USING LOOP LEARNING AND CRITICAL DIALOGUE IN DEVELOPING INNOVATIVE LITERATURE REVIEWS

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ABSTRACT

A comprehensive literature review that integrates and synthesizes peer-reviewed research surrounding a problem is a prerequisite for making an original contribution to a field and profession. The literature review in a doctoral dissertation is a required component, but most of these reviews suffer from bounded, linear thinking, limited scope, and little effort to go outside of the existing literature on a topic, either in content or in analysis. The intent of this paper is to explore concepts of loop learning, dialogic processes, generativity, and methods of communication to reveal common perceptions regarding the review of the literature, widen the process and perspective of selecting, review, and critically evaluating the literature, and present models that could improve both the process and the outcome of scholarly research.

1. INTRODUCTION

A comprehensive, fully developed literature review is the foundation and starting point for scholarly research, and one of the most important tasks in dissertation development. The ability to critically assess, integrate, and synthesize peer-reviewed research in an area of interest is a prerequisite for making an original contribution to a field and profession. The objectives of a literature review are to provide a path from prior studies to a current study, to integrate knowledge, and to stimulate new ideas. Richardson (2003) developed the concept of doctors of education as stewards of their field of study. Richardson argued that the literature review of a dissertation should elucidate both the practical and the scholarly significance of investigating a significant problem.

Most literature reviews, however, rarely get out of the box in scope and depth. Our experience in mentoring doctoral students and researchers over many years suggests that literature reviews often suffer from bounded, linear thinking, limited scope, and little effort to go outside of the existing literature on a topic, either in content or in analysis. There is a perception among many doctoral students and other researchers that the intent of the literature review is to present an extensive, if not exhaustive, summary of prior research that supports the centrality and framing of the problem under investigation. This type of investigation is used to justify the chosen conceptual framework, identify a gap in the literature, and conduct research to improve a given situation. This approach is largely similar to what Argyris (1994) referred to as single-loop learning. However, such an approach runs the risk of generating little new insight into known problems because of the limited perspective of the search and analysis.

Truly innovative literature reviews go well beyond simple summaries of source material. A thorough and innovative literature review presumes that knowledge is cumulative, and that the researcher not only stands on the shoulders of others in exploring a topic of study, but generates critical and substantive value in the act of reviewing. Shulman (1999) defined generativity as building on the scholarship and research of those who have come before us, and contended that generativity is "one of the hallmarks of scholarship" (p. 162).

What is not clear is how a researcher, particularly a novice researcher, can add his or her voice to other conversationalists in their field in order to generate profound and useful knowledge. The intent of this paper is to explore concepts of loop learning, dialogic processes, generativity, and methods of communication to reveal common perceptions regarding the review of the literature, widen the process and perspective of selecting, reviewing, and critically evaluating the literature, and present models that could improve both the process and the outcome of scholarly research.

2. THE STANDARD ANNOTATED BIBLIOGRAPHY: SINGLE-LOOP LEARNING

Single-loop learning assumes that problems and their solutions are close to each other in time and space. Argyris (1994) described single-loop learning as making minor fixes or adjustments in the current system or paradigm, much the way a thermostat is used to regulate temperature. This type of thinking is in accord with viewing the literature review as an extensive annotated bibliography, one that stays within the bounds of conventional questions, thinking, and scholarship. The researcher reports sequentially on studies related to the topic in a manner such that each annotation restates the main argument of a source, the methods of investigation, and the main conclusions. At its best, each section of the review contains multiple perspectives, and the reader is privy to knowing how the current study could fill a gap identified in the literature.

Argyris' (1994) insight was to conceptualize learning as a system of knowledge acquisition, reflection, and application. Within the single-loop process the researcher is seeking to understand what has been done to solve problems similar to the one under investigation, and focuses on a specific problem that is derived from and grounded in the extant literature and dominant conceptualizations of the problem and similar problems. The analysis stays largely or entirely within current ways of thinking about the problem, diagnosis, and problem resolution, and the analysis is circular and bounded (Cooper, 1988). This type of linear, first-order, thinking may be efficient, even necessary at some level, but is not sufficient to explore why a problem exists, the generative forces behind the problem, why differences of perceptions and solutions regarding that problem exist, and how going outside the dominant ways of thinking about the problem may generate new insights that go beyond existing approaches to resolving the problem.

A single-loop learning process resides within a bounded knowledge space of conventional thinking around a problem or question. Understanding and learning are largely confined within the bounds of this space, as is dialogue about the problem. The focus is on problem *solving*, not on exploration of new dimensions of the problem or different ways of framing or viewing the problem. Source material for the review consists primarily of well established, commonly used sources relevant to the problem. The review is usually backward looking, cycling within a constrained domain of sources and interpretations. A missing ingredient in many such literature reviews is a healthy dose of criticism, both of the literature gathered and in the scope and depth of the process that resulted from the gathering.

Given the common nature of training of most doctoral scholars, this single-loop process is not very surprising. In an extensive review of doctoral programs, Boote and Biele (2005) found most graduate students receive little or no formal training in how to review critically the research literature in their field, and many students believe their opinion is of little value. The authors contended that it is difficult to perform significant research without a profound insight into the field, driven in part by the ability to apply complex, higher ordered thinking skills in evaluating prior studies. What is necessary to generate insight that goes outside the usual bounds or canon in a field is to undertake a generative as well as summative approach in the review. A generative approach that uses dialogical processes to not only summarize the existing literature but, goes beyond to include critical evaluation of what is missing from the literature, is a first step in moving beyond the single-loop process of most literature reviews.

2.1 Using Single-Loop Learning in the Literature Review

The following example of a proposed study illustrates application of single-loop learning to the development of a literature review.

> *Caffeine is the most widely consumed psychoactive drug in the United States, but unlike many other such drugs it is legal and unregulated. Caffeine is often used by students studying for exams or when they need to stay alert in an early morning class. A variety of outcomes have been reported from people who consume caffeine (Rogers et al, 2010; Canales, 2010). However, there is a lack of clarity regarding the efficacy of caffeine intake while conducting scholarly research.*
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> *A case study of male and female doctoral candidates who have completed their course work and are engaged in dissertation writing will be used to investigate whether or not caffeine consumption is related to effectiveness in scholarly research. Participants will keep a daily journal that will include information on their daily consumption of caffeine and the research completed each day. An analysis will be conducted to determine the relationship between the amounts of caffeine consumed and the quality and quantity of their research.*
>
> A first step in conducting the literature review is to create a literature or mind map depicting key words related to the variables, problem statement, purpose, research questions, hypotheses, conceptual theoretical framework, population, and research method (Simon & Goes, 2013). The literature review for this proposed study revealed two possible theories that could guide the research: Arousal Theory and Transactional Stimulation Theory (Myers, 2004). A key word search used to find current peer-reviewed journal articles included: caffeine as a drug, caffeine and performance; effects from caffeine; benefits of caffeine; physical, cognitive, and emotional effects of caffeine; gender and caffeine.

There are several important limitations to this sort of review. First, the review is dominated by references to other studies regarding caffeine as the stimulant. Reliance on a single search referent fits within the linear approach of the review, but ignores other potential stimulants that may have similar effects. There is also a disregard for potential demographic, cultural, or physiological co-variates that may enhance or detract the effects of caffeine consumption, and boundary conditions for the study. For example, the student population may adopt caffeine as the stimulant of choice because of ease of access, cultural learning, and dominant theories in use about its effectiveness. Similarly, the researcher conducting the review may gravitate towards caffeine as the best focus for further research simply because it has received the most attention, and may intentionally or unintentionally suppress conflict (Argyris, Putnam & McLain Smith, 1985) over whether to widen the scope of the research to consider other stimulants. The theoretical frameworks selected for the study may be dominated by those that most closely fit the researcher's theories in use, even if prior research has provided little support for the theory, and thereby foreclose consideration of other theoretical models to explain the phenomenon of interest.

3. DEBATE AND DOUBLE-LOOP LEARNING

Unlike the reciprocal logic of the single-loop manner of learning, double-loop learning goes outside of bounded thinking and established search routines, questioning these routines at a second order level. That is, rather than being restricted inside the single-loop system of literature reviewing, double-loop learning engages the researcher in a critique *of* the system, challenging assumptions within the system and conventional ways of thinking about a problem to generate new insights and new directions for logic and research. Double-loop learning requires holding in abeyance the first and most obvious solutions to a problem, while continuing to look for alternative ways of seeing the situation that could lead to a deeper understanding. A literature review that includes double-loop learning thereby results in the presentation of views both supporting and opposing the researcher's worldview.

Such an approach involves a desire to understand *what* and *how* some solutions work better than others to resolve a problem or achieve a goal. The researcher engaged in this type of thinking views the literature review as a *debate* and *dialogue* between different ideas and different authors. Gilovich (1991) observed that this type of knowing usually entails an intense scrutiny of the views that *differ* from the researcher's views, but that same critical scrutiny is rarely applied to the studies that *support* the researcher's contentions. Much like a traditional notion of debate, one side wins and another side loses, while both sides retain their certainties. Therefore, at its best, application of double-loop learning develops a deepened understanding of assumptions that lead to differing outcomes.

In double-loop learning the researcher moves outside of the single-loop process by questioning whether dominant theories-in-use and prevailing variables and methods are limiting the scope of inquiry and array of source material in the literature review. For example, new variables or covariates might be investigated and discussed in the review as a way of identifying gaps or weaknesses not only in the dominant, canonical literature around a problem, but also in the broader literature. Rather than limiting the review to common theoretical models and search parameters, the researcher widens the review to look at potential covariates that appear logically connected to the core focus of the study, but contradicts conventional wisdom. Similarly, where existing theories are found to be inadequate or unsupported in investigating a question or issue, theories and models connected by logic or context may be brought into the discussion. Continuous questioning of assumptions and existing literature, and framing and reframing of the problem, are both means to widen the inquiry and step outside of the conventional frame.

Forays outside the constrained single-loop review may widen the array of variables in the model, or identify promising literature sources that are beyond the usual domain of the subject. These new perspectives are brought back into the literature review model to widen the inquiry, address the inadequacies of the single-loop approach, and provide a more robust literature review that is more likely to generate unique insights, different perspectives on the problem, new directions in research problems and methodology, and a more comprehensive review.

3.1 Using Double-Loop Learning in the Literature Review

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>
> A key word search would contain the same terms used in the single-loop review but also include a search for opposing views such as: negative effects of caffeine; caffeine as a depressant; health risks of caffeine use; etc. As Gilovich (1991) noted, opposing views usually attract greater scrutiny and flaws and are more likely to be noted to help build the case for the researcher's view. Nonetheless, this type of reflection will provide a deeper means of defending and justifying a position.

4. TRIPLE-LOOP LEARNING: DIALOGUE AND COLLECTIVE UNDERSTANDING

Good research is good because it advances collective understanding. To achieve this, in addition to understanding what others have done before and explicating the strengths and weaknesses of existing studies, the scholarly researcher seeks to deepen understanding of *why* a complex problem or situation exists and what research is necessary to help resolve all or a component of the problem. Unlike the double-loop model, the triple-loop approach focuses on a lasting transformation, or a substantive shift in point of view, while re-envisioning how to solve problems (Peschl, 2007). Peschl posited that a triple-loop learning model serves as a tool to establish context as well as deciphering answers to decisions based on a search for relative truths.

Researchers can use triple-loop learning to develop innovative and effective approaches to understanding complex issues. This type of learning challenges the researcher to understand the context on how problems and solutions are related and how new knowledge is ascertained.

The results of this learning include enhancing ways to comprehend and change the purpose of the research being conducted by developing a better understanding of the *situatedness* (Lindblom & Ziemke, 2003) of a problem while deepening the comprehension of why a study was conducted. This portends that within a given situation, there is not a single context of relevance but a great number of different, possibly overlapping contexts, and that the development of in depth knowledge requires a social and cultural embedding. Determining what is a relevant piece of information in a situation is influenced by what Franklin (1995) calls the *intercontext*, since the same situation given in different contexts provides different relevant pieces of information.

Triple-loop learning includes what Bakhtin (1973) referred to as a dialogic expression, which is a combination of the individual's opinions as well as the ideas and thoughts of others. Bakhtin contended that an idea is important when it influences others to take action. A literature review based on triple-loop learning involves an attempt to: (a) understand how problems and solutions are related, even when separated by time and space; (b) understand why previous actions led to current problems; (c) uncover and question premises and cognitive patterns; (d) synthesize prior research in ways that permit new perspectives to emerge, and (e) establish a rationale for new research. This form of learning can provide a profound understanding of our own and others beliefs, perceptions, and understandings. Peschl (2007) proposed that triple-loop learning is a type of double-loop thinking about double-loop learning.

Buber (1996) used the term dialogue to describe a mode of exchange between people in which there is a true appreciation of the other, even when their viewpoints are in opposition. Buber expressed the need to affirm the person as the bearer of a conviction. When conducting a scholarly literature review, there is an opportunity to create a virtual dialogue and respect among authors and policy makers who have attempted, within the literature, to resolve problems similar to the one under investigation. The literature reviewer becomes a participant in this virtual dialogue by exploring ways of resolving disputes and dead-ends in the literature by introducing new directions and rethinking old arguments in light of new research designs that could improve discussions in the field.

Isaacs (1993) defined dialogue "as a sustained, collective inquiry, into the processes, assumptions, and certainties that compose everyday experience" (p. 25). Ellinor and Gerard (1998) posited that the dialogue process does not hinder disagreement but can foster differing views and create a divergent conversational process that could lead to a deeper or new understanding and, in some cases, a natural resolution or convergence of thinking. This goes beyond framing the conversation as a debate, as is common with double-loop learning. Rather, the important distinction between dialogue and debate is that dialogue calls forth a different structure, because of its creative quality.

Specifically, dialogue does not involve breaking down and examining parts, but allows meaning to flow and emerge rather than remaining with a particular point of view, Fundamentally, the dialogue process recognizes that one person's thoughts are not the whole truth (Bohm, 1996) but are instead part of a larger truth (Isaacs, 1999). The acts of taking new actions, suspending judgment, listening instead of reacting, writing down and reflecting on thoughts, inquiring rather than advocating, and contemplating on the underlying value of those actions is when and where the shift in thinking occurs (Argyris, 1994; Shulman, 1999). This dialogue process based on Bohm's (1996) theory engenders transformative learning by introducing and drawing attention to new ways and reasons for acting differently, reflecting on assumptions, and helping to align values to action (Isaacs, 1999).

A key practice in dialoguing is surfacing assumptions and then suspending these assumptions and judgments. Suspending assumptions and judgments does not involve putting them in abeyance, but rather is a means to subject them to conscious examination and exploration. In dialogue, as noted by Bohm (1996), the intent is to understand others' points of view and become more open to new ways to perceive and think about the situation. We realize our judgments and judgments made by others regarding how we think of things are not necessarily the truth. However, they can be seen as true within the author's situatedness, and the challenge is to see how different authors investigate similar problems and reach similar or conflicting conclusions, and how this fits together into a coherent pattern.

In exploring one's own underlying beliefs, assumptions, inferences, and generalizations, scholars can begin to explore the similarities and differences with others and discover commonalities (Simon & Goes,

2013). The reviewer proceeds from a place of genuine curiosity and wondering. Focusing on penetrating questions with no clear answers opens the way for seeing things more clearly.

Reflection is necessary for applying triple-loop learning and creating meaning through virtual dialoguing with other researchers. Reflection allows us to turn things over in creative ways and improve the quality of collective thinking and make a contribution to resolution of a complex problem.

The following example illustrates application of triple-loop learning to the development of a literature review:

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>
> In addition to the key words searches used for the single and double-loop review, the search could include terms like: stimulants; alertness; wakefulness; motivation; locomotion; social and cultural aspects of using stimulants; and means to enhance scholarship. Along with this conventional approach, a snowball type of tactic can be employed to find relevant sources. This entails searching the references of the articles that were retrieved, determining which of those seem germane to the conversation, finding the sources, reading their references, and repeating the process until a point of saturation is reached when no new pertinent studies emerge.

Once the review begins, the goal is to go beyond the narrative, exposition, argument and persuasion (used in single and double-loop learning) and focus on solving problems and developing new ideas through critical dialogue. Single and double-loop questioning starts with 'What?", 'Who?', and 'How?' Triple-loop questioning progresses to such questions as 'Why?' and 'What else is needed?' This involves what Trede, Higgs and Rothwell (2008, p.5) suggest as being "open and yet skeptical, being comfortable with ambiguity, and extending one's comfort zone by blending deeper with critical perspectives." This type of review represents a collective critical voice rather than the voice of one or two researchers.

Figure 1 summarizes the process of the triple-loop literature review focused on the caffeine study.
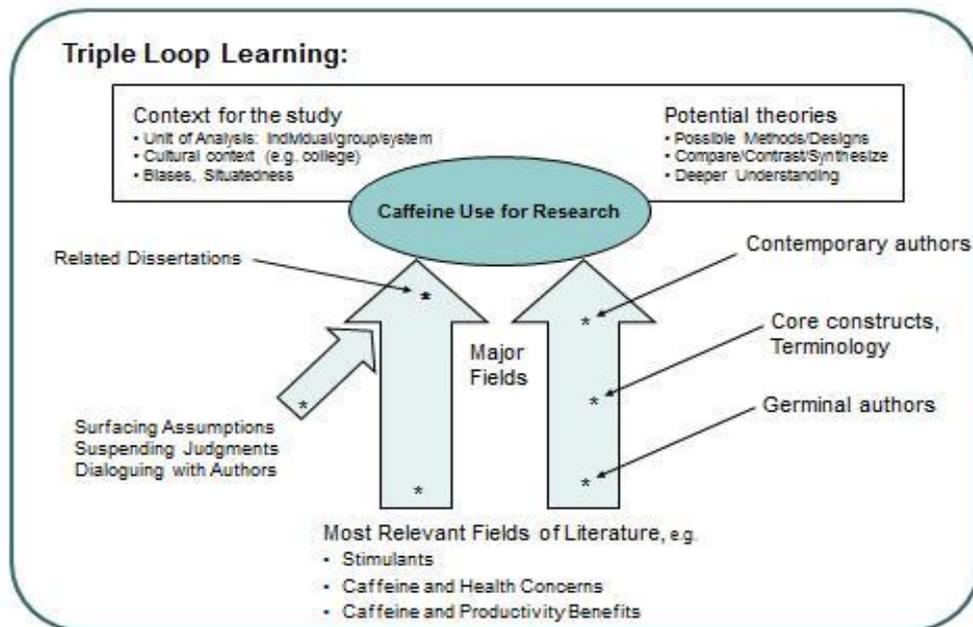

Figure 1. Triple-Loop Learning and Caffeine Study

5. PUTTING THE LITERATURE REVIEW TOGETHER

In the 21st century, it is unrealistic to expect an exhaustive review or an assurance of locating and considering every available piece of research on a certain topic, published or unpublished. The difference between the literature review for a journal article and a literature review for a dissertation is primarily about breadth and depth. The net for capturing research in a dissertation is generally wider and deeper. The expectation in a dissertation is that there will be an extensive review of the literature including the most current peer-reviewed studies along with germinal manuscripts in a field. A literature review for a journal article tends to consider a representative sample of articles and inferences are made about the entire population of articles from that sample (Slavin, 1986).

The literature review for a dissertation usually begins with an introduction to the study and an explanation and justification for the scope of the review. This includes the key word data search used as well as the data bases consulted. Each subsection needs to be meaningful, relevant to the problem under investigation, and presented in an orderly, logical, transparent, and flowing manner. A detailed description of the procedure used to locate relevant studies is needed so that, theoretically, other researchers following the same procedures under the same conditions would find the same set of articles.

The primary audience for a dissertation consists of faculty from the appropriate university, and the secondary audience is composed of scholars within the field of the dissertation topic. Primary, peer-reviewed sources make up the overwhelming majority of references in a dissertation. Secondary sources, regardless of how compelling, are considered hearsay. An historical review, with appropriate citations from germinal studies, often follows the introduction. This is where the background of the problem is usually presented. Here, and throughout the entire literature review, evidence should be presented that positions the current study in comparison with studies found in the search. Discussions should have depth and elucidate a clear understanding of why each reference is included.

Ambiguities need to be addressed and the situatedness of each reviewed study is explained. In a quantitative study, a discussion of each variable, and the relevancy of that variable to the study, and how variables connect in relationships is usually included. A critical examination of the methodology and theoretical framework regarding the problem under investigation needs to be deliberated.

5.1 Evidence of Triple-Loop Learning

The demonstration of triple-loop learning is apparent when new perspectives are presented that demonstrate a wider domain of literature and synthesis of the literature reviewed with new research. Triple-loop learning is indicated when there is a critique of the practical significance and possible resolution of similar problems in a variety of contexts, and the need for a fresh perspective is addressed. The writing reflects an *open-mindedness* to ideas, even when the ideas of others conflict or contrast with the researchers. Open-mindedness is demonstrated by a) avoiding intensely emotional language, b) exhibiting ontological humility in the appreciation for the complexities of a topic c) respecting others in the field, and d) presenting arguments that reflect respect and civility. Enacting triple-loop learning requires what Kabat-Zinn (2003) refers to as *mindfulness* or a deep self-awareness, regarding language, assumptions, tacit thoughts, reactions and how situatedness affects interactions. Thus, the purposes of triple-loop learning and dialogue in the literature review are, as Isaacs (1993) contends: "to create a setting where conscious collective mindfulness can be maintained" (p. 31). This type of thinking can generate alternative ideas, practices, and solutions that can be held in tension with previous ideas and practices.

6. CONCLUSION

A dissertation literature review is a coherent whole. The task is to orchestrate the voices and ideas of many into a form of *textual unity*, where an understanding of the problem as a whole is established by reference to the individual parts, and an understanding of each individual part by reference to the whole. Creating an innovative literature review creates a solid framework for relating new findings and establishes a profound understanding of how new research advances prior research.

When triple-loop learning is applied to the review of the literature, there is continual reflection on the process as well as the problem under investigation. Attention is paid to the assumptions and values (situatedness) revealing how each study could influence the outcomes of other studies. This type of thinking allows an exploration of *how* and *why* individual and collective cultures both influence and constrain the thought processes. In single and double-loop learning, the goal is to produce decisions and come to some form of convergence. Triple-loop learning and critical dialogue seeks to reveal the many facets of complex issues and is open to the possibility of divergence and a unique understanding of a problem or situation.

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