

The Concept and Practice of Critical Thinking in Postgraduate Research: Writing the Literature Review

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ABSTRACT:

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Critical thinking constitutes an integral part of postgraduate research. The ability to incorporate a critical dimension and voice in writing the doctoral dissertation is widely perceived as an important feat expected of doctoral students. The literature review section of the dissertation, to a great extent, requires the writer to critically analyze and evaluate previous research, and to argue and justify the need for expanding existing knowledge. This paper examines the concept and place of critical thought in postgraduate research, with a focus on the importance of critical thinking in writing the review of the literature for the doctoral dissertation.

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Introduction

Critical thinking has witnessed noticeable attention in recent years. Many educators and researchers stress its significance in postgraduate research, considering it the core of academic writing. The latter has to be “well argued, insightful, thought-provoking, characterized by evidence and wide reading” (Daud, 2012, p. iii), which may cause a challenge for postgraduate students. Postgraduate research and doctoral dissertation writing also require an advanced level of critical thinking, encompassing analysis, argumentation and evaluation among other critical thinking abilities (Facione, 1990).

Writing the doctoral dissertation in postgraduate research is a process of a more critical academic nature. In writing the literature review section, more specifically, doctoral researchers are tasked with analyzing and evaluating previous research within their chosen fields to find gaps in existing knowledge. Moreover, they must provide original perspective and a critical appraisal of previous research while establishing connections between their work and other scholarly research. Additionally, during the information-seeking process, i.e., when researching the literature and gathering resources, they should be able to evaluate the quality and accuracy of sources, examine various viewpoints, distinguish between facts and opinions, and recognize any assumptions and biases present in the documents.

Critical thinking plays a fundamental role in writing the literature review of the doctoral dissertation, necessitating a clear understanding among doctoral researchers. The present paper delves into the concept and principles of critical thinking, exploring its relevance to academic writing and the process of writing the doctoral dissertation. The emphasis of the paper is on critical thinking in the context of writing the review of the literature, which constitutes a crucial part of the doctoral dissertation.

1. Critical Thinking and Academic Writing

Academic writing is regarded as ‘structured research’, and is the process of defining research questions, presenting new knowledge and perspectives after reviewing what is already known about a given topic (FIRP, 2014a). It requires students to become aware of previous research, and to contribute to their field of study and research. Moreover, academic writing requires the application of critical thinking, and the cultivation of academic integrity and a distinctive

academic style (Steinke, 2012). These features make academic writing different from other forms of expression.

Critical thinking and academic writing are intricately bound. The former is an important defining feature of the latter. Vallis (2010, p.18) emphasizes that “Academic writing, across most disciplines, is a clear record of a writer’s reasoning from a question to an answer. Reasoning involves using analysis to draw logical conclusions”. Moreover, Badley (2009 cited in Donnelly & Fitzmaurice, 2012, p. 2) describes the connection between critical thinking and academic writing stating that “good academic writing should always be a problematic and tentative exercise in critical reflective thinking. This prompts us to delve into understanding the nature of the relationship between critical thinking and academic writing.

Being critical in academic writing is not the practice of criticizing information or knowledge by identifying only its negative aspects. As Bowker (2007, p. 90) stated:

the task of criticising the work of an esteemed author may appear to be an unreasonable demand [...] and the fact that the author has had their work published means that whatever information they have written has already undergone a rigid process of change and evaluation, thereby rendering the student’s own criticisms as unnecessary and without substance, or application.

In writing academic research such as papers, essays, theses or dissertations, the writer must actively engage in a process of critical thinking. This involves several key steps. First, researchers should pose questions and problems, seeking to identify gaps in existing knowledge. Second, searching for relevant information is crucial. This step requires reading with a critical eye, assessing sources in order to identify assumptions and biases, analyzing arguments and evidence, and evaluating both weaknesses and strengths. Third, the writers should formulate their ideas with clarity and precision, constructing arguments that justify their position. This process is essential for researchers for producing scholarly work of significance.

Having discussed the imperative role of critical thinking in academic research, it becomes evident that academic writing is a process that extends beyond simply describing or summarizing what others have said about a given topic. Demonstrating a level of in-depth analysis and evaluation by identifying both weak and strong points in others’ work is the real practice of being critical

in academic writing. Equally important, reading extensively and showing an awareness and understanding of diverse ideas, interpretations, and opposing viewpoints are important indicators of critical thinking. This practice aids the writer in achieving balance, impartiality, and in strengthening their position in writing by justifying their point of view (Bowker, 2007, p. 91).

Briefly, there are many aspects of academic writing of which critical thinking is of a great importance. Particularly at the postgraduate level, critical thinking plays a pivotal role in writing the doctoral dissertation, and notably the literature review section. This will be explored in the coming section.

2. The Concept of Critical Thinking in Postgraduate Research

Critical thinking is arguably an intrinsic component of academic writing. At the postgraduate level, doctoral students are highly expected to adopt a critical stance and voice in their dissertation writing to fulfill the requirements of successful doctoral research. In essence, they are required show evidence of good critical thinking “in the form of argument, and by demonstrating related skills such as evaluation and analysis” (Vyncke, 2012, p. 6).

Moreover, postgraduate research and study demand a strong command of critical thinking from students, given the likely challenges and difficulties they face during the process of conducting research and writing their dissertations. Doctoral students may experience difficulty with the literature review section moving beyond summarizing to using sources analytically and critically in their writing. According to Melles (2008, p. 29), the literature review in particular presents several challenges to students who find it difficult to critically engage with sources they think are “classical and authoritative”.

When it comes to the concept of critical thinking in the literature, there is agreement among researchers that critical thinking should be exhibited in students’ abilities to “identify issues and assumptions, recognize important relationships, make correct inferences, evaluate evidence or authority, and deduce conclusions” (Tsui 2002, p. 743). Like Tsui, Tapper (2004) defines critical thinking in the university context as the acquisition of abilities or skills such as selection, evaluation, analysis, reflection, questioning, inference and judgment. For clarification, terminology associated with critical thinking is explained in Appendix A.

In postgraduate dissertation writing, doctoral students have to express the aforementioned abilities when structuring their work and during the process of argumentation. Argumentation, which signifies one's position in the process of arguing, should not be confused with presenting arguments (in the plural form) in terms of individual opinions or claims. Andrews (1995, p. 3) defines argumentation as "a connected series of related ideas intended to establish a position and implying response to another (or more than one) position". This response, as Andrews elucidates, should involve evaluation rather than criticism of other sources, and should incorporate as evidence the closest sources which support one's position.

Given that, from a pedagogical perspective, it is imperative to enhance postgraduate students' awareness of the concept and practice of critical thinking in order to help them produce successful theses and dissertations. In this regard, providing explanations of critical thinking terminology, skills, and dispositions becomes crucial, particularly in the context of doctoral dissertation writing and the requirements of writing a literature review.

3. Etymology and Definition of Critical Thinking

The term critical thinking derives from roots in Ancient Greek (Paul et al. 1997, p. 2). The word 'critical' and 'critic' derive etymologically from two Greek roots, 1) *Kriticos*, from *Kites* meaning 'a judge' and 'judgment' and 2) *Kriterion* meaning 'standards' or 'means of judging' (Concise Oxford Dictionary 11th Edition). Greek philosophers such as Socrates, Plato and Aristotle are widely considered the first advocates of critical thinking. They valued critical thinking, and the idea of nurturing it is as ancient as antiquity itself.

In the twentieth and twenty-first centuries, critical thinking has received the attention of many researchers and experts (e.g., Paul et al, 2007; Tsui, 1998; Halpern, 1990; Robyns, 2001; Facione, 2010; Cottrell, 2005). Despite worldwide recognition and extensive research on the concept, critical thinking has always been a controversial topic, particularly when it comes to its definition, components, instruction and assessment. Nonetheless, proponents of critical thinking, emphasize its important in classroom settings and highlight its benefits as a crucial tenet of twenty-first century learning.

An overwhelming number of definitions of critical thinking can be found in the literature largely sharing similar content and complicating the issue of having one definitive definition of the concept. Ennis (1993, p. 180) defines critical

thinking as “reasonable, reflective thinking focused on deciding what to believe or do”. Another widely accepted definition of the concept is given by the Delphi panel (comprising forty-six experts in critical thinking) which reached consensus that critical thinking is:

purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. Critical Thinking is essential as a tool of inquiry [...] and a powerful resource in one's personal and civic life (Facione, 1990, p. 3).

This definition is comprehensive as it articulates different critical thinking skills including: interpretation, analysis, evaluation, inference, explanation, and self-regulation (i.e., self-examination and self-correction). It also defines a set of dispositions or attitudes closely linked to critical thinking skills and are aimed to determine the good execution of these skills. The ideal critical thinker possesses a set of qualities and is:

habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit (Facione, 1990, p. 3).

Abrami et al. (2008) meta-analysis outlines that the Delphi panel's definition of critical thinking is the most accepted definition in the literature for the past twenty years of research. Therefore, this paper adopts this widely recognized definition. The skills and dispositions related to critical thinking are core abilities which all doctoral researchers should possess and adeptly apply when engaging in writing the literature review section of their dissertations. This necessitates “research training that exposes the apprentice to the range of [...] skills, abilities and knowledge to be expected of postgraduate students” (Hart, 1998, p. 4).

4. The Critical Review of the Literature

Reviewing the literature for research lies at the heart of postgraduate dissertation writing. Doctoral students are expected to bring a critical dimension to the literature review of their dissertations. This requires presenting their critical voice and an appreciation of previous research related to their topics, coupled with

justifying the need for further exploration. Within this section, the concept of the literature review is explored and its place in the doctoral dissertation is highlighted. Additionally, the concept of critical thinking in writing the literature review is explained.

4.1. The Literature Review

Most dissertations and theses include a literature review section which discusses the literature around the selected research topic. The term ‘literature’ refers to the previous works or information sources relevant to the students’ chosen research field. Literature varies from primary sources, such as first-hand research such as journal articles or books and original materials (e.g., historical documents, diaries), to secondary sources, which involve critical evaluations and syntheses of original work or materials. Additionally, there are tertiary sources, which are compilations of other sources. As explained by FIRP (2014b), “their chief purpose is to list, summarize or simply repackage ideas or other information...[and] are intended only to provide a superficial overview of what the topic includes, its basic terminology, and often references for further reading”. Examples of tertiary sources include dictionaries and encyclopedias,

The literature review lays the foundation for the students’ own research and positions it within the broader scholarly discourse. It is the account of what has been already done on a particular topic. In the doctoral dissertation, it is written not only to describe and summarize but more importantly to critically analyze and evaluate the literature the student has found. The literature review involves data evaluation, determining which sources make contribution to the understanding of the topic, analysis and interpretation, discussing the findings and conclusions of other research. Clearly, it is an essential part of successful doctoral research because:

without it you [student] will not acquire an understanding of your topic, of what has been already done on it, how it has been researched, and what the key issues are... it is part of your academic development—of becoming an expert in the field (Hart, 1998, p. 1, brackets added).

When undertaking doctoral research, the literature review plays a major role by connecting the research to a wider academic context. A crucial requirement for the doctoral students, when producing the review of the literature of their dissertations, is to identify gaps or conflicts in existing research related the subject they intend to explore. Moreover, they have to indicate where their research aligns

and make a case for its necessity. This entails stating the research objectives and scope, and justifying the research methods used to conduct the inquiry.

The ideas and prior research of others form the basis of the students' new contributions to knowledge. However, repeating or duplicating what has already been researched in a certain field serves little purpose and may not be a worthwhile addition to previous knowledge. For that reason and for the sake of originality in research topics, students have to approach the literature review with a critical perspective and be able to interpret, analyze, and evaluate existing research in order to generate new knowledge (albeit modest) in the field of inquiry. Engaging in critical thinking enables doctoral students to successfully produce a critical review of the literature and generate ideas that "step significantly beyond the boundaries of existing academic knowledge" (Wallace & Wray, 2011, p. 150).

Therefore, introducing criticality to the review of the literature helps doctoral students to argue for the need to advance knowledge and conduct their inquiry by spotting gaps in what has already been researched. Moreover, critical thinking helps them in identifying relevant sources that inform their reviews, enabling them to read these sources critically in order to:

1. Evaluate whether information and materials are appropriate and up-to-date
2. Evaluate whether the evidence or examples used in materials really proves the point that the author claims
3. Weigh up opinions, arguments or solutions against appropriate criteria
4. Think a line of reasoning through to its logical conclusion
5. Check for hidden bias or assumptions
6. Check whether the evidence and argument provided really support the conclusions

(Cottrell, 2013, p. 187)

Reading critically the literature, as guided by the aforementioned steps, significantly helps students to produce a high-quality critical literature review. This review is logically structured, capable of demonstrating a well-supported position or argument that is compelling to the examiners. Writing the critical literature review account, the culmination of the literature review process, is tackled next.

4.2 Critical Writing of the Review of the Literature

The critical literature review is defined as:

a reviewer's constructively critical account, developing an argument designed to convince a particular audience about what the published – and possibly also unpublished – literature (theory, research, practice or policy) indicates is and is not known about one or more questions that the reviewer has framed (Wallace & Wray, 2011, p. 151).

On the contrary, the literature review which merely describes and summarizes texts does not qualify to be critical and falls short of presenting any position or argument. As previously explained, the practice of being critical in academic research and writing is not aimed at highlighting exclusively negative aspects of a work (i.e., destructive criticism); rather, it is a constructive practice. The latter entails the analysis, questioning and evaluation of information to assess both its strengths and weaknesses.

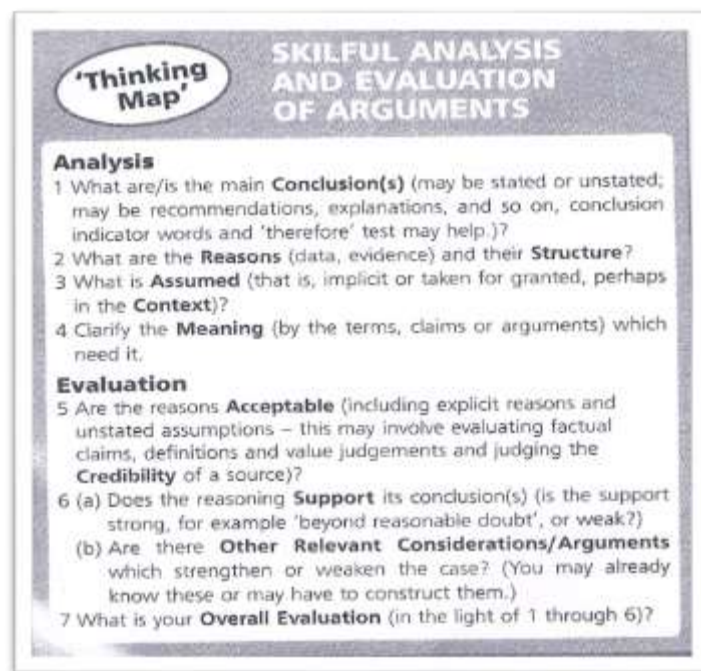
In the process of reviewing the literature, the information identified and selected serves as the data for analysis. As Hart (1998, p. 110) articulates, this encompasses “the interpretations, understandings and arguments that others have proposed that they want you to accept”. The act of analyzing the literature involves systematically extracting ideas, concepts, assumptions, arguments, opinions, etc., and then assessing them to ascertain their value. Further details on how to analyze and evaluate arguments are provided in figure 1.

The critical reading and assessment of the literature conducted by the students must be directed towards the final writing of their accounts, in the form of the literature review section of the dissertation. This process should culminate in the development of a strong argument bearing and supporting three crucial aspects of the students' research. According to Wallace and Wray (2011, pp. 169-170), these include: 1) the substantive focus (or topic) and scope of the investigation with a clear link to issues and gaps in previous research, 2) the theoretical/conceptual framework informing and guiding the study (including concepts, theories, models or perspectives and focusing on their strengths and limitations), and 3) the appropriate methodological approaches used to conduct the investigation.

Based on earlier discussion, it is evident that postgraduate students are required to produce relevant critical literature reviews presented in the form of a well-supported argument. These reviews should reflect analytical and critical evaluation of the research on their topics. Inconsistencies and contradictions in the literature should be addressed (Colling, 2003 in Cronin et al, 2008) as is acknowledging the strengths and weaknesses present in the body of literature.

Highlighting, comparing and synthesizing results from different sources should also be considered by the students when writing their reviews. However, “care must be taken, however, that the review does not end up just as a description of a series of studies” (Cronin et al, 2008, p. 42).

Figure N° 1. Skillful Analysis and Evaluation of Arguments



Source: Fisher, 2001, p. 56

Good structuring is undoubtedly very important in constructing the critical review of the literature. Like an essay, the literature review should be divided into an introduction, main body and conclusion. The introduction “outlines the problem areas and the aims and structure of the review” (Carnwell & Daly, 2001, p. 60). The main body of the review should not be structured in terms of paragraphs each describing what an author says. Rather, it should be written in the form of an argument linked to the research objectives and research questions. Moreover, it has to be structured into different sections. As articulated by Gould (2011, p.2), it rather should be:

dictated instead by topic areas, controversial issues or by questions to which there are varying approaches and theories. Within each of these sections, you would then discuss what the different literature argues, remembering to link this to your own purpose.

Finally, the conclusion should be constructed to summarize all what has been discussed in the body of the literature review including previous studies, theories and concepts informing the new study. Furthermore, gaps and flaws in existing

knowledge should be identified and linked to the purposes and rationale of the research proposed to be investigated.

4.3. The Literature Review and Critical Voice

Similar to a good structure, the voice of the student or the researcher is fundamental to the success of the critical literature review. The latter must be written from “a particular standpoint or perspective” (Hart, 1998, p. 25). Various researchers have defined voice in academic writing in different ways. It is described as “the representation of self, identity and authorial presence reflected in the writer’s autonomy of thoughts” (Matsuda, 2001 in Barnawi, 2011, p. 192). It is also defined as the “expressions of the writer’s own views, authoritativeness, and authorial presence.” (Ivanic & Camps, 2001, p. 7). As a form of academic writing, the critical literature review not only “conveys disciplinary content but also carries a representation of the writer” (Hayland, 2002, p. 1092).

Postgraduate students must allow their distinctive voice to come through their writing, and their reviews of the literature should reflect different aspects of critical thinking. Instead of merely listing what others have stated, students should express a critical voice or stance. This entails forming a strong individual argument, and supporting it by citing and discussing the work of relevant authors as evidence, avoiding excessive reliance on direct quotations.

There is plenty of research on the significance of voice in constructing the critical literature review. Wallace and Wray (2011, p. 151) believe that “Critical Literature Reviews are personal. They reflect the intellect of the reviewer, who has decided the focus, selected texts for review, engaged critically with and interpreted the evidence they offer, ordered and synthesized what was found, and written the final account”. Additionally, it has been convincingly argued that critical thinking helps students to express their ideas freely in their writing, presenting their opinions, constructing arguments, and supporting their claims with reasons and evidence. However, students must consider that their writing needs to adhere to academic standards. It has to be “clear and concise, devoid of colloquialisms and personal language...objective and respectful of others' opinions...it is not a forum for emotive language or strong personal opinions” (Srivastava, 2012, p. 42).

Voice and the representation of self are crucial in writing the critical literature review. However, there is controversy among researchers regarding how to promote voice in writing. Hyland (2002, p. 1091) contends that “the most

visible manifestation of such an authorial identity is the use of first person pronoun". However, the use of "I" in writing can be problematic, especially among students who are not informed about the importance of expressing their voice in writing and are not advised by teachers to explicitly present themselves through the use of the first-person pronoun. While Hyland argues that 'I' is a powerful means and a successful key element of academic writing, others believe that it does not promote formality in writing and suggest avoiding its use.

Whether using the first-person pronoun or not, authorial voice in writing signifies individualism and identity. Moreover, it is integral to the critical writing of the literature review. Instead of merely repeating or copying what others have said in the form of summaries, it enables students to express their own judgment and reasoning.

Conclusion

Critical thinking has long been a cherished outcome of higher education, and its importance has been reiterated widely at the postgraduate level. Doctoral writing and research demand critical thinking abilities, with students expected to show evidence of interpretation, analysis and evaluation (among other critical thinking skills) in writing the literature review section of their dissertations. This paper explored the concept and practice of critical thinking in the context of writing the literature review, emphasizing that the review extends beyond outlining or summarizing the works of other authors. Instead, it requires a well-constructed argument written from the students' own perspective, supported by evidence and reasons drawn from different relevant sources within their field of inquiry. Various aspects of writing a critical literature review were explored, including the importance of finding gaps in previous research and the ability to advocate for and elucidate the contribution of the new study to the existing body of knowledge.

Given the importance of critical thinking in writing the literature review, it is crucial to provide support to doctoral students in developing their critical thinking skills. This support can take the form of instruction on how to undertake critical literature reviews. Workshops can also be designed for postgraduate students to sharpen their understanding of the concept and practice of critical thinking in relation to their dissertation writing and defense. These initiatives aim to equip students with the necessary tools to engage in critical thinking within the academic context.

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APPENDIX A:

Glossary of Critical Thinking Terms

Argument: The term argument refers to a set of claims presented as reasons for accepting the conclusion. The reasons are presented with the aim of persuading the hearer or reader to accept the conclusion.

Assumption: A belief is an assumption when it is clearly accepted for granted by a speaker or writer but is not stated or made explicit by them.

Point: A statement or a proposition.

Premise: A preliminary point that justifies a conclusion; often there are a series of these leading logically from one to another.

Conclusion: The final point that claims to be true because of the reasons presented. Conclusion is part of an argument

Deductive (- tion): An argument where the premises logically prove the conclusion.

Entail (- ment): Premises in a deductive argument are said to entail the conclusion because the conclusion is a logical and necessary consequence of the premises

Inductive (- tion): An argument where the premises only suggest or support the conclusion without absolutely proving it. The conclusion may be very likely but is not logically inescapable.

Inference): Mental activity in which a person extrapolates from reasons to a conclusion, making a logical move. Inferences can be strong (that is, very likely) or weak (not so likely).

Fallacy: An illogical, mistaken or unreliable argument.

Syllogism: A three- part argument with a major premise and a minor premise leading to a conclusion.