

# Informative Assessment: Understanding and guiding learning



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Margaret Forster is the Research Director of the Assessment and Reporting Research Program at the Australian Council for Educational Research (ACER).

Dr Forster has extensive experience in the area of assessment and reporting and works as a consultant nationally and internationally. She has direct experience in the development of support materials for teachers and policy makers. She conceptualised and co-authored the first *Developmental Assessment Resource for Teachers (DART English Upper Primary)*, and is co-author of the ACER Attitudes and Values Questionnaire, and the Assessment Resource Kit (ARK) materials. She wrote the introductory overview to the *Discovering Democracy Assessment Resources*, and prepared the introductory materials for the *Curriculum and Standards Framework II* information kit that was distributed to all schools in Victoria (*Progress Maps: A Teacher's Handbook*).

Dr Forster has a particular research interest in the collection and use of achievement data to improve learning. She co-directed the National School English Literacy Survey (NSELS) and co-authored the NSELS report. She has written a number of general research-based publications on the reporting of student achievement, including *A Policy Maker's Guide to International Achievement Studies*, and *A Policy Maker's Guide to Systemwide Assessment Programs*.

Recent national consultancies on the revision and implementation of assessment and reporting frameworks include work with the Western Australian Curriculum Council, the Victorian Curriculum and Assessment Authority and Education Queensland. Recent international consultancies include work for The World Bank in India; the Peruvian Ministry of Education; AusAID in Papua New Guinea and the Philippines; UNICEF; the Scottish Executive, and the Hong Kong Curriculum Development Institute.

## Abstract

In the last decade a good deal of attention has focused on distinguishing between assessment purposes—in particular between summative assessments (assessments of learning) and formative assessments (assessment for learning). This presentation explores informative assessment. Informative assessment does not make a distinction between the contexts of assessment or their stated primary purposes. Rather, it focuses on how teachers and students make use of assessment information to both understand and improve learning. Informative assessment brings together research underpinning 'assessment for learning' with research on high performing school systems; on highly effective teachers and on how students learn. Two perspectives on informative assessment are explored: the teaching perspective and the learning perspective. Research evidence is detailed and challenges highlighted.

## Introduction

There are many different contexts for the assessment of student learning, from teachers' informal classroom observations to high-stakes entrance tests and certification examinations. Within these contexts, much has been written about distinctions between assessment purposes. In particular, attention has focused on the distinction between summative assessments (assessments of learning) for reporting students' levels of achievement, and formative assessments (assessment for learning) where achievement data are used intentionally to feed into the teaching cycle.

As the National Numeracy Review Report (HCWG, 2008) noted, many educators see a clear dichotomy between these two roles and argue, for example, that system-wide tests have no diagnostic role resulting in the

improvement of student outcomes (e.g. Shepard, 2000). Others, such as Masters et al. (2006) see the roles as complementary, and argue that what matters is the quality of the data and how data from assessments are used.

This presentation explores *informative* assessment. Informative assessment does not make a distinction between the contexts of assessment or their stated primary purposes. Informative assessment focuses on how teachers and students make use of assessment information to understand and improve learning. Informative assessment brings together research underpinning 'assessment for learning' with research on high performing school systems; how students learn and highly effective teachers. Two perspectives on informative assessment are explored: the teaching perspective and the learning perspective.

## The teaching perspective

Research studies confirm highly effective teachers' skills are underpinned by a deep understanding of how students learn and how they progress. Highly effective teachers are aware of common student misunderstandings and errors; they are familiar with learning difficulties and appropriate interventions; and they ensure that all students are appropriately engaged, challenged and extended, whatever their level of achievement (Barber & Mourshead, 2007). What does research tell us about how effective teachers use assessment to inform their practice?

Effective teachers recognise that learning is most likely to occur when a student is presented with challenges just beyond their current level of attainment, in what Vygotsky (1978) referred to as the 'zone of proximal development'. This is the region of 'just manageable difficulties', where students can succeed with support. Effective teachers understand, therefore,

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the importance of first determining students' current levels of attainment. As Ausubel wrote in 1968, the single most important factor influencing learning is what the learner already knows. If educators can ascertain this, they can teach accordingly.

Effective teachers administer assessments that reveal how students think rather than what they know, the quantity of work, or the presentation. They are interested in eliciting students' pre-existing, sometimes incomplete understandings, and their misconceptions in order to identify appropriate starting points for personalised teaching and learning. This intention demands sophisticated assessment techniques that are able to establish, for example, the mental models that students have developed and how well they understand when a principle applies and when it does not.

In essence, effective teachers focus on delivering appropriate learning opportunities to *individuals* rather than to the group of learners to which the individual belongs (Bransford, Brown & Cocking, 2000). This use of assessment to guide the teaching of individuals contrasts with the more common focus on establishing how much of what teachers have taught has been learned (Fullan, Hill & Crévola, 2006).

## The learning perspective

Research studies confirm that learners learn best when they understand what they are trying to learn, and what is expected of them; and when they are given regular feedback about the quality of their work and what they can do to make it better (Black & Wiliam, 1998). Meta-analytic studies show that timely and useable feedback is one of the most powerful ways of improving student achievement (Walberg, 1984; Hattie, 2003) and that feedback is most useful if it supports the development of

deeper understandings (Bransford, et al. 2000).

What does research tell us about how students respond to assessment information? Assessment has a profound influence on students' motivation and self esteem, both of which are crucial influences on learning. A strong emphasis on marking, grading and comparing students with each other can demoralise less successful learners.

Research is clear that if the feedback is to be effective, it must be focused on what the individual student needs to do to improve (i.e. it must be *task-involving*) rather than on the learner and her or his self-esteem (i.e. *ego-involving*) (Wiliam, 1998). If students are provided with a score or a grade on an individual piece of work, they will attend to that, even if they are provided with descriptive feedback as well. If we want students to attend to the feedback teachers provide, the feedback should include written comments and not be based solely on a score or grade.

Research confirms that effective learners see themselves as owners of their learning; they understand learning intentions and criteria for success. In essence, they have a confident view of themselves as ongoing *learners* who are capable of making progress (Wiliam & Thompson, 2007).

## Bringing perspectives together: Underlying understandings

Most teachers and students attend schools that are structured according to a factory assembly line model based on the assumption that a sequenced set of procedures will be implemented as a child moves along the conveyor belt from Year 1 to Year 12 (Darling-Hammond, 2004).

This model assumes that, although there is some variability in students'

learning in any one year level, this variability can be accommodated within a one-size-fits-all, age-based curriculum. However, research tells us that children begin school with very different levels of developmental and school readiness. By Year 5, the top 10 per cent of children in reading are at least five years ahead of the bottom 10 per cent of readers (Masters & Forster, 1997a). By the end of primary school in the UK, the highest achieving students in mathematics are approximately six years ahead of the lowest achievers (Harlen, 1997).

How do teachers and students marry this reality with the evidence? We know that learning is enhanced when teachers identify and work from individuals' current knowledge, skills and beliefs rather than working from what we expect them to know and understand given their age or year level; and that learning is enhanced when students have the opportunity to learn at a level appropriate to their development needs. How do teachers determine and monitor where students have come from and where they going to?

Fundamental to high quality teaching, assessment and learning is an understanding of what it means to progress in an area of learning—the progress or development of learning across the years of school. Indeed, the term 'development' is critical to understanding the changes in students' conceptual growth. As Bransford writes, 'cognitive changes do not result from mere accretion of information, but are due to processes involved in conceptual reorganisation' (Bransford, et al., 2000, p. 234).

Effective teachers and learners have a shared understanding of what it means to progress, including an understanding of what is valued (e.g. the learning intentions and the criteria for success). Since the 1990s, these shared understanding have been facilitated

by well-constructed learning continua, 'progress' maps (Masters & Forster, 1997b) or 'learning progressions', that are of increasing interest outside of Australia (e.g. National Research Council, 2001; Forster, in press).

Maps of this kind describe and illustrate the nature of development in an area of learning, illustrating for teachers and students the typical path of learning and providing a frame of reference for monitoring individual progress. Quality maps are constructed from empirical observations of how learning typically advances, and incorporate research-based pedagogical content knowledge accompanied by information about the kinds of difficulties and misconceptions commonly found among learners at various stages in their learning. They support teachers to establish where students are in their learning, where they are going and how to get there; and to decide appropriate instruction based on the individual student's needs. Examples of progress maps include the developmental continua of the First Steps program (Annandale et al., 2003).

## In summary

Research indicates that teachers' and students' capacity to improve learning through assessment depends on a few key factors for teachers:

- identifying and working from individuals' current knowledge, skills and beliefs despite the age-grade structure of schooling
- assessing not just specific content that has been learned but the quality of students' thinking, including the depth of conceptual understanding—and using a range of sophisticated assessment techniques to do so
- adjusting teaching to take account of the results of assessment

- providing effective feedback to pupils; that is feedback that assists students to recognise their next steps in learning and how to take them, and that assists them to become involved in their own learning

The key factor for teachers and students is having a shared understanding of development across the years of schooling, supported in part by the use of progress maps.

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