Ali Shiri
University of Alberta, Edmonton, Alberta, Canada

THE CONCEPTUAL LEAP: A CONCEPTUAL EXPLORATION (Paper)

Abstract or Résumé:

This paper aims to explore the concept of 'conceptual leap' in the context of scholarly research and examine its different aspects and facets. More specifically, it is concerned with its use in various contexts and its implications for scholarly research.

1. Introduction

While the term conceptual leap has been used in a wide variety of disciplinary and scholarly literature and contexts, there is very little research on the actual definition and conceptualization of the term 'conceptual leap' and what it may signify in different research paradigms, methods, approaches, stages, and contexts. We started the exploration of this concept using a simple Google search on' what is a conceptual leap'. The top result is extracted from a paper that we will draw upon further in this paper, namely *Approaching the conceptual leap in qualitative research* by Klag and Langley (2013). Figure 1 shows the Google search result for this search:

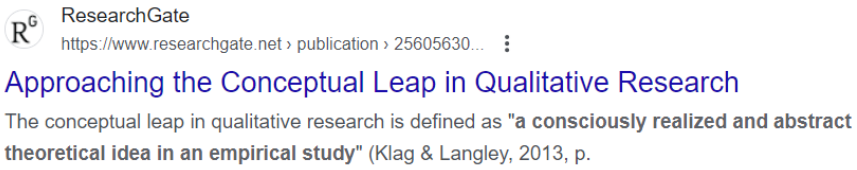

Figure 1. Google search result for the search 'what is a conceptual leap'

"The conceptual leap in qualitative research is defined as **a consciously realized and abstract theoretical idea in an empirical study that may or may not make its way to a theoretical contribution in its final form**"

Considering the scarcity of definitions for the term 'conceptual leap', it was decided to consult other sources to determine if there are any other proposed definitions. It was imagined to be an interesting exercise to use ChatGPT for this purpose. A simple prompt was posted to ChatGPT 4.0 as follows: 'Can you define the conceptual leap?'ChatGPT (OpenAI), provided a broader definition without narrowing it down to qualitative research and defined the conceptual leap as "a significant shift or transformation in understanding, perspective, or approach. It often involves moving beyond the current framework of knowledge or ideas to create a new understanding or a

novel solution to a problem. This term is frequently used in the context of scientific discoveries, technological innovations, and creative processes. Here's a breakdown of what it entails:

> Breaking Old Patterns: It involves breaking away from established patterns of thinking or traditional methods.
> New Perspectives: A conceptual leap often brings about a new way of looking at a problem or situation, offering a fresh perspective that was previously unconsidered.
> Innovative Solutions: This new perspective often leads to innovative solutions or breakthroughs that were not apparent within the old framework of understanding.
> Advancement of Knowledge: These leaps are essential for the advancement of knowledge and can lead to significant progress in various fields, like science, technology, and the arts.
> Challenging and Risky: Making a conceptual leap can be challenging and risky, as it requires venturing into unexplored or unconventional territory.
> Influence on Society: Significant conceptual leaps can have a profound impact on society, changing the way we"

The term conceptual leap has not been widely used in information science. One explicit and prominent example of the use of the term conceptual leap can be attributed to Pettigrew et al. (2001) who view the shift in information behaviour towards a user-centred and the contextual interplay of cognitive, social, cultural, organizational, affective, and linguistic factors as a "quantum and revolutionary conceptual leap and achievement." Another important concept in relation to the conceptual leap in information science is the notion of serendipity. This phenomena has been studies in information science and more specifically in information search behaviour studies. For instance, Makri et al. (2016) provide a useful definition of the term as a " 'finding useful or potentially useful information unexpectedly – either when not looking for information at all, when looking for information about something else or when looking for information with no particular aim in mind." This definition can also be compared with the dynamic ways in which the conceptual leap may occur throughout a research process or in a particular research project.

In this paper, we explore the concept of conceptual leap in research as reflected in scholarly publications in order to gain a nuanced understanding of what it means and how previous researchers have conceptualized it. This exploration will provide us with an opportunity to conceptualize it and examine the specific research activities, steps, and processes wherein conceptual leaps may take place.

2. Conceptual leap: A concept exploration in scholarly sources

In order to provide an overview of the popularity and prevalence of the term conceptual leap, a number of searches were conducted in different scholarly publication platforms. Three sources were consulted for this purpose, namely Google Books Ngram Viewer, Scopus, and Web of

Science. The goal was to ensure that books, and other scholarly publications are covered in the conducted searches. Together, Scopus and Web of Science provide a large complementary, multi-disciplinary collection of scholarly and academic publications. All the searches for the term were conducted on December 20, 2023.

To gain an overall perspective of the coverage of the term conceptual leap, an exact match search was carried out on Google Books NgramViewer. It is important to note that Google Books contains book publications and does not cover other scholarly publications. The result showed that the early usage of the term in the published books dates back to the early 1960s. As can be seen from Figure 2, one interesting observation is that there are two search spikes in the use of the term as reflected in Google Books repository associated with the years 1980 and 2001. However, given the limitations of this tool, it is not possible to provide a reasonable explanation for those years in which 'conceptual leap' has been used more frequently and possibly in a larger number of books.

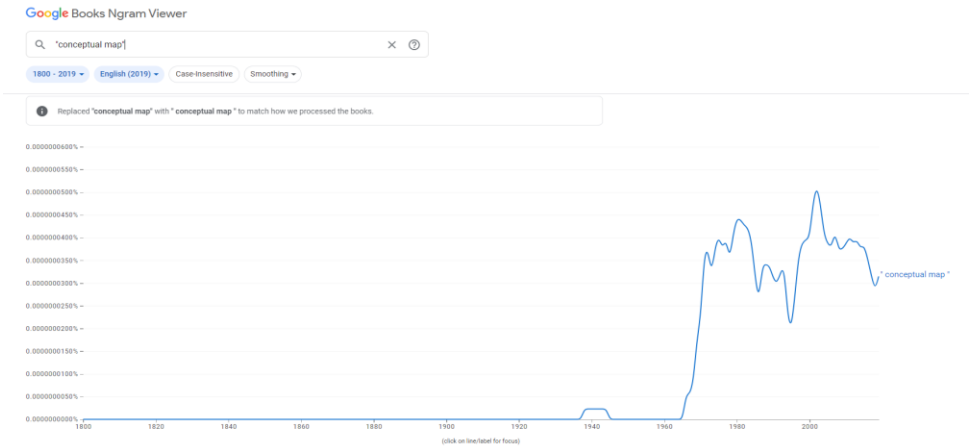

Figure 2. Google Books Ngram Viewer search for "conceptual leap"

An exact match search for the term was conducted in Scopus in the fields title, abstract, author keywords and 102 records were retrieved. Figure 3 shows an overview of the coverage of the term in various disciplines in Scopus. One interesting observation is that 'conceptual leap' has been used in the literature of many different disciplines.

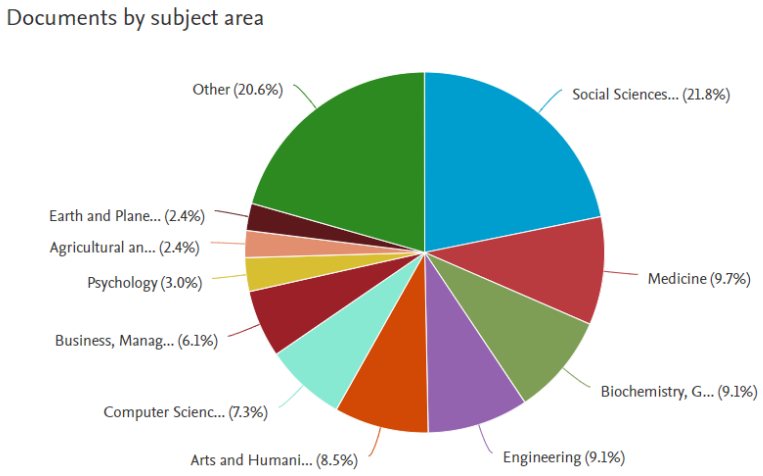

Figure 3. Distribution of documents in Scopus by discipline

All of the 102 metadata records were examined to gain a deeper insight into the ways in which they have discussed and contextualized the term conceptual leap. Most of these publications have used the term in passing and very briefly to refer to a shift in thinking or understanding a concept, area, phenomenon or process. We found a number of particularly relevant and important papers that discussed conceptual leap and its definition in more detail. The full text of those papers were consulted and examined, which we will discuss later.

Similarly, an exact match search was conducted for the term 'conceptual leap' in the Web of Science database fields: title, abstract, author keywords and keywords plus. This search resulted in 48 records. All of the retrieved metadata records were examined. Not surprisingly, given the disciplinary distribution of the publications in the database, there is heavy focus on such subject domains as computer science, chemistry, biology, physiology, and material sciences. The oldest record is related to a publication in 1993. While most of the publications overlap with those found in the Scopus database, there was one important article that discusses the term conceptual leap from the perspective of serendipity, which is of particular relevance and is worth addressing. Silver (2015) argues that serendipity has been named an aspect of progress and development of knowledge and that it is understood to be "the way concepts emerge from the unexpected bumps and nudges of the material world, and it therefore isolates a critical tension in the method of the sciences". It further demystifies the notion of serendipity by asserting that serendipity is "itself about the observation of anomalous but strategic data: anomalous, because unexpected, but strategic, because related to the reorientation of a field of knowledge." (Silver, 2015).

3. Conceptual leap in research

In an early PhD dissertation on spatial cognition, Root (1976) relates the conceptual leap' to the spatial cognitive theory and defines the 'leap' which is made between data accumulation of interaction with or feelings toward areas and how information about those areas is organized. Bate (1997) uses the term punch line to refer to a conceptual leap noting that "a good punch line in ethnography is like a good tune, one that you can't stop humming once you've heard it. The punch line gives the research a point, but it also synthesizes, synopsizes, or simplifies a complex story, and effects some kind of closure for the reader, which can be deeply satisfying, even bewitching at times. The best punch lines are often the ones that come out of the blue, that surprise us or challenge our taken for granted, commonsensical view of the world." The above two examples provide different empirical perspectives regarding a conceptual leap in relation to research and data.

One of the earliest, most important, and relevant publication on the conceptual leap is attributed to Klag and Langley (2013). This is the only scholarly paper that was found that specifically aimed to conceptualize the term and to provide an elaborate discussion of its various aspects and facets, including the four dialectic tensions between deliberation and serendipity, between engagement and detachment, between knowing and not knowing, and between self-expression and social connection. They define and discuss the concept from a qualitative research perspective as follows:

> "We define a 'conceptual leap' in the context of qualitative research as a consciously realized and abstract theoretical idea in an empirical study that may or may not make its way to a theoretical contribution in its final form. Making a conceptual leap involves bridging the gap between empirical data and theory: moving from the mass of words and other data (the world of the field), through and beyond the mechanics of analysis to an abstract and explicit set of concepts, relations and explanations that have meaning and relevance beyond the specific context of their development (the world of ideas). A conceptual leap involves both 'seeing' and 'articulating' and, as we shall see, these elements are often inextricably intertwined (Richardson 1994; Van Maanen 1988). 'Seeing' implies uncovering new ways of making sense of some aspect of existing social worlds. 'Articulating' implies representing this new understanding, either privately to oneself through writing or visualization, or publicly as one attempts effectively to communicate new insights in discussions, publications or presentations. (Klag & Langley, 2013)"

Langley notes that a conceptual leap "is that sweet spot where you're just stretching the data to a place where nobody had expected it to go. One of my early frustrations was trying to write papers based on wonderful ideas that I never felt I could fully prove. I could illustrate them, I could show that this made sense, but there was always a hole between the data and the theory. (Langley, 2021)."

Other researchers address the notion of a conceptual leap from the perspective of research methods and data gathering approaches. Crawford et al. (2021) discuss conceptual leaps in relation to qualitative research and data by emphasizing the importance of long interviews in eliciting deeper narrative details to achieve new understandings. They note "Because conceptual leaps are helpful (and perhaps necessary) for understanding complex phenomena and long interviews provide ample time for conceptual leaps to develop, we argue that long interviews represent one especially powerful method for theory development." Another study emphasized the importance of analytical work to facilitate the occurrence of conceptual leaps in the context of grounded theory studies (Cunningham & Carmichael, 2017). Using a grounded theory method, Birks et al. (2008) stress the value of memoing in "making conceptual leaps from raw data to those abstractions that explain research phenomena in the context of study." (Birks et al., 2008. Other researchers have proposed the idea of the conceptual leap hypothesis in design studies to suggest that far sources (outside-domain) can be more beneficial to engender creative breakthroughs, ideas, and inspirations and have used terms such as mental leaps or creative leaps. (Chan et al., 2018). Making sense of data, data analysis and presentation and showing, telling, and articulating findings is the basis of a conceptual leap from research data to theoretical contribution (Ashworth et al., 2019). They argue "Decisions on data analysis and presentation in the form of "showing" and "telling" are critical in underpinning the "conceptual leap" between research data and theoretical contribution—a pivotal moment in theorizing that is not without challenge, in terms of making sense of the data and finding ways to articulate this in theoretical terms".

'Conceptual leap' has been discussed in the context of transdisciplinarity and interdisciplinarity and how exploring the approaches, methods, or analytical frameworks may result in new insight or understanding leading to a conceptual leap. Klein (2018) advocates for transdisciplinary collaborations and notes that a conceptual leap is represented by relational thinking beyond pre-made methods, and creating new ways of thinking and acting to deal with complexity. Drawing upon the work of Klag and Langley (2013), and focusing on qualitative research Rivard (2024) analyzes the process of conceptual leaping in conducting literature reviews. She provides specific advice on how a researcher could conduct literature reviews in such way as "to accelerate or facilitate the emergence of conceptual leaps". Using Klag and Langley's (2013) key constructs of knowing vs. not knowing, engagement and detachment, deliberation vs. serendipity, self-expression vs. social connection, Rivard (2024) recommends the use of mindfulness as a framework to navigate literature review process in order to conceptualize and operationalize how a conceptual leap could be facilitated.

4. Conceptual leap in research: Qualitative or quantitative

Given the above conceptual exploration and discussion of a conceptual leap in research, it is argued here that a conceptual leap could be imagined and take place in different research paradigms, methods, approaches, in relation to different data types. In other words, a conceptual leap is possible not only in qualitative research, but also in other types of research, including

mixed-methods, as well as in research methods and approaches that focus on quantitative data, big data, as well as exploratory data analysis and visualization. Table 1 provides examples of research contexts, processes, components in which a conceptual leap is possible along with their instances to demonstrate the variety and diversity of contexts and research components that may serve as a basis for a conceptual leap.

Conceptual leap examples	**Instances**
Data & insight Raw data and research phenomena	Exploratory data analysis to detect correlations and causations
Interdisciplinary & transdisciplinarity	Using theoretical and methodological frameworks from various disciplines to inspire new ideas, theories, methods, and approaches, examination and synthesis of previous research contributions
Visualization and visual mapping	Visualization of large quantitative data sets to support qualitative understanding of phenomena
Bridging gap between empirical data and theory	Reuse of existing empirical data to support the development of new knowledge and theory
Data analysis and understanding	Making sense of large data sets (pattern recognition in user behaviour data)
Synthesis of previous frameworks and empirical studies	Meta-analysis, systematic reviews, scoping reviews
Previous theories	Synthesis/adaptation of previous theoretical frameworks to create new knowledge and ideas
Previous concepts	Exploration of concepts through content and discourse analysis

Table 1. Examples and instances of conceptual leap in research

The conference presentation for this paper will provide further analysis of the ideas presented above.

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