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Successful Pedagogical Leadership: Bibliometric Analysis from the Web of Science database (2017-2021)

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Successful Pedagogical Leadership: Bibliometric Analysis from the Web of Science database (2017-2021)

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Abstract

The concept of pedagogical leadership (PL) is vague and still developing in the field of Educational Leadership. This article examines the body of knowledge on this elusive term, to extract the key components that constitute the studies of PL in the last five years (2017-2020). The keyword of pedagogical leader* was solely used to search in the Web of Science database, and subsequently narrowed down to 54 reviewed articles through listed criteria for bibliometric analysis. Apart from the global bibliometric descriptions of PL, it is evident that the term pedagogical leadership is an emerging theme in WoS databases and is mostly cited from Nordic and European countries. Future suggestions for eastern scholars are to collaborate with western scholars, to better understand its concepts as compared to other prominent types of leadership such as Transformational, Distributed, and Instructional Leadership.

Keywords: Pedagogical leadership, Pedagogical leader, Trends of pedagogical leadership

Liderazgo pedagógico de éxito: análisis bibliométrico de la base de datos de Web of Science (2017-2021)

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Resumen

El concepto de liderazgo pedagógico (PL) es vago y aún se está desarrollando en el campo del liderazgo educativo. Este artículo examina el cuerpo de conocimiento sobre este elusivo término, para extraer los componentes clave que constituyen los estudios de PL en los últimos cinco años (2017-2020). La palabra clave de líder pedagógico * se utilizó únicamente para buscar en la base de datos de Web of Science y, posteriormente, se redujo a 54 artículos revisados a través de los criterios enumerados para el análisis bibliométrico. Aparte de las descripciones bibliométricas globales de PL, es evidente que el término liderazgo pedagógico es un tema emergente en las bases de datos de WoS y se cita principalmente en países nórdicos y europeos. Las sugerencias futuras para los académicos orientales son colaborar con los académicos occidentales, para comprender mejor sus conceptos en comparación con otros tipos prominentes de liderazgo como el liderazgo transformacional, distribuido e instruccional.

Palabras clave: Liderazgo pedagógico, Líder pedagógico, Tendencias de liderazgo pedagógico

Educational leaders have a major impact on teaching and learning in schools (Contreras, 2016). Even if mostly indirectly, educational leaders are the second most significant school-level element impacting student learning after classroom instruction. Interestingly, this factor was found to be far more powerful in low-performing schools (Day et al., 2009; Leithwood et al., 2004). Focusing on the core activities of teaching and learning, the term pedagogical leadership is viewed as an emerging theme in the field of educational leadership. Pedagogical leadership has been explained alongside teachers' development (Berestova et al., 2020a), teachers' competency (Berestova et al., 2020a; Roca-Piloso & Alonso-Betancourt, 2020), pedagogical models (Andrews & Abawi, 2017), and teacher leadership (Ho, 2010; Leithwood et al., 2004). Other than these areas of support, there are many other formative and emerging domains that are starting to constitute this concept (Gonzalez Fernandez et al., 2019). Nevertheless, the term is still vague and indifferent as scholars attempt to explore and explain it towards a deeper meaning (Male & Palaiologou, 2015). As such, is the task of this research is to explore further with systematic literature reviews on the various characteristics of pedagogical leadership from international literature in the last five years.

Background of Study

As a broad definition, most scholars defined pedagogical leadership as concerning leadership acts that support the process of teaching and learning (Contreras, 2016). When pedagogical leadership is searched in scholastic databases, it often overlaps with other leadership concepts like instructional leadership (Moral, 2018; Stein & Nelson, 2003), distributed leadership (Jappinen & Maunonen-Eskelinen, 2012; Yang & Lim, 2020), transformational leadership (Rojas Carrasco et al., 2020), professional learning communities (Vijayadevar et al., 2019). If 'Pedagogy' is described as the knowledge of how learning occurs, as well as the philosophy and practices that support that knowledge, leadership is the act of leading or directing individuals or organizations to achieve a purpose. Merging both terms, pedagogical leadership is synthesized as the act of leading educators to

improve in their teaching and learning towards quality education. From one scholastic point of view, there is not much conceptual difference(s) between pedagogy and instruction at the moment (Andrews & Abawi, 2017; Carlsson, 2021). Another notion highlights that pedagogical job is primarily concerned with values and norms (Roca-Piloso & Alonso-Betancourt, 2020), while the instructional task is primarily concerned with knowledge and skills, and that these are two discrete and distinct domains (Farrell, 2017; Stein & Nelson, 2003). Some scholars dictate that pedagogical leadership differs from instructional leadership whereby the latter is generally defined as the management of curriculum (Muli et al., 2017) and instruction by a school principal (Carlsson, 2021). As far as pedagogical leadership is studied, its essence is to support classroom teachers in their key role of implementing curriculum (Ho, 2010) while also taking on many other roles and functions in learning organizations (Glickman & Burns, 2020).

Problem Statement

The great challenge facing the international community today is to recognize and overcome the limits of an educational system based on a single-celled model of education (Rogers & Grunewald Nichele, 2020). Research that focused on cross-cultural issues could play a fundamental role because the perspectives that emerge could help scholars in the field to recognize the various ways of countries and cultures to organize their formal education systems to achieve quality education (Garba, et al., 2015). Stakeholders too, often exert pressure on schools to transform (Gonzalez-Fernandez et al., 2020). Traditional public schooling has been criticized by many as being too rigid and teacher-centered (Roca-Piloso & Alonso-Betancourt, 2020). School Leaders may find it challenging to balance conceptual tasks and instructional leadership with administrative, managerial, and leadership responsibilities (Bond & Giles, 1997; Muli et al., 2017). However, there is still much to explain about the trends of research for pedagogical leadership from the body of knowledge. What is the connectedness of pedagogical leadership with other

subjects of research? How can we explain from the body of knowledge about PL in terms of its nature of publications in recent years? Where are the gaps for future studies?

Purpose of Study

Following the explanations above, this article will primarily examine different sources of articles from WoS about pedagogical. It shall include the discussions and implications of how various empirical findings should be considered for future reference, especially in contexts of teaching and learning. As such, the primary research question is listed as follows:

What is the trend of pedagogical leadership considering the articles published in the Web of Science between 2017-2020?

To address this question, bibliometrics is required whereby it is a quantitative analysis method that uses mathematical and statistical tools to measure the inter-relationships and impacts of publications within a given area of research.

Methodology

The Bibliography Method is a problem-based and practical approach that is useful to begin the process for systematic literature review. By looking at the Web of Science (WoS) database, the command search of “pedagogical leader*” is used to indicate the relevant searches that may yield a combination of results such as pedagogical leadership, pedagogical leader, pedagogical leading, etc. The bibliometric analysis involved three levels: (a) analyses across documents; (b) analyses of co-authorship; and (b) analyses of co-occurrence. For co-authorship, the writer considers authorship and countries as units of analysis, while the latter consider keywords and keywords plus as units of analysis. The units of analysis provided indicators on the connection of the papers to other subjects of investigation to reveal the trends of the study. In other words, while counting publications can be useful for doing some comparisons, citation analysis further allows the writer to look at the impact

those articles have had on others by determining how often they are cited. As findings, these parameters will be presented as tables and figures using VOSviewer and Bibliometrix, while the discussions will be supported by codes resulting from content analysis using ATLAS.ti (CAQDAS).

Results

The search of pedagogical leader* yielded a search result of 157 sources that have the term in its title, or abstract, or keywords. However, there is a need to refine the search by (a) limiting to the English language; (b) selecting only review articles, and (c) select the range of publication years between 2017-2021.

First-level analysis: Analysis across documents

(a) Source of Journals.

The journals where the articles of pedagogical leadership were published are as shown in Table 1. Most of the articles spanned from education to non-education backgrounds.

Table 1. *Number of Articles from WoS on Pedagogical Leadership*

Name of Journal	Number of articles
International Journal of Leadership in Education	5
Cross-Cultural Perspectives on Pedagogical Leadership in Schools Providing Compulsory Education	4
Australasian Journal of Early Childhood	2
Contemporary Issues in Early Childhood	2
Early Child Development and Care	2
Early Childhood Education Journal	2
European Journal of Education	2
Research In Educational Administration & Leadership	2
School Leadership & Management	2

Advanced Education	1
British Educational Research Journal	1
Currents In Pharmacy Teaching and Learning	1
Curriculum Inquiry	1
Education Sciences	1
Educational Action Research	1
Educational Research	1
Eurasian Journal of Educational Research	1
European Early Childhood Education Research Journal	1
International Journal of Child Youth & Family Studies	1
International Journal of Educational Leadership and Management	1
International Journal of Educational Management	1
Journal For Educators Teachers and Trainers	1
Journal of Adventure Education and Outdoor Learning	1
Journal of Biblical Literature	1
Journal of Childhood Studies	1
Journal of Educational Administration and History	1
Journal of Further and Higher Education	1
Journal of Workplace Learning	1
Journal of Youth Studies	1
Land and Water Education and The Allodial Principle: Rethinking Ecological Education in The Postcolonial Age	1
Nordic Social Pedagogical Approach to Early Years	1
Public Health Nutrition	1
Quality Assurance in Education	1
Scandinavian Journal of Public Health	1
Sodobna Pedagogika-Journal of Contemporary Educational Studies	1
South African Journal of Childhood Education	1
Sustainability	1
Total (Excluding Early Access Articles =3)	51

(b) Country Scientific Production.

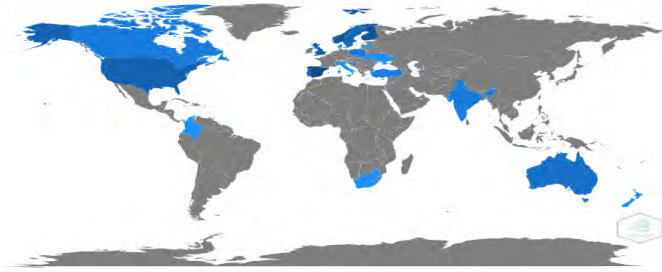
Table 2 illustrated the production of articles on pedagogical leadership. Spain is publishing more in this area when considering all other languages (besides the English language). Figure 1 shows the global view of the publications according to regions whereby the darker is the color, the more frequent are the number of articles.

Table 2. *Country Scientific Production*

Region	Frequency
Spain	11
Finland	9
Norway	9
UK	6
Portugal	5
USA	5
Sweden	4
Australia	3
Canada	2
Croatia	2
India	2
Poland	2
Turkey	2
Colombia	1
Denmark	1
Israel	1
Italy	1
Latvia	1
Luxembourg	1
New Zealand	1
Total	69**

** The following results describe the nature of the core selection of 69 documents that covers all languages.

Figure 1. *Publications on Pedagogical Leadership according to regions*
Country Scientific Production



(c) Most Cited Countries.

Most citations on pedagogical leadership came from Europe (Nordic countries), with Finland and Norway leading the average article citations of 3.857 and 5.4 respectively. The average article citation for one journal is computed from three years, looking solely at quotations from or to the cited items (articles, reviews, and papers). As shown in Table 3, it is noticeable that almost all the articles cited in the WoS came from Nordic and European countries.

Table 3. *Citation report among countries for Pedagogical Leadership*

Country	Total Citations	Average Article Citations
Finland	27	3.857
Norway	27	5.4
United Kingdom	14	2.333
Sweden	12	3
Portugal	8	4

Spain	7	1.167
Italy	5	5
USA	4	1
New Zealand	2	2
Australia	1	0.333

(d) Most Global Cited Documents, Authors and Affiliations.

Following the analysis on authorship, the most cited documents originated from Norway (Boe & Hognestad, 2017) and were closely followed by Finland (Fonsen & Vlasov, 2017; Heikka et al., 2021). Figure 2 also shows the most relevant authors on Pedagogical leadership.

Figure 2. *Most relevant authors on Pedagogical leadership*



In terms of domicile of co-authorships, Single Country Publications (SCP) dominated over Multiple country publications (MCP). Figure 3 indicates that

the studies are highly contextual and that there is a need for more country collaboration in writing about pedagogical leadership.

Figure 3. Corresponding author’s country

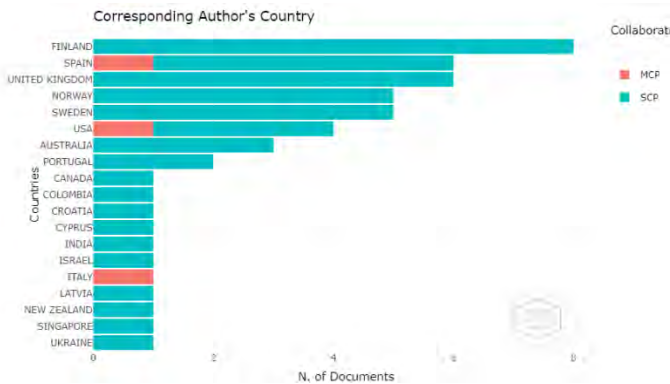
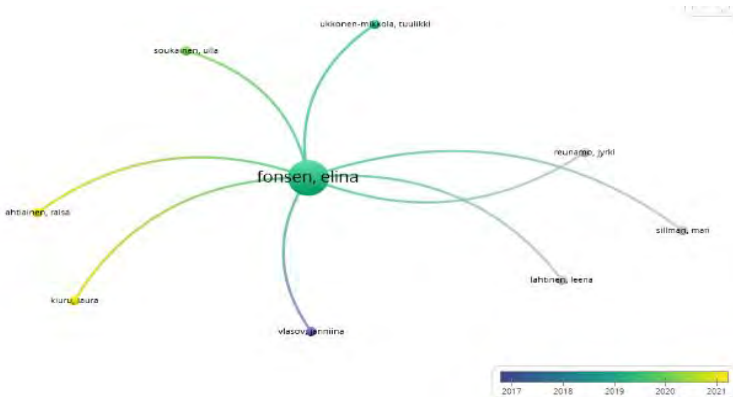


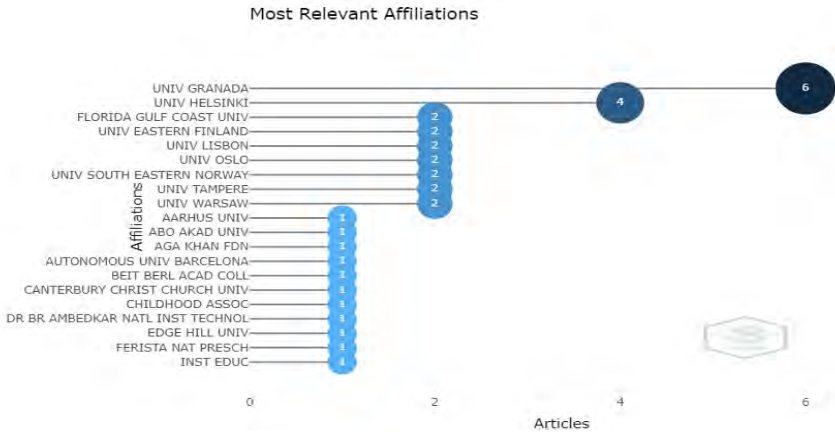
Figure 4 shows further analysis that there is only a handful of co-authorship is seen as the network below, together with the average publication year between 2017 to 2021.

Figure 4. Co-authorship and average publication year in Pedagogical Leadership



Lastly, in terms of paper affiliations to universities, the University of Granada and University Helsinki tops the lists for origins among the studies of pedagogical leadership as shown in Figure 5.

Figure 5. *Publications in affiliations to universities*



Second-level analysis: Analysis of keywords

The next level of analysis involved keywords. Table 4 presents the narrowing down of 54 articles for the second and third levels of analysis.

Table 4. *Background of articles selected for keyword analysis*

Aspect	Information
Timespan	2017:2021
Sources (Journals, Books, etc)	39
Documents	54
Average years from publication	1.96
Average citations per document	2.019
Average citations per year per doc	0.7425

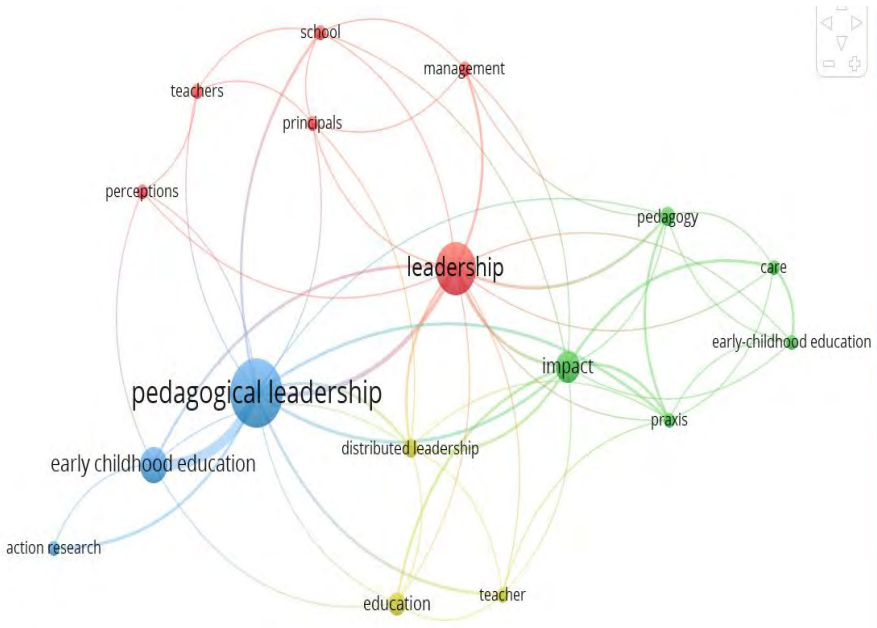
In this level of analysis, it was found that the total keywords contained in the 54 articles were 217. As a criterion of adjustments, the minimum keywords must appear at least 3 times across the 54 articles, resulting in 17 keywords that form the interconnectedness to pedagogical leadership. As a result, Figure 5 presents the list of keywords that appear together with the term pedagogical leadership among the respective articles.

Figure 5. *Keywords connected to Pedagogical Leadership*

Selected	Keyword	Occurrences	Total link strength
<input checked="" type="checkbox"/>	pedagogical leadership	16	27
<input checked="" type="checkbox"/>	leadership	12	21
<input checked="" type="checkbox"/>	impact	7	17
<input checked="" type="checkbox"/>	early childhood education	8	13
<input checked="" type="checkbox"/>	distributed leadership	4	11
<input checked="" type="checkbox"/>	praxis	3	11
<input checked="" type="checkbox"/>	pedagogy	4	9
<input checked="" type="checkbox"/>	care	3	7
<input checked="" type="checkbox"/>	education	5	7
<input checked="" type="checkbox"/>	school	3	7
<input checked="" type="checkbox"/>	teacher	3	7
<input checked="" type="checkbox"/>	early-childhood education	3	6
<input checked="" type="checkbox"/>	management	3	6
<input checked="" type="checkbox"/>	principals	3	6
<input checked="" type="checkbox"/>	perceptions	3	4
<input checked="" type="checkbox"/>	teachers	3	4
<input checked="" type="checkbox"/>	action research	3	3

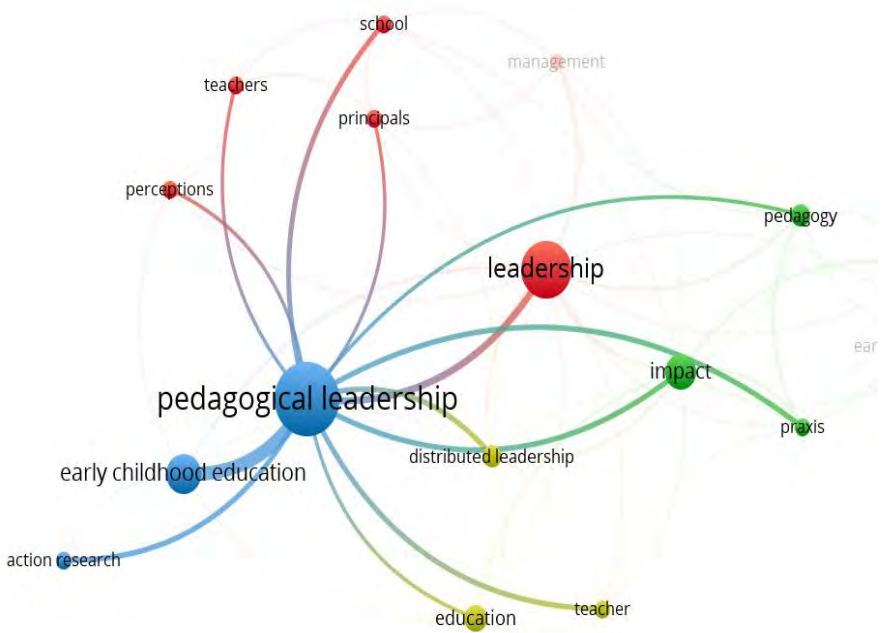
Thereafter, the analysis of co-occurrence among the 17 keywords is shown in Figure 6.

Figure 6. *Analysis of co-occurrence*



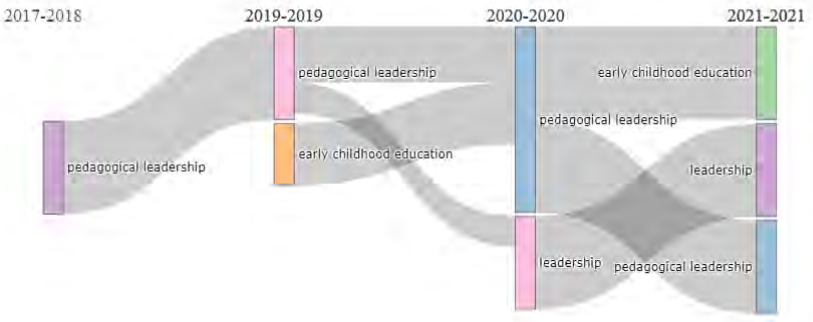
Comparing across all the keywords, the bibliometric analysis resulted in creating four major clusters from the 54 articles: (a) Red Cluster 1 (Leadership, Management, Perceptions, Principals, School, and Teachers); (b) Green Cluster 2 (care, early childhood education, impact, pedagogy, and praxis); (c) Blue Cluster 3 (early childhood education, action research, pedagogical leadership); and (d) Yellow Cluster 4 (distributed leadership, education, and teacher). The different clusters are grouped according to the occurrence, meaning that the particular article(s) on pedagogical leadership is/are also linked to other studies associated with the keyword. Focusing on the Blue Cluster 3: Pedagogical leadership, the following information is presented as seen in Figure 7.

Figure 7. The bibliometric analysis resulted in creating four major clusters



The centrality analysis of Pedagogical leadership indicates that it is studied simultaneously with all the clusters. There are more links between the study on early childhood education and leadership while others seemed to be moderately linked. It is also noteworthy that pedagogical leadership is closely studied alongside distributed leadership. In terms of thematic evolution, Figure 8 indicates how the major clusters of pedagogical leadership, early childhood education, and leadership progresses in their paths between 2017-2021.

Figure 8. *Thematic evolution of Pedagogical Leadership*

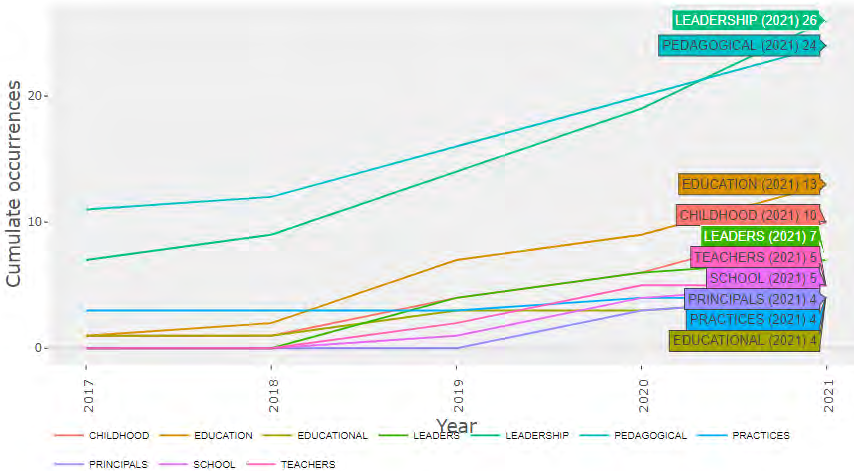


Thematic evolution considers the inclusion index weighted by word occurrences. Based on the author’s keywords, it is apparent that pedagogical leadership studies have consistently expanded and merged from other areas such as early childhood education (2019), and cross paths with more studies that are purely on leadership (2020). In 2021, the studies continue to run on their course as seen in 2021, but at decreasing occurrences as compared to the year before.

Third level analysis: Keyword Plus Analysis

The WoS data in KeyWords Plus are unique to Web of Science and consist of words and phrases harvested mainly from the titles of the cited articles. It could also consist of words or phrases that frequently appear in the titles of an article's references, but do not appear in the title of the article itself. According to Figure 9, the keyword plus use for Pedagogical Leadership seemed to surpass by Leadership in 2021. Nevertheless, the word growth dynamics on pedagogical leadership between 2017 to 2021 is increasing steadily in correspondence to other keyword plus that are associated in the papers.

Figure 9. Cumulative occurrences of keyword plus for pedagogical leadership (2017-2020)



In the final analysis using a thematic map based on the degree of development and relevance, the keyword plus of the selected articles were analyzed and categorized, and plotted under four main quadrants:

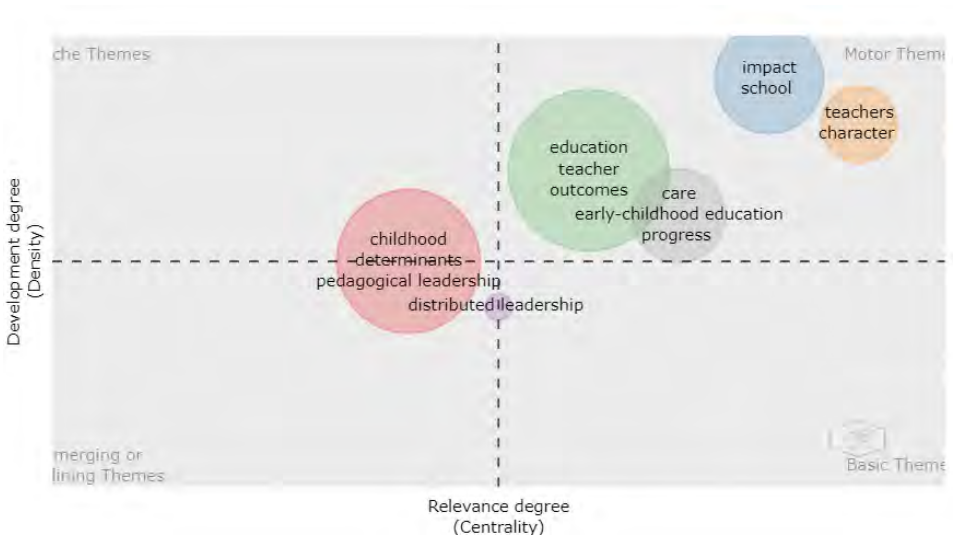
- Motor themes- based on clusters of recurring keywords over time. It is also described as a critical feature of healthy disciplines. Motor themes represent commonly addressed topics that constitute the research mainstream and therefore are essential to creating a disciplinary core.
- Niche theme- aimed to be used for a specific field with features that are useful mostly for their respective kind of project or research.
- Emerging or declining themes- themes in the lower-left quadrant are known to have both low centrality and density. In other words, this meant that they are weakly developed and marginal. Nevertheless,

these themes are important for a research field and concern general topics transversal to the different research areas of the field.

- d. Basic theme-These are low in development, but high in relevance. Nevertheless, it does not belong to any niche area, and is thus regarded as general.

As such, Figure 10 shows clearly that pedagogical leadership is somewhat developing, but not central. It is still weakly developed and is marginal; that it has gaps to gaining more importance and potential for future research.

Figure 10. *Development and Relevance of Pedagogical Leadership (2017-2021)*



Discussions

From data findings, it is evident that there is only a handful of studies on pedagogical leadership in recent years (2017-2021) in WoS. As PL is theoretically, conceptual, and empirically explored, more and more scholars are trying to understand its dimensions, applications, and effects on teaching and learning. From content analysis, it can be highlighted that most articles defined pedagogical leadership as an approach that involves a collaborative process of planning (Yang & Lim, 2020; Zohar & Cohen, 2016), decision making (Ho, 2010), action (Male & Palaiologou, 2017; Seiser, 2020) and evaluation (Fonsen et al., 2020, 2020) in which teachers and administrators define shared goals for their school (Garcia-Martinez & Martin-Romera, 2019; Muli et al., 2017). Pedagogical leaders consult with interested parties (Gonzalez-Fernandez et al., 2020) about the means to reach those goals, and create an environment in which all students will have greater access to high-quality educational opportunities (Reis & Flores, 2014; Rogers & Grunewald Nichele, 2020). The commitment of the educational community to collaborate in this way is widely regarded as essential for increased access to educational opportunities for all students (Rogers, 2019). This collaborative commitment can be expressed as a systematic set of beliefs and practices about giving professional development opportunities to teachers (Andrews & Abawi, 2017; Berestova et al., 2020a). As such, PL can be seen as part of a holistic context-based educational leadership approach (Muli et al., 2017; Reis & Flores, 2014). Similar to the findings in recent years of 2017-2020, scholars have also highlighted that pedagogical leadership sprung from distributed (Jappinen & Maunonen-Eskelinen, 2012), participative (Gonzalez Fernandez et al., 2019), and situated types of leadership (Mesa Bernal et al., 2017). However, most major to specific subject-based studies did not have a clear conceptualization of pedagogical leadership (Garcia-Martinez et al., 2018) with some scholars regarded it as overlapping to other types of leadership such as Instructional (Reis & Flores, 2014), transformational, distributed and situational types of leadership (Male & Palaiologou, 2015). Although pedagogical leadership is

considered an elusive construct to be measured and observed, and there is much more to explore the relationship and impact between leadership and pedagogy (Male & Palaiologou, 2017; Rojas Carrasco et al., 2020).

Comparatively, studies on Pedagogical leadership are considered less as compared to Instructional leadership, Distributed leadership, and Transformational Leadership in the reviews of 2017-2021 from WoS. It can be said that the study of PL is elusive and emerging in the body of knowledge. In addition, many international findings are also centralized on the importance (Muli et al., 2017; Rogers, 2019), effectiveness (Angelo & McCarthy, 2020; Fonsen et al., 2020), and evaluations of observed practices from PL (Culhane et al., 2018). Because PL tends to overlap with Instructional Leadership, Distributed leadership, and Situational leadership (Male & Palaiologou, 2015), there is no prominent instrument to measure Pedagogical leadership in this region yet. In Asia, the kinds of literature on PL are almost non-existent when considering the WoS online database. Perhaps there is a need to relook at the kinds of literature consisting of Instructional Leadership (IL) and Distributed leadership (DL) in the regional and local database to identify if the element of pedagogical leadership is hidden or regarded equivalent with the term of PL.

Most of the findings also acknowledged that PL is important and that it impacts student achievement (Rogers, 2019), and teachers' professional development (Vijayadevar et al., 2019). However, the dimensions of items that constitute the construct of pedagogical leadership are also elusive in this case. This is because there is no discriminant indicator to measure PL (as compared to IL, DL, or TL) at the time of writing (Reis and Flores 2014). Nevertheless, the thematic findings from top-tiered and reputable journal articles in WoS suggest that it needs further improvements from experts in the field to yield more indicators that are relevant to local contexts.

Implications

The study of Pedagogical leadership helps school leaders to understand how school communities can effectively learn (Reis & Flores, 2014) and be supported in their roles of changing complexity (Tinnell et al., 2019), increasing school autonomy, accountability, and addressing stakeholders' expectations (Gonzalez-Fernandez et al., 2020). To lead in teaching and learning, studies in pedagogical leadership need to explore how to better implement professional development (Berestova et al., 2020b), performance evaluation, and assessment policies from individual to organizational level (Male & Palaiologou, 2017). In terms of methodology, this article calls for more research in the future to conduct Quantitative explorations on measurable and observable indicators that could help conceive the concept of Pedagogical leadership. Future suggestions also include more calls for eastern scholars to collaborate with western scholars, to better understand its concepts, and sets apart this term as compared to other prominent ones like Transformational, Distributed, and Instructional Leadership.

Due to the myriad of definitions of pedagogical leadership, it can also be inferred that there is no single model of pedagogical leadership (Rogers & Grunewald Nichele, 2020). This is because pedagogical leadership is a complex social process that requires flexibility of thought (Farrell, 2017), high levels of creativity, and community-mindedness (Tinnell et al., 2019). Effective pedagogical leadership is not achieved quickly or easily. It requires incessant learning (Moral, 2018), application (Berestova et al., 2020b), interactions (Khan et al., 2021), and reflections (Ayers et al., 2020). In conclusion, the study of PL is hardly visible in Asian countries from WoS databases. The writer strongly suggests the need for the study for this emerging area. this study contributes significantly to the area by providing a thorough review and research points, contextual focus, and future orientation.

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