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Assessment in work-based learning: investigating a pedagogical approach to enhance student learning

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Work-based learning (WBL) is undertaken in a wide variety of higher education contexts and is increasingly viewed as a valuable, and increasingly essential, component of both the undergraduate and postgraduate student learning experience. However, the development of rigorous pedagogies to underpin WBL and its assessment is still embryonic. This paper presents a case study of how one medium sized institution, with experience of offering WBL for more than 20 years, has developed a pedagogical approach for both supporting and assessing WBL. The WBL model examined is based on the inter-relationship and inter-dependency between understanding learning, critical reflection and the identification and development of capability within a WBL context. The paper considers each of the three areas in relation to its individual contribution and most importantly, in relation to the WBL process, as a means of developing a framework for academic, personal and capability development within a workplace setting. Critical to this discussion is an analysis of the contribution of related pedagogic theory and the use of appropriate assessment approaches to support WBL and to enhance the student learning experience.

Introduction

'Work-based learning' (WBL) is a widely-used term in higher education today and increasingly so, with the emphasis on the sector's role to support and develop both local and national economic infrastructures and to develop employability skills for students (Atkins, 1999). This paper presents a study of assessment for WBL at one UK higher education institution, where WBL opportunities have been integral to undergraduate programmes for over 20 years. Staff involved in supporting student learning in this area have developed a pedagogic model and an associated assessment process, underpinned by a range of theoretical concepts fundamental to the nature and understanding of knowledge and learning. The principles of WBL that are

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essential to a critical discussion of pedagogy and assessment in this context are considered, followed by an exposition of the pedagogical model and its links to assessment activities.

In order to justify a particular approach to practice, it is important to review the range of factors that have influenced its development. The comparatively recent exploration of the workplace as a site of knowledge with its own curriculum (Major, 2002, 2005) is critical, particularly at a time when higher education needs to justify and extend its impact on and value to, society. Whilst WBL does present challenges to some of the more traditional aspects of higher education, as Boud and Solomon (2001, p. 19) have identified, it also provides useful solutions to the sector's predicament of how to move into wider and more diverse arenas of practice. This particularly applies to designing programmes of study that are intended to address the needs of employees' higher level learning, such as foundation degrees. Similarly, the skills and abilities needed on graduation by today's students are the same as those of employees already in the workplace, who seek to manage and adapt to change and the demands of complex employment situations. Additionally, WBL with the characteristics described here, and as a component of higher education programmes of study, can be recognized as a valuable way for students to apply theoretical (propositional) knowledge, enabling learning to be 'level-related' in ways that are difficult to achieve in a traditional academic curriculum, where there may be limited opportunities to critique the application of theory to practice.

However, the approach to WBL discussed here requires students and teachers to develop, and perhaps change, their conceptual frameworks of knowledge, knowing and learning. In higher education, epistemological beliefs are grounded within socially shared subject discipline. As Bauer *et al.* (2004) have argued, these belief systems related to the nature of knowledge tend to be a determining factor for learning. In WBL, the holistic nature of the learning experience (extending considerably beyond discipline boundaries) means that students need to recognize knowledge presented in unfamiliar ways and to develop the skills of meta-cognition in order to recognize and learn from the knowledge and experiences encountered.

WBL has a clear set of characteristics at the institution that provides the focus of this paper. It involves planned learning through work, a significant proportion of which is negotiated between the student and the employer; informal and unintended learning are also likely and anticipated consequences of the experience. Learning outcomes are level-related to the Quality Assurance Agency's (QAA) Framework for Higher Education Qualifications (FHEQ) and assessment criteria agreed and transparent to learners. Assessment of WBL on undergraduate full time programmes is based on a range of tools (presentation, reflective interview and reflective report/portfolio) that require students to produce evidence to support their claims for learning. In the case of students on programmes designed to gain academic credit for their learning whilst in employment, accreditation of prior experiential learning (APEL) may form a significant part of the 'learning repertoire', with claims for learning supported by critical reflective accounts.

Before exploring the details of the pedagogical approaches used to enable effective learning in WBL, it is also worth considering two views of learning that are particularly relevant. In both instances the focus is on how the learner is learning, rather than how a facilitator might enable them to learn. Consequently the views have a valid and important basis in learning theory:

- The 'constructivist' view, proposing that learners construct their meaning of experiences depending on the context in which they are; therefore learning is 'situated' in a particular context (Wertsch, 1991).
- The recognition of 'communities of practice', focusing on how people learn as members of a socially constructed group (Wenger, 1998).

Both theories are important and recognize the place of the learner within the process. However, neither dwells on how the facilitator provides and shapes the learning opportunity—the pedagogy. The learning theory is important; the link between the theory and consequent pedagogy is, perhaps, moreso.

Neither of these views contradict the approach that is taken at the study institution to 'learning' for WBL students. Rather, a pragmatic view is taken of what the WBL process is about and therefore what the student needs to be able to know and, importantly, to do (the action is critical) if they are to engage with it successfully. That is, WBL for undergraduate students is centred on learning in and through work and necessarily engages the students with the aspects of learning mentioned, namely, that they:

- know what learning is (learning implies change) and how to do it most effectively (the style, approach and fitness for purpose);
- can recognize when they have learnt (description of and reflection about the learning);
- are able to identify what has been learnt (analysis and evaluation of the learning);
- know what the learning is informed by (its validity: how the learning stands up to scrutiny against outside evidence);
- recognize what they need to learn (future learning).

This WBL approach is based on learning theory and also makes explicit how learning theory relates to, and perhaps describes, successful WBL. If this position is accepted, then, as WBL facilitators, teachers necessarily involve themselves in these areas, which serve to introduce students to the skills and processes involved in some or all of those facets of their WBL. This means that teachers are moving from their position as 'learning theorists' to 'teachers' with a clear pedagogy. In order to do this, they need to consider how to make sense of the aspects of learning in pedagogical terms, that is, how to best handle the processes that will enable students to engage effectively with those aspects of their learning. The WBL teaching team has achieved this through considering the areas of experience 'captured' here and classifying them as being informed by learning theory: what learning is about; critical reflection: the process by which we consider our learning; and capability: what we have learnt to do or now know. These then become the focus of the pedagogical

approach taken to WBL. As teachers, then, we need to ensure that students will know:

- what learning is, (learning implies change)—*learning theory*;
- how to do it best, (the style, approach, fitness for purpose)—*learning theory*;
- when they have learnt, (description of and reflection about the learning)—*critical reflection*;
- what their learning is informed by (its validity; how it stands up to scrutiny against outside evidence)—*critical reflection*;
- what they need to learn (future learning)—*critical reflection*;
- what they have learnt, know more about, become more able at doing (analysis and evaluation of the learning)—*capability*.

This presupposes, of course, that students understand and are able to learn; that they are aware of what behaviours/capabilities are changing; and that they have the tools of critical reflection to interrogate their learning and their behaviours. The pedagogical position that has developed is that there is both an interdependence and an interrelationship between these three components and that all of these need to be addressed for WBL to be successful. The task for teachers is, therefore, to enable students to develop and use the knowledge and skills subsumed within these components and, consequently demonstrate their WBL effectively through the assessment process. This is demonstrated below, in Figure 1.

This, in turn, prompts the question: 'If three components of the model are indigenous to WBL, do students need to be *assessed* in all three areas?'

It is argued that if the basic principles of alignment are followed, the answer is 'Yes'. The assessment tasks need to require students to apply principles of learning, to identify where learning has occurred, and to demonstrate how it was achieved. They need to establish the validity of the conclusions they come to through the analysis of their experiences and consequent learning, so the tasks will also require them to reflect critically and effectively.

The design of the assessment activities, outlined earlier in this paper, utilizes the components of this pedagogical approach to enable students to recognize and evidence their learning through work. Again, the interpretation of the term 'assessment' is carefully considered, with the assessment tasks being an integral aspect of learning process. As Gibbs (1999) has argued, assessment should 'generate appropriate student learning activity' (p. 47). Thus, in the last semester of Level 2, students from most undergraduate disciplines at this institution undertake a week's induction to WBL. This includes activities such as a review of learning theories, auditing a range of personal and work-related skills and learning how to apply a series of management models to work-based experiences. At the end of this week, students undertake an assessed presentation of their proposed learning outcomes for the following six weeks of work experience. Students are also provided with opportunities to develop their skills in critical reflection, and using this approach to structure entries in a 'learning journal' kept whilst on placement, and for a reflective interview assessment and reflective report, submitted after the end of the placement.

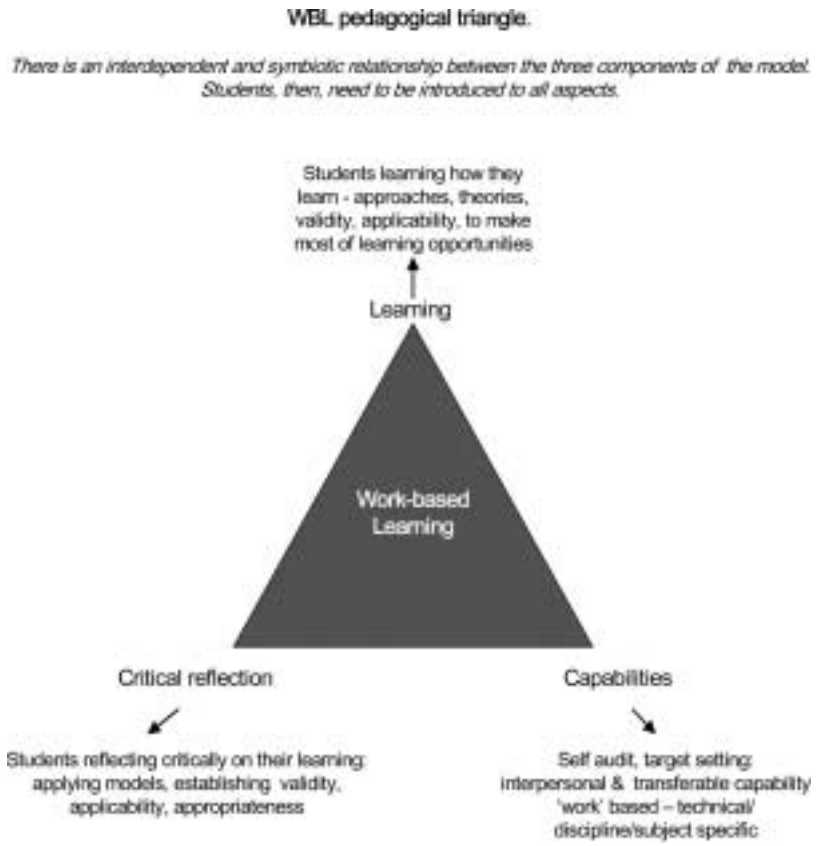

Figure 1. A model of WBL pedagogy

The inclusion of critical reflection as a particular focus for the assessment tasks is important for several reasons. Firstly, it develops students' ability to apply and critique knowledge, not only in the workplace, but as a skill for higher level academic work. As Brocklebank and McGill (1998) recognize, reflection 'enables the potential for critical transformation' (p. 88), therefore extending the value of a traditional curriculum's focus on critical thinking. Secondly, and perhaps more significantly in a WBL context, critical reflection enables students to justify and validate their claims for learning, by using a variety of evidence sources. It also enables them to recognize future learning needs: essential for developing a capacity for lifelong learning.

The approach to assessment described here possesses many of the characteristics of what Boud has defined as 'sustainable assessment', that which 'meets the needs of the present and prepares students to meet their own future learning needs' (Boud, 2000, p. 151).

The assessment strategy provides learners with opportunities to focus on how they learn and, in requiring them to claim their achievement of learning outcomes through

reflection and by evaluating feedback from a range of sources, involves them in self-assessment of their learning goals. The use of a learning journal as an aid to monitoring and evaluating progress towards achieving learning outcomes is an integral aspect of this process, and affords opportunities for both formative and summative self-assessment.

Many of these skills are, however, new to students, and it could be argued that to some extent they are advantaged, or disadvantaged, by the epistemology and pedagogy of their 'home' disciplines. Thus, students studying social science and health-based degree programmes usually have some awareness and skills in reflective writing. For scientists and mathematicians these are often unfamiliar learning strategies. For all students, there is the challenge of accepting the value of learning through work, often underplayed in a higher education environment that is based on crediting higher level thinking, rather than 'doing', skills. In order to be successful WBL learners, students need to be able to recognize and measure their own learning in quite different circumstances; to acknowledge and articulate, for example, how they have learnt from informal interactions with peers in the workplace, which, as Boud and Middleton (2003, p. 194) have noted, are 'predominant ways of learning' at work.

The assessment tasks associated with the processes outlined in the pedagogic model sit comfortably with the FHEQ descriptors cited below. For example, WBL students at Level 2 are usually involved in demonstrating

(i) knowledge and critical understanding of the well-established principles of their area(s) of study, and of the way in which those principles have developed;
(ii) ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context;
(iii) knowledge of the main methods of enquiry in their subject(s), and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study;
(iv) an understanding of the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge. (QAA, 2001)

It is suggested that it is this section of first part of each level of the framework documentation that typically drives the learning and teaching approaches within higher education, and the associated assessment tasks, so students are engaged, quite rightly, in assignments demanding them to articulate their knowledge, analyse and critically reflect, and interpret.

The assessment of capability, the third and arguably most important corner of the triangle for WBL, is more problematic. Whilst the first part of the framework descriptors tend to dictate the higher education agenda in terms of 'academic' skills, the second part tenuously suggests that students should also be able to do things, with a veiled reference to capability appearing in Section C of the section:

Typically, holders of the qualification will be able to:

(a) use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis;
(b) effectively communicate information, arguments, and analysis, in a variety of forms, to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively;
(c) undertake further training, develop existing skills, and acquire new competences that will enable them to assume significant responsibility within organizations.

And in Section D:

… and will have:

(d) qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making. (QAA, 2001)

Further exploration of the pedagogic model leads to considering the capability dimension. WBL overtly and explicitly requires students to be able to do things, and to demonstrate that capability. Yet the emphasis given to assessment of capability/ability to do within the FEHQ framework is cursory, to say the least. Students commonly suggest that, whilst they are good at teaching, are good nurses, are good coaches, most of their marks within their degree programmes are based on their ability to *articulate that* they are good, and why they are good, rather than focusing on that they *are* good teachers, nurse, coaches. The weighting within vocational programmes is such that frequently students are in a position of needing to demonstrate vocational proficiency in addition to the academic and, in some programmes, the final degree classification is derived solely from academic assessments rather than the more desirable contribution from both the academic and the professional components. This can serve to devalue capability, to distort the validity of professional/vocational programmes and, in many instances, lead to over assessment of students.

As indicated earlier, it is argued that capability is central to successful WBL. If this is the case, and the principle of alignment is followed, capability must, in some shape or form, be assessed. Certainly employers can, and do, contribute. This brings to the debate issues of equity, in employer perception of what and how they are assessing, standardization between employers and across WBL opportunities, and, naturally, quality assurance of assessment undertaken by those outside of the higher education institution. If capability is assessed, what evidence can legitimately be used? The student's? The employer's? A higher education observer's? The weighting within the overall assessment of the capability being measured needs to be considered, and/or the student's written evidence articulating how they are capable used, and an intermediate variable, their ability to write, is therefore introduced into the equation. It could be argued, perhaps, that this variable compromises the validity and integrity of the assessment of practical capability.

The WBL team at the study institution remain convinced that, in the interest of validity, fitness for purpose, and student motivation, capability must be included within the assessment process. However, a shared understanding of how the

assessment of capability and competence might be incorporated into a level-related academic framework is needed, together with the development of assessment criteria. This latter issue has been explored in some detail by Poikela (2004) who identifies the interdependency of processes involved in assessing learning and knowledge in a professional context. This, it is argued, needs to extend beyond the recognition of capability to undertake a task, to enable recognition of the *quality* of the actions. This is already being undertaken within a work-based undergraduate and postgraduate degree programme at this institution, where the level of critical reflection on performance is used in the assessment process. However, this has yet to be developed into an assessment of professional capability itself. Lastly, a more general issue of assessment of capability, is that of the weighting of the assessment, whether within the context of a module or a programme of study.

Students at the study institution are aware of these issues (they frequently suggest that the employer's contribution to assessment should be more than the current 10%) and have, in both in formal and informal evaluations of their WBL experience, identified the limited way in which capability can be credited. Developing a process for this, that meets learner, employer and higher education framework requirements, is a current assessment challenge for the programme team, and also provides a demanding and valuable focus for further research in this innovative area of higher education. The authors would welcome further contributions to this debate, and to the issues of pedagogical design and their relationship to assessment that are raised in this paper.

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