

Towards a Bernsteinian problematic for identifying and analysing knowledge relationships in collaborative doctoral research projects.

Barbara Adkins
Susan Danby
Jennifer Summerville
Queensland University of Technology
Australia

Recent policy emphases on the knowledge economy and innovation in Australia and internationally have linked research, including higher degree research, to broader goals of knowledge transfer involving the translation of knowledge to domains outside the university where it can be taken up and applied. Research in this area has focused on various aspects of university-industry relationships with respect to doctoral education including labour market and employment relationships of doctoral graduates (Western et al, 2007; Campbell et al, 2005; Enders, 2005; Miller et al, 2005), and their experience of university-industry interface (Thune, 2009; Harman, 2002).

The perceived requirement to adapt doctoral training to labour market and employment relationships and research-industry collaboration has been linked to the increased emphasis on “mode two knowledge” as knowledge produced in the context of application (Gibbons et al, 1994). A central development in relation to these changes is the growth of collaborative contexts in which doctoral research is conducted, including, in Australia, industry and cross-sectoral funding for doctoral projects through the Australian Research Council and other research funding schemes, doctoral programs in cooperative research centres with industry partners (Harman, 2004) and increasing participation from the professions and applied disciplines (e.g. design, business and nursing) in research higher degrees (Barnacle, 2005). These changes have also been associated with a transformation in the profile of doctoral students, including a substantial increase in numbers enrolled in doctoral degrees and significant changes in their characteristics. Around 50% of doctoral students are part-time and a high proportion of these are employed in industry, often in senior positions (Pearson, Evans and Macauley, 2004). Barnacle has identified a key property of this changing profile as the motivations of doctoral students, who are increasingly oriented to transformation in their professional lives (Barnacle, 2004).

Changes have also occurred in what is required of the doctoral student, characterised by Gemme and Gringas as follows: “The apprentice-researcher will not only have to master the foundations of his or her discipline and the specialized knowledge of a specific research area, but also to develop sufficient command of the problems related to the context of application (Gemme and Gringas 2004, p. 4). This has been supported in a recent Australian study of employment outcomes of doctoral graduates, which identified the need to better understand the mix and balance in doctoral training of generic analytical, research design and collaboration skills on the one hand with the insights gained through specific disciplinary learning on the other (Western et al, 2007).

These changes raise questions about the nature of doctoral pedagogy in applied contexts and specifically the processes and contexts of application. Barnacle opens up the question of the way we respond to such findings with respect to doctoral pedagogy. She questions the often implicitly assumed connection between the “needs” of a knowledge economy and the aspirations, preferences and practices of doctoral students. She argues that a focus on “doctoral becoming” as a key component of knowledge acquisition should not be sacrificed in an enhanced focus on knowledge production as instrumentally attuned to the requirements of application and knowledge transfer (Barnacle, 2005). Bullen et al propose a similar caution in relation to institutional responses to knowledge economy imperatives, departing from approaches characterised by the “science-oriented techno-economic paradigm” and urging consideration of the ongoing importance of producing reflexive knowledge that embraces not only substantive discoveries but also insights into the need for constant revision of knowledge and its implications for individuals and society (Bullen et al, 2004).

These reviews play an important role in identifying points of departure from assumptions regarding remedies for the assumed “gaps” between university -based doctoral training on the one hand and the knowledge requirements of contexts of application on the other. In Durkheimian sociology, these assumptions can constitute pre-notions or concepts that may not be systematically grounded in analysis of the social contexts to which they refer. For Durkheim there was a need to intervene in the attraction of adopting assumptions that may be “practically adequate” and subject them to conceptual and empirical analysis (Durkheim, 1982). In particular the above reviews beg the question of the nature of doctoral students’ perceptions and practices at the interface of disciplines and contexts of application.

This paper applies the analytical framework of Basil Bernstein, as a theorist attuned to Durkheimian principles, to identify these perceptions and practices in the case of doctoral students in an Australian cooperative research centre. The paper will apply Bernstein’s framework to this question, as a set of concepts suited to capturing the *system* of relationships in which doctoral students’ applied work is embedded. Following Durkheim the overarching focus of his theory is the relationship between “principles of social order, identity and the structuring of consciousness, social practice and the regulatory role of context” with a focus on pedagogic discourse (Moore, 2001). As such we argue that it is a framework suited to understanding doctoral students’ perceptions and practices in the context of the different levels of knowledge relationships involved in the application of their research. The paper then turns to a review of the cooperative research centre program in Australia as a particular kind of “problem raising situation” for this application, involving a particular process and configuration of “regionalisation” (Bernstein, 1996) of disciplines and industry partnerships, and raising questions of the nature of the knowledge structures required to address these relationships. We then turn to an analysis of doctoral graduates’ descriptions of their research topics and processes, applying membership categorisation analysis developed by Harvey Sacks () as a means of exploring the relationships between (“classification”) and within (“framing”) the domains relevant to their current research practice (Bernstein, 1996). As such we further develop the insights of David Silverman in relation to the potential affinity between conversation analysis and Bernstein’s theoretical and methodological project (Silverman, 1995). Finally we review the conceptual methodological and

empirical contributions of our study to a Bernsteinian problematic suited to identifying and analysing the relationships of application assumed to lie at the heart of knowledge transfer relationships.

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