WORK IN PROGRESS

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How does an academic's concept of curriculum affect how they engage with its design and development?

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BACKGROUND

Descriptions of the term curriculum abound. It is variously described as 'a list of subjects', a 'set of courses', the 'entire course content', 'a set of planned learning experiences', the 'written plan of action' as opposed to what is actually done in the classroom or even a 'decision making process' for determining educational purposes and how they are to be achieved or some combination of these concepts. The literature provides a variety of conceptions of curriculum which essentially centre on deciding what should be included (content or subject matter), what are the most appropriate processes and conditions for learning (structure/ organisation and practice), and how to assess that learning has taken place. Despite this abundant and varied understanding of the term, we talk about curriculum "with the untested assumption that [we] are speaking a shared language" (Lattuca & Stark, 2009, p. 2).

Curriculum in higher education has not been studied extensively. In 2007 Hicks stated that "the most striking outcome" of "an initial review of the literature on curriculum in higher education in the UK, the USA and Australia … is the dearth of writing on the subject".

PURPOSE

This study aims to understand whether a higher education engineering or computer science academic's understanding of curriculum shapes their engagement with its design and development. The overall aim is to discover:

- whether there is a correlation between higher education engineering and computer science academics' understanding of the term curriculum – what I call '*curriculum in the abstract*' – and their participation in the processes that surround curriculum design and development – what I call '*curriculum as process*', and
- how that participation shapes the output of that process – what I have called '*curriculum as artefact*'.

It is anticipated that the answers to these questions will deliver not only a better understanding of how engineering and computer science academics in an Australian research-intensive university actually go about designing and developing curricula, but that the knowledge gained will enable the development of flexible and adaptive higher education engineering and computer science curricula.

DESIGN/METHOD

Due to not having a hypothesis to test and the open-ended nature of the research question, the constructivist grounded theory methodology and research methods proposed by Charmaz (Charmaz, 1995) were selected for this project. In accordance with the concepts of grounded theory, data collection and analysis will be conducted concurrently, with the outcome of earlier data analysis informing subsequent data collection.

The first stage of the research is a pilot study using semi-structured interviews with six, self-selected engineering and computer science academics at an Australian research-intensive university. Interviewees will also provide a small amount of demographic information collected through completion of a pro-forma. The interviews aim at discovering how these academics conceive of curriculum, the activities they undertake and the processes they engage in when designing and developing curricula. Interviews are recorded and transcribed and the data analysed using Charmaz approach to Grounded Theory (Charmaz, 1995).

The themes identified in the data will inform the second phase of the research which is to be carried out using focus groups. A number of focus group sessions will be run with higher degree engineering, computer science and information systems academics at three higher degree educational institutions. Focus groups will consist of 8-10 academics from each institution and will take one to one-half hours. Participation in the focus groups will be by invitation in an attempt to obtain adequate coverage of various demographic factors. Along with the more usual questions and discussion associated with focus groups, participants will be asked to model their understanding of curriculum using terms identified in the first phase of the research and those contained within the literature. The focus group facilitator will be an independent facilitator and the researcher will participate as an observer only. Focus group sessions will be recorded and transcribed and the data analysed using Charmaz approach to grounded theory (Charmaz, 1995).

INTERIM FINDINGS

Key findings from the first phase of the research – that academics focus their attention on course level curriculum rather than program level; don't frequently discuss their ideas and proposed changes with peers, that curriculum design and development at course level is essentially a solitary activity; and they don't have a coherent view of the program curriculum – are in accord with the findings reported by Stark, Lowther, Sharp & Arnold (1997).

In addition, the pilot study identified the following points of note – the term 'student' is notable in its almost total absence from the interviewees' discussion of the term curriculum and the process surrounding change; consequent on this is the apparently teacher-centric notions presented alongside interviewee focus on teaching and content delivery rather than on student learning; the need to rework / redevelop material before being confident to teach it; and that discussion with peers was more prominent for those interviewees whose definition of curriculum was not associated with either a course or program. In addition the language used tended to suggest that curriculum could be seen as a specification.

FURTHER RESEARCH

In the coming months the focus group sessions will be carried out and the data analysed. The findings and understanding gained from this research will inform the design and calibration of a model of '*curriculum as abstract*' and '*curriculum as process*'.

CONCLUSIONS & CHALLENGES

It is anticipated that the knowledge gained through this research will facilitate the development of flexible and adaptive higher education engineering and computer science curricula. The research is limited both to the Australian context and the domains of engineering, computer science and information systems. This limitation may impact the generalizability of the findings to other national higher education systems as well as to other domains within the field of higher education both in Australia and abroad.

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KEYWORDS

Curriculum; Curriculum design; Curriculum development; Grounded theory; Engineering education