

Students experience of an interdisciplinary science study programme: negotiations of belonging (0205)

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Background

Political focus and research funding for research of retention have gained momentum within higher education not least within STEM (Science, Technology, Engineering and Mathematics) (e.g. Henriksen et al. 2015). Theoretically, a range of approaches have the last 20 years been used to understand retention within higher education (e.g. Harvey et al. 2006, Seymour and Hewitt 1997, Pascarella and Terenzini, 2005). Within the studies of STEM, however, most research focuses on overcoming deficits in students' prior knowledge concluding that students' preparation for their studies influence persistence, but students' academic level and abilities alone cannot explain why some students persist and others leave (Ulriksen et al. 2010). In this paper we use identity as an analytical framework for understanding students' negotiations of staying or leaving. Using a poststructural perspective we see identity as a process rather than a stable entity, where the individual produces culture at the same time as being produced by culture (Søndergaard 1996). Using an identity framework shifts the focus from seeing the issue of retention as an individual problem for the student to focus on the relationship between the student and the study programme (Ulriksen et al. 2010). With such an approach it has been shown empirically that students entering a science higher educational programme need to negotiate what they expected to meet with what they actual experience when entering their programme to gain a sense of belonging (Holmegaard et al. 2014a, Holmegaard et al. 2014b). With this paper we want to add to this by analysing what happens if the science study programme is an interdisciplinary one.

Bachelor programme in Natural Resources

Each year 70 to 90 students enter the interdisciplinary study programme in Natural Resources at a research intensive science faculty in Denmark. The study programme is described as: *a science education with social science perspectives, where focus is on how to work with and in nature*. The study programme consists of four specialisations: Plant science, Environmental science, Nature management and Environmental economics. It is an interdisciplinary bachelor that covers both science and social science fields of knowledge.

Methodology

Students were followed during their first study year. We used a combination of questionnaires, essay writing, interviews, and workshop during the students' first year to be able to analyse both their negotiations in relation to specific study elements and their negotiations over time in relation to the study programme as a whole. In addition to this, we include telephone interviews with 11 students from the 2013 cohort who had dropped out during first year. For a comprehensive description of data and methods used, see Malm et al. (2016).

	2014 cohort (84 students)
Questionnaire (August 2014)	53 students
Essay (September 2014)	66 essays on expectations of study programme
Interviews (November 2014)	7 students
Interviews (April 2015)	4 interviews with students from first interview 1 interview with student who had dropped out
Workshop (May 2015)	23 students
Questionnaire (June 2015)	29 students (16 students more than 2 questions)

Negotiations of interdisciplinarity

We find three different strategies of negotiation during the first year; *the specialised strategy* where the student from early on has a focus on one of the study programme's specialisations e.g. Plant science. The student navigates after relevant content in relation to the specialisation in each of the courses the students meet during the first year. The choice of specialisation after the first year is uncomplicated and the student gets her subject interest fulfilled because the strategy focusses the student towards relevant (in relation to the specialisation) elements in each course in the study programme. The student is not dependent upon the courses being related to each other or that the teachers in each course create connections to the other courses or to general perspectives of e.g. Social science.

In the second strategy, *the perspectival strategy*, where the student has focus on the combination of nature and social sciences to understand challenges concerning nature the students are however dependent on the study programme making connections to broad perspectives of the different fields of knowledge. When these students do not experience that the different courses are linked or the teachers' point out social-science relevance of topics they need to make the connections themselves. This is demanding for the student and makes this strategy more vulnerable.

The third strategy, *the patiently accepting strategy*, denotes a strategy where the different fields of knowledge are acknowledged and a pragmatic approach of being a student is prevailing. This creates the possibility to just accept that the courses are not related and interdisciplinary.

Staying or leaving?

In regard to retention in an interdisciplinary study programme we found that the students entering the bachelor programme in Natural Resources had to negotiate what they met in relation to what they had expected - as found in other studies of students entering a STEM study programme (e.g. Ulriksen et al. 2015). However, being in an interdisciplinary study programme framed the students' negotiations and ways of belonging to the study programme in certain ways; we find that the students negotiate and create meaning of the study programme in two different ways: one group of students perceives the first year as an introduction to the different fields of knowledge existing within the study programme and experiences the different courses as part of this introduction (*the specialised strategy* and *the patiently accepting strategy*). The other group of students seeks coherence and interdisciplinary knowledge in and between the courses and are challenged to create this coherence themselves as it is not provided through the study programme (*the perspectival strategy*). Hence, the latter group of students are challenged in creating a sense of belonging to the study programme and are more vulnerable for leaving the study programme.

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