



## Distributed Leadership: A Bibliometric Analysis Using Scopus Database (1981-2020)

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**Abstract:** Distributed Leadership is a conceptual and analytical approach to understanding leadership that is focused on interactions between leaders and those they lead with the goal of driving instructional improvement and improving student outcomes by developing high-quality teaching and an educational culture that enables all students to thrive. This article provides an overview of the state-of-the-art research available on distributed leadership. As new social and educational demands emerge, leadership responses need to be reformed at all school levels to ensure a school's ability to provide a high-quality education. These transformations must be promoted from within each school center. The author describes and covers a deep review of the literature between 1981 and 2020. The source data for this research, (321 articles), is derived from SCOPUS, Biblometrix Studio, and VOSviewer. The terms and their clusters were illustrated on graphs, and density maps were utilized. General recommendations are provided and challenges are identified for the incorporation of DL changes into the management of schools. The findings show that the literature refers explicitly to DL, wherein there are a number of interesting insights provided by theoretical articles. A conclusion is given with recommendations for further multidisciplinary research at the intersection of the fields in order to show the holistic landscape of this field.

**Keywords:** *Bibliometric review; Bibliometrix analyzes R; Co-authorship; Distributed leadership; Keywords analyses; Science mapping; VOSviewer.*

### Introduction

The term "Distributed Leadership" (DL) was first coined in 1954 by Gibb (1954), who refers explicitly to DL when suggesting, "*leadership is probably best conceived as a group quality, as a set of functions which must be carried out by the group*" (p. 324). As main antecedents, the following authors stand out: Gronn (2008) likewise recognizes the significance of a stream of additional research, such as Mary Parker Follett's (1942/2003) work on reciprocal influence; Benne & Sheats' (1948) investigation into the diffusion of leadership functions within groups; Gibb's (1954) research on leadership; French & Snyder's (1959) and Dahl's (1961) analysis of the distribution of power and influence; Becker & Useem's (1942) and Etzioni's (1965) work on dual leadership; Kerr & Jermier's (1978) investigation into substitutes for leadership; Katz & Kahn's (1978) analyses sharing leadership; and Schein (1988) on the functions of leadership. In addition to these sources, Harris (2009) cites the research of Festinger et al. (1950) and Heinicke & Bales' (1953) on informal leadership in groups and teams; Barnard's (1968) work on the functions of the executive and the informal organization; Manz & Sims' (1986) social learning theory; Hutchins' (1995) investigation of distributed cognition and 'lateral agency'; Louis & Marks' (1998) analyses of professional learning communities; and Wheatley's (1999) work on complexity and systems.

In the late 1990s and early 2000s, the contemporary concept of DL emerged (Camburn et al., 2003; Spillane, et al., 2004; Harris, 2008; Bolden, 2011). During the past decade, the concept of DL has attracted a great deal of attention from academics, professors, doctoral students, school principals, and politicians. DL has encouraged a shift in focus from the attributes and behaviours of individual 'leaders' (as promoted within traditional trait, situational, style, and

transformational theories of leadership (Northouse, 2010) to a more systemic perspective, whereby 'leadership' is conceived of as a collective social process emerging through the interactions of multiple actors (Uhl-Bien, 2006). From this perspective, DL is not something "done" by an individual "to" others, or a set of individual actions through which people contribute to a group or organization, it is a group activity that works through and within relationships, rather than individual actions (Bennett et al., 2003; Bolden, 2011).

While traditional theories consider leadership a quality held by individuals with particular positions, skills, or charisma. Yukl (2006) defines leadership as "*the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives*" (p. 8). On the other hand, Northouse (2010) expresses leadership as "*a process whereby an individual influences a group of individuals to achieve a common goal*" (p. 3). Both definitions propose several components central to the phenomenon of leadership, as follows: (i) Leadership is a process, (ii) leadership involves influencing others, (iii) leadership happens within the context of a group, (iv) leadership involves goal attainment, and (v) these goals are shared by leaders and their followers (Yukl, 2006).

Proponents of DL consider leadership embedded in sociocultural processes "*distributed over leaders, followers, and their situation*" (Spillane, 2005, p. 11). DL is used to describe an environment in which emergent policies and practices permit independent role players to grow a cooperative self and share lines by dispersing leadership throughout the institution (Bolden, 2011). The concept of DL shows a more systemic perspective, whereby DL is considered as a collective social process emerging through the interactions of multiple actors (Camburn et al., 2003; Harris & DeFlaminis, 2016).

For some experts, DL is a conceptual way of studying or diagnosing the phenomena of leadership. On the other hand, for others, it is a map or route to implement and innovate strategies for schools. A distributed perspective on school leadership and management has garnered considerable attention from policymakers, practitioners, and researchers in many countries, who agree that the successful leadership of a school's principal and the creating of a strong leadership team are both basic to an educational organization's ability to meet changing educational demands. Leaders have direct and indirect effects on student learning (Spillane et al., 2001; Timperley, 2005). An empirical study done by Spillane et al. (2004) on the practice of DL, demonstrates that DL is best understood as a "*practice distributed over leaders, followers, and their situation, [which] incorporates the activities of multiple groups of individuals*" (p. 18). It implies a distribution of leadership that is not only social, but also organizational, where the DL is "*stretched over the work of a number of individuals and the task is accomplished through the interaction of multiple leaders*" (Spillane et al., 2001, p. 20).

DL is one of the most important topics in educational policies and is a significant part of scientific research. Educational experts are interested in this field mainly because it represents opportunities for creating a base for necessary institutional changes that would lead to success. A review of the literature demonstrated that DL is one of

the most prosperous factors that schools have to be effective and attain quality results (Gronn, 2002, 2003; Harris et al., 2007; Harris, 2003, 2008). If school principals implemented DL practices, they would be able to impact teachers and also improve the processes and development of teaching and learning in schools. Spillane (2005) believed that DL teachers' practices had to be closed to the needs and opportunities of different socio-cultural and organizational contexts of the schools. The concept of DL is accepted in most educational sectors (as higher education or primary schools). DL challenges assumptions surrounded in an initial "great man" theory of leadership (Bolden, 2011). The theoretical roots of DL have been present only since the turn of the millennium. However, the concept of DL has been widely embraced by scholars and practitioners (Harris, 2003, 2008). Gronn (2002) distinguishes distributed cognition and activity theory as key concepts within DL. Concerning activity theory, he draws particularly on the work of Engeström (1999), who suggests a framework for analysing situated activity as the product of reciprocal and mediated interactions between 'instruments,' 'subjects,' 'objects,' 'rules,' 'community,' and 'division of labour. For Hallinger & Kantamara (2013), the DL and practices in international contexts are present in Canada, England, the United States, New Zealand, The Netherlands, Singapore, and Australia.

It is important to point out the need for integration of a comprehensive bibliometric review to identify the evolution of the DL research to provide a clear idea about where it started and where it should go. Also, the main objective of this article is to review the state art in DL. In order to reach this objective, this study's goal is to identify the key research areas, current dynamics, and future directions in the field of DL research. To get this objective, through analysis, the author intends to find and identify the key research areas and future directions in the field of DL research. In order to answer the research questions, the author's research was based on the research of other articles with an analogous methodology (Bolden, 2011; Moher et al., 2015; García, 2019; Gümüş et al., 2020; Hallinger & Chatpinyakoop, 2019; Mohamed et al., 2020; Samul, 2020; Segura-Robles et al., 2020). A bibliometric review technique was used to answer the following research questions Table 1.

The bibliometric methodology was used to answer research questions one through 11, and to provide a larger scope review of the existing research that concentrates on DL. Therefore, the aim of this study is to investigate the scientific information related to the DL in the Scopus database (Hoogendoorn, 2008; Baas et al., 2020; Scopus, 2020), through a bibliometric analysis using the software Bibliometrix R package to analyse and map the bibliographic data (Aria & Cuccurullo, 2017; Derviş, 2019), and the VOSviewer software (van Eck and Waltman, 2019), for the evaluation of the structure, conceptual evolution, and trends of DL following related publications. As encouraged by the research of Hallinger & Kovačević (2021), this study attempts to review the knowledge accumulation in the field of DL in a very specific line of inquiry i.e. information related to the most-cited articles in the field.

**Table 1***Research Questions*

<b>Number</b>	<b>Research question (RQ)</b>
RQ1	What was the growth rate of publication in the period of 1981-2020?
RQ2	Who are the principal authors involved in the DL field?
RQ3	What are the 10 most influential articles from Scopus?
RQ4	What language has the highest production in the scientific field of DL?
RQ5	What are the most relevant affiliations' outputs from 1981 to 2020?
RQ6	What was the distribution of fields' research DL output from 1981 to 2020?
RQ7	Which countries collaborate in the production of research articles on DL?
RQ8	What are the most influential and productive journals of DL?
RQ9	What is the world cloud of leadership?
RQ10	What was the overlay visualization of co-authorship analysis from 1981-2020?
RQ11	What was the overlay visualization of keywords analysis from 1981-2020?

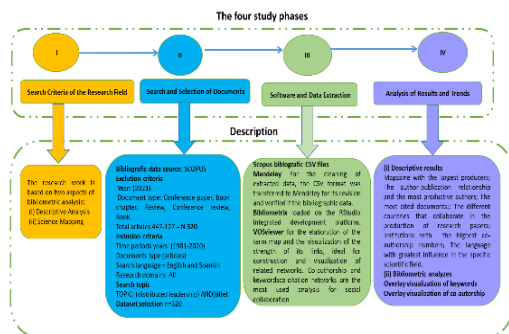
### **Methodology**

Regarding the systematic literature reviews (SRL), experts such as van Dinter et al., (2021, p. 5) explain that: “*SRL in research work are of high relevance for the researcher, delving into the intellectual field and developing research questions that provide an increase in the capacity for knowledge.*” In this order of ideas, for Tranfield et al. (2003), SRL has two basic characteristics. Firstly, they have an explicit algorithm that permits the best selection of the literature, and secondly, the process is transparent and reproducible, which permits knowing an area of knowledge. As principals' characteristics, the bibliometric studies have a procedure that is formal, rigorous, and guarantees the quality of the information used (Moed & Glänzel, 2005). The bibliometric method is the use of statistical methods to analyse books, articles, or other publications. Bibliometrics is described as, “*The study of the quantitative aspects of production, distribution, and use of published information*” (Moed & Glänzel, 2005, p. 343). For Mao et al., (2017), bibliometric analysis is a technique extensively used in the quantitative characteristics, structure, relationships, and present and future tendencies of scientific disciplines.

One of the main parts of bibliometric analysis is the use of networks or maps that show the study of a cognitive structure in detail and its dynamics over evolution time in a given academic field. For this specific purpose, the VOSviewer software was used, as it is a tool that builds the construction and visualization of bibliometric networks. It uses elements of scientific publications, such as authors, journals, keywords, and finds information from a field of study according to its roots, expansion, and tendencies (García, 2020). Figure 1 shows the procedures of the bibliometric analysis, which was structured in four study phases.

**Figure 1**

*The Four Phases of the Bibliometric Analysis*



**Phase I: Search Criteria of the Research Field**

The literature research has the purpose of investigating the evolution of the information related to the DL research topic by combining two elements in the bibliometric analysis: (1) Descriptive Analysis and, (2) Science Mapping (van Eck & Waltman, 2014). The two elements were used to evaluate the research and the demonstrated characteristics of evolution, intellectual structure, and dynamics that the field of study showed (Hallinger & Suriyankietkaw, 2018; Albort-Morant et al., 2018; Hallinger & Vien-Thong, 2020; Mohamed et al., 2020). One of the primary points is that the bibliometric analysis is done by identifying indicators, such as years of publication, the main journals, principal countries, co-authors, institutions, and universities. Also, science mapping permits graphical representation of research fields and subfields by visualizing and identifying relationships or links between them (van Eck & Waltman, 2014; 2017).

**Phase II: Search and Selection of Documents**

The identification of the source or database should be of high quality and reliability for its bibliographic selection. The author, following the methodological criteria of Herrera-Franco et al., (2020), decided to perform the analysis by using the Scopus database. Scopus was chosen mostly for its excellence standards, extensive coverage in the gathering of data, simplicity in downloading data, and excellent coverage of science journals (Harzing & Alakangas, 2016). The search and collection of information was carried out during the period of 1981-2020. Also, only titles that included the term “distributed leadership.” For all of the articles to be analysed, they had to undergo a pairwise

review process in order to assure the quality of the review. In this study, only articles in English and Spanish were considered.

### **Phase III: Software and Data Extraction**

During this phase, the articles selected were verified and examined based on their contribution to the DL topic. In fact, 320 documents of bibliographic data were downloaded into a (CSV) file (Cobo et al., 2011). The CSV file contents in the download contained the bibliographic data (authors, title, year of publication, magazines, keywords, number and data of the citations) (Hallinger & Suriyankietkawn, 2018). To clean of extracted data, the CSV format was transferred to the database of Mendeley for its revision to verify that the bibliographic data were not duplicates. Also, for the construction of the bibliometric mapping, VOSviewer software was used for the easy of data processing, construction, and visualization of bibliometric networks (van Eck & Waltman, 2017; Waltman & van Eck, 2012). The VOSviewer software has been used to study various scientific disciplines (De la Cruz del Rio et al., 2020).

### **Phase IV: Analysis of Results and Trends**

A data analysis of the results was done in two steps. The first step concentrated on a descriptive statistical analysis of the data, and the second step focused on the building of the networks. For the calculation of bibliographic characteristics, the author used a bibliometrix loaded onto the RStudio integrated development platform (Derviş, 2019). RStudio is written in R, an open-source language that consists of a large community of developers and users and, to date consists of over 16,000 software packages. This tool allowed the authors to develop descriptive analyses and generate different figures and graphics on different variables (authors, keywords, etc.). Secondly, for the elaboration of the term map and the visualization of the strength of its links, the VOSviewer tool was, which was ideal for the construction and visualization of the related networks. Co-authorship and co-citation networks are the most used analysis (Rousseau, et al., 2018). Thus, the VOSviewer software organized groups and created clusters of different sizes and colours to be interconnected and analysed by the resulting groupings, subsequently (van Eck & Waltman, 2017).

## **Results**

### **Descriptive Results**

The descriptive results are presented in alignment with the nine research questions (Table 1). An interpretation of each analysis is provided along with the respective results.

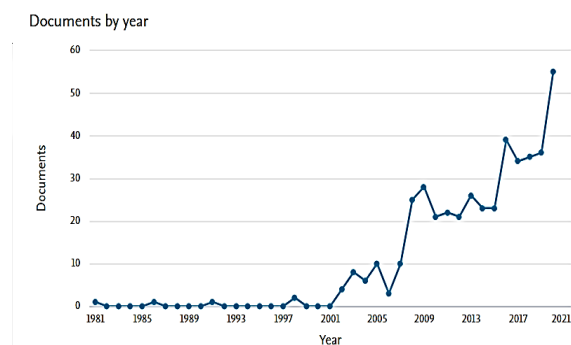
### The growth rate of publication in the period of 1981-2020 (RQ1)

Yearly research output from 1981 to 2020, the year-wise distribution of documents indexed in the SCOPUS database, is shown in Figure 2. In 1991, only one paper on DL research was published; the number of publications was zero in the periods of 1982-1985, 1987-1990, 1992-1997, 1999-2001; but in 2008-2020, the number of publications increased to 103. Figure 2 clearly shows that the growth rate of publication in the period of 1981-2001 was slow, but since 2008, the output of documents has been growing rapidly.

This forward movement indicates that the research on DL was consistently the focus of academics during the past decade, particularly in 2008 -2020. The first paper found was “The research evidence for distributed leadership in therapy groups from Beck & Peters (1981). This paper presented the thesis that psychotherapy groups can be described in structural terms that are similar to those that have been developed to describe other small groups. In particular, psychotherapy groups have a DL pattern characterized by the presence of four ongoing leaders: The Task Leader, the Emotional Leader, the Scapegoat, and the Defiant Leader.

### Figure 2

*The Growth Rate of Publication in the Period of 1981-2020*



*Note:* Bibliometrix (2020)

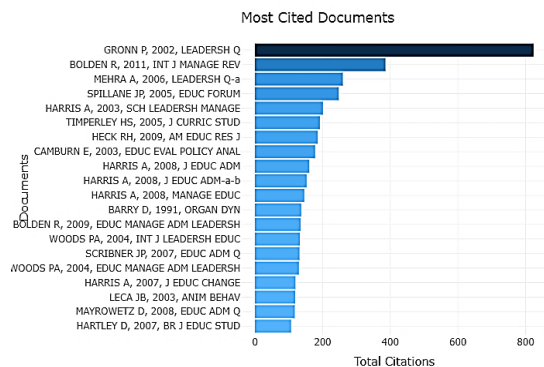
The second communication was “Distributed Leadership and Skilled Performance as Successful Organization in Social Movements” from Brown & Hosking, (1986). This paper adopts a societal psychological perspective of the study of social organizations analyzed in terms of the skills of organizing. The arguments are intended to be general, but the discussion is grounded in research on ladies’ centers in Britain. Drawing on Hosking’s work on small groups, leadership, and organization, and Brown’s doctoral research on women’s centers, the author focused on interlocking cognitive and social orders and the manner of their achievement.

### The Principals' Authors Involved in the LD Field (RQ2)

The next step was to identify the top-cited articles. According to all data and journal subject classification rules of the SCOPUS database, Figure 3 shows the authors involved in the DL field, and also demonstrates 10 principal authors. The number of citations received, which have been used as measures in previous studies relevant to the subject of DL. The measurement includes the number of papers published. Harris (2003) is one of the most productive authors with 14 articles; the second most cited author is Devos (2005) with seven articles. Based on the analysis about, the number of papers published following: Hulpia (7 articles); Woods (7 articles); Bush (6 articles); Hartley (5 articles), Figure 3.

**Figure 3**

*The Principals' Authors Involved in DL Field.*



*Note:* Bibliometrix (2020)

The number of citations received, which have been used as measures in previous studies relevant to the subject of DL. I show the articles with more than 147 citations and the number of cites per article by total. The 10 most influential articles were published in 1981-2020 and have a significant number of mentions (between 750 and 147); also the author presents a resume of each paper. An investigation by Groon (2002) is the most relevant, not only by the number of cites (750), but also for its focus. This study proposes a new unit of analysis in the study of leadership. This communication reviews the conceptual and empirical literature on the concept of DL in order to identify its origins, key arguments, and areas for further work. Bolden (2011) (334 citations) reviewed the conceptual and empirical literature on the idea of DL to identify its origins, key arguments, and areas for further work. Findings indicate that, while there are some common theoretical bases, the relative usage of these concepts varies over time, between countries and among sectors.



### The 10 Most Influential Articles from Scopus Database (RQ3)

The 10 most influential articles were published in 1981-2020 and have a significant number of mentions (between 750 and 147); also the author presents a resume of each paper Table 2.

**Table 2**

*10 More Influential Articles from Scopus About DL*

<b>Autor, year, citations</b>	<b>Resume articles</b>
Gronn, P. (2002). 750 citations	Proposes a new unit of analysis in the study of leadership. A number of forms of DL are then outlined, in particular, three varieties of concrete action in which a key defining criterion is conjoint agency. Provide the basis for a taxonomy of DL and a review of examples in the literature. Concludes with some implications of the adoption of a revised unit of analysis, on levels of analysis, for future research into leadership as a process.
Bolden, R. (2011). 334 citations	This paper review conceptual and empirical literature on the concept of DL in order to identify its origins, key arguments and areas for further work. Findings indicate that, while there are some common theoretical bases, the relative use-age of these concepts varies over time, between countries and sectors. Three methodological and developmental challenges (ontology; research methods; and leadership development, reward and recognition). It is concluded that descriptive and normative perspectives which dominate the literature should be supplemented by more critical accounts which recognize the rhetorical and discursive significance of DL in (re)constructing leader-follower identities, mobilizing collective engagement and challenging or reinforcing traditional forms of organization.
Mehra, A., Smith, B., Dixon, A., Robertson, B. (2006). 239 citations).	This study uses social network analysis to examine DL in work teams. They used sociometric data from 28 field-based sales teams to investigate how the network structure of leadership perceptions considered at the team level of analysis was related to team performance. Decentralization of the leadership network (across three different operationalizations of network decentralization) was not significantly related to superior team performance. The study suggests that DL structures can differ with regard to important structural characteristics, and these differences can have important implications for team performance.
Spillane, J. (2005). 213 citations.	Stories of leadership successes follow a familiar structure: A charismatic leader, often the CEO or school principal, takes over a struggling school, establishing new goals and expectations and challenging business as usual within the organization. This leader

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	creates new organization-al routines and structures that with time transform the school's culture, contributing in turn to greater teacher satisfaction, higher teacher expectations for students, and improved stu-dent achievement.
Timperley, H. (2005). 177 citations.	The idea of DL across multiple people and situations has proven to be a more useful framework for under-standing the realities of schools and how they might be improved. However, empirical work on how leadership is distributed within more and less successful schools is rare. This communication presents key concepts related to DL and illustrates them with an empirical study in a school-improvement context in which varying success was evident. Grounding the theory in this practice-context led to the identification of some risks and benefits of DL and to a challenge of some key concepts presented in earlier theorizing about leadership and its distribution.
Harris, A. (2003). 171 citations	This article explores various interpretations and definitions within the literature. It examines the relationship between teacher leadership and DL, focusing particularly upon the idea of activity theory. It also discusses the possible sources of resistance to the idea of teachers as leaders in schools and explores how distributing leadership to teachers may contribute to building professional learning communities within and between schools.
Camburn, E., Rowan, B., Taylor, J. (2003). 162 citations	Distributed leadership in schools: The case of elementary schools, <i>Educational Evaluation and Policy Analysis</i> 25 (4), 347-373. The study of DL is in the context of elementary schools' adoption of comprehensive school reforms (CSR). Con-figuration and activation were further hypothesized to influence the performance of leadership functions in schools.
Heck, R., & Hallinger, P. (2009). 154 citations.	This research has been descriptive. Relatively few published studies have investigated the impact of shared leadership on school im-provement. This longitudinal study examines the effects of DL on school improvement and growth in student math achievement in 195 elementary schools in one state over a 4-year period. Using multilevel latent change analysis, the research found significant direct effects of DL on change in the schools' academic capacity and indirect effects on stu-dent growth rates in math. The study sup-ports a perspective on DL that aims at building the academic capacity of schools as a means of improving student learning outcomes.
Harris, A. (2008). 143 citations	This paper aims to provide an over-view of the literature concerning DL and organizational change. The main purpose of the study is to consider the empirical evidence that highlights a relationship between DL and organizational out-comes. The communication draws on several fields of enquiry, including organization-al change, school effectiveness, school improvement and leader-ship. It systematically analyses the evidence in each field and presents a synthesis of key findings. The evidence shows first, that there is a relationship between DL and organizational change, second, that there is

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evidence to suggest that this relationship is positive and third, that different patterns of distribution affect organizational outcomes. The significance and originality of this job demonstrates the importance and necessity of further research about the way in which DL influences organizational outcomes; and acknowledges.

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Harris, A., Gronn, P. (2008). 142 citations. This resource aims to assess the empirical utility and conceptual significance of DL. Three main sources of evidence are drawn on. It reviews some neglected commentary of an early generation of DL theorists. It also discusses a strand of social science writings on emergent small number management formations. An alternative interpretation of the findings of three recent empirical studies of DL is provided. Some unresolved issues are considered. DL arose in reaction to understandings of leadership that emphasized heroic like individual behavior. It has achieved a high level of theoretical and practical uptake. DL is shown to be largely unremarkable, especially in light of the continuity between current writings and those of early generation scholars. The author argues that a more appropriate descriptor for recent leadership analyses may be “hybrid”, rather than “distributed”.

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*Note:* Scopus (2020)

#### **The Language with the Highest Production in the Scientific Field of DL (RQ4)**

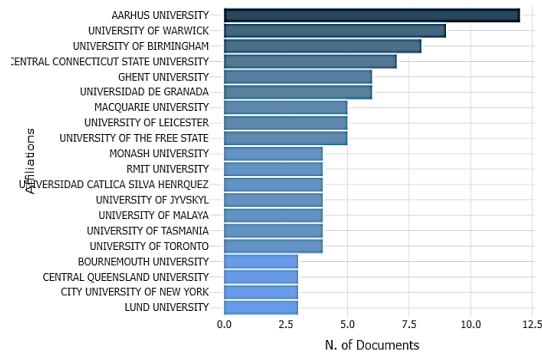
The next step was to identify publishing languages according to the statistical results from SCOPUS database, the scientific literature published on DL for the whole period had been written basically in two languages. As expected, English is the dominant tongue, according to data gathered. Among the scientific literature, 301 (SCOPUS) were published in English, followed by 10 Spanish (SCOPUS) articles. One of the reasons for the utilization of English might be that it is widely used in the world, functioning as an international language. Also, some academic journals published in non-English countries or regions were not indexed in the SCOPUS database.

#### **The Relevant Affiliations (RQ5)**

The following stage was to identify the productive institutions. There are different organizations worldwide showing research interested in DL. In order to categorize the active and leading establishments in DL investigation, the SCOPUS database analyzed the institution-based distribution of output to understand the productivity level of institutions around the world. Figure 4 shows the top 15 most productive institutions ranked by the total number of publications and countries, also it supported academic studies from high frequency to low frequency in the DL field. The most relevant affiliations are shown in Figure 4; three organizations were illustrated with their names and frequencies: Aarhus Universitet (13), the University of Warwick (10), and the University of Birmingham (8). According to all data and journal subject classification rules of the SCOPUS database, each paper published by that magazine is assigned to one category.

**Figure 4**

*Most Relevant Affiliations Output from 1981 to 2020*



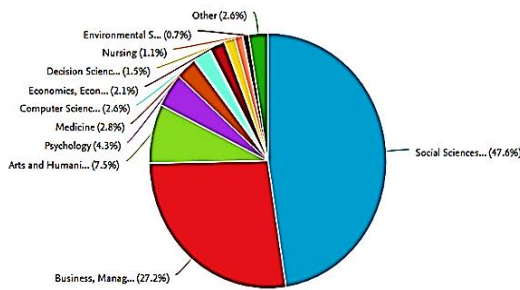
Note: Bibliometrix (2020)

**Distribution of Fields Research DL (RQ6)**

The categories involved in the DL field, according to the results shown in Figure 5, have over 25 subject classes related to this research field. The most common category is Social Science, which is the largest with 254 articles, followed by Business, Management and Accounting (145), Arts and Humanities (40), Psychology (23), Medicine (15), Computer (14), Economics, Econometrics, and Finance (11), Decision Sciences (8), Nursing (6), Environmental Science (4), Mathematics (3), Agricultural and Biological Sciences (2), Energy (2) and Engineering (2). The results indicate that the study of DL is an interdisciplinary subject.

**Figure 5**

*Distribution of Fields Research DL Output from 1981 to 2020*



Note: Bibliometrix (2021).

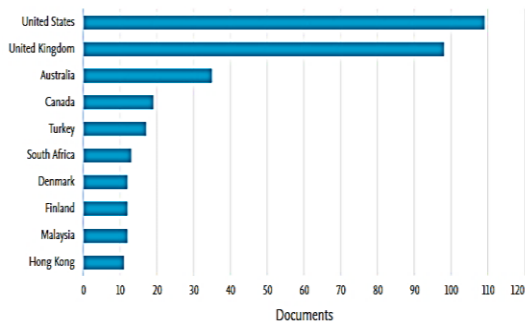
**Productives Countries (RQ7)**

In relation to the productive countries with the highest scientific output, the top 5 are collected in each database figure 6. The USA stands out above all others, being the country with the largest number of documents, SCOPUS

(109). The United Kingdom presents the second-largest collection of articles, (98), and Australia is in the third position (35). Below are Canada (19), Turkey (17), South Africa (13), Denmark (12), Finland (12), Malaysia (12), and China (11).

**Figure 6**

*Documnts by Country or Territory of DL Output from 1981 to 2020*



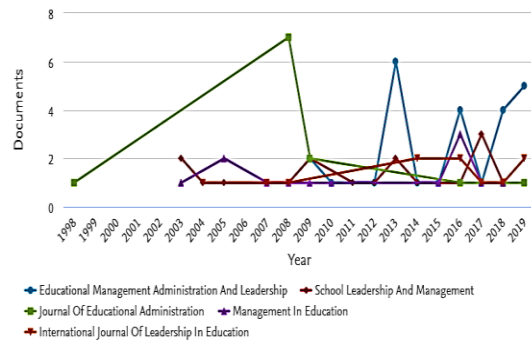
*Note:* Bibliometrix (2021)

**Productive and Influential Journals of DL (RQ8)**

The most productive and influential journals in the field of DL, according to Figure 7, with the highest number of published articles on the topic of DL, were the Educational Management Administration and Leadership (26), School Leadership and Management (18), Journal of Educational Administration (13) since 1998, Management in Education (13), and International Journal of Leadership in Education (11) since 1993.

**Figure 7**

*Documents per Year by Source*



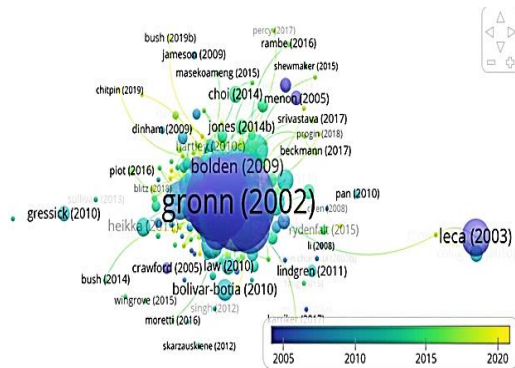
*Note:* Bibliometrix (2020)



items in the existing literature are cited together by a third party” (p. 141). Based on co-citation, it is shown that the most relevant authors that have published on DL have at least 15 citations, according to SCOPUS data.

**Figure 9**

*Overlay Visualization and Co-authorship of DL*



*Note:* VOSviewer(2020). Analysis from 2015-2020, 312 terms, 304, 1771 items

This study outlines the overlay visualization of bibliometric indicators of scientific research related to DL. Each circle represents a researcher. The size of a circle indicates the number of publications of an investigator. Lines indicate co-authorship links between researchers. The analysis of the overlay visualization of co-authorship can help us understand the DL network of different authors all over the world. A color bar (CB) is shown in the bottom right corner of the visualization; colors are determined by years of items (2005-2020). The (CB) indicates how dates are mapped to colors and the production every five years. The size of the circles represents the number of citations (i.e. the larger a circle, the more a publication has been cited in the DL issues). On the other hand, a smaller distance between two publications suggests a stronger relation and a higher similarity among them. Circles with the same color suggest a similar topic among these publications. In fact, the results show that the major clusters of author co-citation relations emerged in the 2002-2009 period (authors: Groon, Bolden, Crawford, Menon, Dinham, Jamenson, It, and Leca; dark blue circles). For 2010-2015 (authors: Gressick, Pan, Bolívar Botia, Lan; light blue circles), and during 2016-2020 (authors: Bush, Muselonmeng, Raime, Chitpin, Plot, Moretti, Rydent; yellow circles).

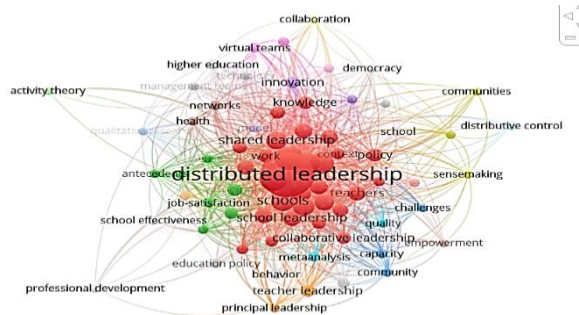
The author construct maps, for the elaboration of the term map and the visualization of the strength of its links, and used the VOSviewer tool, ideal for construction and visualization of related networks. Keywords, co-occurrence, co-authorship and co-citation networks are the most used analysis for distributed leadership (Rousseau et al., 2018). In most cases, the full text of a document is not available and only the words in the title and sometimes also in the abstract of a paper, are considered. An alternative is to use the keywords co-occurrence assigned to a document, in this part, delineation of the domain can be done by identifying relevant documents based on keywords in which a document was published.

## Overlay Visualization of Keywords Analysis from 1981-2020 (RQ11)

To expose and demonstrate the hot research topics better, the top 72 keywords were selected as core terms. The VOSviewer, a 29-cluster view of keywords co-occurrence networks is generated in this manner, as Figure 10 shows.

**Figure 10**

*Overlay Visualization of Keywords Analysis from 1981-2020*



*Note:* VOSviewers (2020)

The red (29 terms), green (7 terms), blue (3 terms), and yellow (4 terms) fields of the map indicate the most important terms and the less important terms in the field, respectively. It also shows the interrelationships of the words with regard to the other terms. As it is seen from the left side, the terms “activity theory” (green), professional development” (blue), and “distributed leadership,” can be seen at the center of the red field and can be accepted as the most important term of the side. These terms are the most significant terms in the field. The red labels indicate the important cluster, then the green color, and the yellow color. The author picks up the most important cluster for a total of 29.

## Conclusion

In this article, an evaluation of the global research tendencies in DL resources plus publications from 1981 to 2020 is given. The author reviewed the researches on a significant part of the existing DL literature. It was decided to examine the different DL theories that have set the conceptual foundations over which further research has given rise. The topic of DL has been a field of extensive research during the last 40 years, and its publication output is characterized by exponential growth. Based on the findings of the 11 research question of the study, it was concluded that the author answer all of them. The systematic review follows the guidelines reported by (Moher et al., 2015; García, 2019; Gümüş et al., 2020; Hallinger and Chatpinyakoo, 2019; Mohamed et al., 2020; Samul, 2020). The author describes that a predefined, strictly followed protocol must reduce bias among researchers and increases rigor and reproducibility. Therefore, the author constructed a review protocol before conducting the review.



Bibliometrics is a scientific research area, it has attracted increasingly more attention of the scientific community (Waltman & van Eck, 2012). Also, bibliometric analysis has developed quickly and been applied to many research fields, because it is an effective way to evaluate the merits of a given subject area (Bradford, 1985; Todeschini & Baccini, 2016; Rousseau et al., 2018). The research presents a co-citation analysis as an example of a citation network, and lexical analysis of keywords in the titles. The communication is relevant because it will provide the results of the bibliometric analysis of international research. For this research, the author used bibliometric techniques, as these permitted the author to deal with a large volume of information that was not viable with traditional content analyses or literature reviews. Having a clear understanding of the different DL points of views and theories was paramount to explaining the current phenomena and especially to offer new insights and perspectives. The author contributes to the extant literature by offering a methodical analysis of the DL, specifically its impact, prevalence over time, and the main intellectual connections, therefore opening new avenues for the future development of DL research.

Considering the authors' genders, one female researcher was largely found to be a major producer compared to the male researchers. This fact is relevant, as González-Álvarez & Cervera-Crespo (2017) said, "*In most bibliometric studies, women are usually a minority, being relegated to the last positions*" (p. 10), and, as happens in this case, they are not counted within documents that have a high number of citations (Beaudry & Lariviere, 2016).

Bibliometric mapping of the scientific literature was used to investigate deep into fields, areas of knowledge, and to help establish the underlying structure around it (Sinkovics, 2016). This methodology study may prove useful for newcomers to the DL field, as it offers a depiction of the current stock of knowledge on DL research. The systematic examination of the current state-of-the-art methodology is particularly useful for scholars to expand on the current knowledge to overcome new problems and challenges.

The author chose to write this article to promote further research into DL as a topic and to explain review's contributions, describe the key concepts or networks analysed, and to expand the boundaries of the research. The author did this by providing relevant reviews and citations for the literature in DL and related areas, building a model to guide future research, and justifying propositions by presenting theoretical explanations and past empirical findings. DL as an innovative investigation provides an exclusive chance to rethink concepts from different fields of social sciences, management, and leadership education research. DL is seen as differing from other forms of educational leadership by the relatively higher priority given to schools and institutions.

In summary, the major contributions of this study are the results the author obtained from examining the literature about DL in a structured and objective manner. The findings offer researchers, doctoral students, and scholars a guide to further explore DL research area in all of the fields of study. This research also provides researchers with the information to build networks with multiple institutions, countries, and authors across the globe, who have contributed significantly to this field.

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