

# Chapter 15

## Developing Critical Thinking in Doctoral Students: Issues and Solutions

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### **ABSTRACT**

*The PhD is the highest level of academic qualification, and is by its very nature an exercise in the development of critical thinking. This chapter discusses what it means to study for a PhD and the problems that students have with developing skills of criticality. The author discusses his own experiences of supervising over 50 doctoral students and relates this to the relevant literature. The role that the supervisor, research training, the thesis, dissemination and the viva can play in developing critical thinking are discussed. The power of specific techniques including reflection, action research and action learning are also explored. The chapter presents areas worthy of future study and concludes by presenting an agenda which PhD students and their supervisors might follow.*

### **INTRODUCTION**

This chapter discusses and explores the role of critical thinking in doctoral education and examines models for developing criticality in PhD students. The chapter will review doctoral standards, the role of critical thinking within the doctorate and the issues that students often have with critical thinking. It will examine each of the stages and players within the doctoral process, reflecting upon how each of these might contribute to critical thinking skills development. The chapter will draw from the author's own experience and the

experience of doctoral students with whom he has been involved, as supervisor, examiner, or in an advisory capacity. The chapter will be illustrated by quotations from students.

The author has spent much of his working life supervising and supporting the studies of doctoral candidates. It has been his pleasure to supervise over 50 students through to successful graduation. Each student has taken their own journey, and he has been fascinated, watching the students as they change, transform and develop through their research studies, and through the different stages of their PhD projects. One of the most important

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skills that all of us as supervisors must set out to develop within our doctoral students is that of critical thinking. Indeed, it can be argued that studying for a doctorate is all about critical thinking.

The skills of research, problem solving, exploration, and academic writing which are developed during a PhD relate to, require, and develop critical thinking. The next section of this chapter will discuss the doctorate, doctoral standards and the literature relating to PhD students and their students. Then, having established that studying for a doctorate is all about critical thinking, the remainder of this chapter will discuss the author's own experiences of supervising and working with doctoral students, and how each part of the doctoral process can, and should, be used to develop critical thinking skills. In each case mechanisms which can be used to develop these skills will be proposed and reflected upon.

Specifically, the following will be covered within the chapter: the role of the supervisor, research training, the process of undertaking the doctoral project itself, peer support, reflective practice, dissemination, action research and action learning, the viva (and the mock viva).

### **BACKGROUND**

It is generally accepted (van den Brink-Budgen, 2006) that the basis of critical thinking is the argument, and the reasoning behind that argument. Similarly, a doctorate is also about a thesis, which is itself; a reasoned argument. Doctoral study is all about researching to find the evidence to back up the reasoning behind the thesis, or the argument. Facione (1998) proposes that there are six core critical thinking skills: interpretation, analysis, inference, evaluation, explanation, and self-regulation. All of these skills are evident within doctoral studies. However, on reflection, the author realises that critical thinking is also one of the

most difficult skills to develop, or teach, and one of the things that students find most challenging about their doctoral studies.

Much has been written about critical thinking, and the need to develop this in students (Beyers, 1995; Paul, 1995; Terenzini et al, 1995). Surprisingly, however given the nature of the doctorate, little has been written about the development of critical thinking in doctoral students. King et al (1990) discuss the issue of assessing critical thinking in graduate students, noting that there is little agreement as to what constitutes critical thinking. Onwuegbuzie (2001) compared critical thinking skills in Master's and doctoral students and concluded that, as might be expected, the doctoral students exhibited considerably greater criticality than the Master's students. Zipp and Olson (2011) discuss the role of mentors in promoting critical thinking in doctoral students and conclude that 'good mentors lead students on a journey that forever changes the ways in which they think and act'.

The doctorate is the highest level of academic qualification (Mowbray & Halse, 2010). There are many different forms of doctorate; the most traditional being the PhD or Doctor of Philosophy. In recent years, a number of new forms of the doctorate have developed such as the DProf (Professional Doctorate), the DBA (Doctor of Business Administration), the EdD (Doctor of Education) and the EngD (Engineering Doctorate). These new doctorates are practice-based or professional doctorates (see Smith et al., 2011; Fulton et al., 2013) which give experienced professionals the opportunity to study for a higher degree, by basing their project within their workplace (Wellington & Sikes, 2006). All doctorates culminate in a major research project which is expected to demonstrate critical thinking on the part of the candidate and that they have made a 'contribution to knowledge'. The level of criticality, the scale of the project and the contribution to knowledge are

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