Outduction:
Enhancing the Final Year Experience

Transition to Postgraduate Studies?

Roz Halliwell
School of Engineering, Design and Technology
University of Bradford, UK

Abstract

The aim of this mini-project was to investigate the transition of students from undergraduate (UG) to postgraduate taught (PGT) studies within the School of Engineering, Design and Technology. This was done by looking at current practice in terms of how students are given information about PGT studies and undertaking a survey of existing PGT students was undertaken to gain an idea of the student perceptions of the transition.

Current practice within the school is varied with areas where Masters level qualifications are perceived as important being more pro-active in encouraging students onto further studies. For the Chartered Engineer status, the academic requirements are study up to the equivalent of a Masters (UG or PG) degree. This is particularly apparent for the Civil & Structural Engineering course where over half of the current cohort of PGT students come from the Bradford UG degree in the same area. There has been encouragement from staff within this area for students to consider doing either a MEng (UG) or a MSc (PG) degree.

The results of the survey show that overall PGT students feel that their UG degree prepared them for PGT studies (78% agreed) and that there is no particular advantage for students who previously studied at Bradford (61% agreed). The majority of the students also appear to have opted for further studies in order to enhance their employability (42%) and to gain more specialist knowledge (38%).

This mini-project showed that in a few areas within EDT we could improve the experience of transition. In particular recruitment from our own UG courses needs to be looked at and also we need to make sure that Stage 3 students are aware that options they chose at this level may affect their range of choices available if they continue onto a MSc course within EDT.

Introduction

This mini-project looked at the transition of undergraduate students to one of the 12 MSc courses within the School of Engineering, Design & Technology (EDT) at the University of Bradford, as this is the move that most graduating students who remain at Bradford make. It aimed to investigate how well the students feel they are prepared for postgraduate studies by their undergraduate experience. Three objectives were defined to meet this aim:

- To investigate the current practices followed in EDT
- To investigate the student experience of transition
- To propose future improvements to encourage students to take further studies

In order to carry out these objectives an analysis of the number of students progressing from UG to PG studies within EDT was performed for eligible students graduating in 2008/9 and 2009/10. This data was gathered during the data analysis for another mini-project "Who is the final year in EDT?" Also a survey of all 2010/11 MSc students was undertaken to find out about their perceptions of transition both from UG studies here and also UG studies in other universities.

Background

The School of Engineering, Design & Technology at the University of Bradford was formed in August 2002 when the various departments of engineering across the university were amalgamated into one school. There is a 'flat' management structure with separation of courses from modules by the way of a matrix approach with eight programme teams (roughly corresponding to the various branches of engineering, with technology & design) and seven subject groups (for modules). For the majority of MSc courses, students take modules from across a number of subject groups and from other schools within the university, including the School of Management and the School of Computing, Informatics and Media. This enables the school to use the synergies between the various disciplines.

For this project it is the programme teams that are important as these are the bodies that manage the courses and also influence students on their transition from UG studies. The eight programme teams within the school are:

- Foundation Programmes: for students on foundation year – no degrees awarded.
- Civil Engineering: one MSc course and one BEng course.
- Chemical Engineering: no MSc courses.
- Design: no MSc courses.
- Electronics & Telecommunications: four MSc courses and two BEng courses
- Mechanical & Automotive Engineering: four MSc courses, two BEng courses and one BSc course.
- Medical & Healthcare Technology: one MSc course, one BEng course.
- Technology Management: two MSc courses, two BEng courses and two BSc courses.

So in total there are twelve MSc courses within the School which have eleven undergraduate programmes that can directly feed into one of the masters courses. Historically the MSc courses in Electronics & Telecommunications have been running for many years, whereas those in the other programme teams are somewhat more recent. In part this is driven by the update to the academic qualifications for chartered engineer status from UKSpec that came into force in 1997 which state:

- *An accredited Bachelors degree with honours in engineering or technology, plus either an appropriate Masters degree accredited by a professional engineering institution, or appropriate further learning to Masters level.*
- ***Or** an accredited integrated MEng degree."*[1]

For students who started their degree courses before this date and who applied for CEng before the end of 2004, the academic requirement was simply an accredited Bachelors degree. All courses except for MSc in

[1] Taken from Engineering Council (2003)

Information Technology Management are accredited by the professional bodies to meet the UKSpec requirements.

Methodology

The work undertaken within this project split into two parts. Firstly an analysis of the students entering a MSc course in EDT for the past two academic years was done, specifically looking at the students who entered the course from an EDT UG course. This allowed the proportion of students in this category on the courses to be calculated, as well as the proportion of eligible students (those with honours degree at 2.2 or above) who continued to a MSc. This data came from the work done for the mini-project "Who are the final year in EDT?"

The second stage of the project was to undertake a survey of the students on the MSc courses in this academic year (2010/11). All students (176 in 2010/11) were asked to respond to the survey, and around 10% (20 students) responded. A somewhat disappointing response but some useful data could still be drawn. All students (not just those from Bradford) were asked to respond to survey as this allowed for the the student perception of transition from their undergraduate degree both from Bradford and elsewhere to be assessed. Three main questions were asked:

- Did your undergraduate degree prepare you for studying an MSc?
  - Yes/No answer
  - Room for comments
- Do you feel that students who did their undergraduate degree at Bradford have an advantage?
  - Yes/No answer
  - Room for comments
- Why did you chose to study an MSc? Choice based answer
  - Gaining more knowledge about specialist subject
  - Getting educational requirement for CEng status
  - Difficult to get a job in current economic climate
  - Increasing employability

Results

Analysis

The analysis of the undergraduate Stage 3, Stage 4 MEng and MSc cohorts for successive academic years is shown in Table 1. The eligible students are taken to be those with 2.2 in case of MSC, and 2.1 in case of MEng. It should be noted that the latter criteria is not totally correct for 2009/10 academic year but is a good rule of thumb that was used. The progression regulations for MEng were changed for 2010/11 year, in that a student could progress at any time up to end of Stage 3 (previously had to enter Stage 3 on MEng) provided their stage average was at 2.1 level. This was allowed to be applied retrospectively by Chair's Action to eight students from 2009/10 Stage 3 to progress to Stage 4 hence the increase in MEng students from 9 in 2009/10 to 21 in 2010/11.

Table 1: Proportion of eligible students to Masters courses from Stage 3 UG

Cohort	MSc in 2010/11	MEng in 2010/11	MSc in 2009/10	MEng in 2009/10
Overall	17.1%	17.1%	23.1%	10.6%
Civil and Structural Engineering	8.1%	13.0%	5.9%	3.5%
Electronics and Telecommunications	2.1%	1.6%	1.2%	4.7%
Mechanical and Automotive Engineering	3.8%	0%	3.8/%	2.4%
Medical Engineering	1.7%	2.4%	1.8%	0%
Technology Management	1.3%		1.2%	

Looking at Table 1 it can be seen that a higher proportion of eligible students progress overall to MSc as opposed to MEng in both years although the percentage proceeding to MSc went down from 2009/10 to 2010/11, and the percentage progressing to Stage 4 MEng went up. In fact the numbers remained about the same between the two years for MSc, 39 students continued to MSc in 2009/10, whereas 40 students progressed in 2010/11. The entry requirements for the MSc are lower than those required for MEng so you would expect a larger number on MSc.

Table 2: Proportion of MSc Students who were UG students

Cohort	MSc in 2010/11	MSc in 2009/10
Overall	22.3%	22.7%
Civil and Structural Engineering	57.6%	41.7%
Electronics and Telecommunications	6.6%	2.9%
Mechanical and Automotive Engineering	45%	55%
Medical Engineering	28.6%	21.4%
Technology Management	8.3%	8.3%

Table 2 shows the proportion of former Bradford UG students on the MSc courses. It is very clear to see that both Civil & Structural Engineering and Mechanical & Automotive Engineering have courses where a significant proportion of their students come from their undergraduate courses whereas Technology Management (who actually pick up students from Mechanical & Automotive engineering UG courses onto their MSc in Manufacturing Management) and more especially Electronics & Telecommunications rely much less on Bradford UG students. The latter two programme teams have January start courses as well as the traditional September start. The January start is less likely to get students from Bradford UG as they finish (even with resits) in time for September start. It is also the case that the majority courses in these two programme teams have been running for a number of years, and particularly within Electronics & Telecommunications, Bradford has a long tradition of MSc courses which recruit well from overseas markets.

Current Practice

Current practice for transition seems to be very much ad-hoc with students talking mainly to final year project supervisors about MSc courses within the school. They will sometimes talk to the relevant Director of Studies or MSc course tutor if they know who the course tutor is. There is no real provision for recruitment events and the students mainly rely on information provided on the web and by the admissions officers. However within the Civil & Structural Engineering programme team, due to the importance of CEng status within this profession, there has been a greater push to encourage students to either do an integrated undergraduate Masters or an MSc to fulfil the academic requirements. Also this year (2010/11), the final year students were invited to the MSc Poster Day which took place the day after their own, so it will be interesting to see what impact this has on recruitment for 2011/12.

Survey Results

The survey results are presented in Figure 1, Figure 2 and Figure 3 which are the responses to the three questions defined in the Methodology section above. Looking at the results, it can be seen that on the whole the students were positive in answer to the question about how they felt their undergraduate degree prepared them for the MSc. However this result was evenly split when looking at the Bradford students alone. It is also interesting to note that the majority of students felt that doing an undergraduate degree at Bradford gave them no advantage when doing the MSc. Again for the students from Bradford, the answer to this question was evenly split with half answering yes and half answering no. The answer to question 3 shows that most of the students seem focussed on their future employment prospects and also gaining more knowledge, with less on the other two factors suggested. The students who answered gaining educational requirement for CEng status were interestingly all from Bradford UG degrees, although they also answered that employability was another factor in their choice.

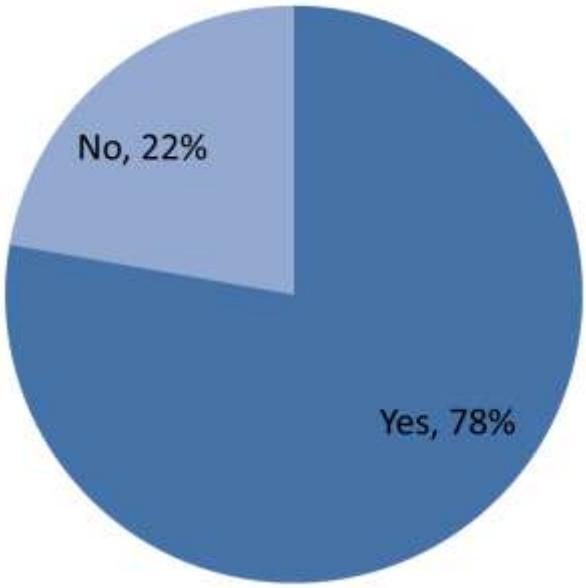

Figure 1: Did your undergraduate degree prepare you for studying an MSc?

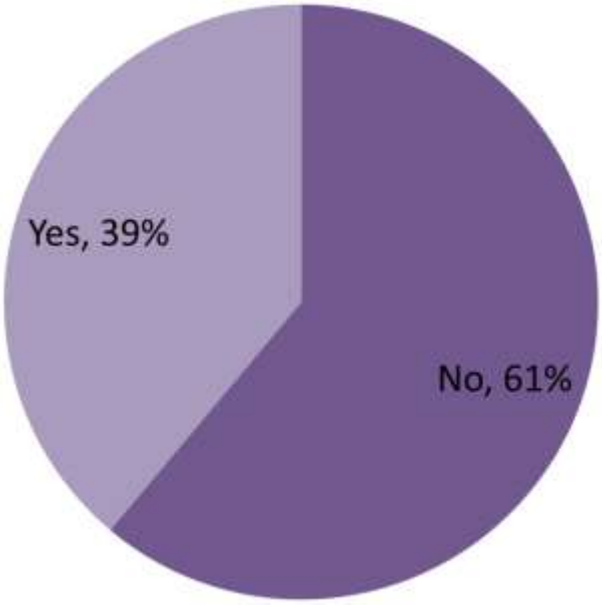

Figure 2: Do you feel that students from Bradford UG degrees have an advantage?

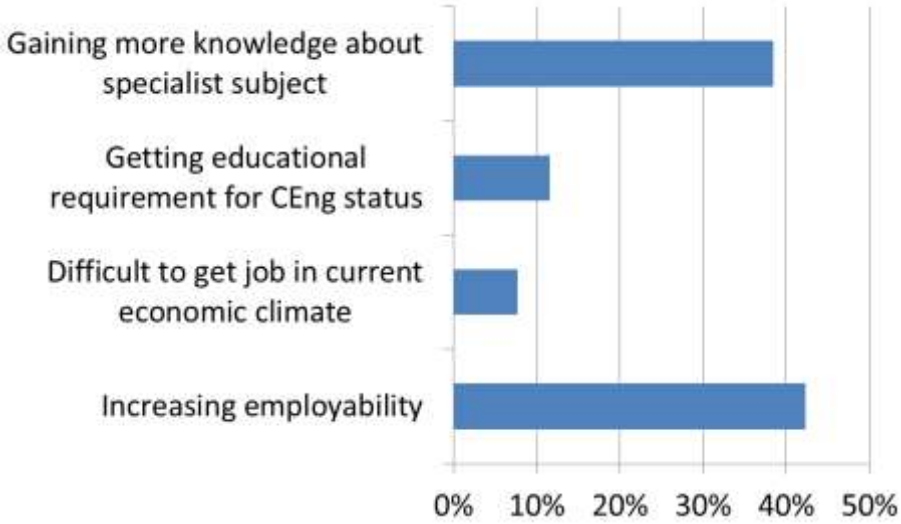

Figure 3: Why did you chose to study an MSc degree?

With regards to the first question the main issues raised were to do with expected workload and also a disconnect in terms of knowledge expected at undergraduate and MSc modules on similar subjects:

- *"There was a big jump in the workload we were given, even though we had fewer modules."*
- *"There was definitely a disconnect between the knowledge we were expected to have while on the Civil and Structural MSc course and what we had been taught during the BEng course of the same name. This impacted students' performance on one module greatly."*

The comments gained from the students with regards to the second question included:

- *"The course structure was detrimental to students who did their undergrad at Bradford as some Masters modules were unavailable to pick as they had already been done in the previous year."*
- *"Know the demands of each academic, and their way of teaching."*
- *"The students who had done their UG at the University of Bradford seem to have been well versed with the atmosphere of the university."*

The first comment was particularly a case for the students on the Medical Engineering course, and to a level for the students studying on one of the Electronics & Telecommunications courses. Indeed it was

comments like this that was a driving force for the latter programme team in developing five years ago a more optional MSc course in Electrical & Electronic Engineering as opposed to the existing specialised courses.

Conclusions

There is a small but significant proportion of students going from EDT undergraduate courses to MSc degrees within EDT. This is more important to the newer accredited MScs in Civil, Mechanical and Medical Engineering, as opposed to the MScs in Electronics & Telecommunications. Is the particularly high portion of students on MScs in Civil and Mechanical Engineering due to the requirements for CEng status? This requires further investigation to be fully answered. Most students chose to continue their studies at MSc level to increase their employability and/or to gain more specialist knowledge. This is important in terms of Outduction as we as a sector need to be increasingly aware that employers may be looking for more than just a simple honours Bachelor degree. The driving force behind integrated undergraduate Masters degrees in the sector has been the various professional bodies requiring students to have four years study in order to be fully chartered (in science, maths & engineering) or qualified (in case of pharmacy). This also may be the reason for the growing popularity of postgraduate Masters degrees as in many fields these tend to have a lower entry requirement than integrated Masters degrees, although they can share many modules in common as is the case within EDT.

Recommendations

As a School we need to look into the provision of a more formal system for encouraging students onto MSc studies. This could be a recruitment event (as run in SCIM) or simply a meeting with the Director of Postgraduate Taught Studies (a new post within EDT for 2011/12). The inviting of current final year students to the MSc Poster Day may also be good as it gives the UG students chance to talk to existing MSc students about what the course entails.

We also need to ensure students have the information about what modules on MSc course, as choices at stage 3 of Bachelor's programmes can adversely affect student choice on a MSc course. This is obvious for the Level M modules (all of which have a module code starting ENG4…) but less obvious for some stage 3 modules that appear on the MSc courses. This requires us as academics to also be aware in our course design about how module choices on a programme can affect students.

References

Engineering Council (2002), *UK Standard for Professional Engineering Competence,* updated June 2011, Available from: http://www.engc.org.uk/ecukdocuments/internet/document%20library/UK-SPEC.pdf, accessed 17/08/2011.