

Review of the Student Learning Experience in Physics

Executive summary

1. This report is based on surveys of students and staff involved in 3-year BSc or 4-year MPhys/MSci physics or physics-related degrees at UK universities.
2. The student educational experience is not markedly different throughout the different types of the universities offering courses.
3. Students entering physics or physics-related degree courses are better qualified (judged by A-level scores) than the average university entrant, and the university entrance requirements have tracked the upward movement with time in awarded A-level grades.
4. 80% of students state that they did *not* chose a physics degree primarily for its employment prospects.
5. Students view the university physics curriculum as well-balanced; neither too academic nor too applied, and including appropriate links to the results of modern research.
6. There is considerable support available for the weaker student. Although a large majority of students feel challenged by at least parts of their courses, a significant proportion of staff think that the brightest students are not sufficiently stretched.
7. In the transition from secondary to higher education, students and staff agree that lack of experience in practical work and problem solving, and a lack of mathematical skills, are the greatest cause of difficulty for incoming physics students.
8. Students value the opportunity to study some modules outside physics and mathematics.
9. Small-group tutorials are regarded by students as the most effective teaching method. Lectures also remain popular. The educational value and popularity of project work is clearly acknowledged by both students and staff. The student projects are often informed and supported by the research work of staff.
10. Feedback from students to staff on the quality of teaching is almost universal, and is valued and used by staff.
11. Students' perception of the value of laboratory work clearly increases during their courses, together with a preference for open-ended experiments.
12. Staff and students agree that feedback to students on their academic work is valuable, and should ideally be individually targeted, timely and preferably in writing. Most students feel feedback is prompt enough for it to be effective, but its full potential may not be fully realised for all students.
13. Acquisition of transferable skills is now an intrinsic part of physics and physics-related degrees. There is some evidence that a proportion of students would welcome and benefit from greater access to training in study skills or "learning how to learn" at the beginning of their courses, although by their final year three-quarters of students believe they are well-equipped to continue life-long learning.
14. Relatively few physics and physics-related students undertake paid work during term, although a small minority work over ten hours.
15. During the teaching period, the average time spent by students on private academic work, outside formal teaching, is half of staff expectations for this activity. This mismatch is to some extent remedied by private study during vacations.

16. Although the combined proportion of first and upper-second class degrees awarded in physics is comparable to other degree subjects, the proportion of first class degrees is over twice that in most other subjects, an effect also seen (for example) in mathematics degrees.
17. A majority of students would like more weight to be given to continuous assessment in their degree classification.
18. By their final year, most physics or physics-related students are intending to use the physics they have learned in a career, and about 40% go on to obtain a physics-based postgraduate qualification.
19. There appears to be scope for greater interaction between physics departments and employers of physics graduates to make students more aware of career opportunities.
20. Three quarters of students think that work placement is a good way to prepare for employment, but only a few (possibly less than 15%) actually find or take it up a placement.
21. The increased emphasis by universities on training staff in teaching in higher education is clearly evident in the staff profile. There is evidence of a significant rate of teaching innovation by staff, with the younger and female staff tending to be more involved in teaching development and educational research.
22. 84% of the undergraduates rate the majority of their teaching as “excellent” or “good”.