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Learning outcomes and their assessment: putting Open University pedagogical practice under the microscope

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LEARNING OUTCOMES AND THEIR ASSESSMENT: PUTTING OPEN UNIVERSITY PEDAGOGICAL PRACTICES UNDER THE MICROSCOPE

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Abstract

The Open University (OU) is the United Kingdom's only university devoted to distance learning. It is also the UK's largest university with over 200,000 students overall. Around 150,000 students are studying undergraduate level courses. Over the last decade major policy changes have impacted on UK higher education. Following the recommendations of the National Committee of Inquiry into Higher Education (Dearing Report, 1997) and the establishment of the Quality Assurance Agency, all UK universities have been required to define learning outcomes for their programmes and link learning outcomes to teaching and assessment. This major pedagogic shift led the OU to establish the Learning Outcomes and their Assessment (LOTA) project to re-examine the ways its courses are planned, designed, delivered and assessed, and to initiate necessary institution-wide changes. Explicitly linking outcomes, assessment and teaching, actively using assessment for learning, and supporting academic staff development are key elements in enhancing student learning.

1. Introduction

Over the last decade major policy changes have impacted on UK higher education. Following the recommendations in 1997 of the National Committee of Inquiry into Higher Education (the 'Dearing Report') (National Committee of Inquiry into Higher Education, 1997) and the establishment of the Quality Assurance Agency (QAA) (The Quality Assurance Agency for Higher Education), all UK universities have been required to define learning outcomes for their programmes and to link learning outcomes to teaching and assessment. For a broader discussion of the implications of an outcomes-based approach in UK higher education since the Dearing Report, see Coats (Coats, 2000). This major pedagogic shift has led the Open University to re-examine the ways its courses are planned, designed, delivered and assessed, and to establish a university-wide initiative – the *Learning Outcomes and their Assessment* (LOTA) project – to guide institutional change.

This paper will report on the methodology of the LOTA project, some findings of our work

on outcomes-based assessment, and the main learning points that have emerged. The paper will also identify some of the issues in the implementation of outcomes-based learning, teaching and assessment in a wide-area supported open learning environment.

1.1 The UK Open University

The undergraduate students of the UK's Open University are nearly all studying part-time at home through distance learning, with about 70 per cent in employment. For most courses no previous qualifications are required and there is no upper age limit to study. Students are adults who study for personal as well as career-related reasons, and most combine their studies with work, family and other commitments.

OU courses (self-contained modules) are planned and produced by teams of academics, educational media designers and editors working at the OU headquarters in Milton Keynes. Courses use a range of media from print to web-based e-learning and are designed to function both as standalone entities and as components of programmes leading to awards.

Undergraduate courses are offered at levels 1, 2 and 3, corresponding approximately to first, second and third year study at a conventional UK university. Students choose their own pathways through the available courses to accumulate credit towards OU awards (certificates, diplomas and degrees) to suit their needs. The structure is fundamentally open and flexible; students need no formal qualifications to register for a course and have considerable autonomy over what is studied and when it is studied. This openness is a central feature of the OU's educational philosophy.

To support its students the OU has thirteen Regional Centres throughout the UK and a network of coordinators in many countries in the European Union. Regional Centres organize tutorial and other support for students in their geographical area. Staff tutors (full-time regional academic staff) appoint part-time tutors, called associate lecturers (ALs), in their regions to support the OU's teaching. There are now over 7000 ALs tutoring over 600 courses produced by the University's faculties of Arts, Social Science, Education and Language Studies, Health and Social Care, Science, Mathematics and Computing, Technology, and the OU Business School.

Students taking a course are assigned to an associate lecturer who will have a group of up to 20 students. Depending on the course and the geographical distribution of the students, ALs provide face-face tutorials and day schools, telephone tuition, and on-line support via email or conferencing. The AL will also mark the assignments (known as tutor-marked assignments, or TMAs) of the students in their group and give feedback on performance. In some courses students also complete computer-marked assignments (multiple-choice questions known as CMAs).

TMAs and CMAs are continuous assessment components of a course, and provide opportunities for both formative feedback and summative grading. To gain credit for their course students also complete an 'examinable component' which may be a conventional examination[1] or, increasingly, a portfolio, report or extended essay. This may

be marked by the student's tutor but it will also be marked independently, usually by another tutor randomly selected from the tutors on that course.

The assessment strategy, the continuous assessment tasks (TMAs and CMAs) and the examinable components associated with a course are designed and written (and renewed each time the course is presented – which may be once, twice or several times a year) by the central course team. The course team also provides advice and guidance to help students prepare for and tackle the assessment, as well as providing marking guidance to support the ALs in grading and giving feedback on their students' work.

2. The LOTA project

The Learning Outcomes and their Assessment (LOTA) project was set up in 1999 to raise awareness about learning outcomes across the Open University, and to shift thinking toward an outcomes-based approach. This was institutional change on a scale not seen since the OU was established in the late 1960s. The main challenges facing the project in the initial stages were:

- Introducing new documentation for quality assurance (QA) purposes to demonstrate that all courses and awards had agreed sets of outcomes.

- Introducing a new language of learning outcomes - previously OU courses had been associated with learning objectives but these had not usually been linked closely with assessment.

- Initiating a culture change - for both academic and administrative staff this meant new ways of talking and thinking about the curriculum and the enhancement of learning.

The focus of LOTA was initially on quality assurance to meet the requirements of the QAA. All UK universities are audited by the QAA to check that the institution has adequate processes and procedures in place to assure the quality of its teaching provision.

The link between teaching and assessment and the need to align them in a way 'that will engage students in the activities most likely to lead to quality learning' (Biggs, 1999) has been well established. But a first step was to

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[1] Held at local centres to minimize travelling distances for students – but which may be specially arranged to take place anywhere under appropriate invigilated conditions if, for example, the student is disabled, posted away from the UK as a member of the armed forces or, as in a few cases, in prison.

try to clarify what that link meant in practice in the context of OU teaching. Informed by QAA guidelines course teams were asked to define the learning outcomes of their courses under four main headings:

- Knowledge and understanding – relating to subject content.
- Cognitive skills – such as analysis, synthesis and critical reasoning.
- Key skills – such as communication, information literacy, and learning how to learn.
- Practical and professional skills – as required by professional or regulatory bodies.

Identifying and grouping the main learning outcomes for courses already in existence had several advantages:

- Courses are designed and written by subject specialists and can be highly content driven. Cognitive and key skills development in particular may be embedded in a course, but may not be made explicit to students. Students, therefore, may identify subject content as their only learning and may not recognise, or be able to articulate, their other skills and abilities. Clear cognitive and key skill learning outcomes provide students with a 'language' with which to describe and articulate these skills to peers and employers.

- Assessment had not traditionally been designed to support an outcomes-approach. Identifying and grouping outcomes meant that a clearer relationship could be established between outcomes and the forms of assessment that would best support them. Clear learning outcomes also help to drive good formative assessment practice, giving opportunities to provide feedback to students against the outcomes to offer guidance about how to improve performance.

- OU courses must support the learning outcomes of awards. A curriculum map documents the relationship between courses and higher-level award outcomes. Identifying and grouping course outcomes creates clearer distinctions and relationships between courses and hence clearer progression pathways for students, within and across faculties, towards an award.

A similar identification process was carried out at award level to produce specifications for diplomas and degrees. A key factor here is that the OU is a highly modular course-based environment. Students register for individual courses not for programmes of study. Although most awards contain some compulsory courses, the pathways taken by individual students can differ both in the courses they choose to take and the order in which they take them. From an award perspective the overall intended learning outcomes must be linked back, through the curriculum map, to the compulsory and core optional courses that the student must study. The assessment associated with the outcomes of individual courses can then be demonstrated as contributing to the assessment of the outcomes of the overall award. From a QA point of view, therefore, an award-level learning outcome can thus be audit trailed back to the course or courses where it has been developed and assessed.

2.1 From quality assurance to quality enhancement

As Coats (2003) points out, the LOTA project evolved rapidly from quality assurance to quality enhancement: "What is the difference? Quality assurance (QA) is about checking the standard of what is done; identifying 'good practice'; awarding classifications or scores. Quality enhancement (QE) is about improving and developing; not just doing things well but doing things better."

For LOTA quality enhancement means looking closely not only at the documentation and institutional processes but also at the way learning outcomes are actually being used. Just as importantly it also raises questions about how outcomes are being understood, not just by the academics in the faculties and course teams, but by the ALs who are in the 'front line' of distance teaching, and by the students themselves.

It quickly became apparent that the shift to an outcomes-based approach involved not only identifying learning outcomes and making sure that the assessment supported them, but also in involving staff in exploring how this process could be made meaningful to students such that it added value to their learning experience. The triad in Figure 1 emphasises that outcomes, assessment, and teaching and learning are mutually

connected, and should seen as complementary aspects of quality enhancement. Underlying this triad are three main principles: transparency, transformation and transferability.

- Clearly identifying outcomes leads to *transparency:* teaching and assessment intentions are made explicit, and both tutors and students work with the same set of criteria to assess progress and to focus on ways to improve.

- Integrating formative and self-assessment, as well as summative assessment, into the learning process is *transformative:* students are encouraged to become actively involved in understanding how they are learning and how they can adapt their learning to new situations.

- Learning in a formal HE environment is about developing as an independent learner who can *transfer* the ability to learn effectively from HE into other, more educationally informal, environments such as the workplace.
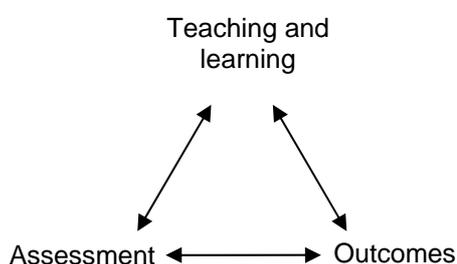
Teaching and
learning

Assessment ← → Outcomes

Figure 1. Quality enhancement: the learning and teaching triad

Enhancing the quality of teaching so that it leads to transparent, transformative and transferable quality learning is the key role of academic staff development. Good staff development needs to prompt new thinking about the curriculum, and how students engage with it. Academics need to start from an outcomes perspective not only by asking the question 'what do we want students to get out of this course or programme – and how can the assessment help them achieve and demonstrate it?', but also by exploring how students can answer for themselves the question 'what am I getting out my studies - and how can I explain and demonstrate what that is to others'.

The heart of the LOTA approach is about making things explicit so that there is a framework and a language for asking – and answering – these questions. Enhancing learning, therefore, is not just about improving assessment practices but about understanding how the outcomes – teaching - assessment triad underpins curriculum and staff development.

3. The LOTA approach

A major challenge was in introducing LOTA ideas to the academic community. Timescales for change in the OU are long. Faculty course teams work largely independently during the 2-3 year production period of a course and it can be difficult to inject new ideas into the course development process. With long production and presentation cycles (OU courses are typically designed to be presented for 6 years, with an interim review, before they are withdrawn, re-written or replaced) new ideas can take a long time to work their way into the system.

Another factor was that academic change in the OU is largely a bottom-up process. The OU has a strong tradition of academic autonomy in terms of designing and producing innovative distance teaching materials. The approach adopted was to focus on changing 'hearts and minds' rather than attempting to force change through. Three main components of the LOTA approach were:

- Establishing a team drawn from across the University comprising staff (including senior academics) from all the faculties and schools to act as 'champions' of the ideas with their academic colleagues.

- Involving the 'champions' in setting up links within their faculties and working with course teams (often ones with which they were already academically involved) to explain and embed LOTA ideas.

- Carrying out, with the support of the champions and course teams, audits to identify the main learning outcomes in courses [2], and to explore how the

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[2] OU courses have a 6 year life so most courses had not been designed with learning outcomes and their assessment in mind. All new courses now have stated outcomes and associated assessment strategy.

assessment supported the stated outcomes.

There were several significant advantages to this approach:

- The team met monthly over a period of three years and provided a rare opportunity for colleagues from different academic disciplines to come together to talk about learning and teaching at an institutional rather than a faculty or departmental level.

- It made a 'safe' space in which talk to colleagues about learning and teaching, particularly the pros and cons of current approaches, was legitimated. The meetings came to be seen by the team as a uniquely valuable experience[3].

- Open and supportive discussions with colleagues from other academic areas provided opportunities to share ideas and information widely, and to learn about where synergies existed across the University that might otherwise not have been evident.

- Workshops, pilot projects and other academic resources supporting LOTA were planned within the group, and then taken forward in ways appropriate to the different academic areas. Academic staff development was, therefore, initiated and mediated by known and trusted individuals within each faculty, not by outsiders.

3.1 Course audits

Audit is a way of checking the match between course learning outcomes and assessment. The LOTA approach put an emphasis on transparency; the work showed that auditing assessment and teaching material against the intended learning outcomes identifies gaps between:

- the intended learning outcomes and the assessment of those outcomes;

- what is assessed and what is taught;

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[3] In other research (Dillon et. al., 2005)] we have found similar 'safe environments' to work well for students in encouraging them to raise awareness of and recognise their own learning and skills.

- what is actually assessed and what is assumed to be assessed;

- the information and guidance given to students and that given to tutors.

Auditing was carried out by experienced ALs working as consultants to course teams. This brought a degree of independence to the process and highlighted gaps between the assumptions of the course designers and the actualities of course delivery. Addressing those gaps suggested ways the assessment and feedback process might be improved and used to enhance learning:

- Assessment tasks should be linked explicitly to relevant learning outcomes. That is, assessment needs to be specifically devised to match the relevant outcomes. Assessment should provide opportunities for important outcomes to be revisited several times during a course, and feedback to students should make reference to this.

- Recognise the developmental aspect of assessment by explaining to students the assessment strategy of a course and how they can use it to support their own learning. Opportunities for self-assessment against the learning outcomes are as important as summatively assessed tasks, and help support the development of the student as an independent learner.

- Use outcomes as criteria to prompt feedback and 'feedforward' comments from tutors. Feedback addresses existing students' performance while feedforward offers guidance to improve performance.

- Use the language of outcomes in student guidance (including course, programme and qualification descriptors), notes for tutors and staff development activities as a way of talking about expectations, development and achievement.

- Support students in using outcomes in self-assessment and personal development planning (PDP) activities and encourage them to see outcomes as a way of describing their achievements to others, such as employers.

Figure 2 summarises the audit process and links audit to curriculum alignment. In the highly modular course environment of the

Open University explicitly linking outcomes, assessment, courses and awards is important. As adults already in employment many OU students will expect to use their studies and qualifications to improve their careers. Typically a student may spend about six years studying part-time with the OU.

Award level

Using a curriculum map to relate high level award outcomes to relevant course outcomes at each level of study – and checking that all award outcomes are taught and assessed

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Aligning courses and awards

- Linking assessment tasks to one or more specific course outcomes.
- Using outcomes to direct feedback (recognising the quality of a student's work) and 'feed forward' (guidance to improve quality).
- Building outcomes into student guidance, tutor notes and academic staff development.
- Student use of outcomes and personal development planning (PDP) to check progress and raise awareness of skills.

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Course level

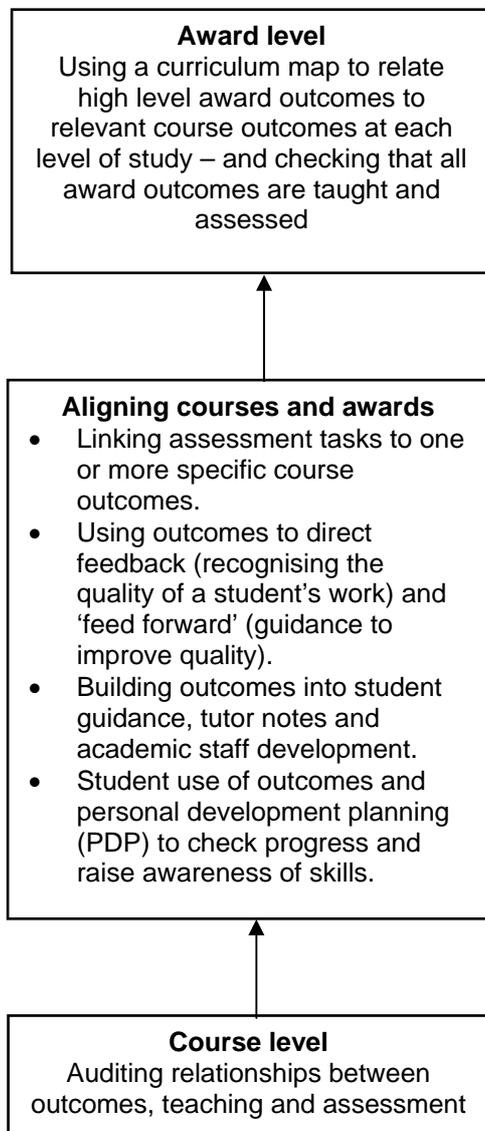Auditing relationships between outcomes, teaching and assessment

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Figure 2. Auditing to align the curriculum

Within that time personal goals, prospects and job opportunities may change. Waiting until the end of their degree before changing or developing their career may not be a realistic option. To take advantage of new career opportunities as and when they arise, therefore, students need to be able to talk about, and give examples of, the skills and knowledge they are gaining *during* their studies. In a competitive job market students may be disadvantaged if they are not able to be clear to others about their wider skills as

well as their detailed subject knowledge. Learning outcomes offer concise statements to help students describe their learning.

Assessment provides milestones and checkpoints for the student to monitor and evaluate their progress against the learning outcomes. It also provides examples of applications of skills and attributes - for example: planning; time management; finding, selecting, organising and using information; effective communication; and independent learning - that the student can draw on to provide evidence of their achievements.

4. LOTA case studies

Audits and assessment pilot projects were set up in different faculties. As a result nine case studies are available (Centre for Outcomes-Based Education, 2005) covering the following topics:

1. *Improving reliability of assessment using grade descriptors – the case for staff development.*
   How the use of grade descriptors improved the reliability of assessment and impacted on staff development. (Faculty of Education and Language Studies).

2. *Developing and assessing key skills – the case for course audit.*
   Identifying where and how skills of communication, group working, information literacy, and laboratory skills were developed and assessed (Faculty of Science)

3. *Teaching and assessing skills outcomes on a project course – the case for explicit alignment.*
   Making clear the link between learning outcomes, assessment tasks and feedback (Faculty of Technology).

4. *Associate lecturers as course team members – the case for working in partnership.*
   Using AL expertise in reviewing, planning and writing a course. (Faculty of Technology).

5. *Linking assessment to award outcomes – the case for course audit.*
   Checking that award level outcomes are addressed by the component courses (Faculty of Mathematics and Computing).

6. *Using feedback to enhance learning –* the case for feedback on learning outcomes.
    Directing teaching to the achievement of outcomes (Faculty of Arts).

7. *History programme guides – the case for programme documentation.* Providing students with a clear guide to the rationale, outcomes, assessment and language associated with an award (Department of History).

8. *Assessing communication skills and cognitive learning outcomes – the case for course audit.*
    Improving the fit between learning outcomes and assessment (Faculty of Arts).

9. *Science MSc projects – the case for criterion-based assessment.*
    Developing an assessment strategy with a criterion-based marking scheme (Faculty of Science).

Although too long to include here, each case study contains the main learning points for the faculty in which they were based. All the case studies are available on the website of the OU's Centre for Outcomes-Based Education (www.open.ac.uk/cobe).

5. Levels and progression

Alongside the case studies and audits there were also questions about how the outcomes supported the level of study and students' progression through levels and courses. Although progression routes towards an award are not imposed by the University the three undergraduate levels are broadly characterised by the supported development of knowledge, understanding and skills at level 1, guided application and critical understanding of knowledge at level 2, and an independent approach to study at level 3.

To help course teams design courses that contribute to a particular level of study, particularly in the development of cognitive and key skills, a set of levels indicators (Centre for Outcomes-Based Education, 2005) was developed to provide descriptions of the generic learning aims and outcomes. The indicators are intended to:

- Provide a common framework and language to describe the performance and achievements expected from students studying at undergraduate levels 1, 2 and 3.

- Offer a language to help students identify their skills and achievements and describe them to others.

- Identify a set of graduate aims and abilities (or attributes) to support personal and career development.

This framework is intended to help course designers ensure that the learning outcomes of different courses are consistent within a level, and that there is progression between levels in cognitive and key skill development as well as in subject knowledge. The OU undergraduate levels framework is available at www.open.ac.uk/cobe.

6. Findings and discussion

The course audits and the case studies provide information about how outcomes, teaching and assessment can be aligned. Some of these are detailed and specific to individual courses. However, more general learning points and recommendations also emerged which may have resonances within the wider HE community:

- *The assessment tasks, the guidance given to students and tutors, and the feedback provided by the tutors were not always well aligned with the intended learning outcomes of a course.*

Recommendation: Assessment activities should be devised with the course learning outcomes in mind, and should identify clearly which outcomes are being addressed. (Indeed, course design should start from the intended outcomes and assessment, not from detailed subject content.) Tutors should bring relevant learning outcomes to the students' attention and refer to them explicitly when providing feedback students. Where several assessments contribute to an overall course grade, the learning outcomes should be seen as developmental and revisited several times.

Guidance notes for students and marking schemes for tutors should give, as far as possible, the same information so that there is transparency about what is expected, and

a shared understanding about the assessment criteria. There should be no hidden agenda in teaching. For students to be effective learners they, as well as tutors, need good explanations about what learning outcomes are for and how they can be used to enhance learning.

- *It was not always clear whether assessment was 'for' learning or 'of' learning or both.*

Recommendation: Effective developmental assessment should offer opportunities for both summative and formative feedback. Tutor feedback should be aligned with the outcomes and provide not only marks and comments on the quality of the work. but also 'feedforward' to help students move on and further improve their performance,

Learning outcomes can act both as 'hooks' for feedback and feedforward from the tutor, and as criteria which the student can use to assess and improve their own performance. A parallel project *FAST - Formative Assessment in Science Teaching* (The Formative Assessment in Science Teaching) is looking in more detail at what feedback is provided by tutors and how it is used by the students.

Assessment can often be seen as something that is not an integrated part of the process of learning but a different type of activity more concerned with measuring what has been learnt. The aim of LOTA is to engage staff to think consciously about what a piece of assessment is for, and be explicit about how it supports learning.

- *Different academic areas will see things in different ways.*

Recommendation: Academic areas should take ownership of outcomes and assessment and explore what the approach means for them if the pedagogic shift to outcomes is to have a lasting effect.

Approaches to assessment developed in one discipline area may not necessarily work in another. The case studies confirmed that the styles, traditions and expectations of student learning differed across the faculties. For many colleagues, explicitly linking outcomes to assessment and feedback is not a familiar or comfortable way of devising assessment or commenting on students' work. This was evident, for example, when it came to auditing the assessment of cognitive and key skills in subjects such as mathematics compared with, for example, arts and humanities.

The LOTA project recognised from the outset that there would be no one single approach to outcomes-based learning and teaching that would suit all academic areas. More work is needed at the OU in different academic areas to explore how these changes impact on practice and professional development.

7. Conclusions

For the Open University - with over 200,000 students, around 10,000 full time and part-time academic staff, and with embedded central and regional pedagogical practices focused on distance education and supported open learning - the move to an outcomes-based approach continues to be a major challenge. However, in placing the OU's pedagogical strategy under close scrutiny, first to address the requirements of the QAA and then to look closely at the ongoing enhancement of teaching and learning, the LOTA project has been highly influential in motivating and supporting large-scale institutional change.

Perhaps not unexpectedly change at this scale takes time. There are no quick fixes. Academic staff no less than students need time to assimilate new ideas, take ownership of them, adapt them so that they become meaningful in new contexts, and try them out to see what works and what doesn't. As the case studies indicate, the shift to an outcomes-based approach implies more than simply identifying learning outcomes and devising new assessment.

The LOTA project work has emphasised the need not just for alignment between learning, teaching and assessment within the curriculum but fundamentally in connecting those changes to staff development. In practice this means that all academic staff need to build and share a common understanding of how learning outcomes and assessment practices are used to enhance student learning.

The outcomes - assessment - teaching triad in Figure 1 emphasises that assessment is not a separate activity but is intimately connected with the learning process. The

principles of transparency, transformation and transferability underlie the triad. Building clear links between teaching, assessment and learning outcomes is key to student development. Feeding forward on assessment activities, by using the outcomes as hooks for guidance on how to improve performance, supports student progression through courses and through levels. For the student, understanding how outcomes, assessment, feedback and learning are intimately linked together is part of becoming an independent learner. Explicit outcomes inform self-assessment and support personal development planning. Being able to use an outcomes language to recognise and articulate skills and knowledge, and being able to draw on a portfolio of completed assessment tasks (for example, reports, critiques, designs) as supporting evidence, is an increasingly important aspect of employability.

The LOTA approach has enabled staff to explore the implications of outcomes-based assessment, to discuss, consult and recommend procedures and systems, and to manage the issues involved in the design of assessment strategies in ways that enhance student learning. The results of the project work are now being embedded into practice and disseminated widely across the Open University.

Acknowledgement

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