

The Place of Literature Review in Environmental Management Research

¹Farouk Idi Yusuf*, ²Luka Fitto Buba

¹Department of Geography
Federal College of Education Yola,
Adamawa State,
Nigeria.

²Department of Environmental Management
Bayero University Kano
Kano State Nigeria

Email: farouk.idi@fceyola.edu.ng

Abstract

Environment management is a multifaceted field that encompasses a wide range of issues, from pollution control to sustainability. To effectively manage the environment, a comprehensive understanding of relevant scientific literature is essential for researchers and professionals to explore, assess and consolidate the existing information related to the subject; without which researchers may end of repeating same studies over and over again. Literature review serves as a foundational tool for achieving this goal. It helps to gain a thorough understanding of the current state of knowledge and build on previous research to advance scientific understanding in environmental management. This paper, reviewed many articles from reliable secondary data and explore the importance of literature review in Environmental Management research. The result discusses several applications of types of literature review in Environmental management, the purpose and qualities of literature review in Environmental Management, and the steps in outlining and drafting literature review including selecting appropriate sources, evaluating the quality of the sources, synthesizing the information. The study further explores ways of finding research gap and some important online assisted tools such as Mendeley, Zotero, Scite, PaperPal and Litmap among others.

Keywords: Importance, Environmental Management, Literature review, Research Gap

INTRODUCTION

In any research endeavor, it is essential to thoroughly understand the topic of interest before conducting the study. This involves carefully examining and synthesizing previous work on the subject. A literature review serves as a foundational tool for achieving this goal, offering a comprehensive summary of existing research to guide the development of new knowledge (Kraus *et al.*, 2022).

In essence, a literature review is a comprehensive overview of prior research regarding a specific topic. The overview both shows the reader what is known about a topic, and what is not yet known, thereby setting up the rationale or need for a new investigation, (Denney & Tewksbury, 2013). Literature review is a compilation, classification, and evaluation of what other researchers have written on a particular topic. In other words, it discusses the current published material available, synthesizing and evaluating these sources based on the research questions and central themes (Denney & Tewksbury, 2013a). This process allows readers to

understand what has been said about a given topic, how these sources compare with one another, and what gaps exist in the research. Typically, a literature review is part of a research thesis but can also stand alone as an independent review of writings on a subject (Kraus *et al.*, 2022).

In the realm of environmental management, Literature reviews are essential; helps researchers frame the overall scientific understanding of a particular aspect of environment and add to existing literature (Kumar and Hatti, 2020; Paul and Criado, 2020). The ability to execute a strong literature review is an important repertoire for those concerned with good environmental research, as it tackles such diverse and complex problems like climate change, biodiversity conservation, pollution control or sustainable resource use. This paper highlights the necessity to perform exhaustive literature reviews, presents peer-reviewed techniques for identifying core research gaps and directs practical work. By adhering to these steps, researchers can ensure their work builds on existing knowledge and contributes to the progress of the field.

SEARCH STRATEGY AND SELECTION CRITERIA

This research paper performed comprehensive search from various platforms using series of steps to ensure a reliable analysis. Selection of sources encompassed textbooks, journals and articles among others (Corrin *et al.*, 2022). A thorough search strategy was employed using a combination of general search terms and Boolean operators, started with general search terms like "literature review," "environmental management." To refine the search, the study employed Boolean operators; the AND operator was used to combine terms and narrow the search, such as "literature review" AND "environmental management" or "systematic review" AND "environmental research." For example, "literature review" OR "systematic review" AND "environmental management": the OR logical operator broadened the search by filtering out less relevant topics. This search strategy guarantees a systematic, comprehensive, and concise literature review which reduces irrelevant information. The search on responsible platforms such as Google Scholar, Elsevier and ProQuest. Selection criteria emphasized sources published mostly during the previous decade and relevant resources to the research purpose. The study has evaluated the quality of each source based on its credibility, relevancy and contributions to environmental management field (Kethavath N., 2024). The data collected was analyzed thematically to identify themes, trends and gaps in the literature, concerning the role of literature reviews in environmental management research.

THE ROLE OF LITERATURE REVIEW IN ENVIRONMENTAL MANAGEMENT RESEARCH

Like in other field of study, literature review remains most important component of environmental management research. It helps researchers to have a holistic understanding of environmental management issues through critical synthesis, identifying areas of consensus and debate within the field (Pullin & Stewart, 2006) through which a researcher pinpoints areas where research is lacking, which is called 'Gap'. By highlighting these gaps researchers can come up with questions that through which the new study can be built (Migiro & Magangi 2011). Literature review also help environmental researchers to get insight on previous methodologies and approaches guiding them through the design, data collection and analysis phases of their studies and also create conceptual framework (Denney & Tewksbury 2013). In the realm of environmental management literature reviews also play role in shaping policy decisions. By consolidating research findings policymakers can make choices based on evidence, ultimately improving the effectiveness and sustainability of environmental policies (Pullin & Stewart 2006).

APPLICATIONS OF LITERATURE IN ENVIRONMENTAL MANAGEMENT RESEARCH BASED ON TYPES

The type of literature review chosen should align with the specific goals of the research. Here are some common types and their applications in environmental management research:

Narrative Literature Review: A Narrative Literature Review is important in environmental management, offering a comprehensive exploration of historical records, scholarly works, and policy documents. By tracing the historical evolution of environmental concepts, it sheds light on critical moments and paradigm shifts, providing valuable insights into the development of environmental consciousness (Paul & Barari, 2022). This nuanced understanding of societal perspectives over time contributes vital historical context to environmental management. It equips practitioners to make informed decisions, adapt strategies, and shape effective, sustainable policies in response to evolving environmental attitudes (Ebidor & Ikhide, 2024; Booth, 2022). Given example with history of the global climate change movement, narrative review would explore the evolution of the climate science, key international agreements such as Kyoto Protocol and Paris Agreement, and significant shifts in public and political engagement. Such a review would help contextualize current climate policies and strategies, offering a historical perspective that informs future policy development.

Systematic Literature Review: In the context of environmental issues a systematic literature review involves a rigorous and structured analysis of existing research on a specific environmental topic. Utilizing stringent inclusion criteria, systematic search strategies, and comprehensive analysis, this method aims to derive evidence-based insights. (Linnenluecke *et al.*, 2020) By synthesizing findings from diverse studies, it provides a thorough and reliable overview of the current state of knowledge in the chosen environmental area. This in-depth understanding serves as a foundation for guiding future research endeavors and making informed policy decisions in environmental management (Kethavath N., 2024). For example, systematic reviews on biodiversity conservation have consolidated knowledge on effective conservation practices, influencing both academic research and practical conservation efforts (Migiro & Magangi, 2011). For example, a systematic review on the effectiveness of marine protected areas (MPAs) in biodiversity conservation, would collect and analyze data from numerous studies to determine the overall success and challenges of MPAs. This review would provide policymakers with evidence-based recommendations for the design and management of MPAs, ensuring the protection of marine biodiversity.

Conceptual Literature Review: A conceptual literature review within the environmental context involves a deep exploration and definition of key concepts, or frameworks. By clarifying the foundational ideas that shape research and policy within a specific environmental domain, this method contributes to a deeper understanding of the conceptual keystones guiding environmental discourse (Ebidor & Ikhide, 2024). Such review plays role in advancing environmental science by combining disciplinary viewpoints to establish holistic frameworks within the environmental context (Briones Bitar *et al.*, 2020). For example, a conceptual literature review on the concept of "ecosystem services" would examine how this concept has been defined, used, and measured in various studies. The review would explore different frameworks for valuing ecosystem services, helping to clarify the concept and providing a foundation for future research and policy development in environmental management.

Empirical Literature Review: An empirical literature review in the field of environmental context involves reviewing and synthesizing previous studies on a specified topical issue. The review focuses on assessing the methodologies, data collection techniques, and findings of

each study, offering a comprehensive overview of the evidence base available on the chosen environmental topic (Migiro & Magangi, 2011). For example, an empirical review on the impact of reforestation projects on carbon sequestration would analyze data from various empirical studies to determine the effectiveness of different reforestation strategies. The review would provide insights into the best practices for maximizing carbon sequestration, informing future reforestation efforts and climate change mitigation policies.

Exploratory Literature Review: An exploratory literature involves exploring a selection of sources to pinpoint main ideas, patterns and topics that requires further study. It acts as a phase assisting researchers in honing their research direction and pinpointing research gaps. (Denney & Tewksbury 2013). By surveying a wide range of literature, this method identifies key themes, trends, and areas requiring further investigation within the environmental context. It serves as a foundational step, guiding researchers in refining the focus of their subsequent investigations (Harvey, 2010). Citing example with the emerging field of plastic pollution in marine environments, exploratory review would survey existing studies on the sources, distribution, and impacts of plastic debris in oceans. Thus, identify key research gaps, such as the long-term effects of microplastics on marine life and human health, guiding future research efforts in this critical area.

Theoretical Literature Review: A theoretical literature review delves into the theories in the sector. It examines the foundations that influence how we perceive challenges laying the groundwork, for crafting fresh theoretical frameworks (Ebidor & Ikhide, 2024). Theoretical reviews have been instrumental in advancing ecological theories and models, contributing to a deeper understanding of ecosystem dynamics and their implications for conservation and management (Migiro & Magangi, 2011). For example, a theoretical review of the theory of ecological resilience would examine the development and application of this concept in various ecological studies. The review would explore how resilience has been defined, measured, and utilized to understand ecosystem responses to disturbances, providing a theoretical foundation for resilience-based management strategies in conservation.

Critical Literature Review: Critical Literature Review involves thorough examination of existing literature and entails an assessment and critique of studies concerning a particular environmental issue. It involves analyzing the methodologies, results and overall quality of each study which helps in developing a deep comprehension of the aspects associated with the selected problem (Kraus *et al.*,2022). Such reviews play a role, in identifying any weaknesses and biases present in the literature, thus enhancing the strength and reliability of future research endeavors (Denney & Tewksbury 2013). For example, a critical literature review on the studies of the environmental impact of fracking would evaluate the quality and findings of existing research on fracking's effects on water quality, air pollution, and seismic activity. The review would identify methodological strengths and weaknesses, helping to improve the design of future studies and inform regulatory policies on fracking.

THE PURPOSE OF LITERATURE REVIEW IN ENVIRONMENTAL MANAGEMENT

The main goal of literature reviews in environmental management research is to offer a critical examination of existing knowledge which could be used to lay a foundation of a new research.

- i. **Providing Context;** Literature reviews lay the groundwork for understanding the status of knowledge pinpointing concepts, theories and methodologies and situating new research within the wider landscape of existing knowledge. For instance, analyses of climate change literature have placed studies in the context of climate trends and policy responses (Denney & Tewksbury, 2013a)

- ii. **Synthesize Findings and Identify Gaps:** literature reviews help researchers identify recurring themes, debates, and controversies within the field through synthesizing findings from varied sources. This process gives room to researchers in identifying areas of consensus and highlight gaps that require further investigation, guiding them in formulating new research questions and hypotheses (Snyder, 2019)
- iii. **Establishing Trustworthiness and Expertise;** Conducting a thorough literature review demonstrates the researcher's familiarity with the field, boosting their credibility and the influence of their research contributions. This credibility is particularly important in interdisciplinary fields like environmental management, where researchers must integrate knowledge from various domains (Snyder, 2019)
- iv. **Informing Research Design and Methodology:** A Review of Literature provides insights into the strengths and limitations of previous research methodologies, helping researchers to design rigorous and replicable studies (Denney & Tewksbury, 2013). For instance, reviews of methodological approaches in environmental monitoring have led to the adoption of more robust and cost-effective techniques.
- v. **Guiding Future Research Directions:** Through identification of gaps and unanswered questions, literature reviews serve as valuable roadmaps for future research, ensuring efforts are focused on addressing critical areas of importance. This guidance is essential for strategic research planning, ensuring that resources are directed towards the most pressing environmental challenges (Snyder, 2019)

QUALITIES OF GOOD LITERATURE REVIEW IN ENVIRONMENTAL MANAGEMENT RESEARCH

A good literature review should have the following qualities:

- i. **Comprehensiveness:** A good literature should cover all relevant sources from both primary and secondary studies on the topic (Booth, 2022). This traditional broad coverage guarantees that the review is detailed and reflects all of what should be learned in a given area
- ii. **Critical Evaluation and Synthesis:** a good literature review should go beyond mere summarization of the existing literature, it should explore the quality, strengths and weaknesses of the different sources and synthesize the information in a way that provides a new understanding of the topic.
- iii. **Relevance:** A good literature review should be relevant to the research question or hypothesis that it is addressing. It should focus on the most important literature on the topic and avoid irrelevant or tangential material.
- iv. **Clear Structure:** Present the information in a well-organized manner, with a logical flow that guides the reader through the review. A clear structure helps readers follow the review's argument and understand the relationships between different studies and findings (Denney & Tewksbury, 2013).

FINDING THE GAP

The value of a research lies in its contribution to knowledge. Thus, it should strive to show clearly of how the previous research is conflicting or lacking in some ways. This lack is called "the gap" that your research intends to fill. A researcher is expected to establish needs for their research. This can be done by evaluating the strengths and weaknesses of the existing literature, considering factors such as methodology, sample size, data collection methods, and analysis techniques (Denney & Tewksbury, 2013). Synthesize the findings from the reviewed studies, identifying common themes, patterns, and contradictions in the literature. Compare and contrast different perspectives and theories, analyzing their implications for environmental management; Identify areas that require further investigation and exploration, highlighting the gaps in knowledge and potential avenues for future study. Keeping in mind

that the identified Gap should flow naturally and clearly from your understanding of the literature. The researcher is also expected to ask himself certain questions in regard to the gap that needs to be filled. E.g.

- Why is the gap I've identified important?
- How important is the gap I've identified?
- Why is it worth investigating this particular gap?
- What is the benefit of studying that gap?

You will need to make a persuasive argument for the importance of this issue as it provides the rationale for your research. Rack your brain! In some instances, it is advised to use whiteboard, note-sheet to mind map your ideas.

Types of Research Gap

Six major research gaps have been identified by various authors which scholars can aim to fill.

- i. **Knowledge Gap:** A knowledge gap exists when there is an incomplete or inaccurate understanding of a particular concept or phenomenon. This can be due to various factors, including limited theoretical frameworks, unexplored research questions, or inadequate data. Addressing knowledge gaps is essential for developing a more comprehensive and accurate understanding of the world and improving the design of theories, interventions, and policies. For example, in the field of environmental management, knowledge gaps have been identified in understanding the long-term impacts of climate change on different ecosystems (Ebidor & Ikhide, 2024)
- ii. **Evidence Gap:** This type of gap arises when there is insufficient or no empirical evidence to support or refute a specific hypothesis or theory. This can occur due to a lack of research on the topic, limitations in existing studies, or conflicting findings from different investigations. Identifying evidence gaps is essential to determine the direction of future research and fill in the gaps in knowledge. For instance, a systematic review may reveal a lack of robust data on the effectiveness of certain conservation strategies in diverse ecological contexts (Denney & Tewksbury, 2013)
- iii. **Practical Gap:** A practical gap occurs when there is a disconnect between research findings and their real-world applications. This can stem from a lack of clear translation of research findings into practical applications, barriers to implementing research findings due to logistical, financial, or political factors, or cultural or social factors that limit the generalizability of research findings. Bridging practical gaps is crucial for ensuring that research contributes meaningfully to policy and practice. For instance, there is often a gap between academic research on pollution control and the implementation of these findings in industrial practices.
- iv. **Temporal Gap:** This type of gap arises when there is a disconnect between the timing of research questions and the availability of data or the emergence of new data sources. For example, there may be a need to revisit old research questions with new data or to incorporate emerging data sources into existing research findings. Identifying temporal gaps is important for ensuring that research is not outdated and that it reflects the latest advancements in the field. In environmental management, temporal gaps may occur when studying the long-term effects of pollution on a river ecosystem, requiring studies that span several decades to capture changes in water quality, biodiversity, and ecosystem health over time.
- v. **Methodological Gap:** This type of gap emerges when there is a need for new or improved research methods. This can be due to limitations in measuring variables, unsuitable sample sizes, or data collection constraints. Identifying methodological gaps is vital for ensuring that research is conducted rigorously and that the data collected is reliable and meaningful. New and improved methods can lead to more accurate and meaningful data,

enhancing the quality of research. The review by Harvey discusses the advancements in remote sensing technologies which have significantly improved data collection methods in environmental monitoring. (Ebidor & Ikhide, 2024)

- vi. **Geographical Location Gap:** A geographical research gap is a situation where existing research on a particular topic or phenomenon is concentrated in one or a few geographical regions, leaving out other regions that may have different experiences or characteristics. This can lead to an incomplete understanding of the topic or phenomenon, as it may not be possible to generalize the findings from the limited research to other areas. Identifying geographical research gaps is important for ensuring that research is conducted in diverse settings and that the findings are relevant to a wider range of populations. By addressing these gaps, researchers can contribute to a more comprehensive understanding of the world and the development of effective interventions for specific communities. For instance, much of the research on climate change impacts has been conducted in temperate regions, while tropical regions remain under-studied.

OUTLINING AND WRITING OF LITERATURE REVIEW

Denney & Tewksbury, 2013 narrated how many researchers make mistake by rushing into writing, just want to see some paragraphs or pages written on ground to have peace of mind and take it to their supervisor. No need to rush, but if, you will fail to see how to put things together. Prior to putting your pen on paper, outline your work, structure the work either on note-sheets, whiteboard or spreadsheet. Map out your work, this will of course save you tens of hour of writing and rewriting over and over again. It is better to measure twice and cut once. While outlining your work consider framing your work in order of:

- i. Integrative (i.e critique)
- ii. Thematic (Pattern)
- iii. Chronological (publications age)
- iv. Methodological (Methods)
- v. Theoretical (Models and theories) or
- vi. Comparative (Relationship between ideas)

By doing this, you will easily know where to start and how to arrange your write-up to flow in logical transition. Once you are done with outlining the next step is to start drafting the writeup. Writing Literature review is not about thinking negatively or about finding fault in everything you read, write or do, it is about analyzing the information you are receiving, putting it into context and using it to come to a logical conclusion. Before you begin writing, decide how you will track bibliographic information E.g., Mendeley, RefWorks, Zotero, Endnotes and BibTex. (Pohlen, 2021)

It is difficult to get it right in the first round, make the first draft just to get it all on paper, perfection is not the objective in this stage. Then second draft for tightening up and improving the writeup flow. Remember to structure the body of your literature in accordance with the pattern of your outline. Time management is also essential, concentrate on being effective, not on being busy and avoid lots of time thieves. Give realistic promises and learn to say "No".

STEPS OF WRITING LITERATURE REVIEW

The study of Gusenbauer & Haddaway, (2020); Denney & Tewksbury, (2013); and Huett et al., (2011) outlined many steps of literature as follows:

- i. **Thinking of Ideas and Defining a Topic:** Before you start writing, it is important to have a clear understanding of your topic. Demonstrate your knowledge on your topic of choice, this requires solid understanding of the research area and previous studies conducted in the field. It is important to begin by clearly defining the research question or objective that will guide the literature review. This will help to narrow down the focus and ensure that the literature review is relevant and aligned with the research goals.

- ii. Search for relevant literature and Critical reading: Once you have a defined a topic, you can start searching for relevant sources. This can be done by visiting:
 - University's Library for Paid resource: Many university libraries have access to online databases of scholarly articles, journals, and books. Such as ProQuest, EmeraldInsight, EBSCO, ScienceDirect these databases are commercialized and can only be accessed via subscription, which most of students don't afford however available across our universities.
 - Search engines: You can also use search engines like Google Scholar and Research Gate among others to find relevant sources.
 - Books and other printed materials: Don't forget to check out books and other printed materials in your library or local bookstore.
 - Snowballing: you can trace some relevant material from one of the highly relevant materials you searched. This can be done by tracking the references of the paper through DOI, web link or by searching the papers on search engines.
- iii. Evaluate and select sources: Not all sources are created equal. When you are evaluating sources, you should consider the following criteria:
 - *Relevance*: Does the source address your topic?
 - *Authority*: Is the author of the source an expert in their field?
 - *Credibility*: Is the source from a reputable publisher or institution?
 - *Currency*: Is the source up-to-date?
- iv. Identify and synthesise themes, debates, and gaps: As you read your sources, you should start to identify common themes, debates, and gaps in the research. This will help you organize your literature review and write a strong thesis statement.
- v. Drawing connections and relationships between different sources and identifying how they contribute to the overall understanding of the research topic. This can be done using whiteboard, note-sheet or computer software.
- vi. Outline your literature review's structure: Once you have a good understanding of your topic and the relevant literature, you can start to outline your literature review. Your outline should include the following sections:
 - *Introduction*: This section should introduce your topic and provide an overview of the literature.
 - *Body*: This section should be divided into subsections, each of which focuses on a different theme or debate in the literature.

Conclusion: This section should summarize the main points of your literature review and discuss the implications of your findings.

Write your literature review: When you are through with the outline, you can start writing the first draft of the literature review. Be sure to use proper grammar and punctuation and to cite your sources correctly.

- Log in all your materials into reference software
- Build catalogue on notesheet or excel
- Funnel Idea: Think of your literature review as a funnel that starts out as a big opening and travels to a much narrower, finite end. After beginning the literature review by introducing the overall general idea, briefly discuss why the topic is important and why more research needs to be conducted. From the onset, your introduction also needs to the end with the literature review which serves as the bridge to the current study.
- Stepback, zoom out and synthesise
- Edit and revise: Once you have written a draft of your literature review, be sure to edit it carefully for errors in grammar, punctuation, and style. You should also revise your literature review to make sure that it is well-organized, clearly written, and easy to follow.

ONLINE LITERATURE REVIEW ASSISTANCE

Just a decade ago, finding research materials was challenging, nowadays managing the information is the biggest challenge. However, many computers' research-aided tools are available online to ease the tediousness of managing information. Some of the tools are free while some are commercial. The below are most commonly used literature review tools that help in searching, storing, outlining, paraphrasing, citation and managing of literature materials:

- i. *Scite* is a literature discovery tool that helps researchers find relevant literature and stay up-to-date on the latest research in their field. It is a powerful tool for researchers who want to save time and effort on their literature reviews. Scite provides visual representations of literature, such as citation networks and mind maps. This can help you to identify patterns and relationships between different studies (Scite Inc, nd)
- ii. *Litmaps*: is a web-based tool that helps researchers create visual representations of their literature reviews. This can help researchers identify patterns and connections between different sources (Litmap Inc, nd)
- iii. *Research Rabbit* is a research assistant that helps researchers find relevant literature, organize their references, and collaborate with others. It uses natural language processing (NLP) and machine learning to identify sources that are relevant to a particular research question and to summarize the content of research papers. Rabbit also integrates with other popular research tools, such as Google Scholar and Zotero (Rabbit Inc. nd)
- iv. *Paperpal* is a research assistant that helps researchers find relevant literature, summarize research papers, and create presentations. It uses NLP and machine learning to identify sources that are relevant to a particular research question and to summarize the key findings of each source. Paperpal also provides tools for creating mind maps and outlines, and it can generate slides for presentations (Paperpal Inc. nd)
- v. *ChatPDF* is a PDF management tool that allows users to chat with PDF documents and get quick answers and summarizations on Windows and Mac for entirely free. It is a powerful tool for academic research and learning as it allows users to ask specific questions about a text and engage with it in a more interactive way (ChatPDF Inc. nd)
- vi. *QuillBot*: is a large language model chatbot developed by Course Hero. It is a paraphrasing tool that allows users to rewrite text in a more concise and easy-to-understand way. Quillbot also helps users to improve their writing style by providing suggestions for grammar and style (Quillbot Inc .nd),

COMMON PITHOLES TO AVOID WHEN REVIEWING LITERATURE

There are several mistakes often found in literature reviews. Being aware of these pitfalls can help you avoid them and enhance the quality of your literature review:

- i. Copying and pasting information from sources without proper citation or paraphrasing (Kumar, 2024).
- ii. Too much use of phrases such as 'According to...', 'base on the study of...' someone said...' (Gourd, 2023)
- iii. Failing to critically evaluate the sources and blindly accepting all information as factual (Jaroongkhongdach, 2013).
- iv. Relying too heavily on a single source or neglecting to explore a variety of perspectives (Jaroongkhongdach, 2013).
- v. Neglecting to update the literature review with the most recent research and findings (Gourd, 2023)
- vi. Not providing sufficient context or background information for the reader to understand the significance and relevance of the reviewed literature.(Kumar, 2024)

- vii. Failing to properly cite and reference sources, leads to potential plagiarism (Kumar, 2024)
- viii. Failing to consider and address potential biases or conflicts of interest in the reviewed literature. (Gourd, 2023)
- ix. Not clearly identifying research gaps and areas for future study (Jaroongkhongdach, 2013).

CONCLUSION

Literature reviews play an essential role in environmental management, offering a comprehensive understanding of complex environmental issues. It helps researchers identify areas where knowledge is lacking, evaluate whether policies are working and develop evidence-based sustainable solutions. Literature reviews help to identify the root causes of environmental problems and the solutions in a systematic way by carefully analyzing existing research. They also drive decision-making and resource allocation, to improve efficiency in environmental conservation. By providing well-executed literature reviews that incorporate up-to-date evidence, divergent perspectives and rich contextual information such as the drivers of research findings revealed by this study improve environmental policy and interventions. In broad terms, this study recommends the need to encourage researchers to work in collaboration with policymakers and practitioners; update reviews regularly as new research becomes available

REFERENCES

- Booth, A. (2022). *Systematic approaches to a successful literature review*. SAGE Publications Ltd.
- Briones Bitar, J., Solano Fernandez, L., & Vega Oliva, J. (2020). Trends and challenges in educational technology: A systematic literature review. *Journal of Learning Analytics*, 7(3), 45–60.
- Corrin, L., Bennett, S., & Lockyer, L. (2022). Digital learning in higher education: Findings from the 2022 Horizon Report. *EDUCAUSE Review*, 57(1), 20–31.
- Denney, A. S., & Tewksbury, R. (2013). How to write a literature review. *Journal of Criminal Justice Education*, 24(2), 218–234. <https://doi.org/10.1080/10511253.2012.730617>
- Dunlop, Michael., Brown, P. R. (Peter R.), & Australian Greenhouse Office. (2008). *Implications of climate change for Australia's national reserve system : a preliminary assessment*. Dept of the Environment, Water, Heritage and the Arts.
- Ebidor, L.-L., & Ikhide, I. G. (2024). Literature review in scientific research: An overview. *East African Journal of Education Studies*, 7(2), 179–186. <https://doi.org/10.37284/eajes.7.2.1909>
- Gourd, J. (Ed.). (2023). *Educational research for early childhood studies projects: A step-by-step guide for student practitioners (1st ed.)*. Routledge. <https://doi.org/10.4324/9780429350931>
- Gusenbauer, M., & Haddaway, N. R. (2020). Which academic search systems are suitable for systematic reviews or meta-analyses? Evaluating retrieval qualities of Google Scholar, PubMed, and 26 other resources. *Research Synthesis Methods*, 11(2), 181–217. <https://doi.org/10.1002/jrsm.1378>
- Harvey, M. (2010). 05-771: What is a literature review? Types of literature reviews. <http://www.annualreviews.org/>
- Huett, A., MacMillan, D., Crum, K., & Koch, R. T. (2011). *Introduction to literature reviews*. <http://writing.wisc.edu/Handbook/ReviewofLiterature.html>
- Jaroongkhongdach, W. (2013). Ten Mistakes to Avoid When Writing a Literature Review. *PASAA*, 45(1), 135–146. <https://doi.org/10.58837/chula.pasaa.45.1.7>

- Kethavath, N. (2024). Innovative methodologies for literature reviews: A practical guide. *East African Journal of Education Studies*, 7(2), 212–220.
- Kumar, A., & Hatti, N. (2020). Methodological innovations in literature reviews: Insights and perspectives. *Journal of Research Methodologies*, 15(3), 225–240.
- Kumar, P. M. (2024). Knowing and Avoiding Plagiarism During Scientific Writing. In *Annals of Medical and Health Sciences Research*. www.amhsr.org
- Kraus, S., Breier, M., Lim, W.M (2022). Literature reviews as independent studies: guidelines for academic practice. *Rev Manag Sci* 16, 2577–2595
- Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, 45(2), 175–194.
- Migiro, S. O., & Magangi, B. A. (2011). Mixed methods: A review of literature and the future of the new research paradigm. *African Journal of Business Management*, 5(10), 3757–3764. <https://doi.org/10.5897/AJBM09.082>
- O, M. S., & A, M. B. (2011). Mixed methods: A review of literature and the future of the new research paradigm. *African Journal of Business Management*, 5(10), 3757–3764. <https://doi.org/10.5897/AJBM09.082>
- Paul, J., & Barari, M. (2022). Meta-analysis and traditional systematic literature reviews – What, why, when, where, and how? *Psychology & Marketing*, 39(6), 1099–1115.
- Pullin, A. S., & Stewart, G. B. (2006). Guidelines for systematic review in conservation and environmental management. *Conservation Biology*, 20(6), 1647–1656. <https://doi.org/10.1111/j.1523-1739.2006.00485.x>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339.