

Section B: Embedding Formative Assessment

Unit 2: Making thinking explicit

Presentation notes

Slide 1:

This unit will explore the links between formative assessment and the development of thinking as promoted by A Curriculum for Excellence. Its aim is to provoke reflection on how formative assessment relates to thinking skills and how a thinking approach to AiFL can be incorporated into everyday classroom practice. It shows how formative assessment can be embedded and extended through developing thinking students in thinking classrooms in thinking schools.

Session 1

Building learning capacity

Slide 2

Session 1 of this unit comprises five slides setting out the aims of the Highland CPD Reflection Framework and exploring the contribution that an emphasis on thinking by pupils can make in developing the classroom practice that will be needed if schools are to engage fully with the opportunities and challenges provided by A Curriculum for Excellence.

Slide3

The primary aim of the Highland CPD Reflection Framework is to help teachers and schools embed formative assessment into everyday classroom practice. It suggests that practice needs to be informed by an understanding of the underpinning principles and that teaching approaches should be founded on the key principles of formative assessment. The process of embedding formative assessment is less about teachers developing new teaching strategies than it is about finding ways of giving their pupils greater responsibility for their own learning. The first focus for embedding formative assessment is on principles and strategies.

The second focus is on self-assessment by pupils.

The second aim of the Highland CPD Reflection Framework is to help teachers and schools extend good practice in formative assessment. The focus for this is the AifL 'triangle' and on linking ACfE & AifL. This involves three aspects of thinking: developing reflective professionals; developing thinking children; establishing a culture in the school which values the role of thinking by everyone in stimulating and sustaining the interaction and engagement so important to successful learning.

At this point in the presentation, participants could use a simple think, pair, share activity to discuss the extent to which current classroom practice in formative assessment is effective in helping pupils to become better thinkers.

Slide 4

The success of the Assessment is for Learning programme has been widely acknowledged. However, in "Exploring Programme Success", Hayward, Simpson and Spencer have raised some questions about the extent to which that success has been based upon a greater understanding of the principles involved. On the evidence collected, it is not clear that teachers' adoption of distinctive formative assessment strategies is always accompanied by a clear appreciation of why they should be used. Yet such understanding is important if the enhancements in practice are to be sustained: principles can be used to inform and evaluate strategies.

The Highland CPD Reflection Framework has been developed around a set of four principles which research suggests are important for effective interaction between teachers and pupils. The quality of thinking that takes place in a classroom depends on

the levels of participation, dialogue and engagement generated through teacher/pupil and pupil/pupil interaction.

Participation can't really happen without the teacher wanting and encouraging it. Involving pupils in self assessment is one way of encouraging their participation in learning. Such participation crucially depends on dialogic teaching – the quality of interaction in the classroom. There is extensive evidence that meaningful dialogue between teacher and pupil and between pupil and pupil are characteristics of successful teaching and assessment for learning (Alexander 2006). Pupils' greater engagement in their own learning will be an important outcome of providing stimulating dialogue that encourages thinking and learning. For more on dialogic teaching see section 1 of 'Personalised Learning: a guide for teachers' by Robert Fisher.

Slide 5

In setting out its purposes, A Curriculum for Excellence identifies a number of dispositions and capacities that teachers need to help pupils develop if they are to become successful learners, confident individuals, responsible citizens and effective contributors. While welcomed by the profession, the dispositions and capacities presented here are not without challenge: how can teachers help pupils develop them? Each item on this list is demanding, but its appearance here also illustrates a possible way forward because it is not difficult to see that each could be achieved if pupils can learn how to enhance and refine their ability to think in different ways.

Psychologists and philosophers have helped to extend our understanding of the term 'thinking', including the importance of dispositions, such as attention and motivation, commonly associated with effective learning (Claxton 2002). This has prompted a move away from a model of 'thinking skills' simply as cognitive capacities to a view of thinking as inextricably connected to emotions and dispositions, including 'emotional

intelligence', which is our ability to understand our own emotions and the emotions of others (Goleman 1995). Key dispositions for successful learning include enthusiasm and motivation for learning, a sense of self respect and respect for others, a sense of curiosity and an openness to new knowledge and ideas.

Thinking skills are not mysterious entities existing somewhere in the mind. Nor are they like mental muscles that have a physical presence in the brain. They are the mental capacities that enable us to think creatively and independently, make reasoned evaluations, make informed choices and decisions, apply critical thinking in new contexts and develop informed ethical views of complex issues. As a result, their development will be essential if the purposes and capacities of A Curriculum for Excellence are to be achieved.

Many researchers have attempted to identify the key skills in human thinking, and the most famous of these is Bloom's Taxonomy (see 'Personalised Learning' by Robert Fisher included in this unit). Ask participants to think of examples of 'good thinking' by their pupils in any area of learning. How would they describe these capacities? To what extent does good thinking depend on being well-disposed to the task in hand as well as having the cognitive capacity needed to carry it out?

Slide 6

Activity 1

This activity is designed to encourage participants to reflect on the characteristics of a good learner. In thinking about these as dispositions or skills, they should begin to recognise that good learning requires pupils to make use of their intellectual and emotional resources.

Having taken part in this activity, participants should prepare for Session 2 by reading Personalised Learning: a guide for teachers, the discussion paper accompanying this unit.

Session 2

Taking responsibility for learning

Slide 7

Having looked in the first session at some aspects of what might be involved in helping children and young people build their capacity for learning, this session explores more fully the implications for teaching of helping them to take more responsibility for learning.

Participants working through this session should have familiarised themselves with the content of the discussion paper included in this unit. Personalised Learning: a guide for teachers provides a comprehensive and practical introduction to how a focus on thinking can help pupils become more involved in their learning.

Slide 8

Whether intelligence is viewed as one general capacity or many, researchers agree that it is modifiable and it can be developed. They have identified a number of teaching strategies that can be used to stimulate children's thinking in the classroom. Key principles that emerge from research include the need for teachers to provide children with cognitive challenge from the earliest years, collaborative learning to extend their thinking through working with others and metacognitive discussion to help them reflect on what they think and how they learn.

Metacognition involves thinking about one's own thinking. It includes knowledge of oneself, for example of what one knows, what one has learnt, what one can and cannot do and ways to improve one's learning or achievement. Developing metacognition involves helping to make learners aware of themselves as thinkers and how they process/create knowledge by 'learning how to learn'.

Slide 9

Many approaches include the use of thinking diagrams, 'graphic organisers' or 'concept maps' as an aid to making thinking visual

and explicit. Other effective strategies to develop more reflective teaching include:

- Thinking time: allow 5 seconds or more thinking time, before and after a response.
- Think-pair-share: allow individual thinking time, discuss with a partner then group
- Ask for more: ask follow-up questions to get students to 'unpack their thinking'
- Withhold judgement: respond in a non-judgemental way eg 'Thank you'.
- Ask for a summary: promote active listening by asking for a summary
- Cue alternatives: ask 'Who agrees/disagrees?' 'Who has another view?'
- Challenge responses: ask 'Why?' or offer a different viewpoint
- Make a personal contribution: offer information, your own experience or ideas
- Invite further contributions: ask if anyone has a question to ask or idea to share
- No hands up: a strategy that can completely change the dynamic in the classroom by encouraging everyone to answer, even if it's just 'I don't know'.

The aim of these strategies is to get more of the pupils to think for themselves more of the time and to seek out opportunities to gather evidence of learning. They are designed to create conditions where teachers and pupils can work together to explore misconceptions and to help teacher better understand what their pupils think and know. Such collaboration takes time but with patience and persistence, it will help teachers gather evidence of learning and pupils to assess their own progress and learning.

There is an opportunity here for a quick think, pair, share that allows participants to discuss the strategies they currently use. This would represent a good preparation for the next three slides.

Slide 10

This slide and the next two are central to the approach adopted in The Highland CPD Reflection Framework of developing the principles and practice of formative assessment by making thinking explicit.

‘For formative assessment to be productive, pupils should be trained in self-assessment so that they can understand the main purposes of their learning’ . (Black & Wiliam 1998)

Improving self-assessment by pupils is a key aim of formative assessment. There is a growing realisation that we need to teach not only cognitive skills and strategies but also develop the higher ‘metacognitive’ functions involved in developing the self-awareness necessary for self-assessment.

Metacognitive awareness involves making learners aware of themselves as thinkers and developing the self awareness they need to assess and improve their own learning. Metacognition involves thinking about one’s own thinking and learning. It involves developing knowledge of oneself, for example of what one knows, what one has learnt, what one can and cannot do and ways to improve one’s learning or achievement. It also involves skills of recognising when one has a problem, articulating the problem, planning what to do in trying to solve it, monitoring progress and evaluating the outcomes of one’s own thinking or learning activity.

Metacognitive awareness is promoted by helping pupils to reflect on their thinking and decision-making processes. This self awareness is the key to self-assessment. It is developed when pupils are helped to be strategic in planning, organising and reviewing their learning activities. They need to be encouraged to reflect before a learning activity by identifying the learning objectives or outcomes, to reflect during their learning activities and after, for example in a plenary review of their learning. The implication is that you need to plan time for debriefing and review in lessons to encourage children to think about their learning and how to improve it. This can be done through discussion in a plenary session, or by finding time for reflective writing in their own thinking or learning logs. ‘Self appraisal, when mediated, helps develop self-awareness and self-management – metacognitive thinking’ (Fisher 1998)

The ideas discussed here are developed further in Unit C1: Around the Assessment is for Learning Triangle and will be the focus of a future development of the reflection framework in collaboration with Robert Fisher to explore how approaches to thinking can support personal learning planning.

Slide 11

This diagram shows ways in which the thinking of pupils can be made explicit so that evidence of learning can be assessed. The aim is to help pupils take more responsibility for their own thinking and learning. This can be achieved by focusing on thinking, metacognitive discussion and peer and self-assessment.

Formative assessment offers rich opportunities for providing instruction in specific thinking skills and strategies while retaining an emphasis on subject area learning. Thinking skills and strategies can be made explicit by teaching 10-15 minute mini-lessons on skills during a lesson. By working through short teaching episodes in this way, pupils can immediately apply what they have learned or been reminded of in meaningful contexts.

Effective ways of making thinking explicit include:

- selecting an appropriate thinking skill or strategy as a focus for the lesson
- describing the skill and/or inviting pupils to explain it
- modelling and applying the skill through thinking-aloud
- guiding practice of the skill with a partner or small group
- explaining how and when to use the skill or strategy
- coaching on how to use the skill effectively

Thinking is also made explicit in metacognitive discussion as part of the plenary at the end of a lesson. Thinking is made explicit when the focus during the discussion moves from what pupils did to what they thought, the skills or strategies they used and what they learnt. In such discussions, teachers would be seeking to

assess evidence of these resulting processes, knowledge and outcomes.

Peer and self-assessment also help pupils become more engaged in and take more responsibility for their own learning. If pupils are routinely expected to share their work with a critical friend or learning partner before showing it to the teacher or others, the practice of self-assessment will become embedded in classroom practice. Such practice will also develop not only pupils' skills but also their disposition to assess their own progress in learning.

Formative assessment should help pupils internalise the principles and processes of assessment. We need to help them make their thinking explicit to aid this process of internalisation. Self-assessment skills are probably best acquired through prior experience of peer assessment. Once students have understood the goals of an activity, they then have to judge the extent to which fellow students have actually reached these goals. This immediately requires students to develop an appropriate language and conceptual apparatus with which to talk, debate and argue about the quality of work and learning. As a result, peer assessment becomes an exercise in student voice.

The criteria for judging the quality of work needs to become explicit before they can be either debated or applied. For most students, this is a deep change in their role for which they need:

- access to the criteria by which a desired performance can be recognised and judged
- access to examples of work that meets such criteria
- opportunities to explore the kinds of activity that meet the criteria
- opportunities to set questions that elicit work to meet the criteria.

By looking at the work of another student in terms, not of the mark awarded by the teacher but of the criteria for quality the work should be evaluated against, students can develop an understanding of quality. As part of their self-assessment, students can also 'traffic light' their work, with a green icon for areas they think they fully

understand, orange for areas they partially understand and red to indicate a tenuous grasp. If many students indicate orange or red, the teacher may decide more explanatory class teaching is in order. When students readily expose, rather than hide, their weaknesses, we know that formative assessment is working. The mindset we have in relation to failure is an important factor governing the extent to which we are able to take responsibility for our own learning. The American social psychologist, Carol Dweck has made a major contribution to research in this area. Her work is described in Unit C1: Around the Assessment is for Learning Triangle.

These ways of making thinking explicit relate closely to and exemplify the ACfE model of thinking dispositions and capacities.

Slide 12

'What thinking skills are pupils developing and using in this lesson?' can be asked of any learning activity. There are many models of thinking, such as Bloom's Taxonomy. These models have many common features which include the three key processes of *information processing*, *creative thinking* and *critical thinking*. Thinking can be described as a set of information processing capacities that we all possess. This information processing involves such things as finding or remembering relevant information, organising information, representing and communicating information. Information processing is necessary in order to define, compare, sequence and determine cause and effect. Information processing reminds us that thinking must be about something and that facts and knowledge are the important foundations for learning and understanding. But 'what do you know?' and 'What can you find out?' is just the beginning. We need to show pupils how to create new knowledge and to be critical about what they see, say, hear and do.

Creative thinking is about building on existing knowledge by generating new ideas and increasing the breadth of perception

through imagining or hypothesising and designing innovative solutions. Creativity is seen as enhancing economic, cultural and personal development. Creativity is both personal and cultural. It relates to individuals at a personal level and to individuals as members of communities. Creativity is essentially the capacity of individuals or groups to think and express themselves through using their imagination to produce outcomes that are original and of value. Section 2 of 'Personalised Learning' by Robert Fisher discusses this in greater detail.

Critical thinking reflects the human capacity to reason. It involves encouraging pupils to reflect on their own and different points of view, giving reasons, making inferences or deductions and arguing or explaining a point of view. The heart of critical thinking is reasoning that is not accepting an answer or statement from any pupil without asking for reasons or evidence. Critical thinking is a key skill in developing active citizens in a democracy. It also lies at the heart of helping children to be self directed and self-critical learners.

These skills are essential in teaching children to learn how to learn and to become self-directed researchers in new learning. These processes of research involve asking questions, planning their own research or study and engaging in an enquiry or process of finding out. They are also central to assessment or evaluation in helping pupils to developing their own evaluation criteria, to apply evaluation criteria in critical ways and in using judgements of the value of information and ideas to formulate creative ways forward and goals for future learning.

Slide 13

Activity 2

This activity bears some similarities to Activity 1. It has been set to help participants reflect on the issues raised in the previous three slides and in particular on encouraging critical and creative thinking. By focusing on identifying and fostering the dispositions and skills pupils will need to take greater responsibility for their learning,

it looks forward to what needs to be done if self-assessment is to be optimised. This activity can be used as a preparation for working on Unit C1: Around the Assessment is for Learning Triangle which is about extending formative assessment, and self-assessment in particular, to provide a basis for effective personal learning planning.

Possible extension work

Participants could take this as an opportunity to identify a specific area to take from this session as a focus for some small piece of action research (action or personalised research is explored in Personalised Learning: a guide for teachers), the outcome/s of which can be shared with colleagues in a future session.

Session 3

Thinking: a whole school priority?

Slide 14

The third session in this unit provides an opportunity to think about some whole school approaches that could help put thinking at the centre of the learning opportunities and experiences it provides for pupils and teachers. This session includes a number of possible short activities which could be used in a variety of ways to help participants develop a collaborative approach to future professional development based on The Highland CPD Reflection Framework.

Slide 15

What kind of curriculum do pupils need for the 21st century? What curriculum content do they need to know? What learning and life skills do they need to develop? What choice should be offered to students to determine their own learning? Personalised learning for 21st century schooling raises many questions about the nature of curriculum content. *Schools and their staffs need to explore what they need to do differently in developing the personal and entrepreneurial skills that pupils will need to*

face the challenges of the future. For example, growing numbers of schools are adopting a more cross-curricular approach to learning

(www.internationalprimarycurriculum.com), They are focusing more on the skills of thinking and learning to learn and are using formative assessment as the foundation of a thinking curriculum.

To begin this process, we need to reflect on the underpinning principles of learning, teaching and assessment that will prepare pupils for an uncertain future.

This slide provides another opportunity for a short think, pair, share activity. What would a Scottish Thinking Curriculum look like in the 21st Century.

Slide 16

‘Give me a fish and I will eat today. Teach me to fish and I will eat for a lifetime’ (Chinese proverb).

Discuss the implications of this saying for teaching and learning.

Consider:

- how to teach for the transfer of learning by giving pupils explicit help to link what they are learning to prior learning within and beyond your classroom.
- ways of establishing a climate for thinking – a climate of relaxed alertness, high challenge but with high support and low stress where the views of others are respected.

- how to help pupils develop a learning vocabulary and encourage metacognition.

To review the progress and development of formative assessment in your school, you might discuss:

- How well is AfL embedded in the routines of classroom life?
- In what ways are you monitoring the impact of assessment for learning on student learning, its character and quality, and on (ii) student skills and dispositions (engagement in learning)?
- How is assessment for learning affecting student and teacher roles? What do they feel about it?
- Have you informed and involved parents in assessment for learning developments?

Will they be satisfied that they are getting proper reports on the achievement and progress of their children?

- What is the role of student voice in advancing assessment for learning?

Slide 17

Reflective professionals need to engage in reviewing their own and their school’s practice. Reflective professionals are engaged in researching their own teaching and learning. They begin with the question, ‘How do I improve my work?’ Their underlying premise is that professionals should be actively engaged in setting their own goals for improvement, devising their own research plans and choosing from different ways of research the methods best-suited to their needs. Engaging in your own personalised practical professional research enables you to express your voice and your choice in the ongoing assessment of your career. (see ‘Personalised Learning’ by Robert Fisher in this unit.)

Reflective professionals are also engaged in reviewing policies and practices in their own school. School review is needed to plan, monitor and assess the development and impact of formative assessment on the curriculum and the use of new teaching techniques and strategies.

The aims of a school review of personalised learning include:

- assessing where we are
- identifying ways forward
- sharing good practice

The following are some aspects of school review that could be used to evaluate provision:

Assessment for Learning

Do we:

- Know the strengths/weaknesses of every child
- use evidence to assess learning
- use dialogue to identify pupil needs
- structure feedback linked to learning objectives/goals
- show clear links between AfL and lesson planning

Effective Teaching and Learning Strategies

Do we:

- use the full range of teaching strategies
- teach lessons in how to learn, independent learning
- develop use of ICT strategies
- use learning partners, mentors, groups
- make cross-curricular links in contexts for learning

Curriculum Entitlement and Choice

Do we:

- consult pupils about teaching, learning and assessment
- offer pupils choice in learning and assessment
- develop individual support eg learning and assessment partners
- create a flexible curriculum, and flexible use of curriculum time
- effectively extend learning and assessment beyond school

Slide 18

The concluding slide brings together the various elements of the Highland CPD Reflection Framework. The centrepiece is the need to find ways in which teachers can help all pupils to take greater responsibility for their own learning through making thinking explicit. The framework is based on the belief that one way of achieving that will be if the principles and practice of formative assessment are embedded by developing classroom practice that teaches pupils how to assess their own progress. This can only happen if they understand clearly what they are supposed to be learning, know what success will look like, and have learned how to think in critical and creative ways in order to evaluate their progress.

This diagram is a useful reference point and reminder that The Highland CPD Reflection Framework has been designed to bring a number of different elements together to provide a coherent and meaningful approach to promoting professional dialogue for the foreseeable future.

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