure, composition, and programs to strengthen the Freedom to Learn curriculum. Through these regulations, the competence of teachers and principals has shifted towards optimizing student potential and expanding into various 21st-century strategic competencies, one of which is pedagogical leadership.

Scholars in Indonesia have analyzed pedagogical leadership in PSP and PGP programs concerning other latent variables such as competency development for school principals (Isnawan & Sudirman, 2022), development of learning leadership for teachers (Masaong et al., 2023), and development of teacher managerial skills (Faiz & Faridah, 2022; Safrizal et al., 2022) which have been published in Sinta indexed journals (Indonesian Journal Index). However,

the publication is still limited and not yet published in international primary repositories like Scopus and Web of Science. Therefore, It is interesting to explore further the contributions of local and foreign researchers who can reach publications in internationally reputable journals (Scopus indexed), thus having an impact on the development of pedagogical leadership research globally. Likewise, in the research area of pedagogical leadership at the primary and secondary education levels, they essentially has different psychological and pedagogical developments. In turn, the research that has been carried out leads to recommendations and implicative agendas for pedagogical leadership in learning. So, this study offers a systematic literature review related to pedagogical leadership, which aims to (1) analyze research developments related to pedagogical leadership using bibliographic analysis and co-citation and (2) formulate future research directions related to pedagogical leadership.

■ METHOD

Research Design

This research is a systematic literature review. This study uses bibliometric analysis and co-citation analysis to examine published research related to pedagogical leadership registered in the Scopus database. Co-citation analysis was chosen because it can show the connection between research published in the past and those published recently, and the pattern continues to change according to the dynamics and

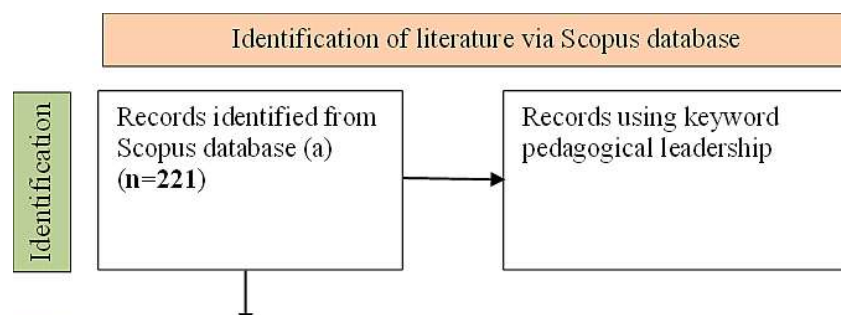
development of research in the field itself (Boyack & Klavans, 2010; Marshakova-Shaikevich, 2005; Small, 1973). Thus, researchers will be assisted to identify research developments related to pedagogical leadership from year to year based on citation patterns and determine future research needs based on areas that have not been covered by previous research.

Search Strategy

The researcher uses the Scopus database because it is a general publication database that accommodates various credible publishers such as Elsevier, Taylor & Francis, Emerald, Springer, and Sage. Researchers use the keyword “Pedagogical Leadership” in the search column Article Title, Abstract, Keywords. The first screening results detected 197 published articles from 1998 to 2023. Furthermore, the search was limited to articles in journals and English language (excluding proceeding articles and book chapters). This restriction left 126 articles ready for analysis (see Figure 1).

Inclusion and Exclusion Criteria

Establish inclusion and exclusion criteria to apply the standards necessary when designing high-quality research protocols (Patino and Ferreira, 2018). Inclusion criteria for this study include: (a) using the keyword pedagogical leadership; (b) papers published from 1998 to 2023; (c) limited to articles published in journals; and (d) paper written in English. These criteria are used as an article selection protocol.



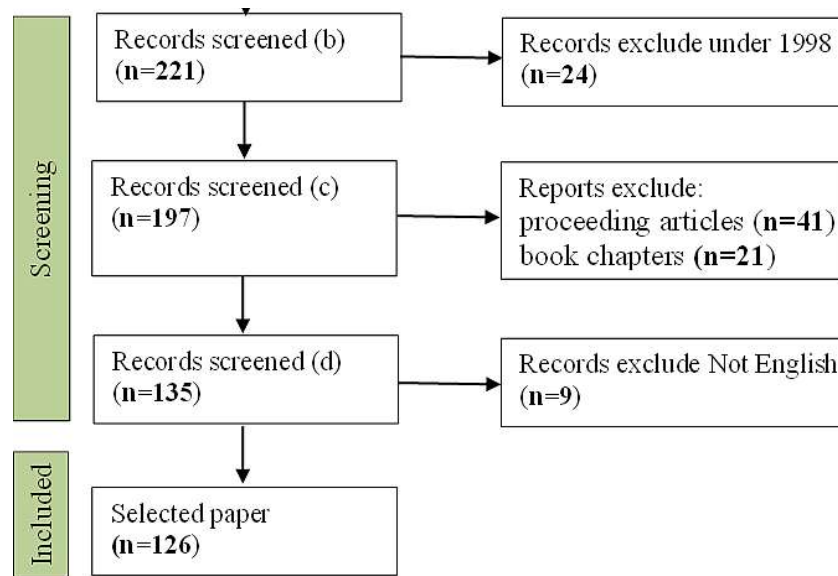


Figure 1. PRISMA flow on paper selection protocol

Data Analysis

Bibliometric analysis and co-citation are helpful in producing maps and knowledge structures in a scientific study (Marshakova-Shaikevich, 2005; Small, 1973). Formulating knowledge maps and structures is essential for understanding a conception (in this case, pedagogical leadership), knowledge gaps from existing research developments, and future research needs. The collected article database was then analyzed using the Rstudio application with the bibliometric library and the biblioshiny package. The researcher focuses on bibliographical analysis of the author's country of origin and intellectual structure (co-citation analysis).

■ RESULT AND DISCUSSION

Demography of Collected Articles

The demographics of the collected articles can be reviewed in Table 1. Based on demographic analysis of the collected articles, researchers obtained published articles from 1990 to 2023. Based on this range, it can be assumed that research related to pedagogical leadership

began to be carried out in 1990 because, in the search process, researchers did not limit the time span for research publications. Furthermore, there are 80 publication channels and 126 documents for further analysis. The document growth rate is detected at an average of 10.45% annually. However, suppose we observe further in Figure 1. In that case, there has been a significant increase in the amount of research production related to pedagogical leadership in the 2019-2021 range, and an increase in the intensity of publications has begun to appear starting in 2012. Thus, it can be understood that this topic has begun to develop and attract attention in the last decade. Furthermore, the average citation per document is 7,143, and the number of references from all documents is 5,469 references. Based on this data, the next researcher will analyze the citations and review which references are the primary references in the development of research in this field of pedagogical leadership.

From all documents, there are 271 authors involved, and 36 of them are single authors. Each document has an average of two to three authors, and 11.9% of the documents consist of

international writing teams or international (cross-country) collaborations of authors. This indicates that there is only a tiny proportion of research conducted with international collaboration, so that there is great potential to carry out studies related

to pedagogical leadership with an inter-country and cultural perspective to gain a comprehensive understanding in this field. Finally, all documents collected are international journal articles indexed by Scopus.

Table 1. Demography of collected articles

Description	Result
<i>General Information</i>	
Timespan	1990-2023
Journal sources	80
Documents	126
Annual growth rate (%)	10.45
Document average age	5.42
Average citation per document	7.143
References	5469
<i>Authors</i>	
Authors	271
Authors of single-authored documents	36
Co-authores per documents	2.47
International co-authorships (%)	11.9
<i>Document types</i>	
Journal articles	126

Publication Productivity Based on Country of Origin

To review the distribution of countries that pay attention to the study of pedagogical leadership and contribute to research related to this topic, the researcher conducted a bibliometric analysis on publication productivity based on country of origin presented in Figure 2, Figure 3, and Table 2. In Figure 2, it can be seen that there is only one country that has more than 40 publications related to pedagogical leadership, namely Finland, followed by Australia and Sweden, which have more than 30 publications, then Spain and England, which have more than 20 publications and Peru, the United States, and Chile which have more than ten publications. The rest have less than ten publications, and the grey

geographic area has no publications related to pedagogical leadership. In this case, Indonesia has no published research in the Scopus database in the pedagogical leadership field.

Furthermore, based on the correspondence writer's country of origin, shown in Figure 3 and Figure 4, it appears that the same four countries occupy the highest productivity positions, namely Finland, Sweden, the United Kingdom and Australia. Then, it seems that Finland has the most international research collaborations, followed by the United Kingdom, Australia, Norway, the United States, and Austria. In this context, it also appears that Indonesian researchers have not contributed to published research related to pedagogical leadership.

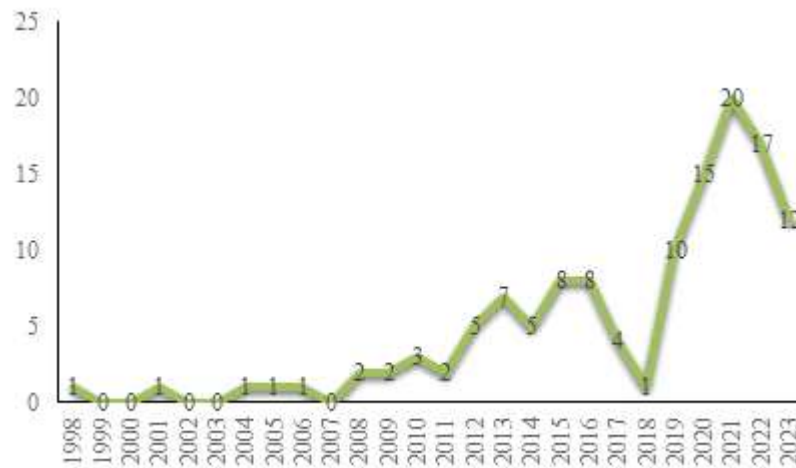


Figure 2. Publication productivity of pedagogical leadership from 1998 to 2023

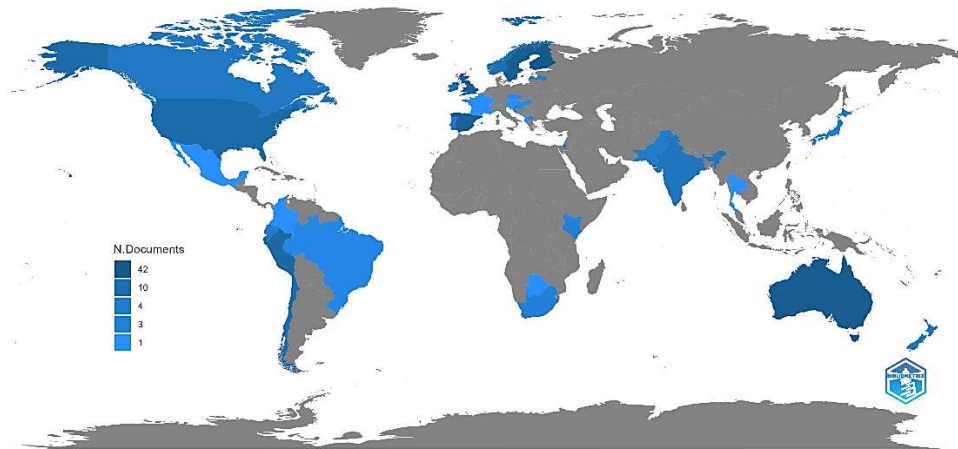


Figure 3. Maps of publication based on country of origin

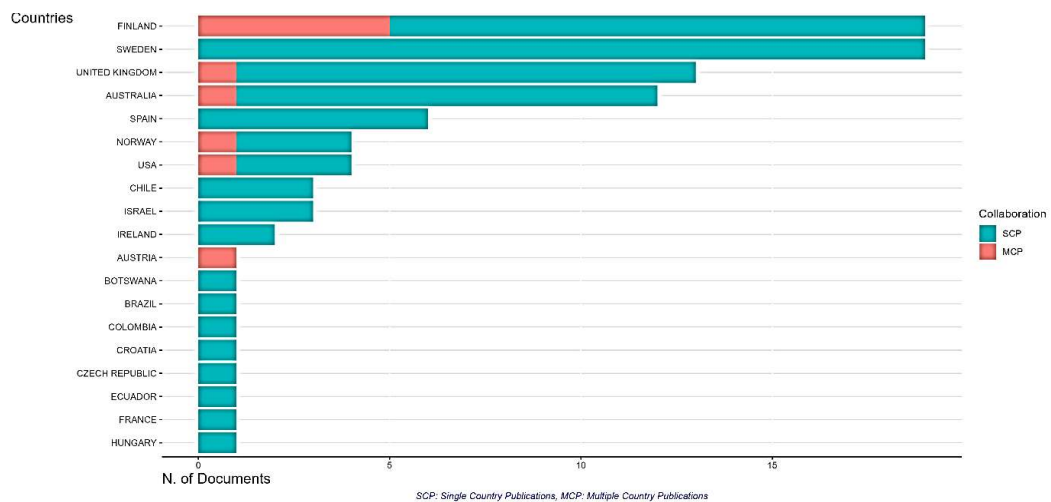


Figure 4. Number of publications based on correspondence author country

Bibliographic Analysis and Co-citation Analysis

The results of the co-citation analysis can be observed in Figure 5 in the form of a co-citation map and Table 2 in a table format, which presents the betweenness and closeness scores of each

collection of articles. The results of the co-citation analysis show that the collection articles are clustered into five clusters. Further observation and analysis were carried out of the five clusters on papers with the highest betweenness and closeness scores.

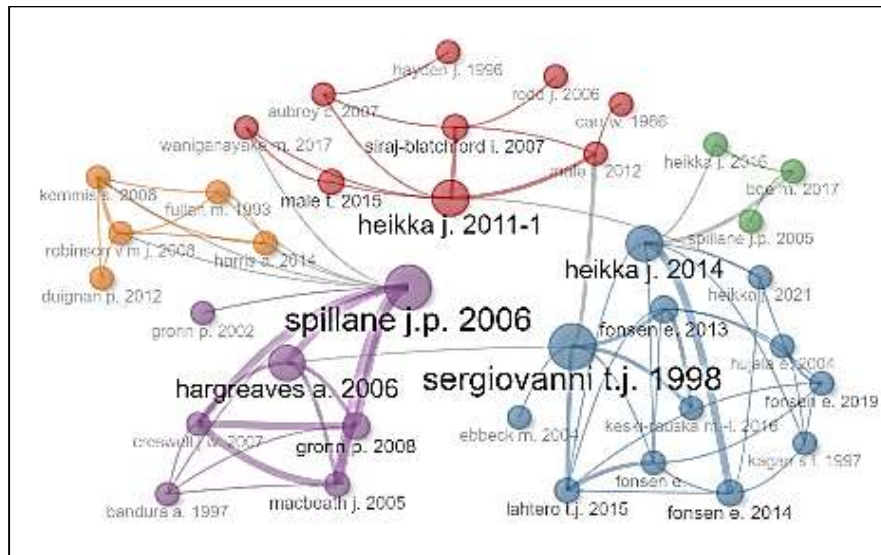


Figure 5. Co-citation maps

Theme 1. Distributive Leadership in Learning Leadership Practices

In cluster 1, there are five publications with the highest betweenness and closeness scores, namely (Heikka & Waniganayake, 2011), (Ebbeck & Waniganayake, 2017), (Male & Palaiologou, 2012), (Siraj-Baltchford & Manni, 2007), and (Aubrey, 2007). The articles in cluster one generally discuss the urgency of distributive leadership in learning leadership practices. Heikka & Waniganayake (2011) and Ebbeck & Waniganayake (2017) argue that pedagogical leadership cannot be carried out alone by the school principal. Male & Palaiologou (2012) suggest that the direct leadership approach in pedagogical leadership practices is ineffective in increasing student learning outcomes compared to indirect approaches such as delegation of learning leadership.

Furthermore, if referring to older manuscripts such as Carr & Kemmis (1988), Hayden (1996), and Siraj-Baltchford & Manni (2007), the discussion leads to the urgency of improving curriculum and pedagogy in producing effective schools. This view forms the basis of the importance of pedagogical leadership or learning-centered leadership practices in the classroom (Male & Palaiologou, 2012). Thus, it can be seen that the development phase of the concept of pedagogical leadership starts from the idea that school principals must take leadership actions that are learning-oriented in the classroom, not just administrative activities and later research has found that pedagogical leadership is more effective if it is managed distributively (indirectly) by delegating leadership to teachers (e.g. in study groups) (Male & Palaiologou, 2012).

Theme 2. Implementation of Pedagogical Leadership in Primary Education

Furthermore, in cluster 2, the articles grouped in cluster 2 discuss the implementation of pedagogical leadership in primary education. The article with the highest betweenness score is Sergiovanni (1998). The article discusses the conception of pedagogical leadership, which forms the basis for further research in explaining its implementation in primary education. Sergiovanni (1998) argues that pedagogical leadership is more effective than other leadership styles in improving school performance because it invests in developing academic and social capital in students and developing teachers' intellectual capital and professionalism. Thus, pedagogical leadership is not just an administrative order but also an order for developing learning programs and teacher professionalism. This development is done by facilitating teachers to work together in a community of practitioners (Sergiovanni, 1998). In Indonesia, this community of practitioners runs in the format of Teacher Working Groups (KKG) and Teacher Consultations Community (MGMP). In this case, Spillane (2005) operationalizes it with the terminology of distributed leadership. The concept of distributed leadership referred to in cluster 2 refers to the same reasons as the pattern of discussion in cluster 1 and the conception of Sergiovanni (1998) that pedagogical improvement is carried out by facilitating teachers to work in groups and delegating leadership to teachers to lead work groups.

Furthermore, in its development, this conception is seen as appropriate for improving primary education performance and based on the results of research conducted in Finland, teachers also expect leadership with actions or policies that are oriented towards enhancing learning from school leaders (Fonsén, 2013; Heikka, 2012). The conception of pedagogical leadership developed when Finland needed improvement in

the management of primary education, so research related to pedagogical leadership at the primary education level in Finland developed quite intensely (see: Fonsén, 2013; Fonsén & Ukkonen-Mikkola, 2019; Heikka, 2012; Heikka & Waniganayake, 2011). However, in practice, Fonsen (2013) argued that pedagogical leadership could not easily be practised in elementary schools. There are dimensions of context (micro and macro levels in school organizational structures), organizational culture, leadership professionalism, and management of substance (teacher's pedagogical competence) that need attention. In its development, Fonsen and Ukkonen-Mikkola (2019) suggest that the development of professionalism is a critical factor in the success of pedagogical leadership.

Theme 3. Distributive Leadership

In cluster 3, there are three articles, but only one article has a reasonably high betweenness, namely Bøe & Hognestad (2017). However, researchers still refer to two other articles, namely Spillane (2005) and Heikka (2016), to review the pedagogical leadership research development pattern in cluster 3. In this case, Spillane (2005) discusses distributed leadership, and Heikka et al. (2016) more specifically discusses pedagogical distributed leadership in primary education in Finland. The pattern of discussion in this cluster seems to overlap with cluster 1 and cluster 2. However, Bøe & Hognestad (2017) more specifically propose pedagogical leadership practices in formal leadership in middle management, which are then distributed to teacher working groups with the term Hybrid Leadership. In their research, Bøe & Hognestad (2017) also found the concept of leading knowledge development where various leadership actions increase understanding of school leadership practices, leading school principals to new leadership practices and identities.

Theme 4. Sustainable Leadership

Like cluster 3, the collection of articles in Cluster 4 still relies on the concept of distributed leadership (Spillane, 2005). However, discussions related to pedagogical leadership are more varied with sustainable leadership (Hargreaves, 2007). Hargreaves put forward a view of sustainable leadership with Dean Fink (Hargreaves & Fink, 2006), who believes that school leadership is aimed at building deep learning organized by managing various school resources to support students experiencing deep learning. This concept is certainly in line with the views of pedagogical leadership, so it seems natural that in cluster 4, the idea of distributed leadership (Spillane, 2005) and sustainable leadership (Hargreaves, 2007; Hargreaves & Fink, 2006) has the highest betweenness score indicating a significant contribution to co-citation.

Theme 5. The Impact of Pedagogical Leadership on Learning Improvement

Finally, in cluster 5, Robinson (2008) and Kemmis & Smith (2008) are the two articles with the highest betweenness scores. Robinson (2008) and Robinson et al. (2008) question the impact of distributed leadership on student learning outcomes. This question is reasonable to ask

because pedagogical distributed leadership promises or at least expects improvement in student academic performance from leadership that leads directly to improvement in classroom learning. Meanwhile, in research practice, out of thousands of studies related to distributive leadership, no more than thirty studies have examined its actual impact on student learning outcomes (Robinson, 2009; Robinson et al., 2008). In this case, Kemmis & Smith's article (2008) discusses action research that can effectively and scientifically provide a basis for decision-making in improving learning. Nevertheless, no relationship was found between the articles of Robinson (2008) and Kemmis & Smith (2008); both Robinson (2008) and Kemmis & Smith (2008) did not quote each other between the two. So even though conceptually testing the performance of distributive leadership on student learning outcomes can be done with action research, Robinson (2008) does not do so or at least does not cite Kemmis & Smith (2008). However, it should be suspected that many research developments related to pedagogical leadership refer to Robinson (2008), who has reviewed its impact on learning outcomes and Kemmis & Smith (2008), who reviewed the subsequent implications of using action research.

Table 2. Co-citation results

No.	Node	Cluster	Betweenness	Closeness	PageRank
<i>Cluster 1</i>					
1	Heikka J. 2011-1	1	195.0562	0.0034	0.0535
2	Male T. 2015	1	0.0000	0.0025	0.0194
3	Siraj-Blatchford I. 2007	1	40.4454	0.0026	0.0417
4	Carr W. 1986	1	0.0000	0.0021	0.0119
5	Male T. 2012	1	81.7724	0.0033	0.0347
6	Rodd J. 2006	1	0.0000	0.0018	0.0120
7	Aubrey C. 2007	1	34.0000	0.0023	0.0302
8	Waniganayake M. 2017	1	128.0000	0.0032	0.0205
9	Hayden J. 1996	1	0.0000	0.0016	0.0127
<i>Cluster 2</i>					
10	Sergiovanni T.J. 1998	2	209.9486	0.0035	0.0424
11	Heikka J. 2014	2	107.8366	0.0026	0.0400

12	Fonsen E. 2013	2	29.3310	0.0026	0.0398
13	Fonsen E. 2014	2	9.8366	0.0025	0.0348
14	Fonsen E. 2016	2	24.8881	0.0027	0.0363
15	Fonsen E. 2019	2	21.4750	0.0025	0.0346
16	Lahtero T.J. 2015	2	34.9016	0.0027	0.0389
17	Ebbeck M. 2004	2	0.0000	0.0022	0.0093
18	Heikka J. 2021	2	120.1792	0.0033	0.0207
19	Hujala E. 2004	2	2.0794	0.0020	0.0191
20	Kagan S.L. 1997	2	6.2500	0.0019	0.0247
21	Keski-Rauska M.-L. 2016	2	0.0000	0.0023	0.0191
<i>Cluster 3</i>					
22	Boe M. 2017	3	34.0000	0.0024	0.0306
23	Spillane J.P. 2005	3	0.0000	0.0017	0.0155
24	Heikka J. 2016	3	0.0000	0.0024	0.0165
<i>Cluster 4</i>					
25	Spillane J.P. 2006	4	233.0769	0.0033	0.0513
26	Hargreaves A. 2006	4	134.0000	0.0034	0.0286
27	Gronn P. 2002	4	0.0000	0.0021	0.0080
28	Gronn P. 2008	4	2.3077	0.0025	0.0352
29	Macbeath J. 2005	4	2.3077	0.0025	0.0371
30	Creswell J.W. 2007	4	2.3077	0.0025	0.0352
31	Bandura A. 1997	4	0.0000	0.0022	0.0185
<i>Cluster 5</i>					
32	Robinson V.M.J. 2008	5	16.5000	0.0029	0.0327
33	Duignan P. 2012	5	0.0000	0.0020	0.0160
34	Fullan M. 1993	5	0.0000	0.0029	0.0228
35	Harris A. 2014	5	0.0000	0.0029	0.0228
36	Kemmis S. 2008	5	16.5000	0.0029	0.0327

Future Research Agenda

Based on the results of the bibliometric analysis, it was found that research related to pedagogical leadership is still developing in a limited countries, namely Finland, Sweden, Australia, England, Spain, Norway and the United States. Research on pedagogical leadership is still very limited in developing countries and Asian countries, and there have not even been publications from Indonesian correspondence authors or institutions in Indonesia. This shows a wide research gap from pedagogical leadership research conducted in the Asian region, including Indonesia. This is strategic because school leadership requires a unique leadership style, as schools are unique organizations. Schools are

non-profit organizations that provide critical public services (public goods), namely human resources. Meanwhile, the leadership approach is essential to producing effective schools, and effective schools produce superior students (Sergiovanni, 1998).

Furthermore, the results of the co-citation analysis show that the development of pedagogical leadership cannot be separated from efforts to improve the quality of learning in educational institutions. The convergence of scientific developments in education, such as distributed leadership and pedagogical leadership, meets the awareness of educational institutions to improve the quality of their learning. So that ideas related to pedagogical leadership can be

absorbed and responded to well by educational institutions, as happened in Finland. This has resulted in ongoing research action and the development of the concept of pedagogical leadership. Pedagogical leadership relies on the principal's leadership actions not only on administrative activities but also directly managing instructional activities. Moreover, Raharja et al. (2022) found that the organizational culture developed by the principal is significant in motivating teacher performance. In the case of pedagogical leadership, organizational culture is related to how the principal creates a conducive academic culture that supports student learning activity.

In language, pedagogical leadership is often called instructional or learning-centered leadership. The rationale for the importance of the pedagogical aspect arises from the ineffectiveness of administrative-oriented leadership, the complexity of learning dynamics, and the importance of sustainability in school principal leadership that leads to holistic management of school resources to optimize learning activities and student learning outcomes (Hargreaves, 2006; Hargreaves & Fink, 2006; Robinson, 2008; Robinson et al., 2008). Therefore, school principals cannot only manage administration but also actively and directly manage learning in class. Therefore, school principals cannot only manage administration but also actively and directly manage learning in class (see: Asrin et al., 2022). Managing classroom learning includes participating in developing instructional design, facilitating teacher professional development, and promoting teacher careers. Therefore, pedagogical leadership not only positively impacts student learning but also teacher professionalism and careers, which will continuously improve student learning quality (see: Saputra, 2019; Yuliana et al., 2022; Asrin et al., 2022).

Furthermore, research related to pedagogical leadership is still dominantly carried

out in elementary schools because initially, research on the implementation of pedagogical leadership was carried out to address policy reforms in elementary schools to improve learning performance, curriculum, and student learning outcomes (Fonsen, 2009; Heikka, 2014; Fonsen, 2013; Fonsen & Ukkonen-Mikkola 2019). In its development, research related to pedagogical leadership found that in practice, it is directly ineffective in developing teacher professionalism, but indirect leadership with distributed leadership is more effective in producing teacher professionalism development, so the concept of distributed-pedagogical leadership develops further (Spillane, 2006; Heikka, 2014; Fonsen & Ukkonen-Mikkola 2019).

The results of the co-citation analysis above still show gaps in pedagogical leadership research. The concentration of educational researchers is still on pedagogical leadership in primary education, while at the secondary and tertiary education levels, it has not been or is rarely done. Furthermore, empirical testing that reviews pedagogical leadership comprehensively, from formulating leadership actions (Boe & Hognestad, 2015) to impacting learning outcomes (Robinson, 2008), has also not been widely carried out. In addition, the approach to pedagogical leadership in European countries will, of course, be different from that in Asian countries, for example, Indonesia, due to differences in culture, education systems and regulations. Therefore, research on the development of pedagogical leadership design and its empirical impact on teacher professionalism and student learning outcomes is still very much needed, especially in Indonesia. Based on this discussion, the researcher offers a future research agenda related to the theme of pedagogical leadership in Indonesia, as follows. First, research with the theme of pedagogical leadership with the subject of school research in Indonesia. Second, research on pedagogical leadership at secondary and tertiary education levels. Third, an exploration of

effective pedagogical leadership approaches for the characteristics of schools in Indonesia. Fourth, explore effective pedagogical leadership strategies to enhance teacher professionalism and student learning experiences. Finally, empirical testing the impact of specific pedagogical leadership approaches on student learning outcomes.

■ CONCLUSION

This systematic literature review aims to (1) analyze research developments related to pedagogical leadership using bibliographic analysis and co-citation and (2) formulate future research directions related to pedagogical leadership. This study found 126 articles related to pedagogical leadership sourced from Scopus-indexed journals from leading and well-known publishers. The bibliographical analysis presented four countries that have majorly produced pedagogical leadership research: Finland, Sweden, the United Kingdom, and Australia. Unfortunately, Indonesian researchers do not yet have contributions to pedagogical leadership research published in Scopus-indexed journals. The co-citation analysis shows that the collected articles are clustered into five clusters or theme, which examine (1) distributive leadership in learning leadership practices, (2) implementation of pedagogical leadership in primary education, (3) distributive leadership, (4) sustainable leadership and (5) the impact of pedagogical leadership on learning improvement.

Implicatively, this systematic literature review offers several future research agendas related to pedagogical leadership that can inspire Indonesian researchers, including (1) research with the theme of pedagogical leadership with the subject of school research in Indonesia; (2) pedagogical leadership research at secondary and tertiary education levels; (3) an exploration of effective pedagogical leadership approaches for the characteristics of schools in Indonesia; (4)

exploration of effective pedagogical leadership strategies in enhancing teacher professionalism and student learning experiences; and (5) empirical testing of the impact of specific pedagogical leadership approaches on student learning outcomes. This research agenda can be followed up by scholars and education stakeholders who have the potential to improve the quality of learning and teacher professionalism.

This study has limitations in the availability of empirical research results related to pedagogical leadership using Indonesia as a research subject. The limited results of empirical studies in Indonesia result in limited practical implications of pedagogical leadership in the Indonesian context. However, these limitations became a research gap that would be bridged by subsequent research and became the main reason for formulating a future research agenda in this study. On the other hand, the publication channels for pedagogical leadership research in Indonesia may be outside the Scopus database. Therefore, future pedagogical leadership research can target journals included in the Scopus repository as a publication channel because the Scopus repository is still a significant repository and a reference for researchers to collect literature in building theoretical frameworks or finding research gaps.

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