trans:it engineering
Paul Spencer and Mohan Mistry
School of Lifelong Education & Development
University of Bradford

Abstract
The overall aim of trans:it engineering is to support the transition of engineering students from further to higher education and thereby increase the learning effectiveness and long term success of learners entering higher education from vocational courses such as those offered through BTEC. Generic trans:it material developed during 2009-10 has now been supplemented by engineering-specific material. In common with the original trans:it, it is available both as a web-based and a paper-based version. The website www.transitwestyorkshire.ac.uk contains all the student support and tutor guidance material.

Following a staff and student consultation process, six topics were identified as areas of particular importance to students making the FE to HE transition. These are: You and Higher Education; The Independent Learner; Time Management; Managing Information; Writing for Higher Education; and Group Work.

Support materials were produced around these themes, designed for use during tutorial sessions within the FE context. For each of the six topics listed above, there is tutor support content, in addition to the student content. It is also possible for the materials to be used by students in HE and independently.

A seventh section was produced during 2010-11 by a similar staff-student consultation process, to cover areas specific to engineering. During 2011-12 we are developing trans:it science in the same way.

The website www.transitwestyorkshire.ac.uk contains all the student support and tutor guidance material. trans:it can be adopted wholesale by other institutions, used selectively, or modified to meet specific requirements.

Keywords: transition, progression, learning materials, vocational progression, support, guidance materials, student, tutor, website, engineering students, engineering profession, SI & Imperial units, project management, control systems, materials and properties

Background
With the support of the West Yorkshire Lifelong Learning Network, the University of Bradford and its partners in HE and FE produced an interactive and accessible suite of generic support tools (booklets and website) in July 2010 for use with FE learners, enabling them to recognise their strengths and address their development needs in preparation for learning in higher education. Referring to its themes of transition and support through IT, the material was called trans:it.

In common with most universities, the University of Bradford pays extensive attention to student support, and a number of resources and materials are available across the institution, particularly through Learner Support Services (LSS). The starting point for the project was an assessed module - The Effective Learner - offered through the School of Lifelong Education and Development (SLED), and learner support material produced by the School of Management.
Building on these, the themes and content of trans:it were identified during three consultation sessions involving FE students who were intending to progress to HE courses, and students who had made that transition, currently studying in HE. Each gave their perspective on the anticipated or actual experience of moving from one context to the other. The consultation meetings included staff from both sectors, who added their views on areas of support needed, and how these might best be approached. As a result of this consultation process, six topics were identified, covering particular issues faced by students moving into HE courses from vocationally based provision in FE.

The areas identified as being of particular importance to students making the FE to HE transition were organised into six topics:

1. You and Higher Education
2. The Independent Learner
3. Time Management
4. Managing Information
5. Writing for Higher Education
6. Group Work

These six sections make up the trans:it package now being used in HE and FE institutions not only across West Yorkshire, where it was developed but also much further afield. The material was principally intended to be used in a tutorial context; hence alongside the student content in each of the six sections there is additional guidance material for tutors. However, the material was designed so that it could be used by individual students independently: this flexibility led to the widespread uptake of trans:it material across the UK and indeed across the globe.

Rationale

Students making the transition from further to higher education provision often experience difficulties arising from several factors, including their more diverse course and qualification background, encountering a greater variety of modes of study or assessment than is general during their earlier studies. The trans:it activity based at the University of Bradford arose in response to these observations, and was supported by the former West Yorkshire Lifelong Learning Network (WYLLN).

The development began by carrying out two formal literature investigations, the first considering specific differences between the two levels of study [1] and secondly how existing schemes had been developed elsewhere especially to support the FE / HE transition.

In producing the original trans:it we considered only generic issues across the range of subject areas, and welcomed the opportunity that arose from HE STEM funding through The Royal
Academy of Engineering to revisit the model and relate it to particular issues encountered in making the transition in engineering-based subjects. An initial consultation was carried out to consider whether there were in practice any additional areas not covered by the generic material. We soon concluded that there were, and an additional section designated trans:it engineering was produced in response to specific needs.

The Approach

At the heart of the development programme was a set of staff / student consultations. The approach during 2009-10 consisted of:

- an initial consultation with FE and HE staff to discuss the current difficulties observed in students progressing from FE into HE courses either in Higher Education Institutions (HEIs) or by continuation within the Further Education College (FEC);
- a second staff only meeting to finalise the list of topics.
- a second consultation with the above staff and a sample of FE students intending to move to higher education courses, and HE students who had come from the FE sector having followed vocationally-based courses such as the BTEC National Diploma;
- the commissioning of a specialist writer to capture the views of the staff and students and organise them into a draft support programme;
- a third consultation with the staff and students to survey the material produced and advise on potential improvements;
- the commissioning of a web author to design and execute web pages based on the written output, bearing in mind the need for interactivity and accessibility;
- a regional launch for local colleges and universities.

We made use of the Wikispaces facility to keep staff and students in touch with emerging material and encouraged them to feedback at any stage between meetings. In practice very little feedback was obtained through this mechanism, compared with the focus group meetings.

During 2010-11, we used the Academy / National HE STEM Programme support to apply the above methodology specifically to engineering subject areas. We considered the six existing sections in the light of issues identified by the consultation process, identified areas of additional engineering-specific support, and combined them, creating a new seventh section (see fig 2 below):

<table>
<thead>
<tr>
<th>Section</th>
<th>Existing trans:it material</th>
<th>Additional engineering material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. You and Higher Education</td>
<td>🟦</td>
<td>🟥</td>
</tr>
<tr>
<td>2. The Independent Learner</td>
<td>🟦</td>
<td>🟥</td>
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<tr>
<td>3. Time Management</td>
<td>🟦</td>
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<tr>
<td>4. Managing Information</td>
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<tr>
<td>5. Writing for Higher Education</td>
<td>🟦</td>
<td>🟥</td>
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<tr>
<td>6. Group Work</td>
<td>🟦</td>
<td>🟥</td>
</tr>
<tr>
<td>7. Engineering</td>
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</tbody>
</table>

Fig 2
Within the engineering section there are eight units based on topics of particular use to those moving on to engineering-based higher education courses. These are:

1. The Engineering Profession
2. Maths for Engineers
3. Underpinning science
4. SI and Imperial Units and correct usage
5. Materials and their properties
6. Project Management
7. Control Systems
8. Engineering Extras

In common with all trans:it material, there are guidance notes for tutors and students for each unit. These are available in printed form or online at www.transitwestyorkshire.ac.uk.

**Assessment**

These are support materials and as such not generally part of any assessment or accreditation framework, although they could be used in assessment or accreditation. Their ultimate value is the improvement in student achievement and retention, and in this respect they set out to contribute to existing assessment.

**Evaluation**

At July 2010, the generic trans:it material has been in use for one year, and the current sustainability plan includes evaluation using feedback questionnaires from all user institutions. As trans:it engineering has only just been launched it is too early for any formal evaluation.

Initial informal feedback from staff and student users is very positive:

“A comprehensive resource for introducing engineering to FE students but it seeks to meet a need and I think it does this successfully”

*Jeanette McMurdo, Course Tutor BTEC Extended Diploma Elect. Eng., Bradford College*

“We have just enrolled with 70 students and if this pilot proves successful we will be rolling it out to all students next year and trans:it fits well into the personal planning element of the e-portfolio.”

*Tony Sturdy, Senior Careers Advisor, Huddersfield New College*

“I believe that the materials produced are a wonderful tool that can be used by students to help them with their progression. They have helped me in my studies by providing a set of structured methods to manage my time when working on my assignment.”

*Laura Hancock, Student, Leeds City College*

“Overall I think this site give useful knowledge for engineering, also has a lot of different websites that can help and go more in depth. But above all it gives a good indication to how engineering works.”

*Adam Ashton, Student, Leeds City College*
'The trans:it project provides a valuable resource to any novice engineer, especially the Maths Unit, which has all the links available to improve your skills'.

Kris Entwistle, BEng Mechanical Engineering (1st Year), University of Huddersfield

Discussion, Summary

From the outset we felt that the key to success for trans:it was the full involvement of staff and students. Three consultation events were at the heart of the project. This approach was effective and beneficial in that it clearly identified additional areas of support required to make the transition from further to higher education across engineering subjects from the perspective of teachers and learners.

We had difficulty getting the same group of people together for all three meetings, considered important for continuity and cohesion. The process was managed by offering a small financial inducement to participate with a bonus for attendance at all three events.

A key to success is finding the right person to author the material. To function effectively, an author needs a balance of expertise and humility, and ability to combine a knowledgeable and authoritative perspective with a willingness to make amendments based on student feedback. As we moved from generic thinking to engineering-specific thinking, additional demands were made on the writer of the material who needed to combine subject expertise with the earlier requirements.

Other institutions can introduce trans:it at several levels. First, students can use the material, as and when they need it; it is openly available and can be used in a stand-alone manner. Secondly, colleges and universities can adopt the material as it is, either in a guided context such as in tutorial or study support sessions, or by cross-reference through their websites, and learner support activities. Thirdly, colleges and universities can adapt the material to their own needs, actively selecting relevant parts, modifying others, inserting their own examples or features. Finally, institutions may wish to copy the whole process of consultation and develop their own version of the support material, for example for a new subject area which may have a number of non-generic characteristics or requirements not catered for in the existing material. Within the constraints of available resource, project staff are more than willing to assist with any of these levels of adopting the material or extending its range.

Further Development

There are two specific ways in which the University of Bradford can be very positive about sustainability and further development of the project. First, we have limited sustainability funding from WYLLN to continue to support trans:it, of which the engineering section is now an integral part. Secondly, through additional support from the National HE STEM Programme regional spoke at the University of Bradford during 2011-12, we are developing trans:it science. This involves going through a similar staff and student consultation process and has an emphasis on transition from BTEC science courses to HE science courses. Two new features of this are that it will include transition from school as well as college and that institutions from a wider geographical region will now be part of the process.

References and Further Reading


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