Styles of learning engendered by different approaches to work-based learning: a comparative study

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Background and rationale

Work-based learning is increasingly being implemented in higher education; the overall intention of this research project was to explore the quality of learning engendered by this experience with a view to identifying and characterising those facets which would enhance the students' learning.

Undergraduates in the School of Computing and Information Technology (SCIT) are exposed to two 15 credit-bearing work-based learning modules: the formal industrial placement which is available in year 3 of the undergraduate programme, and lasts for 48 weeks full-time: and a Vocational Experience module which is available for one day per week over one semester in the final year. The latter is provided only for students who are "topping up" a HND to a degree as a substitute for the industrial placement. SEBE offers a Foundation Degree in Project Management in collaboration with City of Wolverhampton College, the work-based learning content of which is based in a series of spine modules. The "spine" runs throughout the course and is worth 90 out of a total of 240 credits.

Previous research at the University of Wolverhampton (Davies, 2002) investigating improvements in learning style towards deep learning, achieved through changes in teaching and assessment practices, had utilised the ASSIST questionnaire, which categorises learning styles as deep, surface or strategic. This was demonstrated to be a valid and reliable research instrument. Further research, evaluating learning brought about by a period of work-based learning led to the development and implementation of a debriefing protocol, which explored the understanding that students had developed about what they were doing and its relationship to their university studies.

The work reported employed the ASSIST questionnaire and debriefing exercise to assess differences in learning style between first year foundation degree students, first year undergraduates on a conventional degree programme and two cohorts of students undertaking different formats of work-based learning. For the sake of simplicity, this report, prepared for the ee2004 conference, focuses on the Foundation Degree only. The premise that was being tested was that the Foundation Degree students would justify concerns that had been recorded in the academic literature about their non-traditional learner status, so that interventions should be considered in order to promote deeper learning.

Pilot foundation degrees (FDs) were launched in September 2001 with a multiple remit from the government to address the skills gap at the level of the professionalised manual worker/higher rank technician; and to meet employer demands for graduates who can "hit the ground running" so that they are "oven-ready" and preferably "self-basting" (Hills *et al.*, 2003). They should contribute to the regeneration of regional economies. FDs were

also intended to play a role in helping the government achieve its targets for higher education (HE) expansion, as well as re-energising tertiary education provision below honours degree level (City and Guilds, 2003).

FDs are two-year qualifications, at QCA level 4, delivered as partnerships between further education (FE) and higher education (HE), and validated by HE institutions. The curriculum should be geared towards employability and hence should incorporate both key and generic, and specialist academic and technical skills. Students should become empowered to develop into both independent and life-long learners. FDs should contain a significant proportion of work-based learning and employers should be major contributors to their development (City and Guilds, 2003).

Entry qualifications are flexible. There are no UK national requirements, with individual institutions being responsible for determining their admissions standards. Extending access through the accreditation of prior experiential learning (APEL) is appropriate for these awards. The implication of flexible admissions qualifications and the ethos of the FD is that cohorts will consist of higher proportions of non-traditional students than is usual in higher education, even in wide access institutions. (City and Guilds, 2003) (Gershon, 2003).

Students can be designated non-traditional in several ways, depending upon the particular institution. Institutions that require high A-level scores for entry would define a non-traditional student as being from a working class background, from a particular post-code area or from a family with no history of participation in HE. Wide access institutions, which are more likely to be offering FDs, may classify non-traditional students as those with entrance qualifications other than A-level and/or by socio-economic background. Students from non-traditional backgrounds have greater support and teaching needs, especially in the first year (Allen, 2001). Hence it is important that first year provision on FDs augments study skills provision in particular. The requirement for greater support and enhanced teaching may be in conflict with delivery mechanisms, especially if they include an e-learning component (Gershon, 2003).

Johnson (2000) purports that a number of learning theories are relevant to work-based learning including Discovery (Boydell, 1976), Experiential (Cusins, 1995), Action (Watson, 1994) and Deep, which is described below. Recourse should be made to these theories when designing programmes, such as FDs, which incorporate a significant proportion of work-based learning.

The learning styles and strategies adopted by students are thought to have a major effect on their achievement of learning objectives. Marton and Saljo (1976) identified two contrasting approaches to learning, deep and surface, subsequently extended to include a third, strategic, approach (Entwistle, 1987). See Table 1 (based on Entwistle, 1984). It is accepted, however, that strategic learners may also be either deep or surface learners. A fourth category, apathetic or disorganised learning, is also recognised.

A deep approach to learning is believed to correlate with increased academic success. Entwistle (2000) defined a successful student as one who adopts a deep, strategic approach with no surface, apathetic elements. A student's learning style is evaluated by "ASSIST, Approaches and Study Skills Inventory for Students" (Tait *et al.*, 1998). This questionnaire, developed by Entwistle and Tait at the University of Edinburgh, is also used to provide information on the factors which contribute to the diagnosis, e.g. lack of purpose. ASSIST aims to help staff identify students who are experiencing difficulty with their work and enables them to investigate the ways in which their teaching is influencing student learning (Tait *et al.,* 1998).

Table 1 – Defining features of approaches to learning (based on Entwhistle, 1984)

Deep Approach
Intention – to understand ideas for yourself
Relating ideas to previous knowledge and experience Looking for patterns and underlying principles
Checking evidence and relating it to conclusions Examining logic and argument cautiously and critically
Becoming actively interested in the course content
Surface Approach
Intention – to cope with course requirements
Studying without reflecting on either purpose or strategy Treating the course as unrelated bits of knowledge Memorising facts and procedures routinely
Finding difficulty in making sense of new ideas presented- Feeling undue worry and pressure over work
Strategic Approach
Intention – to achieve the highest possible grades
Putting consistent effort into studying
Finding the right conditions and materials for studying Managing time and effort effectively
Being alert to assessment requirements and criteria Gearing work to the perceived preferences of lecturers

Developments in curriculum, delivery, assessment and support should be underpinned by detailed knowledge of the approaches to learning adopted by students. Changes should incorporate those factors that enable and encourage students to adopt a deep approach to learning, since a student's approach to a given learning activity depends upon their perception of the requirements of the task (Laurillard, 1993).

The Quality Assurance Agency (2003) concluded in a review of a sample of 33 FDs that examples of good practice included the development of students' self-reflection and independence through the use of log books and progress files, which instilled high level generic skills through relating to the students' work experience (QAA, 2003, para. 47). However, about half of the sample needed to address the balance of student achievement of descriptive, practical and vocational skills with the acquisition of higher-level intellectual, cognitive, analytical and reflective outcomes (QAA, 2003, para. 60). A significant minority of reports argued that there was a lack of attention given to the development of appropriate academic and study skills in assessment, including the use of evidence, analysis and reflection (QAA, 2003, para. 58). Finally, the majority of the programmes were failing to develop an holistic approach by linking work-based and theoretical learning (QAA, 2003, para. 62). Programmes which ignore the development of such skills as use of evidence, analysis and reflection, and an holistic approach, are unlikely to engender deep learning.

The research

The study examined the quality of learning which took place during various modes of work-based learning: a year-long placement on the sandwich degree in computing (SCIT), a Vocational Experience module on the Top Up degree in computing (SCIT), and on a Foundation Degree in Project Management (SEBE). All groups were tested during their work-based learning using a version of the established educational measure, ASSIST, which categorises learning as deep, surface or strategic. It was delivered by questionnaire, which had been customised as indicated by Richardson (2000). For details see Davies and Goda (2002). The data obtained by questionnaire was analysed using the statistical package SPSS.

The Vocational Experience and Foundation Degree students were also debriefed using a debriefing protocol, which had been developed to explore the understanding that the students had formed about what they were doing and its relationship to their university studies.

The outcomes

The main part of the ASSIST questionnaire comprises 52 questions, each of which is to be answered on a 5 point scale from 5 = "definitely agree" to 1 = "definitely disagree". 13 sub-scores are calculated by summing the replies to 4 questions, so a responder could achieve a maximum of 20 and a minimum of 4 for each sub-score. Four sub-scores are then added to determine each of the deep (DA) and surface apathetic approach (SAA) scores; 5 sub-scores are added for the strategic approach (SA) score. The maximum score for each of the deep and surface apathetic approaches as a whole is thus 80, with 100 for the strategic approach.

ASSIST also records, by means of 4 questions each, responder's preferences for different types of course and teaching: a style which simply transmits information (TI) correlates to a surface apathetic approach and a style which enhances understanding (SU) correlates to a deep approach.

Table 2: Descriptive Statistics

	1	2	3	4
Age – mean	38.7	23.4	24.5	19.9
Age – SD	9.1	4.9	5.0	5.5
SAA – mean	40.9	49.8	49.8	47.6
SAA – SD	9.2	13.1	8.6	8.8
SA – mean	75.4	75.2	73.5	70.6
SA – SD	10.1	10.0	9.0	11.8
DA – mean	62.8	58.8	59.0	55.3
DA – SD	8.0	7.1	8.7	9.2
TI – mean	14.1	15.8	15.4	16.2
TI – SD	2.2	3.0	2.6	2.4
SU – mean	15.1	14.0	14.8	14.0
SU – SSD	2.1	2.5	2.3	2.8
n	21	12	28	121

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SD –  sample standard deviation
n  –  number in sample
1  –  Foundation Degree
2  –  Placement
3  –  Vocational Experience module
4  –  First year of undergraduate programme
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From examination of table 2, the first point is that the age profile of the Foundation Degree students is clearly significantly older than that of the other two groups. Secondly and surprisingly the Foundation Degree students scored significantly lower on the surface apathetic approach. The results for surface apathetic approach were further examined as four separate items: lack of purpose, unrelated memorising, syllabus boundness and fear of failure, and the Foundation Degree students were consistently lower for all four. Figures obtained from a different study, using the same version of ASSIST, with 121 first year computing undergraduates are given for comparison in column 5 and they are in line with the other two undergraduate groups. They have been included because the Foundation Degree students were also first years, unlike the placement and Vocational Experience students who were in year three of a sandwich degree and year two of a Top Up award from HND respectively. The scores for strategic approach were similar for all groups, whereas for the deep approach, the Foundation Degree students were scoring more highly, but not significantly so. The unexpected results for the surface apathetic and deep approaches of the Foundation Degree students are mirrored in their lower score for preference for teaching styles based on transmitting information and higher score for preference for teaching styles supporting understanding.

Out of 16 debriefings of Foundation Degree students, only one recorded experiencing difficulty over gaining adequate support. The remainder obtained support from a variety of sources: tutor, self-help group, class discussion, notes, books and personal research from the web. However, concern was expressed by a significant minority early in the course over whether they had understood correctly what was required for some tasks. Eleven students stated that in one way or another they were using higher level skills of analysis. Twelve students were forming a link between their academic studies and the work-place; one emphasised the importance and difficulty of achieving this.

Benefits

This study, which is work in progress, challenges the standard contention that Foundation Degree students, because of their non-traditional status may experience difficulty with their learning. On the contrary, they are likely to be more capable learners than first year undergraduates on a conventional degree programme. They are also likely to be more capable learners than students undertaking other formats of work-based learning. Thus, a period of work-based learning *per se* does not lead to an enhanced approach to learning. The results obtained will be explored further to investigate the contributory (possibly age-related) factors.

The majority of the students have stated that they are obtaining adequate learning support, so learning support was not perceived as a significant issue by students on this Foundation Degree.

Evaluation

When presented at ee2004 (Davies, Harris and Jellyman, 2004) the results attracted a significant amount of interest. The conclusion reached by the session participants was that it was likely that the quality of learning the Foundation Degree students achieved was a function of the quality of teaching they received at City of Wolverhampton College in small supportive groups. The question has become, therefore, will that be sustained when the students progress to their undergraduate programmes and are in much larger groups.

Future Work

The research done specifically with the Vocational Experience module, involving online collaborative working via a mailing list, is being extended using Moodle, a VLE which is not platform dependent. A larger study is being implemented in SCIT, examining employability of Computing graduates, and this research should feed into that project.

Acknowledgements

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