

[O23] Back to school: educating ourselves about students' previous learning experiences

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Abstract

This project examines the experience of students studying Biology at A level in order to facilitate their transfer to Bioscience degrees. The first stage was to map the existing year 1 undergraduate curriculum against the A level Biology syllabus. The second phase involved six members of academic staff visiting a range of local schools and colleges in order to observe A level Biology lessons and speak to staff and students. The third stage was to review teaching and learning in the first year of Bioscience degree in the light of the syllabus review and visits. This has resulted in a number of projects looking at aspects of teaching and learning, including developing students' writing and practical skills. There has also been a change in attitude amongst staff who went on visits, related to their assumptions about what students can reasonably be expected to know, which continues to be communicated to colleagues.

Introduction

Research in the field of retention suggests that one of the key reasons for leaving early is a mismatch between various aspects of students' expectations and what they find when they reach higher education. Preparedness is a major feature of the issue. Ozga and Sukhnandan (1998) argue that there is an interaction between preparedness and compatibility of choice of institution and course which affects completion. Wilcox *et al* (2005) argue that there are a range of factors involved in lack of preparedness, some of which can be addressed via learning and teaching strategies. The issue of who prepares and who adapts is an interesting one in the area of retention. Zepke *et al*, (2006) identify two discourses which are 'distinct, yet overlapping and complementary' (p588). One is characterised by its project of integrating students into the institutions norms, the other by adapting the institution to meet learners' needs.

Previous learning experience is a major source of students' beliefs about what higher education involves. Constructivist theories of learning stress the importance of understanding the learner's view. 'Recognising students' prior experiences and how students come to make sense of these experiences are essential elements in establishing an effective learning environment.' (Watters and Watters, 2007 p21) These ideas include the range of those underpinning epistemological understanding. Involving beliefs about knowledge and learning, epistemological beliefs cover both the subject matter itself and the ways in which understanding of the subject matter can be developed, and therefore includes beliefs about pedagogy. Kinchin (2005) has studied the development of these beliefs in science students and ways in which students can be encouraged to develop 'a more productive epistemology' (p29) Watters and Watters, (2007) argue that particular

epistemological beliefs underpin approaches to learning and result in an approach to learning amongst most biological science students which emphasise memorising of facts and focussing on studying for tests. This can represent a rational reaction to teaching and assessment practices on the part of students, but may also be maintained when it does not bring rewards in terms of results.

Working within an adaptive discourse leads to the area of staff development; making explicit epistemological beliefs of staff and developing their understanding about prior learning experiences. Sellers (2005) describes the process of curriculum alignment, in which university teaching staff examine the curriculum students have followed before reaching higher education, in order to identify whether the institution's expectations are realistic and hence facilitate transition. Of course, the more diverse the student body the more complex this task becomes; at one end of the spectrum most students will have followed a similar curriculum relatively recently, at the other there will be a much wider range of pre-entry educational experience.

Background to study

As Student Support Officer, responsible for promoting engagement and retention, I was aware of the issues surrounding students' transition to higher education. A quinquennial review of one core degree programme made this a good time to conduct a project in which curriculum and learning and teaching would be examined in order to facilitate transition. The University's Academic Development Centre supported the study financially.

Method

During the first stage students' entry qualifications were reviewed and it was found that the majority of students on the relevant degree courses had recently studied A level Biology. Qualifications and Curriculum Agency (QCA) guidelines and examination board syllabi were reviewed and a digest prepared. Representatives of the first year teaching team compared this to the level one Bioscience curriculum.

The second stage involved extending the study to look at previous teaching and learning experiences in addition to the curriculum review. Seven members of the teaching team visited six local schools and colleges to observe A level Biology lessons, both theory and practical. Initial contact was through the University educational liaison officer. Within the opportunity sample a range of schools and colleges were obtained. The sample was composed of two Colleges of Further Education, two comprehensive schools and two selective schools, both of which happened to be girls' schools. Observations were supported by the provision of a semi structured recording sheet.

The third stage involved sharing and reflecting on the information and impressions gained from the observations and then identifying adaptations that could be made to facilitate transition to studying at university level. This involved a wider group than those who had been able to carry out the observation, and was informed by the data gathered.

Outcomes

It was felt that there were no major discrepancies between the two curricula, and that we were not expecting students to be aware of subject areas which they had not met before.

However, we were aware that a number of factors could affect the extent to which students were confident about their ownership of the subject knowledge. These would include factors such as attainment, engagement and epistemological beliefs, which could be influenced by previous teaching and learning experience.

There were a number of findings from the feedback from the school visits.

In terms of teacher support, students appeared to frequently request information and advice from the teacher during classes and when working independently on practical work. This included asking whether they were doing something correctly, asking what type of notes to make and in some classes asking about the subject content of the lesson. One colleague commented that the students she observed were 'constantly looking for reassurance that it was correct.' There are far fewer opportunities for this to happen during teaching at university. Students would more usually have the opportunity to speak to lecturers after a lecture, rather than during it.

Teachers frequently drew attention to the requirements of the syllabus and of the exam, often referring to model answers produced by the exam board. There is a large amount of legitimate material available to students on the web, including model answers and course work practical designs. This has obvious implications for students' understanding of the use of material from these sources when they reach us.

In the practical area students worked with limited amounts of relatively simple equipment. The number and range of practicals were also understandably limited. This has strong implications for the ways in which students are introduced to practical work at level one.

We observed some useful points about behaviour in the classroom that led us to change our expectations of how students might expect to behave. Most lessons observed saw numbers of students arriving late, one or two also included students leaving during the lesson. Because of the large group sizes students at our university are not allowed to enter late after an initial two week grace period, we now feel this needs more explanation. There was a large amount of talk related to the lesson in the observed classes; students would check information with friends and with the teacher. Teachers managed this rather than silencing it.

School visits made a great impression on colleagues, showing them the reality of the small group teaching and extensive guidance that students experienced. Many of us referred to our own sixth form and college experience which had involved a great deal of silent note taking from what were essentially lectures. This has led to a shift in attitude by participants in the project who now feel that students' behaviour has a cause and a context. Previously this behaviour was seen as a cause for concern and censure. As one colleague said, 'Explains a lot of what was, to me, puzzling behaviour by students'. Colleagues became aware of the amount of independence that undergraduate study demands of students in comparison to their school or college experience. This understanding was shared with interest by colleagues who had not been able to go on visits, and meetings to discuss potential outcomes were well attended.

The understanding prompted by the observation data motivated the teaching team to consider changes to teaching that would enable it to reflect students' previous experience in the classroom. A number of changes have been adopted, related to being more explicit about the demands of higher education. One module leader has developed her module guides so that learning outcomes are explained in terms of the types of study that might help to achieve them. Assessment has been changed so that all Bioscience students write

an essay at level one. The essay is preceded by a session on essay writing, and staff undergo a training session on feedback as teaching before marking the essay. In order to encourage students to attend to and act on feedback the mark is withheld until the completion of a feedback sheet indicating what aspects of the feedback will influence work on future modules. We have begun to look at fostering the development of practical skills, and are preparing to alter a key module so that students have the opportunity for formative and summative assessment of their practical skills as part of the module.

The more intractable area of teaching in large groups is still under discussion. The difference in the experience of small A level groups and large level one groups is very marked, and is not under the control of the teaching team. We are considering being more explicit about expectations of how these large groups operate as we are now aware that this is not something that students can be aware of from their previous experience. We are also experimenting with small changes, such as the use of a question box so that students can ask questions and seek clarification in a less public way.

Conclusion

The observations acted as a powerful means of enabling colleagues to question their assumptions about students' previous learning experiences. This resulted in open minded and creative examination of existing practice, and subsequent changes to teaching learning. Using the terms of Zepke *et al* (2006), we are engaged in both the assimilation and adaptation projects; trying to adapt to meet students experience and being more explicit about how we expect students to adapt. The work could be taken forward in a number of ways.

As a staff development exercise it could be carried out in its existing form across any discipline area that has a counterpart at school level. Even discipline areas which do not have an exact equivalent could look at feeder courses.

As a development of this project we will continue to explore ways in which we can bring the first year experience more into line with students' previous experience, and support students in developing approaches to studying in higher education. We could look in more depth at the epistemological beliefs of students and staff and then assess whether existing teaching and assessment methods support Kinchin's idea of a 'productive epistemology', by which he means one which is focussed on an active, enquiring approach to knowledge, where it is assumed that understanding takes time and is achieved through active engagement with the discipline. (Kinchin, 2005)

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