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Strategic methods for emerging scholars: Identifying research gaps to enhance scholarly work

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Abstract

This paper explores various research gaps, and the processes used to identify them, discussing their implications for advancing scientific inquires. By offering a structured approach to recognize gaps. The paper aims to empower emerging scholars to articulate more decisive research questions while contributing meaningfully to the fields. Methods such as citation analysis, meta-analysis, and systematic reviews are utilized to pinpoint under-explored or unexplored areas for further investigation. This study sets a foundational stage for a clear discussion on how effectively identifying and addressing these gaps can significantly contribute to the advancement of various academic disciplines.

Keywords: Research Gaps; Emerging Scholars; Research Questions; Identifying Research Gaps

1   Introduction

A small piece of information under-explained or unexplored in prior research can lead to queries that would significantly contribute to advancing science [1]. The unexplored content, defined as research gaps, restrains conjecturing the queries due to inadequate information [2]. Research gaps arise because of research partiality, inexact evidence, and insufficient knowledge [3]. Identifying gaps is crucial as it directs researchers to develop new ideas and discover undisclosed scopes from existing publications. Although depicting research gaps is based on perception, many researchers address the unstudied areas as non-gaps, unlike others [4]. To the rest of the researchers, addressing the gaps and contesting the applicability of a study in different settings for distinct samples remains [1]. This paper aims to review the types of research gaps to spot and gradually progresses to label the contesting areas of unanswered queries. Before concluding, the paper delivers insights into identifying and addressing research gaps, empowering emerging scholars to strengthen their research proposals and make meaningful contributions to their respective fields.

2   Research Gaps

One of the complex tasks for most researchers is to determine a gap in the study because the identification may or may not lead to a feasible research study of a distinctive context [5]. Due to inexperience in the topic of research gaps classification, researchers struggle to question the feasibility of the scholarly work of other researchers in a different setting [5]. While Kearney [1] provided an abstract view of gaps by ordering them as small and large gaps, Baako et al. [6], to spot and classify gaps in published studies, enlisted five research gaps: Population, Intervention, Comparison, Outcomes, and Setting, abbreviated as PICOS, from the healthcare research perspective. Baako et al. [6] also included six gaps from different perspectives: the Contradictory Evidence Gap, Knowledge Void Gap, Action-Knowledge Conflict Gap, Methodological Gap, and Population Gap. Miles [4] introduced a model that classified seven research gaps: Evidence Gap, Knowledge Gap, Practical-Knowledge Conflict Gap, Methodological Gap, Empirical Gap, Theoretical Gap, and

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Population Gap. In recent research, Baako et al. [6] categorized nine kinds of gaps, including the seven research gaps mentioned in Miles's [4] model.

To identify the gaps, an emerging researcher must understand what each of the kinds are:

2.1 Evidence Gap

An evidence gap is the presence of exceptionally contradictory findings in new research that void or challenge prior research outcomes from an abstract point of view [4]. An example to understand the concept better can come in conveniently- Galanti et al. [7] conducted a study regarding the impact of remote work on employees during the COVID-19 pandemic, which is an extraordinary and non-normal period. Therefore, in normal conditions, the findings of the study become inapplicable. Moreover, the study is not longitudinal, which means it does not offer any long-term evidence on the impact of remote work overtime. Thus, the study portrays an evidence gap that can lead to future research investigations.

2.2 Knowledge Gap

A typical gap occurs when knowledge in a specific discipline does not exist in theories or the practical field [6]. Also, the expected results differ from the study's outcome, indicating a knowledge gap [4]. A clear example of a knowledge gap is found in Yuki et al. [8], who acknowledged that while evidence on the pathophysiology of COVID-19 is rapidly expanding, the mechanisms causing severe illness in some patients while others experience mild symptoms remain unexplained.

2.3 Practical-Knowledge Gap

Conflicts between the actual techniques of professionals and their endorsed methods depict this kind of gap [6]. A relevant example of this idea can be observed in the study of the sudden transition to remote work during the pandemic by Galanti et al. [7], highlighting the necessity for practical knowledge in managing remote work effectively, especially for those unaccustomed to it.

2.4 Methodological Gap

A gap that emerges from the variation in research methods and design results in developments needing more transferability for different platforms or outcomes unfitted to generic scenarios [3]. To exemplify a methodological gap, consider the study by Galanti et al. [7], which employed a cross-sectional design. This approach limits the ability to establish causal relationships between variables, thereby signaling a need for longitudinal studies to understand causal dynamics better.

2.5 Empirical Gap

In research, an empirical gap appears in scenarios showing insufficient observations, experience, and experiments to verify a theory explored in a prior study [6]. A clear empirical gap is noticeable in the study by Galanti et al. [7], which relied on a cross-sectional design and a convenience sample, limiting its ability to establish causality and generalize findings. Future research should employ longitudinal studies with more diverse and representative samples to address this gap.

2.6 Theoretical Gap

In the case of a theoretical gap, if one event gets explored through various theoretical methods, such as selecting a single or few independent variables to explain a dependent variable rather than choosing a combination of independent variables [3]. A theoretical gap can be identified in a paper published by CESifo [9], which acknowledges that while the model provides significant insights into algorithmic changes, it oversimplifies the complexity of human social behavior in digital environments. This calls for further research to integrate these findings into broader theoretical models.

2.7 Population Gap

This sort of gap, also known as the gap in the sampling method, occurs when the sampling method under-represents the population or a researcher's failure to acquire adequate sampling leads to bias and inaccuracies in representing the target population [3]. An example that brings this gap to light involves a study on the impacts of the COVID-19 pandemic on employees. The study's findings could be more generalizable due to the underrepresentation of a broader population, thus highlighting a population gap [7].

2.8   Conceptual Gap

Disparities in concepts or interpretations of a theory of a single domain direct to the conceptual gap [6]. An insightful example of a conceptual gap is presented by Suzuki [10], who highlighted the disparity between children's informal concepts and the formal educational content provided by adults.

2.9   Theory-Application Void

Baako et al. [6] classified the theory-application void gap separately, unlike the model presented in Miles' [4] publication. Miles [4] states that the theoretical gap is the same as the theory-application void gap. In contrast, Baako et al. [6] differ the gap by mentioning that theories must be observed and experimented with in real life instead of explored through various theoretical methods. The theory-application void becomes evident in the work of Galanti et al. [7], who points out that while the Job Demands-Resources (JD-R) model is effective in theory for understanding workplace health, it has yet to be sufficiently tested in real-life situations, such as the abrupt shift to remote work during the COVID-19 pandemic.

Another gap, according to Ajemba and Arene [3], ensues in case of failure to collect data in a reasonable method that contains insufficient and inaccurate responses to research queries.

3   Methods to Identify Research Gaps

To find any of the gaps, Baako et al. [6] introduced a general approach containing four steps:

- identify critical terms
- review relevant literature based on key terms
- identify the critical motivating issue
- identify matters not addressed

Chand [2] offered several methods to identify gaps in studies:

Table 1 Methods to identify research gaps according to Chand [2]

Method	Description
Citation Analysis	Recording references and listing issues that the research addresses before evaluating these issues for their relevance to a new idea.
Content Analysis	Revealing gaps by analyzing specific wordings, thoughts, or beliefs to uncover prejudice and make inferences.
Meta-Analysis	Conducting statistical analysis of prior research to integrate findings and identify gaps.
Systematic Analysis	Reviewing a specific collection of literature over time to provide an extensive overview, often confused with meta-analysis, but focuses on a broader collection of studies.
Future Research Direction & Limitations	Identifying gaps that appear in the future research and limitations sections of studies, which could affect research findings when conducted in different settings beyond the researcher's control.

Methods to identify gaps

Kearney [1] studies the challenges of finding and filling a gap in literature by sharing his experience in publishing his work. According to Kearney [1], literature should be selected based on the mentor's expertise and perspective. Researchers still need answers to some questions if they ask the right way. In case of gaps, minor problems are essential as researchers need to find information in a domain to explore new areas instead of repeating the same limitations of prior research. In summary, Kearney [1] suggests thoroughly exploring various contributions from all related fields to identify gaps. After identifying the gap, the mentor should guide beginners in selecting it when there is a high chance of filling it.

Lessening more significant gaps can be filled by dividing them into smaller ones and filling them accordingly. An approach can be reversing gaps until it reaches a publication where enough information is available. Then, a researcher can study and advance towards the more significant gaps to fill them gradually.

According to Ajemba & Arene [3], a researcher should start by reviewing previous studies to determine limitations that could be improved while assessing if cross-sectional or longitudinal methods would be appropriate. Additionally, to yield new insights, researchers should consider using variables different from the ones used in studies. Also, different sampling methods, such as stratified random sampling in previous studies, should be used to check if they generate similar outcomes. Moreover, the researchers should closely examine data collection processes in previous studies to see if they are comprehensive enough.

Chand [2] suggested a structured framework to examine existing literature and assess unexplored or under-researched areas. His framework involves several analytical mechanisms like citation, meta, and systematic analysis. Each of the mechanisms has distinct usages as each serves dissimilar objectives. This framework of different mechanisms aids inexperienced researchers with a guided pattern for inspecting different literature and sources. Furthermore, applying the analysis tools to the same literature will facilitate researchers looking at a study from different perspectives, potentially directing them to develop pertinent questions, have new insights, find innovative ideas, explore different concepts, and discover under-researched areas.

4 Designing Queries Targeting Gaps

A crucial step in identifying research gaps is formulating precise queries to target different gaps effectively. Designing well-defined questions will not only guide the direction of future research but also lead to meaningful contributions in the research communities. The following table provides questions tailored with an aspiration to serve as a foundation for pinpointing research gaps [6]:

Table 2 General questions to find research gaps

Research Gaps	Questions
Evidence Gap	What additional data or observations could challenge or reinforce existing literature or findings?
Knowledge Gap	What unexplored or underexplained areas within this field could extend our understanding of the basic concepts?
Practical-Knowledge Gap	How do the real-world practices differ from theoretical recommendations? What are the recommendations for developing professional approaches?
Methodological Gap	What are the alternative research methods that could provide more reliable results?
Empirical Gap	What further evidence is needed to reinforce the theoretical framework to validate conclusions in different settings?
Theoretical Gap	What variables could better explain the area under research?
Population Gap	How would the results differ if the research was performed on a more diverse population?
Conceptual Gap	What alternative interpretations could challenge the understanding of the area of interest?
Theory-Application Void	How can this theory be implemented in real-world settings to test its validity?

Targeting the gaps with well-defined questions will work efficiently when a researcher delves deeper into the targeted topics. These questions can be refined to align with the research topics and identify the gaps. Scholars can make meaningful contributions to their disciplines by being thoughtfully aware of the concepts of the gaps and gap identification frameworks and asking the right questions that lead to disclosing the study gaps.

5 Conclusion

This paper revisits the types of research gaps to understand what they are and their underlying factors, aiming to spot them effectively in the existing literature. After exploring published articles from other researchers, it becomes clear that subjective discernment is often used to identify gaps and delve into well-researched topics to gain insights for formulating research questions that empower scholars while providing different perspectives. It is crucial to choose and apply the appropriate method or framework to assist emerging researchers strategically in finding gaps in the

literature and filling them through further studies, thereby making noteworthy contributions to their respective fields. No matter how well-researched a study is, asking the right question will always lead to finding research gaps.

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