

“How to lose students and alienate people”: alienation and drop out during the transition to mathematically demanding subjects at University

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A number of students that choose to go into Higher Education to study a subject with a mathematical component find that university mathematics becomes “too hard” or “too different” to that at school. This sometimes results in drop out from the degree (whereby the student will shift to another, usually less “prestigious” university/programme where the demand for mathematics is reduced or nonexistent) or completely from university.

The vast majority of drop out theories draw upon the concept of “engagement” to conceptualise this process. However, in this paper I propose to use the concept of “alienation” to explain the process of drop out for two reasons: 1) recent research into school engagement (e.g. Janosz *et al* 2008) has found that even some students with high levels of school engagement end up dropping out of school, and our data confirms that some students that were previously engaged with and successful in mathematics drop out mainly because of the problems they have at university with this subject; and 2) the research literature has tended to focus on student characteristics (e.g. weak mathematical background) or the impact of external environments (e.g. family support) to explain why students drop out (Barefoot, 2004). Instead, based on activity theoretical perspectives on identity, I propose that analysis should focus on the dynamic relationship that individuals are able to establish with the practices in which they participate, and in the alienating effect that some of these practices have on those students whose (mathematical) identity does not “match” with the new setting.

I will use narrative analysis to explore the interviews of previously successful students that dropped-out from university, and that described their first-year experience as “no longer belonging” (i.e. alien). Amongst the issues to be explored are pedagogical practices such as practical vs. abstract ways of teaching/learning mathematics and university practices that diverge from the students’ previously held ideas and that no longer align with their aspirations.

I conclude that some practices at University, and in particular in relation to learning mathematics, have become inflexible, in many cases distant from students’ reality, and do not take into account the diversity of students that seek to use mathematics in very different ways. As a result, some students feel alienated and finally drop out. Some implications for policy and practice will be discussed.

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