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Title Paper 3: First-year Chemistry and Chemical Engineering Students' Relations to Knowledge

Session Understanding Knowledge, Curriculum and Student Agency (UK-SA) in Chemistry and Chemical Engineering (Ashwin)

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Abstract

This paper examines how first year chemistry and chemical engineering students understand their disciplines and how this relates to their sense of their identities as students and who they will become when they graduate from university. Based on a phenomenographic analysis of interviews with chemistry and chemical engineering students, we examine the ways in which their accounts of how they saw themselves were related to their accounts of their disciplines. This analysis will offer an insight into the relations between engagement with knowledge and the development undergraduates' personal identities in these disciplines, which will then be compared with findings from similar studies in social science disciplines.

Extended Abstract

There is a well-established literature that has examined the relations between different aspects of students' identities and their experiences of higher education (for example see Brennan et al 2010; Crozier et al 2010) However, there is less literature which examines the ways in which students' identities are related to their engagement with knowledge in higher education. Research in this area has tended to examine such issues in relation to the social sciences (for example see Nespor 1994, 2007; Ashwin et al. 2014, 2016, 2017) but these issues are less examined in the material and natural sciences. In particular, there is a lack of understanding of the transformational impact of these disciplines in terms of the ways in which they transform students' sense of identity as they engage with disciplinary knowledge. This is a key element of 'graduateness' that is characteristic of higher education. To address these gaps, this paper examines the relations between students' accounts of knowledge and their identities in in Chemistry and Chemical Engineering undergraduate degree courses.

Methodology

This paper is based on data from the Centre for Global Higher Education project 'Understanding Knowledge and Student Agency'. It draws on an analysis of 66 interviews with students from two universities who are studying Chemistry or Chemical Engineering and are in the first year of their undergraduate degrees. These interviews focused on students' identities, their experiences of studying at university and their wider experiences outside of university. In each interview students were asked about how they saw Chemisty/Chemical Engineering as a discipline. The interview a were analysed using a phenomenographic approach (Marton and Booth 1997; Åkerlind 2005). The focus in the analysis was on qualitative variation in the ways in which the students' described their personal identities and their understanding of the discipline they are studying.

Outcomes

The analysis of students' accounts of their understanding of their disciplines and their personal identities is currently being completed. The preliminary analysis suggests that there are striking similarities in the relations between the accounts of knowledge and personal identity that were reported in studies in Sociology (Ashwin et al. 2014, 2016, 2017). The similarities and differences between these sets of relations will be examined in more detail in the full paper.

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