Identifying Research Gaps to Pursue Innovative Research

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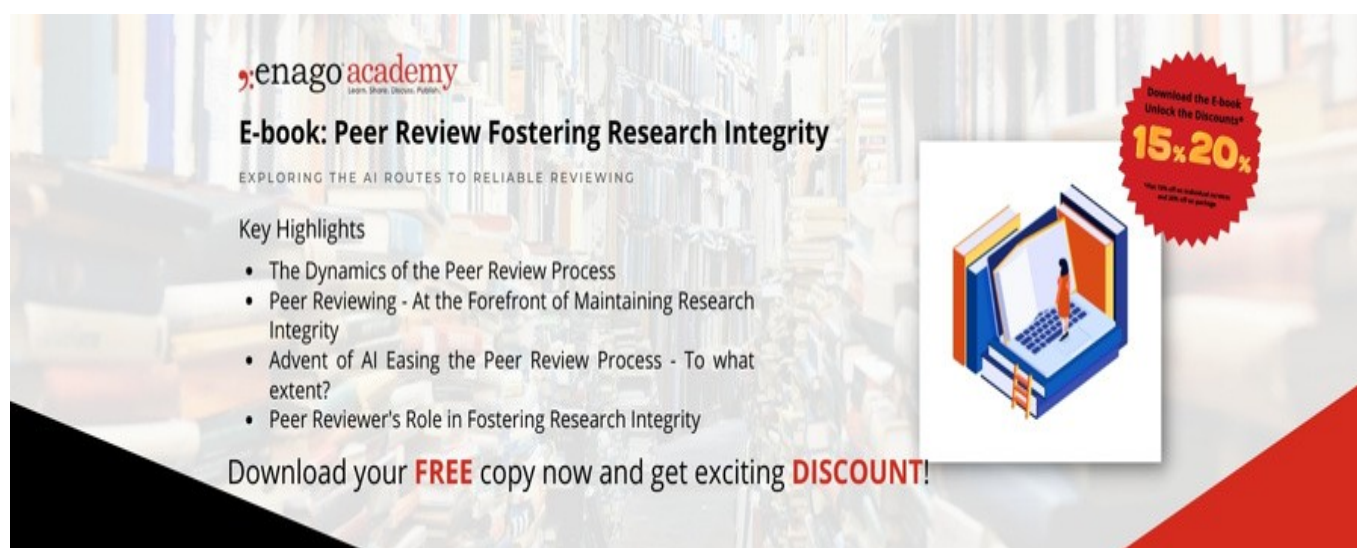

This article is an excerpt from a lecture given by my Ph.D. guide, a researcher in public health. She advised us on how to identify research gaps to pursue innovative research in our fields.

What is a Research Gap?

Today we are talking about the research gap: what is it, how to identify it, and how to make use of it so that you can pursue innovative research. Now, how many of you have ever felt you had discovered a new and exciting research question, only to find that it had already been written about? I have experienced this more times than I can count. Graduate studies come with pressure to add new knowledge to the field. We can contribute to the progress and knowledge of humanity. To do this, we need to first

learn to identify research gaps in the existing literature.

A research gap is, simply, a topic or area for which missing or insufficient information limits the ability to reach a conclusion for a question. It should not be confused with a research question, however. For example, if we ask the research question of what the healthiest diet for humans is, we would find many studies and possible answers to this question. On the other hand, if we were to ask the research question of what are the effects of antidepressants on pregnant women, we would not find much-existing data. This is a research gap. When we identify a research gap, we identify a direction for potentially new and exciting research.

How to Identify Research Gap?

Considering the volume of existing research, identifying research gaps can seem overwhelming or even impossible. I don't have time to read every paper published on public health. Similarly, you guys don't have time to read every paper. So how can you identify a research gap?

There are different techniques in various disciplines, but we can reduce most of them down to a few steps, which are:

- Identify your key motivating issue/question
- Identify key terms associated with this issue
- Review the literature, searching for these key terms and identifying relevant publications
- Review the literature cited by the key publications which you located in the above step
- Identify issues not addressed by the literature relating to your critical motivating issue

It is the last step which we all find the most challenging. It can be difficult to figure out what an article is *not* saying. I like to keep a list of notes of biased or inconsistent

information. You could also track what authors write as "directions for future research," which often can point us towards the existing gaps.

Different Types of Research Gaps

Identifying research gaps is an essential step in conducting research, as it helps researchers to refine their research questions and to focus their research efforts on areas where there is a need for more knowledge or understanding.

1. Knowledge gaps

These are gaps in knowledge or understanding of a subject, where more research is needed to fill the gaps. For example, there may be a lack of understanding of the mechanisms behind a particular disease or how a specific technology works.

2. Conceptual gaps

These are gaps in the conceptual framework or theoretical understanding of a subject. For example, there may be a need for more research to understand the relationship between two concepts or to refine a theoretical framework.

3. Methodological gaps

These are gaps in the methods used to study a particular subject. For example, there may be a need for more research to develop new research methods or to refine existing methods to address specific research questions.

4. Data gaps

These are gaps in the data available on a particular subject. For example, there may be a need for more research to collect data on a specific population or to develop new measures to collect data on a particular construct.

5. Practical gaps

These are gaps in the application of research findings to practical situations. For example, there may be a need for more research to understand how to implement evidence-based practices in real-world settings or to identify barriers to implementing such practices.

Examples of Research Gap

Limited understanding of the underlying mechanisms of a disease:

Despite significant research on a particular disease, there may be a lack of understanding of the underlying mechanisms of the disease. For example, although much research has been done on Alzheimer's disease, the exact mechanisms that lead to the disease are not yet fully understood.

Inconsistencies in the findings of previous research:

When previous research on a particular topic has inconsistent findings, there may be a need for further research to clarify or resolve these inconsistencies. For example, previous research on the effectiveness of a particular treatment for a medical condition may have produced inconsistent findings, indicating a need for further research to determine the true effectiveness of the treatment.

Limited research on emerging technologies:

As new technologies emerge, there may be limited research on their applications, benefits, and potential drawbacks. For example, with the increasing use of artificial intelligence in various industries, there is a need for further research on the ethical, legal, and social implications of AI.

How to Deal with Literature Gap?

Once you have identified the literature gaps, it is critical to prioritize. You may find many questions which remain to be answered in the literature. Often one question must be answered before the next can be addressed. In prioritizing the gaps, you have identified, you should consider your funding agency or stakeholders, the needs of the field, and the relevance of your questions to what is currently being studied. Also, consider your own resources and ability to conduct the research you're considering. Once you have done this, you can narrow your search down to an appropriate question.

Tools to Help Your Search

There are thousands of new articles published every day, and staying up to date on the literature can be overwhelming. You should take advantage of the technology that is available. Some services include PubCrawler, Feedly, Google Scholar, and PubMed updates. Stay up to date on social media forums where scholars share new discoveries, such as Twitter. Reference managers such as Mendeley can help you keep your references well-organized. I personally have had success using Google Scholar and PubMed to stay current on new developments and track which gaps remain in my personal areas of interest.

The most important thing I want to impress upon you today is that you will struggle to choose a research topic that is innovative and exciting if you don't know the existing literature well. This is why identifying research gaps starts with an extensive and thorough literature review. But give yourself some boundaries. You don't need to read every paper that has ever been written on a topic. You may find yourself thinking you're

on the right track and then suddenly coming across a paper that you had intended to write! It happens to everyone- it happens to me quite often. Don't give up- keep reading and you'll find what you're looking for.

Class dismissed!

How do you identify research gaps? Share your thoughts in the comments section below.

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