

FREQUENCY OF APPLICATIONS OF SYSTEMATIC REVIEWS IN EVIDENCE SYNTHESIS IN MANAGEMENT RESEARCH: A SCOPING REVIEW OF SOUTH AFRICAN PRACTICES

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ABSTRACT

A wide range of frequently used methodological tools exist in other disciplines, yet are often not utilized in the management sciences. Tools such as systematic reviews are useful to objectively review, summarize, and appraise the results of published studies to guide practice or identify gaps in knowledge that require further research. The aim of this scoping review is to ascertain to what extent systematic reviews are utilized in South African management research. We employed a scoping review methodology and searched a number of prominent management databases. No limits on publication dates were set. Data was analyzed by means of charting. 9880 studies were identified during an initial search. From these 204 were assessed for eligibility, which 32 articles met. It was found that systematic reviews comprise 0.09% of South African managerial studies. An increase in the utilization was observed from 2014 onwards, yet systematic reviews are severely under-utilized in South African management research. A roadmap identifying crucial steps in systematic reviews and best practices is provided.

Keywords: systematic review, scoping review, South Africa, management sciences

INTRODUCTION

Systematic and scoping reviews of published literature plays an integral part in synthesis and critical appraisal of published evidence to guide research, practice and policy (Grant & Booth, 2009). The role of reviewing literature is to describe, summarize, evaluate and outline concepts in a particular subject area. It provides not only the empirical basis for a study, but also much needed context by examining the strengths and limitations of existing evidence on a topic. It enables researchers to justify their research, highlight gaps in existing literature, ensure the research has not been conducted previously and aids in refining and focusing the research topic (Boote & Beile, 2005).

Systematic reviews were first applied in the 1970s in the medical sciences and have recently gained increased prominence in other disciplines, particularly as systematic reviews improve the rigor and depth of literature reviews and searches (Mallett *et al.*, 2012). Yet in South Africa, there seems to exist a poor understanding and under-appreciation of systematic reviews as an acceptable research method (Ham-Baloyi & Jordan, 2016). Research, in particular original primary research, conducted by higher education institutions and businesses, is both costly and time-intensive (Walwyn, 2008). The additional benefit of reviewing results of existing research in a systematic manner can also be attributed to a reduction in cost, which is paramount in the South African economic environment, characterized by sluggish economic growth and decline in real spending power (Schussler, 2016). Yet despite their wide-spread use in health and the social sciences, it has not been established to what extent systematic reviews are used in management research, practice and policy making, and with what frequency.

LITERATURE REVIEW

The Nature Of Systematic Reviews

Systematic reviews, by virtue of their nature, utilize a transparent and methodical process to “define a research question, search for studies, assess their quality and synthesize findings qualitatively or quantitatively” (Armstrong, Hall, Doyle & Waters, 2011:147). It is however of the essence that the scope of the research question is delineated prior to conducting the review, thereby implying that the researchers have clear understanding of the conceptual nature, definitions and existing literature of the topic under investigation (Arksey & O’Malley, 2005; Armstrong *et al.*, 2011). Mallett *et al.* (2012:447) highlight the bias traditional literature reviews introduce, by stating that “traditional literature reviews are all too often restricted to literature already known to the authors, or literature that is found by conducting little more than cursory searches”. Systematic reviews are therefore beneficial in reducing researcher bias. Wiysonge (2014:1) states that “systematic reviews provide a complete picture of the totality of evidence on a given topic” and is “comprehensive enough to avoid publication, language and indexing biases”. In the medical sciences, systematic reviews are frequently utilized as they provide “explicit, systematic methods aimed at limiting systematic error (bias) and reducing the chance of effect”, and “receive twice as many citations as non-systematic reviews in peer-reviewed journals” (Mickenautsch, 2011:20).

Abdulla and Krishnamurthy (2016) state that systematic reviews go further than traditional literature reviews in that literature reviews merely provide an overview of a topic and aim to frame an author’s discussion, while systematic reviews aims to locate all relevant studies to the topic in question. The authors further explain that systematic reviews are methodical and answer a clearly defined research question, rather than merely offering background reading. Of vital importance, for a number of reasons, is however the role of researcher in systematic reviews, as the researcher is both the choral director and part of the ensemble. Firstly, the researcher should conduct a thorough search in order to capture all important studies. Secondly, the conclusions reached from systematic reviews cannot exceed the level of the studies reviewed. Thirdly, biases should be critically assessed in discovered studies. Lastly, the researcher should possess an understanding of the key issues being investigated, in order to draw valid conclusions and spot any potential bias (Wright *et al.*, 2007).

The importance and nature of systematic reviews can be summarized by the fact that they increase the value of existing research. Wiysonge (2014:2) goes as far as suggesting that “research funders and regulators should demand that proposals for additional primary research are justified by systematic reviews showing what is already known, and increase funding for the required syntheses of existing evidence”. Ham-Baloyi and Jordan (2016) however warn that systematic review may require significant amount of time if a large body of evidence is discovered. Additionally, universities and other institutions may have challenges in both finding staff members who are skilled at performing systematic reviews, and publishing systematic reviews in peer-reviewed journals as it is an under-appreciated research method (Ham-Baloyi & Jordan, 2016).

Systematic Vs Scoping Reviews

Similarities exist between systematic and scoping reviews in that they share characteristics such as a systematic approach to data collection, as well as being transparent and replicable (Grant & Booth, 2009). Grant and Booth (2009:95) describe scoping reviews as a “preliminary assessment of potential size and scope of available research literature. Aims to identify nature and extent of research evidence (usually including ongoing research)”, while a systematic review “seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review”. The provided definitions indicate that systematic reviews are more comprehensive in nature, as they allow researchers to determine possible gaps in literature, synthesize and combine the results of existing studies, as well as anticipate problems in potential future studies (Shamseer *et al.*, 2014). It is suggested that the results from a scoping review inform the researcher whether a full systematic review is necessary/required. Scoping reviews are often also referred to as ‘mapping’ reviews, as they not only clarify definitions, but also set conceptual boundaries in the field of interest. “Scoping reviews are therefore of particular

use when a body of literature has not yet been comprehensively reviewed, or exhibits a large, complex or heterogeneous nature not amenable to a more precise systematic review (Peters *et al.*, 2015:141).

Guidelines For Systematic Reviews

Mulrow (1994) explains that systematic reviews are an invaluable scientific tool. However, a successful systematic review is grounded in several premises. Firstly, a large number of studies are reduced into a more workable format. Secondly, a methodologically correct systematic review allows for separation between unimportant or uninformative studies and critical studies containing vital information. Thirdly, systematic reviews, while labor and time-intensive, are usually a more efficient tool than conducting an entirely new study. Lastly, findings derived from systematic reviews can be generalized as the information derived from the review is based on a large number of other studies utilizing sound scientific principles (Mulrow, 1994).

Kitchenham (2004) and Victor (2008) state that systematic reviews need to include a number of vital components and steps, these should include: to establish a clear need for reviewing systematically by interrogating the topic in question, as well as purpose of the study; to define review scope, questions and protocol; to develop review protocol outlining steps to be followed; to define inclusion and exclusion criteria; to appraise quality of identified studies in terms of criteria stated in protocol; to extract and synthesize data according to developed template; and to report on results of systematic review. In order to avoid any ethical issues when preparing and publishing systematic reviews, it is advisable to carefully approach areas of concern. One such area is authorship, in that the authoring of systematic review articles should follow common publishing practices, which include the first author being the party who performed most of the work. A second area of concern is to avoid redundant and duplicate publications, as these can skew statistical analyses. Thirdly, plagiarism should be avoided by citing other author's works. Fourthly, any conflict of interest and funding sources should be disclosed. Fifthly, accuracy in performing and reporting systematic reviews is of paramount importance, as such reviews are often form the basis of decision-making. Lastly, any suspicions of plagiarism or fraudulent research discovered during a systematic review should be raised with the relevant publishers (Wager & Wiffen, 2011).

RESEARCH METHODOLOGY

The research was qualitative in nature and made use of a scoping review. Scoping reviews were selected as the appropriate review method as they do not aim to assess the quality of the discovered literature, but rather map relevant literature in the subject field of study (Arksey & O'Malley, 2005). The study aimed to establish the frequency of systematic review use and not assess the quality or constructs of discovered studies. In particular, scoping reviews are regarded as an ideal tool where information on the nature, extent and range of specific research activity is sought (Arksey & O'Malley, 2005).

The research was guided by the question: *'To what extent are systematic reviews used in South African management research?'*. Keywords were utilized to answer the research question. These included: **“systematic review”**, **“systematic reviews”** and **“South Africa”**. The aim of the research was therefore to determine the prevalence of use of systematic review methodology in management research conducted in South Africa.

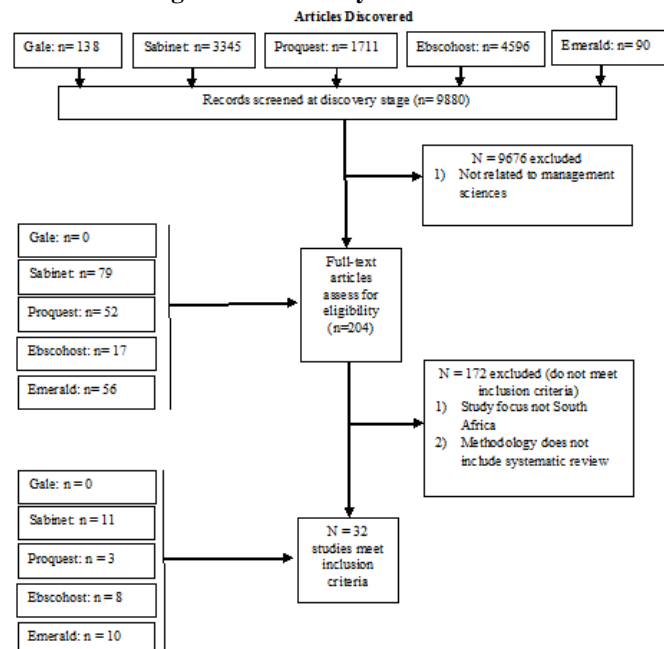
We searched the following databases: Ebscohost (Business Source Complete); Emerald Insight; Proquest Business Collection; Sabinet African Electronic Publications (SAePublications), including African Journal Archive; and Gale Business Insights: Global, from beginning up to March 22, 2017. Databases were selected due to their extensive use in South African management research. To allow for a comprehensive review, no limits were set on date ranges, language or subject type, provided the research fell within the general area of management studies. Search terms were adapted for specific use in each database. The identified keywords were utilized in a Boolean search in each database. Boolean operators such as 'OR' and 'AND' were utilized in the search string. Selected keywords could appear in the title, keywords, text or abstract. The following search string was utilized as a basis for the review: (*“systematic review” OR “systematic reviews”*) AND (*“South Africa”*).

Each discovered article was screened by means of inclusion and exclusion criteria. Inclusion criteria included the articles being available as full-text; articles written in English; the article topic lying in the field of management; the study being conducted in South Africa; the methodology utilizing a systematic review. Exclusion criteria were set as: article only available as abstract; articles written in any other language other than English; non-management area of focus. After a preliminary search, the discovered articles were screened against the inclusion and exclusion criteria. Articles accepted for further assessment were analyzed by means of charting. Charting “describes a technique for synthesizing and interpreting qualitative data by sifting, charting and sorting material according to key issues and themes” (Arksey & O’Malley, 2005). Further analysis and presentation of data took the form of a data charting form. The form contained the following headings: Year of Publication, database, sub-field of research. The data was utilized to produce numerical analysis by means of tables and charts. Grant and Booth (2009) state that results obtained from scoping reviews are usually summarized in a tabular fashion with narrative commentary, in order to conduct a preliminary assessment of the size and scope of available literature.

FINDINGS

Firstly, the prevalence of management-related articles in the utilized databases were established to provide a measurement baseline. The utilized databases contain a large number of articles related to the field of management in South Africa, with Ebscohost containing 6260 articles, Emerald containing 888 articles, Sabinet containing 26884 articles, Proquest containing 2025 articles and Gale containing 338 articles. A total of 36395 articles related to management sciences can therefore be found across these databases. The initial database search for studies utilizing a systematic review methodology yielded a total of 9880 articles across five prominent databases. After an initial screening to only include articles falling within the management sciences, a total of 204 relevant articles were discovered. After screening the discovered articles against the set inclusion criteria, a total of 32 articles met inclusion criteria. 172 articles were discarded for a variety of reasons, such as not focusing on South Africa, or not utilizing systematic reviews. A summary of the findings at each stage of the research can be observed in Figure 1.

Figure 1: Overall systematic review statistics



Source: Authors’ calculations

At this stage, it was troubling to note that only 32 out of 36395 articles utilized a systematic review methodology. This equates to a utilization of 0.09%. After the initial screening, an in-depth review of each article was undertaken. The results of the review are outlined in Table 1 in terms of academic sub-field in the management sciences, year of publication and database.

Table 2: Preliminary Results of Systematic Review

Date Range	Major sub-fields	N	% of discovered studies	Inverse Cumulative %
<2000	Industrial Psychology (1);	1	3.1%	100%
2000-2005	Development Economics (1)	1	3.1%	96.9%
2006-2010	Marketing Management (1); Business Management (1); Industrial Psychology (2)	4	12.5%	93.8%
2011-2013	Development Economics (2); Industrial Psychology (2); Human Resource Management (1); Business Management (1); Financial Management (2)	8	25%	81.3%
2014-2015	Marketing Management (1); Industrial Psychology (5); Human Resource Management (2); Business Management (3); Financial Management (1)	12	37.5%	56.3%
2016-2017	Industrial Psychology (2); Human Resource Management (1); Business Management (2); Supply Chain Management (1)	6	18.8%	18.8%
		32	100%	

Source: Authors' calculations

The table reveals that only a small number of systematic reviews were conducted in the management sciences, therefore indicating that utilization of systematic review methodology is not widespread in this discipline. It also becomes evident that the vast majority of systematic reviews were conducted after 2010, with 26 out of the 32 discovered articles (81.3%) published post-2010. 18 out of 32 (56.3%) systematic reviews were conducted after 2014. There has thus been a marked growth in the use of systematic review methodology in the management sciences since 2010, therefore indicating that this type of methodology is gaining. A further table (Table 2), was developed to indicate the percentage of discovered articles by management sub-field.

Table 2: Scoping Review Findings by sub-field

Major sub-fields	N	% of discovered studies
Industrial Psychology	12	38%
Business Management	7	22%
Human Resource Management	4	13%
Financial Management	3	9%
Development Economics	2	6%
Marketing Management	2	6%
Supply Chain Management	1	3%
Economics	1	3%
	32	100%

Source: Authors' calculations

The majority of systematic reviews in the management sciences are in the sub-fields of Industrial Psychology (38%), Business Management (22%) and Human Resource Management (13%). Other sub-fields included Supply Chain

Management (3%), Development Economics (6%), Marketing Management (6%) and Financial Management (9%). As Industrial Psychology and Human Resource Management can be regarded as sister disciplines, it becomes evident that systematic reviews in the management sciences are mainly used within this field (51%).

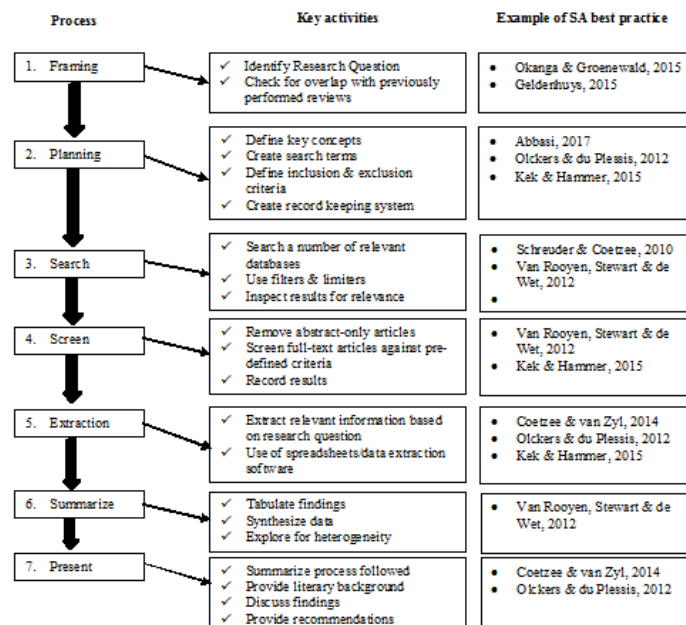
CONCLUSION & RECOMMENDATIONS

The objective of this research was to determine the frequency of application of systematic reviews in the South African management sciences. A scoping review was conducted to determine the frequency of application. Results from the scoping review indicate that systematic reviews are under-utilized in the management sciences, with only 32 articles being discovered that utilized this type of methodology, representing 0.09% of articles related to the management sciences. While the number of discovered systematic review articles is minute, it is noteworthy that the majority of discovered systematic reviews can be found in the fields of Human Resource Management, Industrial Psychology and Business Management. A marked increase in utilization of this methodology can be observed from 2010 and in particular from 2014 onwards. This indicates that researchers and academics are becoming familiar with this type of methodology, and are beginning to appreciate the value that systematic reviews hold.

Benefits of systematic reviews include the provision of an unbiased and repeatable literature discovery process. Systematic reviews allow researchers to consolidate and synthesize large volumes of data, thereby providing additional data discovery and insight, eliminating the need for additional primary research. This benefit is of importance to academia and businesses alike, as systematic reviews provide a relatively low-cost alternative to costly and time-intensive original primary research. These interest groups face an economic environment in South Africa that is characterized by lack of spending, slow economic growth and limited funding opportunities.

It is recommended that South African academics, researchers and business in the field of management utilize the systematic review methodology to a greater extent. This further has the impact that these stakeholders need to familiarize themselves with this type of methodology. The methodology therefore needs to be promoted more actively by universities, academics and methodologists. The value and uniqueness of the research lies in the fact that no study has aimed to establish extent of use of systematic reviews in South Africa. Following the findings and recommendations, Figure 2 outlines a recommended roadmap, for managerial and academic use, showing application of the systematic review methodology, together with examples of best practices.

Figure 2: Roadmap for application of systematic review methodology



Adapted from: Siddaway (n.d.) & Khan *et al.*, (2003)

The roadmap outlines the recommended steps to be followed for a thorough systematic review, as well as the key activities involved at each step. Lastly, the figure indicates best practices from South African literature as identified during the scoping review process.

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