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Research for Teachers
Learning how to learn through AfL strategies

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How can teachers be supported to use assessment for learning practices effectively?

There is clear evidence that assessment for learning (AfL) strategies are effective at improving pupil learning. Research such as *Inside the Black Box* and the follow up *King's, Oxfordshire and Medway Formative Assessment Project* (KMOFAP) have shown that when teachers implemented AfL strategies in classrooms they helped raise their pupils' achievement significantly. But these research studies involved relatively small numbers of teachers who were involved in intensive professional development in AfL practices with the researchers. Opportunities for this kind of training are not always available in schools. How else can teachers go about developing and changing their classroom practice to make the most of what assessment for learning strategies offer?

This RfT reports on a project which set out to explore the issues associated with scaling up AfL innovations. The Learning How to Learn (LHTL) project built on the KMOFAP study, but unlike the researchers in that study, the LHTL researchers did not intervene directly in classrooms. Rather, they provided the project schools with activities to introduce staff to AfL practices, and encouraged the teachers and leaders to take responsibility for the way teachers in their school developed the practices. This made it possible for the researchers to look at the kinds of professional development and school conditions that helped teachers learn new AfL practices and enhance pupil learning.

The project found that the teachers' main difficulty when implementing AfL strategies was promoting learner independence. Providing teachers with opportunities, encouragement and support to engage in classroom inquiry was helpful in this respect. Inquiring into their own practices helped teachers become familiar with some key AfL processes, and experiencing AfL processes for themselves helped them to help their pupils do the same with their learning.

Black, P., McCormick, R., James, M. & Pedder, D. (2006) 'Learning how to learn and assessment for learning: a theoretical inquiry' *Research Papers in Education Special Issue 21 (2)*pp. 119-132

James, M. & Pedder, D. 'Professional learning as a condition for assessment for learning' in Gardner, J (Ed) (2006) *Assessment and learning*London: Sage

James. M. et al (2006) *Learning how to learn: Tools for schools*London: Routledge

Marshall, B. & Drummond, M-J. (2006) 'How teachers engage with assessment for learning: lessons from the classroom' *Research Papers in Education Special Issue 21 (2)*pp.133-14

Swaffield, S., & MacBeath, J. (2006) 'Embedding LHTL in school policy: the challenge for leadership' *Research Papers in Education Special Issue 21 (2)*, pp.201-215

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Overview

Why is the issue important?

We know that assessment for learning (AfL) strategies are effective at improving pupil learning. But implementing them effectively is not that easy. For AfL practices to be truly effective, teachers need to change from teaching about a subject or topic, to helping pupils take responsibility for their own learning by reflecting and acting upon information and feedback they are given. This change to practice is neither trivial nor straightforward because it involves changes in understanding, values and attitudes as well as behaviour for both pupils and teachers.

What did the research show?

The study showed how few teachers (20%) implemented AfL practices in ways that promoted independent learning by pupils. Teachers who were successful at promoting independent learning:

- gave pupils activities that offered them scope to think for themselves and ensured the activities built cumulatively
- exchanged ideas with their pupils and talked with them in ways that developed their understanding
- demonstrated how they believed all pupils had the capacity to learn and saw helping pupils to learn as their responsibility.

How was this achieved?

The researchers found that conducting their own classroom inquiries and reflecting on what they had learned helped teachers to develop AfL practices that led to active learning by pupils. Working collaboratively with their colleagues helped teachers to change their practice and learn the skills necessary for implementing AfL practices effectively, including how to observe learning, give feedback to learners and develop effective interactions with pupils. Leaders who reinforced key messages regularly and sustained a continuous focus on learning how to learn helped to embed deep change in their school. The methds they used included making it a regular item on agendas, and integrating assessment into policy documents.

How was the research designed to be trustworthy?

The researchers collected and analysed a variety of data, including:

- observations of around 60 lessons - half the lessons were also video recorded
- questionnaires given to 1700 pupils and about 200 teachers about their general beliefs about learning
- questionnaires given to about 1300 school staff, including assistants, teachers and managers from 32 schools to find out the organisational conditions that promoted AfL strategies
- interviews with 40 school coordinators and 40 headteachers to find out about their schools' practices for embedding AfL strategies.

What are the implications?

The research showed the importance of:

- helping pupils to learn independently
- teachers using dialogue and organising activities that promote independent learning
- teachers inquiring collaboratively into their own classroom practices and reflecting on the impact of changes they make, and
- leaders sustaining a continuous focus on learning and improving classroom practice.

What do the case studies illustrate?

The case studies show:

- how AfL practices developed pupils' capacity to learn
- classroom examples of an approach to classroom inquiry called lesson study
- what two teachers learned from a collaborative inquiry into the AfL practices they used to improve the quality of their

students' written work about historical sources
- how the questions teachers asked encouraged or constrained independent learning and how the kind of questions the teachers asked related to the kind of activities they organised
- student views about the interactions they felt helped them to learn.

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Study

How do AfL practices help pupils learn how to learn?
AfL practices help pupils learn how to learn because teachers can use them to make learning strategies explicit to learners and encourage them to take responsibility for their own learning. For example:

- effective questioning by teachers probes pupils' understanding rather than recall of facts, and encourages all pupils to contribute and share ideas. Once teachers have established this kind of questioning, pupils can begin to ask questions of each other, so moving the focus from the teacher to the pupils
- writing comments on pupils' work (as opposed to marking it by awarding grades) helps teachers to structure their pupils' learning. It also shifts pupils away from being competitive towards being focused on learning
- sharing criteria with pupils helps them understand what counts as success
- peer assessment helps pupils learn how to give and take constructive criticism and advice that will help them to progress.

Practitioners wanting to find out more about assessment for learning practices may like to read our earlier RfTs: Raising standards through classroom assessment and Assessment for learning: putting it into practice.

Practitioners may also like to look at a case study which shows how a teacher used AfL practices to improve pupil learning.

Strategies used by successful learners
Successful learners are those that try to learn and are conscious of the strategies they employ. Their approach contrasts with that of students who focus simply on completing tasks. For example, some students try to solve physics problems by substituting numbers in a formula, without trying to understand the concepts which the formula represents.

Some of the strategies successful learners use are of the higher-order kind, for example rehearsing and structuring plans for enquiring activity. Teachers can help pupils enact these higher-level strategies by, for example, framing questions to direct pupils' attention and giving pupils opportunities to think strategically and reflect on their learning. Practitioners may find it helpful to look at case study 4 in the group work RfT where there are examples of ways of challenging children's thinking and promoting meaningful engagement with the task.

Other strategies commonly used by successful learners include:

- relating what you are learning to what you already know
- monitoring whether you understand something or not
- planning what to do next
- evaluating and revising the strategies you've used.

How did the project teachers change their classroom practice and with what effect?
The study found that whilst most teachers adopted AfL procedures or techniques, such as sharing quality criteria with learners, only around 20% did so in ways that helped their pupils to become more independent learners. The researchers illustrated this finding with examples of two teachers' English lessons. Both teachers adopted the same formative assessment procedures: sharing the criteria with the learner and peer and self-assessment. But whilst one encouraged independent learning, the other constrained it.

Tracey's lesson

- Tracey modelled the criteria for the eventual assessment activity by giving pupils a piece of writing to correct that was full of technical errors
- the classroom dialogue consisted of the pupils volunteering mistakes they had found and corrections they had made whilst Tracey checked they had found all the errors and that their corrections were correct
- the pupils then went on to peer assess each other's work.

Angela's lesson

- Angela asked the pupils to draw up a list of criteria for performing a poem
- the classroom dialogue consisted of pupils making suggestions whilst Angela probed, challenged and polished their contributions
- Angela recorded the pupils ideas (such as 'pace') on the board
- Angela then performed the poem to the class and asked the pupils to critique it, using the criteria they had identified earlier.

The researchers identified two crucial, but subtle elements that differentiated these two lessons:

- the scope of the tasks, and
- the opportunities the tasks afforded for current and future pupil independence.

Scope of the tasks
Tracey's lesson restricted pupils' understanding of what quality might look like because it focused on features that were simply right or wrong. Pupils' understanding was enhanced in Angela's lesson because she asked them to consider higher order concepts of meaning and effect, such as showing expression in your face when reading a poem out loud, as well as technical points such as clarity and accuracy.

Opportunities for independence
The sequence of activities in Angela's lesson guided the pupils towards being independent learners because the tasks, such as encouraging the pupils to create their own criteria, helped them to think for themselves about what might be needed to capture the meaning of the poem in performance. The AfL procedures in Tracey's lesson could not guide the pupils towards being independent learners because the pupils were restricted to following the teacher's implicit model.

Practitioners may like to read a case study which explores the differences between another two teachers' classroom practices in more detail. The vignettes illustrate how the kind of tasks teachers set and the interactions they engaged in with their pupils affected the pupils' capacity to learn.

Practitioners may like to read another case study which shows the kinds of teacher interactions that students themselves felt helped extend their capacity to learn.

Why did some teachers succeed in promoting independent learning through AfL practices, but not others?

The researchers' interviews with the teachers revealed a possible explanation for why some teachers helped pupils achieve autonomy through AfL practices, but not others. The beliefs teachers held about learning appeared to have an impact on the way they applied AfL strategies in the classroom.

All the teachers who captured the underlying principles of AfL practices spoke of the value they placed in pupil autonomy. They believed all pupils had the capacity to learn and saw helping pupils to learn as their responsibility - that it was their fault if learning did not take place. For example, one teacher explained:

'...sometimes you prepare the lesson which isn't appropriate for the pupils. It's over their head or it's too easy and that sometimes prevents learning from taking place ... You might be able to control the situations so they complete the task, but they haven't actually learnt anything because it's too complicated and they didn't get the hang of it or it was too easy and it was something they could dash off'.

The teachers reflected about what went well in their lessons and what they could do better next time:

'...sometimes it's just a thought and sometimes I actually kind of go back over the scheme of work, look at the lesson plan and write notes to myself for next time ... it depends on what it is really and how severely badly it went'.

The teachers viewed lessons as learning opportunities for themselves as well as their pupils. They sought to refine and develop their craft for the benefit of their pupils and they wanted all pupils to understand that their performance and knowledge could be developed. By being explicit about their own learning they created a synergy between the way they approached their teaching and the formative process they provided for their pupils.

Other teachers also spoke of a desire to promote independent learning, but they felt less able to effect change in the classroom. They believed that there were circumstances beyond their control which inhibited their ability to teach in an effective way and saw the onus on the pupils being ready for independence rather than on creating that readiness. For example:

'They're impatient with each other ... just not being prepared to listen to each other if someone is having a conversation with me ... I don't think a lot of them value what each other have to say'.

'It all gets in the way. Exam courses, being tied to rules and regulations. Being tied to a set syllabus because a lot of what is on the curriculum is not applicable to a lot of these kids and we could make them much better learners if we could be more creative in the way we use the curriculum'.

What kind of professional learning helped teachers to change their practice?
The researchers pointed out that for AfL strategies to be truly effective, it requires a shift in emphasis from teachers teaching about a subject or topic, to helping pupils take responsibility for their own learning - reflecting and acting upon the information and feedback they are given. The researchers recognised that making this change was not trivial or straightforward. It involved changes in understanding, values and attitudes as well as behaviour for both pupils and teachers.

The researchers found a clear association between promoting learner independence and 'inquiry', especially collaborative inquiry. Teachers' uses of, and responses to, different sources of evidence (from formal research as well as their own classroom inquiries) helped them to develop AfL practices that led to independent and active learning among pupils. The researchers pointed out that by becoming familiar with the principles and processes of AfL through inquiry into their own practices teachers were able to help pupils do the same with respect to their learning.

One approach to classroom inquiry suggested by the researchers was 'lesson study' in which teachers:

- identify an aspect of teaching which is likely to have an impact on an area of need in students' learning
- work in groups to plan interventions
- observe each other's research lessons, and
- deconstruct and write up what they have learned - from successes as well as failures.

At the end of a cycle of studies, they may teach a 'public research lesson' before an audience of peers from local schools in order to share the practice. Practitioners may like to read some vignettes from a case study that illustrates this approach to classroom inquiry.

What factors helped to embed deep change?
The researchers' interviews with co-ordinators revealed four strategies for bringing about changes in teachers' beliefs and understandings across a school, and help embed a change in their approach to learning:

- professional collaborative activity
- embedding through cultural leadership
- management actions
- external influences.

Professional collaborative activity
Staff engaged in a variety of professional collaborative activities ranging from formal professional development days, working groups and peer observation to informal discussion and exchanges of practice. As teachers gained an awareness of the factors that influenced pupil learning, they gradually applied their insights to their own learning. A secondary school co-ordinator described this connection between teacher and pupil learning as 'mirroring'. Another spoke of learning with and from pupils, suggesting a shift in classroom culture in which learning was a shared activity.

Practitioners may like to read a case study which shows how two teachers went about inquiring about the learning taking place in their own classrooms and how they gained from the activity.

Embedding through cultural leadership
A leadership style that was linked to the spirit of AfL helped to embed new practices in the culture of the organisation, so that they became 'the way we do things here'. This was characterised as leading by example, modelling behaviour, and encouraging ideas to permeate through developing and shared understandings. It was generally recognised that changing existing cultures or mind-sets took time. Co-ordinators used metaphors such as 'bubbling away', 'slow simmering', and 'a little beat pulsing away' to describe a process which involved intermittent or regular reinforcement of key messages. One co-ordinator commented how LHTL was embedded through lodging 'it in the back of their minds'. Another, by contrast, described thinking about learning as constantly in the foreground.

Management actions
Structural devices, such as learning and teaching newsletters, staff bulletins with a weekly LHTL item (a thought-provoking comment, idea or quote from a book), and having LHTL as a regular item on meeting agendas, fed a culture of continuous focus and talk. Other management means of embedding LHTL included:

- influencing school and department improvement plans through a training event or audit of practice
- integrating assessment and marking policies etc into policy documents
- recruiting like-minded staff - teachers sympathetic to the philosophy and practices of LHTL
- new staff being provided with policies and LHTL documents on appointment, talking with senior leaders about the school's approach to teaching and learning, observing other teachers and planning in a team.

External influences
The ideas, perspectives and resources coming from beyond the school that were influential in supporting the embedding of practice included:

- in-school workshops led by advisers who also helped by validating practice, assisting reviews and reflection, sharing ideas gleaned from elsewhere, providing ongoing support and keeping the focus on LHTL
- networked meetings that provided opportunities to meet with colleagues from other schools and exposed teachers to new ideas and different ways of working.

What training and support did the project teachers receive?
The researchers found that AfL/LHTL practices needed to be stimulated in many of the project schools and they did this through providing INSET activities - activities that schools might carry out routinely as part of their school development plans. They did not prescribe what or how much activity the schools should engage in. Rather, they encouraged teachers and leaders to take responsibility for the pattern of development in their school because they wanted to compare the effectiveness of the different ways in which the schools implemented ideas and developed their practice.

The researchers made three kinds of materials for introducing AfL practices available to the project schools:

- a Powerpoint presentation that explained research evidence about the positive effects of AfL strategies on learning and achievement and offered practical ideas for developing classroom practice
- an audit and action planning activity that helped teachers to reflect on what they had heard and decide where they wanted to go next. The audit contained questions such as 'what do you do already?' 'What new practices could you introduce?' 'What old practices could you discard?' 'What will be your timescale?' 'How will you evaluate success?'
- a self-evaluation questionnaire for teachers to complete before the programme of professional development was fully

planned to help INSET leaders identify practices that might need attention or assist their decision about whether INSET should be school-wide or focus initially on supporting the development of specific groups of staff.

Workshops
The researchers also provided materials for a series of workshops covering the four AfL strategies - developing classroom talk through questioning, feedback, sharing criteria with learners and peer and self-assessment. Each workshop lasted 60-90 minutes. Some of the schools worked systematically through all the workshops over a period of time, whilst others selected particular workshops according to identified needs. Each of the workshops comprised tasks that gave the teachers the opportunity to experience AfL strategies first hand.

For example, for one of the tasks in the questioning workshop, the teachers were given transcripts of two teachers' interactions with pupils taken from a published journal paper. They were asked to list the characteristics of the teachers' questions and the pupils' responses in pairs, compare the lists in groups of four, construct a typology describing the differences between the two teaching styles and generate some principles for effective classroom questioning. Then the teachers planned a lesson with questioning in mind in pairs. As a follow-up activity, the teachers observed one another teaching the lesson using the principles they had created for the first task as a framework for discussion and analysis after the lesson.

How was the research designed?
The project involved researchers from four universities who worked with around forty schools (infants, primary and secondary) in five local authorities in England. The project built on two main areas of research: AfL research and research associated with teachers' continuing professional development, school improvement and educational change. The researchers combined these two areas of research together so that they could investigate the conditions in classrooms and schools that would promote better learning by pupils through the development of AfL practices by teachers.

The researchers collected a variety of data:

- observations of around 60 lessons - half the lessons were also video recorded
- interviews with focal teachers to find out their beliefs about learning, and with the 40 school coordinators and 40 headteachers to find out about their schools' practices for embedding AfL strategies
- questionnaires to 1700 pupils and about 200 teachers about their general beliefs about learning
- questionnaires to about 1300 school staff, including assistants, teachers and managers from 32 schools to find out the organisational conditions that promoted AfL strategies
- network maps and associated commentaries collected from 35 head teachers, co-ordinators and advisers to find out how knowledge of practice was shared within and across schools.

The staff questionnaire
The staff questionnaire consisted of three sections, each containing around 30 statements:

- classroom assessment - for example, 'Pupils are told how well they have done in relation to their own previous performance'
- teachers' professional learning - for example, 'Staff use the web as one source of useful ideas for improving their practice'
- school management, practices and systems - for example, 'The school provides cover to allow staff joint planning time'.

Staff were asked to make two kinds of responses to each of the statements - their perceptions of whether they or their school practised them using a four-point scale and how important they felt the practice was, using a five-point scale. The researchers clustered the results to identify patterns across schools and over time. This questionnaire is available for schools to use, in the Learning how to learn: tools for schools book mentioned at the beginning of this RfT, and in the 'self evaluation resources' section of the LHTL project website at:www.learntolearn.ac.uk

What are the implications for teachers and leaders?
Teachers may like to consider the following implications in acting out the main messages of the study.

- The project found that giving pupils activities that offered them scope to think for themselves and ensuring the activities built cumulatively so that they gradually developed pupils' understanding and knowledge helped foster independent learning. Would you find it helpful to investigate how far the activities you offer your pupils promote independent learning? You could, for example, work with a colleague to observe each other's lessons, noting how the pupils make use of what they learn from one activity in the next.
- The kind of dialogue that took place in the classroom was important. Teachers who exchanged ideas with their pupils and talked with them in ways that developed their understanding of quality criteria were successful at promoting independent learning. Would you find it helpful to investigate how you might improve the dialogue that takes place in your classroom? You could, for example, audiotape a lesson, transcribe some of your interactions and reflect on how you could have probed and challenged your pupils' thinking even more. You may find it helpful to read our earlier RfT about effective talk in the classroom.
- Believing in pupil autonomy and showing this in interactions with pupils made a difference to whether or not pupils became independent learners. Teachers who showed they valued learner independence made clear their belief that all pupils' performance, knowledge and understanding could be developed. They also demonstrated that if they saw that learning failed to take place, they reflected on why it had not happened and what they might do to help. Would you find it helpful to ask a colleague to observe a lesson and note down two or three instances when you model a belief in pupils' capacity to learn and some opportunities for new and fuller modelling? Could you do more to find out how much your pupils learn from the activities you offer them? You could, for example, ask your pupils from time to time what they feel they have learned and what they need more help with?

Leaders might like to consider the following implications.

- Working collaboratively with colleagues helped teachers change their practice and learn the skills necessary for implementing AfL strategies effectively, including how to observe learning, give feedback to learners and develop effective interactions with pupils. Could you do more to support collaborative learning in your school by, for example, releasing teachers to plan activities together and encouraging them to reflect on the impact of the changes they make to their classroom practice?
- Conducting classroom inquiries and reflecting on what they had learned helped teachers to develop AfL practices that led to active learning by pupils. Teachers' classroom inquiries also helped schools to become learning communities that welcomed challenge. Could you do more to support colleagues wanting to carry out classroom-based inquiry into what they and their pupils are doing and learning and encourage them to share their results with other colleagues?
- Leaders reinforcing key messages regularly and sustaining a continuous focus on learning how to learn by, for example:
- asking their colleagues to complete self-evaluation questionnaires to identify which practices to focus on
- making learning how to learn a regular item on agendas, and
- integrating assessment into policy documents to help embed deep change in their school. Would you find these strategies helpful for embedding deep change in your school?

Filling in the gap

Gaps that are uncovered by a piece of research have a useful role in making sure that future research builds cumulatively on what is known. But research also needs to inform practice, so practitioners' interpretation of the gaps and follow-up questions are crucial. We think three kinds of study would usefully supplement the LHTL project findings:

- studies in other settings (such as challenging or privileged circumstances) using the same instruments to further explore contextual variations
- a study over the longer term to explore the lasting benefits for schools, teachers and pupils
- a more detailed study of the barriers to effective implementation of AfL practices.

What is your experience?

Do you have any evidence about initiatives aimed at promoting learning how to learn? Do you have action research or enquiry based development programmes running that explore, for example, collaborative professional learning? We would be interested to hear about examples of effective initiatives promoting learning how to learn, which we could perhaps feature in our case study section.

Your feedback

Have you found this study to be useful? Have you used any aspect of this research in your own classroom teaching practice? We would like to hear your feedback on this study. To share your views with us please email: research@gtce.org.uk

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Case studies

We present five case studies to illustrate aspects of the research reported in the RfT. The first case study shows how a teacher used AfL strategies to develop her pupils' learning, whilst the second shows in detail how skilful questioning combined with a carefully structured sequence of activities can encourage independent learning. The third case study examines an approach to classroom inquiry known as 'research lesson study' through three short vignettes. The fourth case study shows what teachers learned from inquiring about the AfL practices they used to develop the learning which took place in their own classrooms. The final case study explores views held by students about what helps them to learn.

An investigation into how AfL practices can help pupils to learn

We chose this case study because it shows how a teacher used AfL practices in her classroom to develop her pupils' learning. She set out to examine how her pupils negotiated quality criteria for a task and then used the criteria to assess their work. She also explored how questioning, listening to the pupils' responses and intervening in order to move them on in their learning can improve children's learning. As a result of these AfL strategies, the children learned to reflect on and talk about their learning.

The teacher researcher conducted her research with her class of 30 Year 6 pupils. She recorded the class discussions with a small hand-held tape recorder and later made transcriptions of some of the more interesting comments made by her pupils. She also recorded and transcribed pairs of pupils talking through the process of using criteria to assess each other's work. She made notes of the comments made by her pupils, and her own observations and reflections in a research diary.

What did the lessons involve?
The teacher started off by discussing the learning intention of the lesson, asking questions about what it meant, why they needed to learn about it, and what they might be expected to know, understand or do by the end of a lesson. She went on to talk about and establish a short list of success criteria for a task. The class 'negotiated' criteria for the content and quality of story writing. The teacher showed the pupils how to use the criteria, as an aide-memoire whilst writing, and afterwards as a checklist to assess their own writing.

Next, she asked the pupils to work in pairs and use a checklist to mark each others' work. They repeated this process to mark their own work. In this way they were able to reflect on their work and could see what needed to be improved, by referring to the checklist. Using simplified National Curriculum statements, some pupils were able to award their own work grades, marks out of ten or levels according to how many criteria had been ticked off.

What did the pupils learn?
The teacher researcher found that her pupils were able to:

- assess their own work and that of others appropriately using simplified "I can..." level descriptions as a checklist. Where the statements of the level descriptions included more difficult vocabulary, they negotiated the meaning of the words with partners. When work did not meet all the relevant criteria pupils collaborated to decide how many statements within a level determined a 'best fit' level of attainment

- identify three 'good' things about a friend's writing, indicate one thing that needed improving and suggest a way in which the improvement could be made
  reflect on their work and discuss any difficulties they experience

- reflect on the processes of learning and assessment and compare their views with others.

Overall, the teacher researcher found that her pupils were interested in knowing about the AfL strategies and felt empowered through discussing the different aspects of the lesson. Understanding the nature of a task helped to them to feel more motivated in their work, whilst working with a partner on a task, helped them to

recognise the benefit of mutual support.

Reference
Gill, J. (2006) 'Investigating children's perspectives on formative assessment: developing an action research approach' National Teacher Research Panel. Available at: www.standards.dfes.gov.uk/ntrp/publications/gill/

The importance of skilful questioning for helping pupils to learn

We have chosen two vignettes to illustrate how the questions teachers ask can encourage or constrain independent learning. The kind of questions the teachers asked in these examples were related to the kind of activities they organised.

Simon
Simon organised a clear sequence of tasks in his history lesson, each building on and developing the previous activity. The emphasis in Simon's history class was constantly on what pupils could do to improve performance. He expected pupils to:

- frame their own notions of quality
- negotiate and refined these within the group
- apply the principles to a piece of work
- use their new understanding to reassess their own work in light of the judgements about quality.

The questions Simon asked pushed his pupils to think more deeply about the judgements they made, and so deepened their understanding of what was needed to make a good essay. He organised tasks and activities in ways that invited the pupils to bring their own interpretation to bear on what they were being asked to do. Much of the feedback Simon gave his pupils related to the way in which they interpreted the task. His questions demanded that the pupils refined their thinking and progressed in their learning and then applied that new understanding in the next activity.

Examples of Simon's classroom activities and dialogue
Referring to an essay the pupils had completed for homework, Simon asked the class to brainstorm five things that made a 'good' essay. The pupils reviewed their individual lists in pairs to create a joint list to which they added three more ideas. Simon went around the class, listened to the pupils' discussions and asked questions, such as:

- What do you mean not going on for ages?
- What do those details mean?
- What do you mean here by 'To the point'?

Simon collated together the pupils' lists of criteria, questioning further their responses. For example:

- What do you mean by detail?
- Why do you need this?

Simon gave the class the examination board criteria and asked them to mark an essay from the previous year in pairs. He went round the class and discussed the grades the pupils had awarded:

- Is it a level 3? Does he use all the sources, his own knowledge? What has he brought in?
- You've given it a seven. How could you make it better?

The class compared the grades and discussed the discrepancies. Simon prompted their discussions with

questions, such as:

- Any other comments on why they gave it a two not a three?
- Who gave it a three? G you gave it a three, why?

The teacher finished the lesson by asking the pupils to develop their own essays in the light of the discussions about what makes a good essay.

Sheila
The activities in Sheila's English lesson were more fragmented than in Simon's lesson and much of the dialogue between Sheila and her pupils revolved around clarifying the task. The pupils were more dependent on their teacher's judgement and pre-specified formulas, and less on their own understanding. They hardly discussed their ideas when working in groups despite the idea for group work to foster an 'exchange of ideas'. Where discussion did occur the pupils appeared to perceive it as leading to the right answer. Sheila's style of questioning was closed and instructional.

Examples of Sheila's classroom activities and dialogue
Sheila began her lesson by writing the objective on the board in the form of a question:

- How are we encouraged to empathise with the characters in their situation?

The teaching assistant then led the class discussion.

TA: What are the key words in this question?
Pupil: Empathise.
TA: Yes, next?
Pupil: Situation.
TA: Any other key words? [Extensive wait] Miss is pointing to it.
Pupil: How?

The pupils were given three minutes in groups to work out the answer to the question on the board. The whole class was then invited to feedback on the group work using a 'hands down' approach:

Teacher: OK, I would like you to explain what you have to do.
[Pupil doesn't respond.]
Teacher: S could you develop that?
S: How?
Teacher: Can you help me N? (N mumbles an indistinct answer)
Teacher: Anything else? The rest of you need to listen while N is helping me ... this could move around the room.
[Three more pupils respond]
Teacher: Good the ideas are developing.

Sheila gave the pupils the group task of writing a monologue for one of the characters and handed out photocopies of one done the previous day as a model. The teacher and TA went around the groups making comments to the pupils, such as:

- You don't have to use this format but I think it's fun.
- You can use the information on the sheet just change the style.
- I want one version. I want you to work together to share your ideas.

Reference:

Marshall, B. & Drummond, M-J. (2006) 'How teachers engage with assessment for learning: lessons from the classroom' Research Papers in Education Special Issue 21 (2) pp.133-14 Available at: www.tlrp.org/dspace/handle/123456789/509

Research lesson study

Here we present three vignettes which illustrate lesson study as an approach to classroom enquiry.

Example 1: Promoting effective discussion during mathematics lessons
The mathematics staff of an 11 - 16 comprehensive school planned several 'research lessons' for their Year 8 and Year 10 classes to help them explore strategies for encouraging effective discussion between students when working collaboratively on problem solving tasks. They used information which their colleagues gathered about one lesson to help them with planning the next. Strategies which encouraged effective talk between students included establishing ground rules for working in groups and sharing assessment criteria.

For the first lesson in one series of lessons, the teacher simply put the students into groups and asked them to work together on an investigation. When they analysed the audio and video recordings of the lesson, the teachers found that most of the students' talk was 'cumulative' - that is, they simply agreed with what each other said. Some of the pupils' talk was 'disputational' - they argued unproductively, did not listen to what each other said and reached their own decisions, rather than make them jointly. The teachers found little evidence of 'exploratory' talk, the most educationally effective kind of talk, which involves students explaining and justifying their ideas before reaching an agreement.

To encourage more exploratory talk, the teacher started the second lesson with a class discussion about working in groups. The class devised some ground rules for working in groups, for example 'give reasons to back up anything you say'. In the third lesson of the set, the teacher arranged the students into single-sex, similar ability friendship groups as before, reminded the students of the ground rules for group work, then gave the students 'discussion rich' problems.

The teachers observed how working collaboratively helped the students feel more confident about solving mathematical problems. They also found that arranging the students into groupings based on their gender, ability or level of communication skill helped to encourage greater collaboration and constructive talk.

Reference:
Seal, C. (2006) 'How can we encourage pupil dialogue in collaborative group work?' National Teacher Research Panel summary. Available at: www.standards.dfes.gov.uk/ntrp/publications/seal/

Example 2: Engaging pupils' minds more actively during mental maths sessions
Two teachers set out to develop an aspect of pupil talk in relation to assessment for learning. They wanted to find out whether the repertoire of shorter 'talk' devices they used with their Year 1 and Year 2 pupils were really getting all the pupils' thinking, talking and listening. They used research lessons to evaluate the active learning actually going on during their regular 'quick talk' sessions (eg. think-pair-share, breakouts, buzz-groups, response partners etc).

The teachers found fewer than half the pupils were really actively speaking and listening with purpose. They used another research lesson to test this hypothesis. One pupil in each pair had to role-play their teacher asking questions, asking for reasons and giving feedback. Pupils' engagement and progress improved enormously in the following lessons.

The teachers used a similar approach in their literacy lessons with similar results. They videoed the technique they developed and put illustrative video-clips on their network website. They also led a meeting for colleagues from their school network and another network to share their findings.

Example 3: Making the most effective use of 'move on up' criteria sheets in writing

Three teachers in an English department were conscious that although they had displayed the National Curriculum within level descriptors on the classroom walls for some time, neither the teachers nor the students ever actively used them. They were aware of AfL research that shows the gains that can be achieved in pupil learning when success criteria and clear evidence of what is being progressed towards is built into teaching and learning. The teachers decided to investigate whether their Year 9 students would improve their writing through making active use of these criteria.

The teachers observed how their case pupils worked with the criteria over a sequence of lessons. They filmed short but relevant sections of the lessons and used the video to help them analyse how the pupils had been learning. They also involved the pupils in the research - asking for feedback on their views via interviews and questionnaires. They varied the ways in which students used the criteria each time on the basis of their learning so far.

The teachers found that the engagement and progress made by the students improved as a result of their engagement with the success criteria. The students also liked being consulted about their learning and appreciated the fact that their views were responded to. The teachers shared their learning by working with colleagues in the mathematics department to develop a similar approach. They also edited their video and created an artefact using this and the materials they had adapted for others to use.

One of the teachers summed up the benefits of taking part in lesson study in these words:

'We can always do the 'performance lesson' for performance management or the demonstration lesson for Ofsted - but this was [my colleague] and we trusted each other. We knew what to teach, but it was the unpicking of it and finding out how'.

Reference:
Pete Dudley 'Networked research lesson study in practice'.

Collaborative professional learning about peer and self-assessment

We chose this case study because it is an example of how two teachers went about inquiring about the learning taking place in their own classrooms collaboratively and how they gained from the activity. The study involved two history teachers from different secondary schools, a class of 27 mixed ability Year 7 students and a low-achieving group of 15 Year 8 students. The teachers worked together to introduce their students to self and peer assessment techniques designed to help them to improve the quality of their written work about historical sources.

During the course of the project the teachers visited each other's classrooms twice. They observed and recorded by video instances when peer and self-assessment techniques were used in the classroom. They also collected other evidence such as students' written work and comments about the assessment process. After each visit, the teachers met to discuss and analyse the data they had gathered. They used the evidence they gathered and discussed to help them refine the work they carried out subsequently. In the process, they found they needed to go beyond simply implementing the techniques of peer and self-assessment to embracing a wider strategy for assessment for learning. This broader approach helped to make the experience meaningful to the students and enhance the learning that took place.

Why and how did the teachers introduce their students to peer and self-assessment?
The teachers felt that many of their students had an unrealistic view of their own ability and level of progress. This was particularly noticeable when they completed their end of year record of achievement sheets. The teachers decided to focus on peer and self-assessment to help them explore the learning that was or was not taking place in their classrooms.

The teachers began by interviewing the students about their perceptions of the purposes of assessment and what sorts of assessment they thought would be useful to them. They then set up a series of history lessons.

They told the students in general terms about what they should do in order to write high quality answers to the questions that had been set. After completing the written task the students worked in pairs, marking each other's work using a traffic light mark scheme. This involved using three different colours (red, amber, green) against a set of criteria to show how well they had achieved during the task. After they had assessed each other's work, the students selected targets for improvement that could be applied to a future piece of work.

Following a discussion about these lessons, the teachers modified the tasks they gave to their students. They asked the students to complete their traffic light marking by underlining key features directly onto the completed work. To help the students have a clearer understanding of the assessment criteria, the teachers asked them to write the targets in their own words. They also set up another series of lessons which allowed the students greater independence. The three-stage process involved the students:

- marking a piece of work together, and annotating it to show what made it good
- establishing their own 'golden rules' about what should be included in a good piece of work
- completing a piece of written work, assessing it using the golden rules, and making comments directly onto their own work.

The teachers then interviewed a sample of students about the activities, asking for their perceptions of traffic light marking and the process of self-assessment.

What impact did the project have on the students?
At the start of the project, the students regarded assessment as a means by which they could be informed of how well or badly they had managed to carry out tasks set by teachers. In other words, assessment was something done by an expert. The students had little insight about the process and no control over the outcome. They simply tried to do what the teacher had asked. To the students, assessment had little to do with learning; rather it was a seen as a system of assigning status, and of giving or withholding reward.

By the end of the project the students were able to:

- recognise what made a good piece of work
- assess their own work appropriately - they were able to identify what they could do and also what needed to be improved
- review and reflect upon their own work using techniques of self and peer assessment
- achieve higher standards - they were able to talk more confidently about the similarities and differences between historical sources, their written work had a much clearer structure, and the students were able to provide examples in their answers and give supporting evidence for the arguments that they had made.

The students' views about their learning had also changed by the end of the project:

- they had greater confidence in their own ability
- they saw assessment as a process which involved them
- they believed that being involved in the assessment process helped them to achieve at a higher level
- they believed that everyone could improve.

What did the teachers feel they learned from the project?
The teachers felt that:

- introducing and discussing peer and self-assessment had opened up a dialogue between the students and themselves about learning
- the process of collaboration with another teacher and another school gave them the opportunity to experiment and discuss.

The teachers also felt that working together helped them to see that it was important to focus on the way students learned and not just on how they taught. For example that:

- students could become involved successfully in setting their own targets and could contribute to their own development
- different learners needed to be allowed to engage with the process of learning in ways that were appropriate to their own stage of development
- teachers should provide their students with assistance that was structured and rigorous, but also flexible and dynamic.

The teachers considered that the factors which had helped to enhance the students' achievements included:

- sharing the broad learning objectives with the students
- helping the students to keep the broad learning objectives clearly in focus by reminding the students of them at various points, so that they knew what they were trying to achieve
- allowing the students to generate the success criteria as a group (and using their own language to do so) rather than simply giving them the success criteria.

Reference:
Davies, L. (2004) *Investigating the use of peer and self-assessment to improve pupils' performance when writing about historical sources*. National Teacher Research Panel (NTRP) summary. Available at:
www.standards.dfes.gov.uk/ntrp/publications/daviesandhogg/

Ways teachers can help secondary aged students to learn

We chose this case study because it shows some of the kinds of interactions that older students felt helped extend their capacity to learn. When interviewed, the students (who were aged 12-15 years) suggested that teachers provided them with the most useful help during one-to-one or small group situations because they disclosed more of their thinking to teachers during these times. They commented that they preferred it if teacher feedback took the form of suggestions because making sense of the teachers' ideas gave them an active role. Teachers who demonstrated they valued student learning and showed a willingness to explain ideas over again, encouraged students to feel they could ask questions until they understood.

Interacting with students informally whilst working
Students felt informal, one-to-one or one-to-group interactions that took place whilst they were working were particularly useful. At these times, the students felt able to be explicit about what they did not understand, which gave teachers a better appreciation of their level of understanding, meaning they could target problem areas. For example, one student commented how her teacher came around and looked at everyone's work and asked if they did understand and perhaps said 'Oh well, maybe if you tried it this way or that way it may work better'. The students were unanimous about wanting more opportunities for this kind of interaction with their teachers.

Giving feedback in the form of suggestions
Students who talked about and were observed having asked questions to help them understand ideas, said they preferred feedback in the form of suggestions because suggestions supported their active engagement with ideas - both their own and those proposed by the teacher. One student commented how 'suggestions are still making us think'. Another pointed out that suggestions could be 'added' into students' own ideas to 'give a different way' and in this way allowed students to 'decide for ourselves how'. The students felt that suggestions communicated respect for them and their ideas, something that was important to them at a time when they were working on the edges of their understanding.

Communicating to students that their learning is important
The students indicated that how teachers spent their time and what they gave their attention to, communicated

what and who was important to the teacher. Some students were particularly sensitive to the focus of teacher attention. These students could recall if the teacher had spoken to them during a lesson and often whether s/he had interacted with others in the class. If a teacher revisited ideas, students felt this showed the idea and their understanding of it were important to the teacher. The teachers' willingness to revisit ideas and explanations influenced the students' willingness to pursue ideas when they did not understand.

Gaining students' trust and respect
The students indicated that genuine assessment for learning was sustained by relationships of respect and trust. They appreciated teachers 'who respected the way you want to learn' and who 'let you learn yourself'. They reported that respect was a reciprocal activity - they respected teachers who respected them. Trust was related to respect, in that it was related to students' experiences of their teachers' interactions as considerate and well intentioned. They needed to feel 'safe' or 'comfortable' with a teacher, to be able to trust their reaction, before they were prepared to disclose their ideas.

Reference:
Cowie, B. (2005) 'Pupil commentary on assessment for learning' *The Curriculum Journal* 16 (2) pp.137-151
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Further reading

1. What else might I enjoy reading?
Bibliographic references
Blase, J. & Blase, J. (2003) Breaking the silence: Overcoming the problem of principal mistreatment of teachers. Thousand Oaks, CA: Corwin.

Leithwood, K., Jantzi, D. & Steinbeck, R. (1999) Changing Leadership for Changing Times. Philadelphia: Open University Press.

Costa, A. L. & Garmston, R.J. (1994) Cognitive coaching: A foundation for renaissance schools. Norwood, MA: Christopher Gordon.

Rubin, H. (2002) Collaborative Leadership: Developing Effective partnerships in communities and schools. Thousand Oaks, CA: Corwin Press.

Calhoun, E. F. (1994) How to Use Action Research in the Self-Renewing School. Alexandria. VA: Association for Supervision and Curriculum Development.

Harris, A. & Muijs, D. (2004) Improving Schools through Teacher Leadership.Buckingham: Open University Press.
The GTC recently commissioned a study of teacher leadership in England. The study shows that important dimensions of teacher led improvement include professional learning, collaboration, active participation and shared decision making. It identifies positive effects of such leadership on teacher morale and on school improvement. The results are reported in the above publication.

Argyris, C. & Schon, D. (1996) Organisational Learning II. Reading, MA: Addison-Wesley.

Miller, L. (1998) Redefining teachers, reculturing schools: Connections, commitment and challenges. In: A. Hargreaves, A. Leiberman, Fullan, M. & Hopkins, D. (eds.), International handbook of educational change: Part 1 Dordrecht, The Netherlands: Kluwer., pp. 529-543).

Bandura, A., (1977) Social Learning Theory. Englewood Cliffs, NJ: Prentice Hall

Senge, P. M. (1990) The fifth discipline: the art and practice of the learning organisation. New York: Currency Doubleday

Cibulka, J., Coursey, S., Nakayama, M., Price J. & Stewart S., (2000) Schools as Learning Organisations: A Review of the Literature.Published online ERIC ref. no. ED 449139 at the link below.

The first two pages of the RfT are based on the above study, which is a review of the research literature on learning in organisations.
www.eric.ed.gov

Blase, J. & Blase, J., (2004). Handbook of Instructional Leadership: How Successful Principals Promote Teaching and Learning. 2nd edition. Thousand Oaks CA: Corwin Press.

NCSL (2004) Learning Centred Leadership resource pack

The National College for School Leadership (NCSL) offers a resource pack (and further materials due out in March 2005), including information on distributed leadership, on Learning Centred Leadership.
www.ncsl.org.uk/lcl

2. Online resources

An Australian Research Council project examining how leaders change school practices to achieve improved student learning, the role of school leadership in attracting and retaining teachers and promoting innovative schools and students. Canberra: Commissioned Paper by the Review of Teaching and Teacher Education
www.dest.gov.au/schools/teachingreview/documents/leadership.pdf

National College for School Leadership
The website for the National College for School Leadership (NCSL) can be found below. Readers may find the parts of the NCSL site devoted to research and to learning centred leadership particularly useful:
www.ncsl.org.uk
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Appraisal

ESRC TLRP: Learning How to Learn project (2001-5) Mary James, Robert McCormick, Bethan Marshall et al.

www.tlrp.org/proj/phase11/phase2f.html

Robustness

The learning how to learn (LHTL) project built on earlier assessment for learning (AfL) research and development studies, most notably those of Black and Wiliam. Unlike the researchers in those studies, the LHTL researchers did not intervene directly in classrooms, but sought to explore how teachers and leaders went about taking responsibility for developing AfL practices.

The research aimed to investigate the links between pupils' performance outcomes, teachers' and pupils' beliefs about learning and teachers' experience of professional development. It also explored school culture, management practices and networking opportunities within and across schools. The researchers stimulated AfL activities in a range of school settings and then observed how staff implemented them. For example, the researchers analysed the ways some teachers embodied the 'spirit' of AfL compared with others who conformed only to the 'letter'.

The project was implemented in four phases between January 2001 and July 2005. These included recruitment and piloting, main phase of development work, further development work in schools

and data analysis, and writing up and dissemination. It involved a sample of 43 schools (26 primary and 17 secondary) representing a range of contexts across five LAs. All the schools had been given an Ofsted PANDA 'C' benchmark grade, based on their results in 2000, indicating they had room for improvement. Altogether the project involved approximately 1500 teachers and 20 000 students.

A range of data were collected including: data from interviews with head teachers, teachers and school project coordinators, data from questionnaires to all staff including managers, teachers, teaching assistants and pupils, lesson observations using video, and pupil performance data. As well as analysing each set of data separately, the researchers used correlation analysis to investigate associations between variables listed above which they then interpreted using qualitative evidence. Combining quantitative and qualitative analyses was a major feature of the research. For example, whole sample analysis of staff questionnaire data enabled the researchers to explore relationships among key variables and use them to create a model of the organisational conditions that promoted learning how to learn in classrooms.

Relevance
The study's findings are relevant for school leaders and CPD coordinators who are engaged in scaling up and transferring innovations such as AfL practices. The project's finding - that the beliefs teachers held about learning impacted on the way they applied AfL strategies in the classroom - has important implications for the scaling up and transfer of practice beyond the point at which the innovation was initially developed.

Applicability
There are a number of messages for teachers seeking to implement AfL strategies effectively in their classrooms. The study found that whilst most teachers in the study adopted AfL procedures or techniques, such as sharing quality criteria with learners, only around 20% did so in ways that helped their pupils to become more independent learners. The researchers identified two key elements that influenced the effectiveness of AfL practices:

- whether the tasks asked for closed or open student responses, and
- the opportunities the tasks afforded for current and future pupil independence.

Other important factors in teachers' use of AfL strategies identified in the research included the value teachers placed on pupil autonomy, the extent to which teachers believed all pupils had the capacity to learn and the degree to which teachers viewed lessons as learning opportunities for themselves as well as their pupils. The study concluded that becoming familiar with the principles and processes of AfL through inquiry into their own practices helped the teachers to help pupils do the same with respect to their learning.

There are also messages for those with responsibility for planning CPD in schools concerning strategies that help bring about changes in teachers' beliefs and understandings across a school, and embed changes in approach. The study identified the following:

- professional collaborative activity
- embedding AfL practice through cultural leadership
- adopting management mechanisms to create a AfL culture, such as learning and teaching newsletters, staff bulletins with a weekly LHTL item, and having LHTL as a regular item on meeting agendas, and
- external influences, including ideas, perspectives and resources coming from beyond the school that were influential in supporting the embedding of practice.

Writing

The study is reported in a range of documents covering different features of the project at different times. For example, there is a technical paper and papers describing the processes and impact in the classroom. The various components of the study are clearly signposted, although some of the sections are rather long and over-detailed for a teacher audience.