

## Exploring the transformative dynamics of threshold concepts in UK PhD students

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This paper presents the analysis of a national online qualitative survey of UK PhD students, which was an integral part of the project 'Doctoral Learning Journeys: Supporting and enhancing doctoral students' research and related skills development through research evidence based practices' (HEA, 2009), run by the University of Brighton and Anglia Ruskin University.

*Gaining clearer insights into why some students find it troublesome both to understand and to express particular threshold concepts, and into why certain students undergo a transformational or even creative experience in what we have termed the liminal space of learning, whilst others clearly get 'stuck', is...a quest well worth pursuing" (Meyer and Land, 2005).*

While the study of threshold concepts is established in a range of disciplines at undergraduate level (c.f. Lucas and Mladenovic, 2007; Savin-Baden, Sinclair, Sanders and Second Wind, 2007; Taylor and Cope, 2007; Pol, 2008; Rountree and Rountree, 2009), this research is part of a small number of new projects investigating threshold concepts at doctoral level (c.f. Kandiko, Kinchin, and Hay, 2008; Kärner, 2009; Kiley, 2009). The Doctoral Learning Journeys project seeks to identify and explain the strategies students use to understand and cross conceptual thresholds (c.f. Trafford, 2008; Trafford and Leshem, 2009; Kiley and Wisker, 2009; Wisker and Robinson, 2009).

The survey was comprised of a series of open questions and acted as a structured interview. The survey was widely distributed across the UK and attracted 275 responses from doctoral students at 28 universities from a range of disciplines, and resulted in a database of rich qualitative data.

Respondents were invited to reflect on breakthroughs they had experienced during their studies, how they recognised them, and how they felt afterwards.

The responses were analysed using NVivo to generate themes which were subsequently mapped against the five key characteristics of threshold concepts (e.g. transformative, irreversible, integrative, bounded, and involving 'troublesome knowledge') (Meyer and Land, 2003).

Respondents' descriptions of breakthroughs ranged across a spectrum of recognition moments, from eureka events to a gradual realisation that the previously disparate elements of their research were coalescing. Recognition of the breakthrough itself was variously at the point at which a particularly difficult or abstract concept was finally grasped, or when apparently unrelated themes or topics were synthesised into a coherent and unified whole. Respondents described a variety of transformative experiences, frequently involving troublesome knowledge (Perkins, 1999). The nature of the transformations was similarly diverse, with a large number of respondents focusing on a personal change somewhat akin to receiving 'permission' or 'authority' to think at doctorate level. This form of transition was manifested as increased confidence and stamina to continue with their studies.

This paper describes the multivariate analysis of the findings against the type of University attended, the mode of study (part time/full time), the nature of support offered to students and their stage of study.

These findings extend conceptual understanding of students' doctoral experiences, and will enhance their grasp of scholarship and improve their overall learning experience. Further, the findings will help supervisors, peers and research programmes to support students to a successful conclusion of their research.

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