Convergence, divergence and the role of disciplinary contexts in engaging students in research-based experiences (0086)

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In recent years, a convergence of interest and practice internationally in engaging undergraduates in research in different disciplinary contexts has been addressing the need to prepare students for professional life when knowledge is uncertain and the future is unclear. The spread of such practices is dependent upon academics' understandings of students' capabilities to carry out research and on institutional barriers being removed. Semi-structured interviews with twenty academics from different disciplines in a large research-intensive Australian university have explored academics' experiences, views of the value, benefits and challenges of implementing students' research-based experiences in different disciplinary contexts. Using a critical realist perspective the study has identified what enables and what hinders development, suggesting that how academics define undergraduate research can facilitate or hinder the spread of students' research experiences. The paper argues that differing conceptions of time and workload in different disciplinary contexts may limit or extend research experiences for students.

Background

Growing interest and practice internationally in engaging undergraduates in research in different disciplinary contexts addresses the need to prepare students for professional life when knowledge is uncertain and the future is unclear. However, it challenges institutions to change how students, teachers, and professional staff collaborate and it presents opportunities for academics to implement new forms of student learning. This paper considers how academics perceive these challenges arguing that knowledge of such perceptions is crucial to understanding how to open up research opportunities to a wider range of students.

In the literature, numerous and varied accounts of specific initiatives to engage undergraduates in research exist in a range of different disciplines (see for example, Chang, 2006; Cuthbert, Arunachalam & Licina, 2011; Elsen, et al, 2009; Karukstis & Elgren 2007; Roberts, Robbins, McLandsborough & Wiedmann, 2010; Shaffer, Alvarez, Bailey, et al., 2010). There also exists a variety of studies designed to indicate how to further undergraduate research based learning experiences. These include: ways to develop research skills (Willison & O'Regan 2007); broadening participation in undergraduate research (Boyd & Wesemann, 2009; Strayhorn, 2010); motivating students to engage in it; developing research in the community; developing a research community or culture (Desai, Gatson, et al., 2008, Garde-Hansen & Calvert, 2007; McLinden & Edwards, 2011); and how to disseminate student research (e.g. Mabrouk, 2009).

Benefits to students have also been well documented in the literature. They include personal and professional skills which are important no matter what profession students enter following graduation, including: increased confidence; intellectual development; critical thinking and problem solving skills (see eg, Laursen et al, 2010; Lopatto, 2006). There is evidence that research experiences have high impact in engaging students (Kuh 2008).

There have in addition been a number of studies of students' perceptions of research carried out in the UK, the USA, Canada, New Zealand and Sweden. However, there are very few studies that specifically look at academics' views of implementing research-based experiences for students. An exception is an Australian study by Howitt, Wilson & Roberts (2011) that examined the views of academics implementing an innovative research-based degree set up as a central initiative in their university. They argued that some

academics have restricted conceptions of how students develop research capability which can limit the ways in which students can learn through research and the opportunities for research that are presented to them. This finding is supported by a study carried out by Wagner, Garner and Kawulich (2011) who suggested that the knowledge-base among academics in respect to the pedagogy of developing research skills is sparse. These studies suggest that curriculum decision-making in regards to research-based activities, may not always translate into the kinds of research experiences at the pedagogical level that course designers anticipate. A few studies have suggested that there are differences in disciplines in respect to the supervision of undergraduate research (Armstrong & Shanker, 1983).

Clearly more needs to be known about how academics think about and implement research-based learning. Exploring and understanding the challenges and barriers to successful implementation of research-based learning experiences is critical to successful implementation. Our research therefore addresses the following key questions:

1. How do academics implement research-based learning experiences in their courses?
2. What kind of research-based experiences do they implement?
3. What do they see as the benefits of engaging undergraduates in research?
4. What do they see as the challenges or difficulties in including research in coursework; what constrains and what enables them?
5. Are there disciplinary differences in academics' perceptions of engaging undergraduates in research?

Theory and Methods

This paper reports on a study of academics' experiences of implementing research-based experiences for undergraduate students both within and outside the curriculum. Academics work to implement new pedagogies within their particular disciplinary contexts. As such, they interpret the situations they find themselves in as constraining or enabling. Following Archer, this paper focuses on understanding how, 'in the light of their objective circumstances' (Archer, 2003: 5), individuals' perceived constraints and enablements affect their capacity to effect change; specifically, how they implement research-based experiences for students.

Semi-structured interviews with twenty academics from different disciplines in a large research-intensive Australian university explore academics' motivations and perceived challenges. Recognising that decisions are made at a number of different levels, perceptions of those in charge of curricula e.g. heads of department and those implementing research-based pedagogies e.g. teachers, have been sought. Interviews have been transcribed and analysed thematically.

Outcomes

Findings demonstrate what facilitates change and what constrains or discourages it, offering new insights about the experiences, value, benefits and challenges of implementing research-based experiences for students in different disciplinary contexts. The differing ways in which academics define undergraduate research have been found to be crucial in determining how they go about implementation in different disciplinary contexts. Their attitudes to the benefits of engaging undergraduates in research, how time is ordered and workloads calculated and how physical and virtual spaces are facilitated and arranged in different departments are critical success factors. The wider implications of these different contexts are explored in relation to the international literature.

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