Society for Research into Higher Education (SRHE) Annual Research Conference 2013 – Paper Submission

TITLE

The formation of academic staff members' epistemic stances

OUTLINE

Background

The study is of academic staff members' epistemic stances. The term, epistemic stances, is used here to describe the paradigms that encapsulate the underlying system of beliefs individuals hold – in regards to knowledge and knowing.

The primary aim of the study is to understand how an academic's current stance may have formed by examining the possibility of linkages to the cultural layers (Hofstede and Hofstede 2005) of gender, age, discipline, institutions of study and work, ethnicity, religion, and parents' social class. In investigating the formation of an individual academic's epistemic stance, not only the external influence of layers of culture will be considered but also the potential role of individual agency in belief formation.

Methodology

The study is informed by critical realist methodology. In order to construct a model or models that may provisionally explain mechanisms that influence the formation of academics' epistemic stances, three central methods are being employed to complement one another. The first is a questionnaire that draws on Fitzgerald and Cunningham's (2002) framework for its epistemic stance items and also includes items on cultural layers. The framework attends to three epistemological questions: What constitutes or counts as knowledge? Where is knowledge created? How is knowledge attained? The second is an interview that explores (more deeply) the same issues as the questionnaire, but also explores belief change over time. The third is recursive model development using these data sources along with theory and case comparisons to enhance and test possible models (Ackroyd 2009; Benton and Craib 2001; Danermark *et al.* 2002).

Results

The research participants are academic staff members from four large research-intensive universities in Australia. Each staff member is associated, predominantly (via their department or school affiliation), with one of eight disciplines: Mathematics, Chemistry, Biology, Engineering, Education, Economics, Psychology, or English.

The pilot study involved 22 questionnaire respondents from one university. Three participated in a cognitive interview (Karabenick *et al.* 2007) regarding the questionnaire instrument, and five others trialed the follow up interview schedule. The cognitive interviews revealed a good correspondence between participants' interpretation of items and the researcher's intentions. Some questionnaire items were

updated for the main study on the basis of subjects' feedback and/or with the aim of making coding of responses more straightforward. In order to gain insight into the processes by which epistemic beliefs form and change, a general inductive analysis (Thomas 2006) of the data from the five pilot interviews was undertaken. This resulted in five categories describing mechanisms through which epistemic stances form and change: passive adoption of surrounding culture; reading literature; interpersonal exchanges within formal education contexts; independent wondering; and conducting research.

From the main study involving all four universities there are 468 useable questionnaire responses. In order to identify the range of epistemic stances present amongst these participants at this point in time, several statistical analyses have been undertaken. Exploratory and confirmatory factor analyses appropriate for categorical data have been used to identify those particular questionnaire items that are most useful in differentiating between the epistemic beliefs of participants – this resulted in a model using 10 of the original 43 items. The final factor model contains two factor scales. The first concerns beliefs about the attainment of knowledge – whether it is achieved via creation versus discovery. The second factor scale concerns beliefs about truth and reality – whether truth and an independent reality exist or not. Using only these 10 validated items a hierarchical cluster analysis (Everitt *et al.* 2011; Rencher 2002) was used to identify four epistemic stances and to classify each of the 468 participants to one of these four groups. We have labeled these: postmodernism, realism, hypothetico-deductivism, and empirical realism. The first three correspond well to three of the five stances Fitzgerald and Cunningham (2002) propose. The two stances they describe that were not evident amongst the participants in this study are structuralism/contextualism, and (a somewhat historical) empiricism. However this study provides some evidence of a new form of empiricism in academia, what we have called empirical realism. Full descriptions of all four emergent stances will be given in the conference presentation.

To better appreciate the formation of academic staff members' epistemic stances, both quantitative and qualitative methods are being employed. Firstly, in order to begin to identify potentially formative cultures, the relationship between epistemic stance and the cultural variables of interest has been explored via regression analyses appropriate for categorical data (Agresti 2002). Backward elimination was used to select the final model from amongst potential main effect and interaction terms with $P < 0.2$ when regressed again epistemic stance alone. The final model (all terms $P < 0.05$) includes seniority level (PhD student through to professor), year of birth, discipline, gender, and an interaction between monotheistic religious beliefs (Christianity, Islam, Judaisim) and involvement in a religious or spiritual community. Space does not permit full elaboration of the results here. A full interpretation of these regression results will be given at the conference, as will the results of a further investigation of the questionnaire and interview data that involves comparing individual cases that do fit the trends (or tendencies, Ron 2002) identified in these regression analyses with those cases that do *not* fit the trends (negative cases, Cohen *et al.* 2007). This will allow greater comprehension of the effects that both social structures and individual agency have on the formation of the epistemic stances academic staff currently hold. In the main study, 95 academic staff members were interviewed.

In general, several theories of belief change seem useful for model development. These include Bendixen's work on change via epistemic doubt (Bendixen 2002), and the notion of belief constraints and enablers (Archer 2003; Hartwig 2007). It is hoped that

the conference will provide a venue for discussion of the utility of these theories in explaining the epistemic stance formation of academic staff.

Implications of the study

The study contributes to the academic practice, work, careers and cultures research area in several important ways by: extending personal epistemology research to involve academic staff participants (rather than the usual university students); providing insight into the origin of academics' beliefs; and extending the examination of culture beyond the disciplinary cultures that are often considered in higher education research.

It provides insight to the academic community regarding one another's beliefs, and it is hoped that this heightened awareness will enhance interactions within academia as we go about our teaching, service and research work. This study also provides an example of a large-scale study that draws on critical realist ideas, which may be interest in itself to other researchers.

References

Ackroyd, S. 2009. Research designs for realist research. In *The sage handbook of organizational research methods*, eds Buchanan, DA and Bryman, A, 532-48. London, UK: Sage.

Agresti, A. 2002. *Categorical data analysis Probability and statistics*. 2nd ed. Hoboken, NJ: John Wiley & Sons.

Archer, M. 2003. The private life of the social agent: What differences does it make? In *Critical realism: The difference it makes*, ed. Cruickshank, J, 17-29. Abingdon, UK: Routledge.

Bartimote-Aufflick, K., A. Brew and M. Ainley. 2010. University teachers engaged in critical self-regulation: How may they influence their students? In *Trends and prospects in metacognition research*, eds Efklides, A and Misailidi, P, 427-44. USA: Springer.

Bendixen, L.D. 2002. A process model of epistemic belief change. In *Personal epistemology: The psychology of beliefs about knowledge and knowing*, eds Hofer, BK and Pintrich, PR, 191-208. Mahwah, NJ, USA: Lawrence Erlbaum.

Benton, T. and I. Craib. 2001. Ed. Craib, I. *Philosophy of social science: The philosophical foundations of social thought Traditions in social theory*. Basingstoke, UK: Palgrave.

Cohen, L., L. Manion and K. Morrison. 2007. *Research methods in education*. 6th ed. Abingdon, UK: Routledge.

Danermark, B., M. Ekström, L. Jakobsen and J.C. Karlsson. 2002. *Explaining society: Critical realism in the social sciences*. London, UK: Routledge.

Everitt, B.S., S. Landau, M. Leese and D. Stahl. 2011. *Cluster analysis*. 5th ed. New Work, NY, USA: John Wiley & Sons.

Fitzgerald, J. and J.W. Cunningham. 2002. Mapping basic issues for identifying epistemological outlooks. In *Personal epistemology: The psychology of beliefs about knowledge and knowing*, eds Hofer, BK and Pintrich, PR. Mahwah, NJ, USA: Lawrence Erlbaum.

Hartwig, M. ed. 2007. *Dictionary of critical realism.* Abingdon, UK: Routledge.

Hofstede, G.H. and G.J. Hofstede. 2005. *Cultures and organizations: Software of the mind*. New York, NY, USA: McGraw-Hill.

Karabenick, S.A., M.E. Woolley, J.M. Friedel, B.V. Ammon, J. Blazeevski, C.R. Bonney, E. De Groot, M.C. Gilbert and L. Musu. 2007. Cognitive processing of self-report items in educational research: Do they think what we mean? *Educational Psychologist* 42, no 3: 139-51.

Rencher, A.C. 2002. *Methods of multivariate analysis*. 2nd ed. New York, NY, USA: John Wiley & Sons.

Ron, A. 2002. Regression analysis and the philosophy of social science - a critical realist view. *Journal of Critical Realism* 1, no 1: 119-42.

Thomas, D.R. 2006. A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation* 27, no 2: 237-46.