

Assessment of significant learning outcomes

The outcomes of learning are central to any discussion of the learner's experience, from whichever perspective that experience is considered. For an assessment of learning to be valid, the inferences drawn from the evidence of learning should be demonstrably aligned to learning outcomes. This study of five different educational contexts shows how often the measured outcomes of learning are imperfectly aligned to the outcomes that are seen as important by programme designers, and by the users of evidence about student performance.

- The constructs underpinning programmes of study and their assessment are often inadequately articulated. → The main constructs should be made explicit so that they can influence curriculum design, teaching, learning and assessment.
- Progression in learning is interpreted in different ways by students, teachers and programme designers. → Curriculum and assessment design should be informed by a clear sense of what constitutes progression within a particular domain of learning.
- Assessment procedures impact in intended and unintended ways on the extent to which assessed outcomes are aligned to curriculum goals. → Programmes of learning, and their assessment, should be designed to minimise adverse impacts of assessment procedures on this alignment.
- The use of aggregate attainment data as an indicator of system performance can distort the learning outcomes that are prioritised. → Anyone using aggregate performance data for system accountability purposes should recognise its potential for unwanted effects on learning and teaching.

The research

Background and rationale

The roots of the Assessment of Significant Learning Outcomes (ASLO) project can be found in the work of the Assessment Reform Group (ARG) and of the Teaching and Learning Research Programme (TLRP). The ARG was set up in response to the policy changes in curriculum and assessment of the Education Reform Act 1988 for England and Wales. It has taken a particular interest in the relationship between assessment and pedagogy and between assessment and curriculum, especially through its work on enhancing quality in assessment. It has argued for formative assessment or 'assessment for learning' to have a central role in curriculum planning at all levels.

The TLRP's remit has been to sponsor research 'with the potential to improve outcomes for learners'. In 2004, a grounded analysis of the outcomes mentioned in the first 30 TLRP projects to be funded, and carried out by the Programme's Learning Outcomes Thematic Group (LOTG), led it to propose seven categories of outcome:

- Attainment – often based on the school curriculum or on measures of basic competence in the workplace.
- Understanding – of ideas, concepts and processes.
- Cognitive and creative – imaginative construction of meaning, arts or performance.
- Using – how to practise, manipulate, behave, engage in processes or systems.
- Higher-order learning – advanced thinking, reasoning, metacognition.
- Dispositions – attitudes, perceptions, motivations.
- Membership, inclusion, self-worth – affinity towards, and readiness to contribute to, the group where learning takes place.

It was evident to the LOTG that the TLRP projects it reviewed had faced a dilemma. The researchers wanted to engage in research to promote new conceptions of learning. But rigorous investigation of change requires learning outcomes to be assessed against a baseline measure. Rarely did they have sufficient time to develop and trial entirely new assessments fit for the purpose of assessing new formulations of significant outcomes. Moreover, in order to persuade stakeholders of a need to reconceptualise outcomes, it was necessary to convince them that existing models are inadequate and that alternatives are available or feasible to develop.

The ASLO thematic seminar series was a response to these challenges.

Five case studies were chosen in order to explore how the assessment of learning outcomes was understood in different educational contexts:

- A school subject: mathematics education in England
- Learning to learn: an EC project to develop indicators
- Workplace learning in the UK
- Higher education in the UK
- Vocational education in England

Questions

At the beginning of the seminar series three questions were identified:

- What are the significant learning outcomes that are not being assessed in a system that relies wholly on test-based assessment procedures?
- What are the indicators of student performance which have been or could be developed in relation to such learning outcomes?
- What assessment procedures do not rely on testing but do, or might, give dependable measures of student performance?

Framing the research questions in these terms points to concerns about the limited range of outcomes that are seen to be prioritised when tests and examinations are the only sources of evidence about students' learning. All three questions imply that deficiencies in the alignment between indicators of students' learning and their actual learning are attributable to the narrow range of outcomes that it is feasible to measure if assessment systems make use only of tests or examinations as sources of evidence of learning.

However, two other dimensions of the misalignment of assessment to learning outcomes were identified as the seminar series developed. First, it became obvious that a discourse within which 'learning outcomes' were made explicit was apparent only in some of the contexts under review. Only in two of the five settings being reviewed was the term itself in widespread use. One was the development of indicators of 'learning to learn' across the countries of the European Union. Here, learning outcomes are central to a political debate whose terms were established in 2000 by the European Council's setting of the 'Lisbon Objectives' for education and training. In the other – higher education in the UK – learning outcomes are part of the discourse about learning developed by the organisation overseeing higher education institutions, the Quality Assurance Agency. In that context, where responsibility for defining outcomes is devolved to individual institutions, outcomes are articulated and codified not at a whole system level but by the teaching staff responsible for the multiplicity of course units that are brought together in degree programmes.

A second, related dimension that emerged

during the course of the seminar series was that the role of assessment in each context colours the debate in that context about the alignment between assessment and learning. Not only is the extent to which the term 'learning outcomes' is used variable across the five contexts but it is also clear, more broadly, that the very nature of 'curriculum' and 'assessment' is seen in fundamentally different ways in each context. In workplace learning, 'curriculum' itself is not a term in common usage; 'assessment' relates to becoming qualified for the workplace. In the National Curriculum in England, 'curriculum' has been interpreted by policy-makers as being what must be taught in all state-funded schools, while 'assessment' is coloured by the extent to which data on student performance is aggregated and used as an indicator of the quality of schooling. In vocational education, the definition of what is learned in terms of what will be formally assessed has taken root to such an extent that in many vocational programmes 'curriculum' and 'assessment' are indistinguishable because all learning activities are assessed.

Method

The method chosen to explore these questions was a series of six seminars at which the project team and ARG colleagues engaged with invited specialists with relevant expertise in specific areas. The process began with an introductory seminar to clarify the research questions. At each subsequent seminar a specialist in the case study topic presented a keynote paper. The alignment of assessment procedures to learning outcomes in that context was then analysed and discussed. This included exploring how, and by whom, control over programmes of learning was exercised. The overall aim was to identify insights that may apply beyond the context from which they emerged.

Findings

Four major themes emerged across the five case studies.

Construct definition - how, and by whom, the constructs involved are defined, interpreted and made real - emerged as a major issue in each of the contexts. Construct validity has long been a central concern in the field of assessment, without the constructs themselves necessarily being critically explored or closely defined. Even if the constructs have been considered at the levels of assessment theory and qualification design, they may not be applied in the day-to-day practice of assessors. At the other end of the relationship between curriculum and assessment, the constructs informing the design of programmes of learning have been strongly contested in some contexts.

Progression is crucial to the design and implementation of learning programmes, and in particular for the implementation of assessment for learning. Its relevance to summative assessment depends on the

structure of the assessment system. If the only high-stakes summative test is a terminal one, then the desired final outcomes are laid down, the test constructors have to reflect these in as valid a way as they can, and the teachers discern, from study of a syllabus and of examples of the test instruments and procedures, how best to focus their work. Enabling progression is absolutely central to formative assessment, but there is evidence in these case studies that summative assessment requirements, driven by pressure for uniformity and for accountability, can constrain teachers and trainers in using their own judgement to nurture progression.

The impact of assessment procedures, on the alignment between the intended outcomes from learning and those that actually emerge is considerable. From a measurement perspective, alignment is often conceived narrowly in terms of content validity. This means that misalignment between an assessment instrument and intended learning outcomes is a threat to the integrity of the inferences from assessment results. However, the problem can be conceived more broadly too, where misalignment represents a threat to the integrity of learning itself. The five case study contexts highlighted numerous situations in which the nature of an assessment procedure threatened to disrupt the acquisition of desirable learning by students. This disruption occurred when assessment procedures led either to the failure to acquire desirable outcomes from learning, or to the acquisition of undesirable outcomes from learning. For both types of disruption, potential impacts were attributable either to the design of the assessment instrument or to the nature of the assessment event itself.

System-level accountability as a driver of alignment was another theme. Accountability takes different forms, has different purposes and stakeholders, and has different effects on the interpretation of learning outcomes in each of the contexts reviewed. Two of the case studies in particular – the school mathematics curriculum and the learning to learn indicators – revealed just how influential the political imperatives for system-level accountability can be. They drive the role of assessment in defining the relevant constructs and, perhaps more crucially, shape how teachers and students then interpret and enact those constructs.

Major implications

The evidence from the ASLO seminar series suggests that the relationship between assessment and curriculum is more multi-dimensional and multi-level than the terms 'alignment' or 'congruence' would imply.

The implications of the project's findings for the design of large-scale programmes of curriculum and assessment include these:

- The constructs underpinning a programme of learning should be made explicit when it is designed so that those constructs can influence the way the programme is interpreted by students and their teachers.
- A clear indication of what constitutes progression in learning within a domain must be integral to system design if it is to inform the way students learn and teachers teach.
- The specification of appropriate procedures and practices for the assessment of student performance should be part of the system design process.

The implications of the project's findings for the implementation of large-scale programmes of curriculum and assessment include these:

- It is inevitable that the educational goals and emphases of a programme will be re-interpreted and modified by those responsible for implementing it. Officials responsible for planning and implementation, managers of educational institutions, teachers and students will all have active roles in that process of mediation.
- The learning outcomes specified at the system design stage should therefore be seen not as 'tablets of stone' but as indicators of the intentions of the programme's designers.
- Rather than thinking in terms of the alignment of assessed outcomes to a pre-defined curriculum, the alignment of assessment to curriculum is better understood as a complex, non-linear, interacting system with the ultimate goal being a synergy of curriculum, pedagogy and assessment.

The implications of the project's findings for the assessment of learning outcomes on large-scale programmes include these:

- Intended learning outcomes are best viewed as indicative of the educational goals prioritised by those who designed the programme, not as a list of learner behaviours to be assessed.
- It is helpful to view the assessment of student performance as a window on the student's learning trajectory rather than as a definitive account of the student's capabilities.
- The nature of assessment procedures will impact in both intended and unintended ways on outcomes of learning.
- The way aggregate performance data is used to monitor and evaluate education systems should recognise, and attempt to minimise, the potential for such use to have unwanted effects on learning and teaching.

Further information

Details of the ASLO project's evidence base and of participants in the seminar series can be found at:

<http://www.tlrp.org/themes/seminar/daugherty/index.html>

Information about the Assessment Reform Group, responsible for initiating and managing the project can be found at:

<http://www.assessment-reform-group.org>

Publications from the project include:

Daugherty, R., Black, P., Ecclestone, K., James, M. & Newton, P. (2008) Alternative perspectives on learning outcomes: challenges for assessment, *The Curriculum Journal* 19 (4), 243-254.

Daugherty, R., Black, P., Ecclestone, K., James, M. & Newton, P. (2009) Assessment of Significant Learning Outcomes in Berry, R. (ed.) *Assessment Reform and Educational Change*. New York: Springer

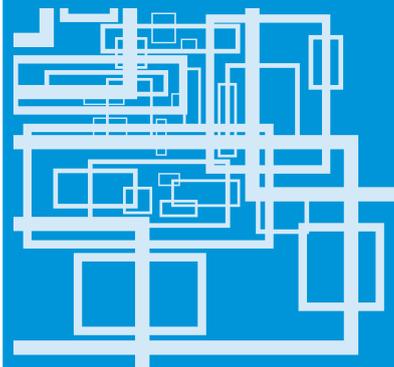
The warrant

The conclusions of this project emerged from a process of review and discussion of the evidence available from research in educational assessment and in the five contrasting contexts chosen as case studies. Groups of researchers were brought together for one-day seminars to consider questions concerning the relationships of assessment to curriculum and to pedagogy. The warrant for the project's findings relies on the expertise and experience of the seminar participants.

At each case study seminar the discussion was focussed on a keynote paper, together with a number of academic papers that addressed the relationship of assessment to curriculum. The evidence base was then subjected to scrutiny by invited participants with relevant expertise in the context under review.

Continuity in the development of ideas through the seminar series came from the research expertise in the broad field of educational assessment of the project team and of the other members of the Assessment Reform Group who participated in the project.

Teaching and Learning Research Programme



TLRP involves some 90 research teams with contributions from England, Northern Ireland, Scotland and Wales. Work began in 2000 and the Technology Enhanced Learning phase will continue to 2012.

Learning: TLRP's overarching aim is to improve outcomes for learners of all ages in teaching and learning contexts across the UK.

Outcomes: TLRP studies a broad range of learning outcomes, including the acquisition of skill, understanding, knowledge and qualifications and the development of attitudes, values and identities relevant to a learning society.

Lifecourse: TLRP supports projects and related activities at many ages and stages in education, training and lifelong learning.

Enrichment: TLRP commits to user engagement at all stages of research. It promotes research across disciplines, methodologies and sectors, and supports national and international co-operation.

Expertise: TLRP works to enhance capacity for all forms of research on teaching and learning, and for research informed policy and practice.

Improvement: TLRP develops the knowledge base on teaching and learning and policy and practice in the UK.

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