Evidence is elementary: gathering the right clues

If you do not have the right evidence, then all efforts to promote assessment for learning will be ineffective. From what evidence to collect, how to interpret it in a reliable and valid way, and how to then record the results, **Lorna Earl** uncovers the key aspects of being a good assessment for learning detective

Collecting the right evidence is vital to the whole process of assessment for learning, so that teachers have the information they need to provide the best follow-up tasks that will allow individual students to take the right next steps to progress their learning.

Teachers are used to collecting assessment data for summative purposes. Collecting evidence for assessment for learning, on the surface of it, is not so different. The main difference is not how they collect the evidence, but why. When the purpose of the assessment is enhancing learning, teachers collect a range of data so that they can modify the work for their pupils in a way that will progress their learning. This change in purpose may not mean changes in the basic methods of assessment, but it does signal changes in the way that assessments are constructed. Teachers must ensure that they craft assessment tasks that will reveal what pupils know and can do already, so that they can use the resulting information to identify the next steps in learning and in teaching. They use observation, worksheets, questioning in class, pupil-teacher conferences, demonstrations, independent study, exams, tests, quizzes, essays, portfolios, self- or peer evaluation, simulations, student journals, video tapes and a myriad other mechanisms for gathering information about pupil learning that will be useful for their planning and their teaching.

Purpose of collecting evidence

Assessment for learning is not a compilation of independent questions designed to discover those pupils who do or do not 'get it' (whatever 'it' is), in order to line them up on the 'get-it-ness' continuum. Instead, when assessment is designed as a tool for identifying what it is that pupils understand or believe to be true, the assessment task has to include opportunities for pupils to show all of the possible beliefs and misconceptions that they are likely to hold.

Creating the right type of assessment task to provide the information that is needed to identify the next stage is a more complex task for secondary school teachers than for their primary colleagues, as the example in the box right illustrates.

The possibility of gaps in knowledge, underdeveloped skills, misunderstandings or misconceptions and confusion for students is massive. If teachers are serious about assessment for learning, every assessment task (and there will be many, both formal and informal) should provide insight into different pupils' status in relation to the curriculum target being developed, in the case in the box right, organisation and communication of history.

Each assessment should explicitly focus on a subset of the skills, understanding, conventions, and so on that make up the overall curriculum expectation. The teacher's job is not just to score the assignments; rather they take each assignment and, over time, construct and continually adjust the profile of learning and of teaching for each pupil, in order to move their learning forward in effective and efficient ways.

Interpreting to support learning

When assessment is focused on providing insights into learning, the role of the teacher becomes paramount. Learning becomes the central goal of classroom activities. Learning is a very complex process with different people having different ways of approaching something new, of investigating it and of making sense of it. As we describe it in our recent book *It's about learning; and it's about time* (Stoll, Fink and Earl, 2003), learning is an ongoing, iterative process of fitting information into patterns or schema of similarities, differences, likeness and regularities. As learning progresses, learners move beyond the basic rules associated with any field until it becomes automatic and they are comfortable in a domain and begin to build their own understanding by acting, assessing what happens, reflecting, designing new strategies and acting again (Stoll, Fink and Earl, 2003).

Instead of scoring pupil work and placing them on a continuum, teachers have the responsibility for using carefully constructed assessments to identify pupils' particular constellations of understanding, misconceptions, gaps or strengths in skills and their position in the process of connecting and organising the pieces into more automatic and purposeful learning 'schema'.

Using assessment for learning requires considerable expertise on the part of teachers. Expert teachers are not only subject experts; they have a deep knowledge of how their subject matter is learned. For those who came to their subject easily and with enthusiasm, this often requires new learning, learning about what happens when pupils don't easily understand or don't find the material intrinsically inviting. As I recounted in a recent book entitled *Assessment for learning: using classroom assessment to maximise learning* (Earl, 2003), a

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Complexity of assessment

Imagine a Key Stage 3 history teacher for whom one of the history curriculum targets for pupils is 'organisation and communication'. This overarching objective includes several sub-items:

- recall, prioritise and select historical information
- accurately select and use chronological conventions
- communicate their knowledge and understanding of historical events.

Within recall, prioritise and select historical information alone, there are five additional sub-items:

- organising information
- using a range of sources of information
- finding relevant information
- sorting, classifying and sequencing information
- comparing/contrasting information.

Case example

A secondary English teacher used assessment as a mechanism to draw the students into Othello, while also challenging their analytical skills and using the assessment to gauge both individual and collective skills of comprehension and analysis of characters during the reading of the play. He constructed an assessment task in which the pupils were assigned a character in the play and were expected to do a character analysis, with particular attention to a particular scene, to determine how the character was developed or further revealed to the audience. They were to apply prior knowledge of the character's revelation up to that scene, but the focus of the inquiry and analysis was the scene itself, with attention to three areas that help reveal characters: dramatic function, relationships, and language. When the class reach that particular scene during the in-class reading, they would present their ideas about the character orally to the rest of the class. This may appear to be a typical approach to teaching Shakespeare. However, it was different because one week before the class reading of the scene (and the pupil's character presentation), each student had met with the teacher in an individual conference and delivered the prepared character revelation. During the conference, the teacher and pupil jointly used a rubric based on the three areas that reveal characters to assess the pupil's analysis of character revelation and discussed the similarities and differences in their perspectives. The pupil then used this feedback to prepare for the class presentation.

secondary maths teacher told me: 'I know how to teach calculus; I just don't know what to do when they don't get it'. Her own experience as a successful maths pupil did not prepare her to 'unpack' the concepts, misconceptions, skills and relationships that are necessary to 'get calculus', but she realised that this is what she would have to do to help her students learn what calculus was all about.

Assessing to support learning also means that teachers need to have at their disposal a range of assessment strategies and of teaching methods so that they can gain insight into pupils' thinking and use what they know in designing targeted and challenging teaching – as the case example in the box above illustrates.

Ensuring interpretations are reliable and valid

Although they are often overlooked in classroom assessment, reliability and validity are important measurement concepts that deserve attention. Assessments that do not adhere to these basic measurement principles can potentially result in poor (or even wrong) decisions about pupils' learning and have inappropriate influences on their future and their life chances.

Reliability, very simply, addresses the question: 'How sure am I?' How much certainty do teachers have that the assessment they are using provides enough consistent and stable information to allow them to make statements about a student's learning with confidence. If the teacher is unsure or wonders about whether the evidence at hand provides a good sampling of the nature of the pupil's learning, then there is a question about reliability. There are many different ways to enhance reliability but the most valuable ones are 'more evidence' and 'more eyes' – see the box right.

Validity refers to accuracy and answers the question: 'How well does this assessment measure what I'm trying to measure?' Going back to the KS3 history curriculum, you will recall that one of the sub-items, 'recall, prioritise and select historical information', contains five additional sub-items (see the box on page 41. There are innumerable ways that teachers can measure these elements of knowledge, skill and integration of ideas. But the sub-items do not describe trivial learning. Achieving valid measurements of complex learning depends on careful analysis of all of the sub-items embedded in any complex learning, on developing curriculum-based tasks that make what pupils think visible and then using the analysis of the inter-related learning dimensions to construct differentiated teaching and learning experiences. In the KS3 history example, a teacher might require that the pupils write an essay that details the events that led up to World War II and explain the importance of each event in escalating the conflict. When assessment is being used for learning, this assignment is just the beginning. To make sense of what the pupils write, the teacher needs a detailed set of criteria that are linked to the sub-items in the curriculum (in this case, organising information; using a range of sources of information; finding relevant information; sorting, classifying and sequencing information; comparing/contrasting information). These criteria also need to be sufficiently detailed to pinpoint what students know and what is unclear to them.

When teachers can identify what various pupils are finding difficult or unclear, they can use this information to prepare the next series of learning tasks. For example, some students might need a lesson on locating relevant material and finding the main ideas within the material. For others, it may mean focused practice on evaluating the credibility of evidence and writing arguments using the supporting evidence. None of this activity happens by chance. Teachers need to design the assessment tasks in ways that allow them to unpack what it is that students currently 'believe to be true' in relation to the material that they are trying to teach.

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Marking, recording and reporting to support learning

Marking of work in assessment for learning is where the different purpose for assessment becomes publicly visible. Unlike typical marking, the marking attached to assessment for learning is not designed to make comparative judgements among the students, but rather to highlight each pupil's strengths and weaknesses and to provide them with feedback that will further their learning. Although teachers play an important role in marking, students need to be an integral part of the process as well, so that they can

Enhancing reliability

More evidence

When in doubt, the teacher probably does not yet have enough information to make a solid decision. Using different and more assessment tasks can provide the additional information required to gain a clearer picture of a pupil's learning profile. Ultimately, if students internalise the tools to evaluate and challenge their own learning, they will become agents in ensuring reliability. When pupils are monitoring their own learning and engaging with teachers in using the knowledge to plan the next steps, they will be equipped to make decisions about how consistent the teachers' findings are with their own knowledge about their learning and refine the interpretations.

More eyes

Teacher moderation of pupil work is an excellent way of improving reliability. When teachers work together to consider the work that students have produced, or to listen to their presentations or analyse their electronic projects and so on, they bring the collective wisdom of all of the people in the group to the exercise. More eyes (and consequently more brains) result in more reliable determinations of what students understand. The teachers are able to work together to develop a range of strategies for helping each pupil move forward.

develop the self-monitoring, self-regulating skills that will help them to become lifelong learners. Teachers need clear descriptions of expectations, criteria for making judgements, many examples of high quality work, and mechanisms for providing feedback that is targeted and tied to the individual student's current understandings and misunderstandings. Pupils need the same: clear descriptions of expectations, criteria for making judgements, many examples of high quality work and opportunities to receive feedback and internalise it. They both need time to work together to offer and consider feedback for improvement.

Record-keeping in assessment for learning is likely to be similar to the records that teachers currently keep. They will probably continue to use a grade book, but the records that they come to rely on are likely to be much more detailed and include checklists of pupil progress against expectations, artefacts, portfolios of pupil work over time and worksheets all designed to trace the progression of students along the learning continuum and to describe the cycles of feedback and of teaching that are part of the process. The chart in the box below is one example of a particular page in a teacher's record book. The teacher does not complete this page when an assignment has been marked to compute a final score for a pupil. Instead, each cell in the table is filled in with dated entries as the teacher engages in ongoing monitoring of the pupils' understanding and records the teaching and learning alternatives that have occurred with each of them along the way. For some there will be few entries; others will have many. The teacher can quickly see the progress and the interventions required to help further the learning for each individual student.

Interaction with parents will also change when assessment is designed to support learning. As most teachers have experienced, conversations with parents are never comfortable if teachers feel exposed, vulnerable or threatened. The good news is that a focus on assessment for learning, with attention to reliability and validity of the interpretations that are being made, will give teachers more confidence in the comments that they are making to parents. They will also be addressing the unique learning needs of the students more directly and will be able to engage parents in specific discussions about their child, offering ideas about how the pupil and the parents can support the next stage of learning. The bad news is that assessment for learning is also a new concept for parents and they will not understand what it is about without a concerted effort on the part of teachers and curriculum managers to help them adapt to a way of thinking and acting in schools that is quite contrary to their own experience (for details of how one school got the parents on side, see the case study article on pages 54–58). Helping parents to become comfortable with such a dramatic change in educational practice cannot be left to chance. They will first need to become familiar with the changes in thinking and then be given plenty of opportunities to see what assessment for learning looks like and what it means for their child(ren) before they are likely to accept the changes.

Hardest part

Studies of classroom assessment, including our own research, suggest that assessment is one of the hardest and most consequential areas of teachers' work. It is highly emotionally charged because it is where teachers' relative success becomes visible to parents and to the public at large (Gipps, 1994; Hargreaves, Earl, Moore and Manning, 2001; Stiggins, 1994). Many of the teachers in our research felt vulnerable and exposed (Hargreaves, Earl, Moore and Manning, 2001). They told us that they were uncertain about the quality of their assessment practices and were being expected to make judgements they were not sure about and might not be able to defend. This is why it is important that you as curriculum manager take every action to overcome their concerns and ensure they persevere with the techniques. Because, as the articles in this publication illustrate, the benefits will make all the efforts well worth while.

Assessment for learning, although it may require considerable new learning for teachers, for parents, for pupils and for the general public, holds the long-term promise of making assessment and the decisions that accompany it visible and transparent to all involved. Teachers, pupils and parents will be able to 'see' what is expected, use the expectations to analyse where the student is now, and work together to tailor feedback and teaching to the individual pupil learning profile so that learning moves forward.

Lorna Earl, PhD, Associate Professor and Head, International Centre for Educational Change, Ontario Institute for Studies in Education, University of Toronto, Ontario, Canada

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Teacher's worksheet for KS3 curriculum item: 'Recall, prioritise and select historical information'

Pupil's name	Using a range of sources of information	Finding relevant information	Sorting, classifying and sequencing information	Organising information	Comparing and contrasting information	Additional comments