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

The skills of research, problem solving, explo-
ration, 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 doc-
toral 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 argu-
ment, 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). Surpris-
ingly, 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 pro-
moting 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 Philo-
sophy. 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 profes-
sional 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 (Wel-
lington & 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