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Learning about Learning

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Abstract:

This article examines the area of learning about learning and its role as a key element of effective learning in classrooms. Approaches to facilitating learning about learning in the classroom are discussed in the light of international research evidence, and a particular approach is advanced which involves enriching pupils' narratives about their learning. The effects of classroom interventions are reviewed calling on two forms of evidence: that generated by research teams and that generated by practising teachers. A framework is developed to illuminate the sort of development which occurs in pupils' talk about their learning.

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Introduction

It is a peculiar feature of life in classrooms and schools that there is not much talk about learning. Schools are sometimes called “seats of learning” but can fail to live up to the title, instead appearing to operate as machines for teaching, with all the unintended effects this has. It can be a salutary exercise to listen out for talk about learning in a school, and to identify all the themes which fill up the space and divert the conversation away from a focus on learning.

Yet with the information-rich and fast-moving world in which we live, learning about learning is an increasingly important capacity, which could be seen as every young person’s entitlement in their education, with schools making this a very important contribution in the overall landscape of learning. But rather than preparing young people to be life-long learners, schools sometimes seem to be developing a life-long dependency on teaching. How would you rate your own schooling on this question? And how would you rate schools you know today?

Nevertheless, classrooms are sometimes contexts for effective learning, and when analysing their best experiences of effective learning in the classroom many people (teachers, pupils and others) identify active, collaborative and learner-driven approaches as the important ingredients (Watkins, Carnell and Lodge, 2007). These themes are reasonably well experienced and have been discussed in the literature for many decades. People are less likely to mention the fourth theme which is to be addressed here: learning about learning. Perhaps there is a simple reason for this state of affairs: it has less of a history, and thus is less developed in our classroom practice and our professional language. We teachers may not have experienced such learning ourselves. Reflecting on this, one senior teacher said “D’you know, I went through the whole of my school career and didn’t notice a thing about my learning”. Pupils are in a similar position: a recent study of the experience of 13 year-old pupils in England concluded "Effective practices are encouraging activity in learning, learner responsibility and collaboration. Young people expressed a wish that their classroom experiences would include more of these elements. In all four schools, however, there does not seem to be any time for talk about learning" (Carnell, 2004. See also Carnell 2005). The results of this state of affairs were recently highlighted in a Scottish study which found that in the absence of a discourse of learning, young people saw themselves as 'pupil’ rather than 'learner’, and "appeared to operate on an understanding that school work consisted of a fixed content of information or techniques for which they had to learn right answers and correct performance" (Duffield et al, 2000, p.271).

This article will examine the various ways through which everyone could come to notice more about their learning, the classroom practices which support this and the evidence of its effects. It will advance a particular stance on this developing field.

What do we mean by learning about learning?

The term “learning about learning” can have a range of connotations: for some it seems a distant impersonal or bookish enterprise. That is far from what is intended here. Rather, the term is taken to denote learners’ learning more about their lived experiences of learning. That indicates a key issue which needs to be clarified at the

outset - which view of learning is being invoked? In schools, the word "learning" may be heard in conversations and meetings, but much of it is a subtle cover for talk about teaching or results or schoolwork. So in these circumstances the phrase "learning about learning" could regress to "being taught to be taught", or focus on results, or working smart. The real focus on learning disappears fast.

When we do start to focus on learning, the range of terms in current use can still show important differences. For example, the following terms:

- Thinking about Thinking (Collins and Mangieri, 1992)
- Learning to Think (Perkins et al., 1994)
- Learning to Study (Gibbs,1986)
- Learning How to Learn (Novak and Gowin,1984)
- Learning to Learn (Nisbet and Shucksmith,1984)
- Learning about Learning (Säljö, 1979; Watkins et al., 2000)

The first term in this list is also called metacognition - awareness of thinking processes, and "executive control" of such processes, a term only invented in the 1970s (Brown, 1975; Flavell, 1976). The last in the list is sometimes called meta-learning (Biggs,1985) - making sense of one's experience of learning. In the same way that learning involves a lot more than merely thinking, meta-learning covers a much wider range of issues than merely metacognition, including many issues about the goals, feelings, social relations and context of learning. And between these two, the other terms in this list vary in important ways, as do the practices associated with them. Some adopt a highly instrumental approach to learning, carrying the message that if you learn these strategies (for example concept mapping, note-taking) you will be a more effective learner. Others seem to carry the message that there is a definable list of successful learning strategies which may be specified in advance for any learning, without reference to goals or purposes or contexts.

Approaches which treat learning about learning as the teaching of particular strategies may be common in some schools, but their stance is challenged by evidence about effective learning.

Meta-learning in the context of effective learning

It is not effective to teach learners particular strategies which are the supposed strategies of learning, for three main reasons. *First*, learners may come to "possess" these strategies, but not employ them. Early investigators in this field gathered evidence of this after teaching a repertoire of strategies: they explained it in terms of children having no knowledge of their learning in which to locate these strategies. So new strategies may be taught but may remain as separated and disjointed practices. *Second*, some learners who may come to adopt the learning strategies employ them ineffectively. They may employ them in a routine manner which turns out to be maladaptive for the task currently at hand. "I always do a concept map this way". Here the process of selection and use of strategies is brought to our attention and the metacognitive strategies of monitoring and reviewing are vital. "Is this way of doing a concept map proving useful for this example? What else could I do?". If a learned strategy is to transfer from one context to another the learner must recognize the applicability of that strategy in the different-looking context (Halpern, 1998), again a

metacognitive process. Reviews of research into the direct teaching of teaching of "study skills" to students without attention to reflective, metacognitive development have concluded that it may well be pointless (Hattie et al., 1996). Indeed it may be worse than this: a *third* reason emerged in studies of teaching study skills to undergraduate students, where it emerged that when a group of students is taught that a particular strategy is good for learning, some of the students are saying to themselves "But I don't use that strategy – so I must be worse than I thought". Thus a well-meaning programme can have a negative and disempowering effect if it seems to suggest that there is a single way of approaching effective learning (Gibbs, 1981).

Extracting a positive principle from each of the three reasons above, we may see that to help learners become more effective requires:

- Helping them gain an understanding of their own learning (into which strategies might then take a place)
- Helping them develop skills of monitoring and reviewing their learning, paying attention to the learner's goals and the learner's understanding of their own processes
- Maintaining the message that a diversity of practices can be effective for learning

Such approach emerges in studies of metacognition, emphasising strategies "which actively involves the student in meta-cognitive processes of planning, monitoring and reflecting" (Biggs and Moore, 1993). Also in stances on the "expert learner":

> Reflection on the process of learning is believed to be an essential ingredient in the development of expert learners. By employing reflective thinking skills to evaluate the results of one's own learning efforts, awareness of effective learning strategies can be increased and ways to use these strategies in other learning situations can be understood (Ertmer and Newby, 1996).

But the skills required are not solely individual in nature, as the term metacognition sometimes seems to suggest: that's where the term metalearning encompasses the social nature of the situations in which we learn, and the social nature of our motivation to learn. Teachers readily recognise this, and display it when we ask "what can we see or hear someone doing who we believe to be an effective learner?". A selection of answers from teachers are given below.

Active in seeking understanding and connections

Asks "why?"
Asks questions (comparative, analytic) about meaning
Tests my (teacher) knowledge
Says "how do you …?"
Is prepared to suggest "answers" without being sure they're correct
Can support a view "opposite" to their own
Will ask and check about future applications
Is interested in a wide range of available ideas

Collaborative

Relates (discusses, talks about) their learning with peers/teachers
Asks for help
Good at connecting with you (teacher) in a quiet way

Exercises responsibility for own learning

Uses experiences of "getting it wrong" to ask more questions
Proposes new strategies for advancing own learning
Approaches task in a strategic manner, regularly
Judges when they need to ask for help
Sets themselves challenges
Uses homework to revise class work

Displays metacognition

Says "I hadn't thought of that"
Says "I don't understand , and …"
May change a point as she is going along

The point to note here is that despite the considerable limitation of only focusing on observable features, we can nevertheless see evidence when a learner displays thoughtfulness, not only in the fact that they make some of their thinking available by offering a commentary or "thinking out loud", but also in the way they go about being active, collaborative and driving their own learning. But the limitation of focusing on observables does mean that we cannot have access to a key element - the learner's goals – unless, of course, they happen to talk about them.
So effective learners have gained understanding of the individual and social processes necessary to become effective learners. These points have been encapsulated elsewhere:

> Learning is:
> - an activity of construction,
> - handled with (or in the context of) others,
> - driven by learner's agency. AND
> *Effective learning* is all of these at their best, PLUS the monitoring and review of whether approaches and strategies are proving effective for the particular goals and context. (Watkins et al., 2002, p.4).

The view of learning about learning which is emerging here stands in contrast with a practice which has increased in some schools, which its proponents suggest will help young people understand more about their learning. It is the approach of "learning styles" in which learners "measure" their style and teachers organise pupils into groups on the basis of these typifications. Their adoption is understandable since there is quite a "hard sell" of these ideas, and they seem to offer a quick and manageable strategy for hard-pressed teachers. But we are fortunate that a massive review of the research on "learning styles" has recently been undertaken. It concluded:

> some of the best known and widely used instruments have such serious weaknesses (e.g. low reliability, poor validity and negligible impact on pedagogy) that we recommend that their use in research and in practice should be discontinued. (Coffield et al, 2004, p.138.)

The very important point to understand from this is that the shift which occurs in the focus on learning styles - from a focus on learning to a categorization of learners - leaves out all the important processes which have been shown to characterize effective learning. Instead of this, we need to help learners understand more about their experience of learning, keeping a sense of diversity and without inviting them to label themselves. There is no gain in anyone coming to say about themselves "I'm a visual learner", especially if they then select learning opportunities on the basis of this description: there may be gain from a learner working out how to extend their strategies and approaches, to the full range of "styles", but this will involve them in reflection, review and so on.

Facilitating learning about learning in the classroom

When it comes to devising classroom-based interventions to help children become more effective learners, the contrasts made above have great significance. One of the earliest and most illuminating workers in this field, Ann Brown (an English-born woman who became one of those rare people to be honoured by both the American Educational Research Association and the American Psychological Association) conducted studies to identify the skills of effective learners, effective readers, and so on, and then set about helping children learn these in classrooms. Her summary findings are worth quoting at length:

> Trained to use a variety of strategies, such as classifying, organizing, summarizing, and so forth, children dramatically improved their learning performance. But there was a catch: when left to their own devices, there was little evidence of continued use (maintenance) or flexible deployment (transfer) of these strategies.
> Gradually it became apparent that children's failure to make use of their strategic repertoire was a problem of understanding: they had little insight into their own ability to learn intentionally: they lacked reflection. Children do not use a whole variety of learning strategies because they do not know much about the art of learning. …. Furthermore, they know little about monitoring their own activities; that is, they do not think to plan, orchestrate, oversee, or revise their own learning efforts (Brown 1997, p.400.).

Similarly, other investigators were finding that strategies taught through add-on courses were not as powerful as teachers and students enquiring into the process and experience of learning:

> We do not foresee courses in metacognition being taught in schools. Rather we foresee that instruction in many areas of intellectual skill might be enriched by designing activities so that they bring more of the cognitive processes out into the open where teachers and students can examine and try to understand them" (Scardamalia and Bereiter, 1983, p.62.).

From the earliest studies, it has also been indicated that those approaches which promote reflection are more effective than those which promote skill-learning when it comes to "results". One programme used material from the history curriculum making it the object of reflection: another used generic learning skills materials. The students in the first group developed more advanced conceptions of learning, and got better

grades on essays and achieved better examination results (Martin and Ramsden, 1987).

So how are we to help pupils along this journey of learning about learning? A point which arises quickly in addressing that question is the need to develop a language for understanding one's learning. Here it will be clear that this is not a language of "types" or "styles": that is too limiting. Instead the focus adopted here - learning about one's own lived experiences of learning - means that we will have to develop the language which humans have for talking with each other about their experiences: a narrative language, telling the stories of those experiences in an increasingly rich fashion. So here it may already be clear that the language for learning will not be provided by someone else, and it will not be in predetermined concepts: that would not honour the diversity to be found in effective learning.

Classroom practices for learning about learning have at their heart the practice of talking about experiences of learning and developing more sophisticated commentary about them. In earlier reviews of the literature the following four headings were derived to describe the practices:

(i) Noticing things about learning
(ii) Talking about learning
(iii) Reflecting on learning
(iv) Planning and experimenting with learning (Watkins, 2001).

These can be thought of in a cumulative sense, because in the context of the dominant picture of classrooms having little focus on learning, the attention given to this area needs to be built up progressively.

First element: noticing learning
This requires that we occasionally *stop the flow* to notice our learning, bringing attention to the process of our learning. In this way we cumulatively build up a language for noticing learning. A range of prompts can help the first stage of noticing:

- What is learning? – what do we mean? what is it not?
- When is it best? Where is it best?
- What helps your learning? (including, but not only, what teachers and others do)
- What steps or actions do you take in your learning?
- How does it feel?
- Does what you do and how it feels change as you go along?
- What surprises have you found?
- What hinders your learning?
- What do you learn for?
- What do you do with your learning?

Second element: conversations about learning
This starts with a range of prompts which help learners examine and discuss their experiences, so that they start to tell and re-tell stories of learning, with others, leading to dialogue.

- Tell me about a really good learning experience
- What made it so good? What did you contribute?
- What does this tell you about you? About learning?
- How do you make sense of that?
- What puzzles you about that?
- What I notice in your story is …
- What differences do we see between our stories?

Third element: reflection.
This can be supported through writing in a learning journal. As Lynne, 10 years, puts it: "As I write I notice and understand more too." A wide range of prompts can help to capture and review aspects of the learning journey, including those suggested by learners. Reflection is crucial for developing some distance from the immediate experience, and also may be supported by looking back over such records as are created through a learning journal:

- What was it like six months ago?
- What connections or patterns do you see?
- What new understandings about your learning have emerged?

Fourth element: making learning an object of learning
We may think of meta-learning as an additional cycle in the learning process (see Figure 1). Whatever the "content" of our learning, we may achieve understanding through the Do-Review-Learn-Apply cycle. We may also then focus on the process of learning we went through, as an additional cycle. In time this extra cycle becomes one which a learner can plan for, deciding which way they will go about their learning on this occasion and preparing to notice what happens in their experiment.

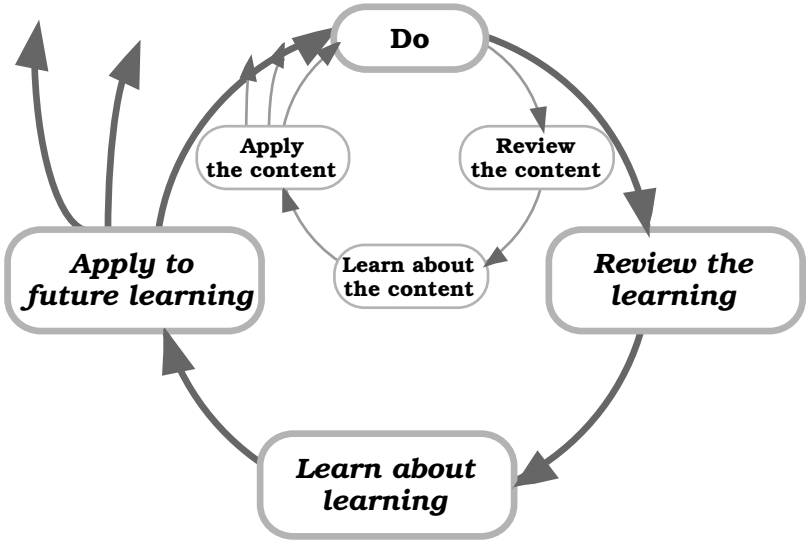

Figure 1: Metalearning as an additional cycle in learning

Metacognitive knowledge about learning is constructed just like any other knowledge, pieced together on the basis of fragmentary data from a range of experiences. But it may then be used to turn learning into something we can experiment with and plan for.

- How can you plan to go about your learning?
- How can you monitor how your learning is going?
- How can you review how your learning has gone?
- To do a quality job on this project, we need to …

With the use of the practices outlined above, any classroom can become more of a MOLE, displaying these features:
In this classroom:

A. Students are asked by the teacher to:
- think about how they learn
- explain how they solve problems
- think about their difficulties in learning
- think about how they could become better learners
- try new ways of learning

B. Students discuss with each other:
- how they learn
- how they think when they learn
- different ways of learning
- how well they are learning
- how they can improve their learning

C. Students discuss with the teacher:
(as B above)
MOLE = **M**etacognitively-***O***riented **L**earning **E**nvironment (Thomas, 2003)

A Public Visible Presence in the Classroom

Conversations about learning are the core of classroom practices and they can occur at many moments, sometimes brief and sometimes extended. But because of the fact that the wider environment does not support much dialogue on learning, this sort of talk can tend to die away unless it is maintained as a regular practice and supported by other practices in the classroom. Ensuring that the silence over learning does not return needs the creation of a public focus on learning in the classroom environment, through posters and other visual messages. Below are some examples of such messages we have seen in classrooms which are becoming learning–centred. The examples come from different years of primary schooling, as indicated after the some of the teachers' names, but they illustrate principles that could be applied in any year.

Focus on learning (as opposed to work, perform, achieve):

"Are you getting on with your ~~work~~ learning?" (Joleene, Yr 3)

Shared statements about our purposes in the classroom:

"to learn the best we can" (Sonia, Yr 3)

Agreed principles for effective learning in the classroom:

"We need to question what we are told or what seems obvious or correct
We need to feel that we have an equal chance to contribute/speak" (Juliet, Yr 6)

Reviews of when learning is best:

"A good classroom has sharing ideas and no-one left out"
(Anna, Yr 4)

Inquiries into learning, with learners' voices made public:
" I helped myself become engaged:
- When I heard you could make your own version of the story
- By knowing a short cut" (Sonia, Yr 3)

Posters on themes and issues in learning:
"I love challenging activities because they make me think hard" (Zoe, Yr 1)
"Mistakes are my friends: they help me learn" (Rebecca)

An explicit model of learning:
for example Do-Review-Learn-Apply

Display of pupils' writing on their experiences and insights into their learning:
"Making up my own question helped me to think about what I really needed to know" (Simon)

Displays of pupils' products are linked with pupil commentaries on the learning which went on.

Evidence of effects

There are two sources of evidence reviewed here. The first is that of classroom teachers who have been developing this area of practice, and gathering evidence of how learning is talked about in an enriched way. The second is that of researchers who have been surveying and investigating in this domain, and gathering evidence of the impact on understanding and performance.

Enriching pupils' views of learning

5 and 6 year olds. Zoe (Bonnell, 2005) has been operating her classroom along some of the lines of a learning community, with public messages about learning, learning conversations and reviews. The effect of learning being a primary focus of everyday life is reflected in the writing from different children in the class after two and half terms of learning about learning.

- *Pupils identify multiple learning resources in their environment*
  "I have learnt from books and the TV and even toys. I have learnt from fresh air. I have learnt from other people at class time. I have learnt from Mrs Bonnell. I have learnt from pictures and computers. I have learnt from writing". (Isabel aged 6)
  "We can learn by listening to other people. We can learn by reading books. We can learn by playing". (Aysha aged 6)
  "We learn from each other. We learn by listening. We learn from the teacher. We learn from books. We learn from looking at DVDs. Looking at the board. We learn from sitting on the carpet. We learn from looking at other people's work". (Annabel aged 6)
- *Pupils mention social AND academic aspects of learning*
  "I have learnt how to make friends by asking them. I have learnt around the big table. I've learnt lots of hard maths". (Annie aged 6)
  "I've learnt that you can learn from other people. I've learnt that you have different ideas than other people.…" (Ruth aged 6)
- *Pupils talk about the empowerment of peer learning*
  "I have learnt more things because you [teacher] don't have to come round to all of the groups to tell us". (Lucy aged 6)
- *Pupils start to identify their own learning goals*
  "I have learnt about numbers. I have learnt it by counting on the number square.

I want to learn to read a book with small letters in it. I want to get better at cutting". (Sarita aged 5) Pages 64, 65

7 and 8 year olds. Juliet spent time with her Year 3 class noticing learning, talking about how it feels, when it's best, and so on. After some time she asked them all to talk about the things that helped their learning. There were many ingredients and the class then decided to put them into groups:

Doing	*Feelings*	*Things*	*People*
helping	past experience	fingers	Brothers
sharing	energy	100 squares	friends
singing	support	information posters	other family
concentrating	safe	instructions	sisters
focusing	patience	books	other children
talking	happy	computers	parents
practising	encouragement	white boards	doctors
listening	confidence	OHP	teachers
watching	comfortable	number lines	
writing	positivity	TV	
quiet thinking	time	maps	
travelling		labels	
copying			
co-operating			
reading			
playing			

What is noticeable here is the number of words for processes, and the great range of items. Posters with these words were displayed on the cupboard doors in the classroom, as a public support to the continuing dialogue, and were reviewed and developed at a later date.

10 and 11 year olds. Naheeda (Maharasingam, 2003) has been holding conversations on learning with her Year 6 class for about a term. At the same time the class has been writing in learning journals, and the entries here seem to indicate a significant change over the period of a term:

- *Conceptions of learning in October*
  "You know that you have learned when something new is installed in your head"
  "Learning is when you are educated by teachers"
  "I think learning is when you don't know something and then you know it"
  "I think learning is when you're learning something new"
  "I see learning as acquiring facts. Sometimes it is mainly getting facts and making sense of them"
  "Learning is when you listen to the teacher and store what she is trying to tell you"
- *Conceptions of learning in December*
  "Some people think learning is just stuffing information in your heads but it is not because the understanding is much more important. To be an effective learner you have to ask questions so you can challenge yourself instead of just sitting there and thinking you're perfect"

"I think responsible learners accept their mistakes and do their learning over and over again until they understand"
"When you ask questions you can learn more, but if you don't ask questions you stay in the same place that you were in"
"I think that you don't learn as well if the teachers just tell you because you can't just open your brain and pour in the information, you need to have had a full conversation about it".
A further reflection of this was pupils' responses to the prompt "What's an effective learner?". By February, responses included:

- "An effective learner wouldn't just know they will understand as well. They will feel motivated and never give up, they believe there is no such thing as I can't. If they get something wrong they will try again. If they don't understand they say"
- "An effective learner asks questions. Even when they are really confused if they don't understand they say to themselves that they would try. They would believe it is how much effort they put in not how clever they are. They have a voice in their heads and believe in themselves" (pages 16, 17).

At the start children believed effective learners to be essentially passive but compliant: within a term, effective learners are believed to be active, questioning, independent and confident.
12 and 13 year olds. Emma (Williams, 2002) has spent time with secondary school students helping them notice, discuss and write about their experiences of learning. Many themes emerge in what they themselves report as the effects of this focus:

- *Learners make connections across contexts*
  "I found it really hard to put into words the "how" of my learning in school, but it made me start to think when we talked about learning outside school. I love singing and I listen to learn most of my music – I'd never really thought about doing that when I am learning in school. For example I recorded all my exam notes onto tape and listen to them before bed. That has been really useful this term"
  "When I was learning to skateboard I kept doing small things again and again, until I really got them, and just looking at other people doing stuff and seeing what worked for them made me choose the next trick that I wanted to learn. There wasn't anyone telling me I should do this or that next, I just did what I thought was cool, and talk about my difficulties to friends, asking them what they thought about moves and things. I think that is really important to my learning – choosing the time to do something and choosing the way to do it. And being interested in the whole thing, I guess".
- *Learners can take a perspective on their own feelings and previous strategies*
  "I can now see that I often avoid working hard because think that if I don't do well, or if I fail an exam, I can sort of blame it on the fact that I didn't work. If I worked hard then I thought it would be really devastating if I failed but when I talked it through with John and Mark, I saw that they had that fear too – we actually decided it wouldn't be the end of the world, in fact we would probably do better if we worked hard, not worse"
  "I have learnt a lot about how my moods affect my ability to work – you often assume these things, but it's only when you start to write them down that you think, 'well I could do something about that'".

- *Learners (in a high performing school) take a more balanced view of their achievements*

  "Learning is what I do as a human, to become a better human. How can exams test really important learning, like learning to love someone, or learning to cope when that person dies? I will try to stop beating myself up about not getting "A" grades in exams because I think I have more to offer to the world than the sum total of my school exam results".

  15 and 16 year olds. Shona (MacIntosh, 2005) has been operating her Year 11 English class as a learning community, with a strong focus on dialogue for learning, and the class creating knowledge with and for each other. At the end of the year the group hold a reflective discussion on the process. Many themes emerge in the account, but some indicate that the pupils can now distinguish different approaches to supporting their learning:

- *Learners have a view of learning which is beyond techniques*

Teacher: Is there overlap between the "Learning to Learn workshop" that you've been doing with Mr X and our classroom as a learning community?

P1: I think the two concepts are different. With Mr X it's more learning *techniques* to learn, but what we do in English is learn about HOW we learn, so it's a kind of different concept.

P2: I think they're different in another way Mr X was telling me in a different conversation that the whole point of his workshop was to help us learn to improve our grades for our exams, but when you're going through it, I didn't think we were actually learning, it's more like how to cram revision into your head for an exam that's going to happen a few months or a few weeks or even days after the workshop. It wasn't learning it was more how to remember stuff … Why is someone doing it now when we could have been doing it for the last three years?

P3: I think that with us it's learning how *we* learn, and in the workshop it's telling us a "*good"* way to learn.

- *Learners are explicit about the role of reflection and relationships in a group*

P3: I think before we had, I mean I'd certainly worked in groups before, but having never written down or had that help in the way I'd learned in that, I never sort of took that experience through to working in groups after that. So having written a reflective piece after the first group work we did this year, it has improved how we've worked as a group for the rest of the year I think. Whereas before we didn't have that chance in other classes

P6: I think that in English we work we *learn* as a group, and with the "Learning to Learn workshop" it's more individual learning. So if we use some of the techniques we've learned in the "Learning to Learn" for say Science, we would learn whatever it was we were trying to learn: in English, we would do this, y'know talk about it, our opinions, and write them down or whatever you like, and think about what other people are thinking, and learn from that. Learn from other people.

- *Learners describe how their view of learning has changed and helped with understanding and performance*

P1: I don't necessarily think that in every English lesson every minute is spent as other teachers would call productively, but enabling them to do what I'm doing now, just babbling out loud, Have a chance, that opportunity, to do that as a whole group and as smaller groups means that I can clarify ideas in my head which in other subjects we're just not allowed to do.

P1: I think that as a class we were quite not bothered with the learning to learn when it started: I agree with that, and when we were debating issues most people had their heads down, fiddling with pencils and stuff, but as we learned that talking about the issue and debating our own ideas, we actually learned a lot more, and it also affected what we felt about these issues and it quite helped for when we actually did our essays.

To summarise, practices for learning about learning in classrooms can lead to changes in pupils' views of learning, in which we see evidence of progressing through such features as:

- Greater independence from teacher
- Greater number of sources for learning
- Self more in control of learning, seeing it as active, collaborative and learner–driven
- Learning more seen as a process and a journey which focuses on meaning and understanding, rather than on techniques
- More ways of overcoming difficulties
- Learning more seen as a function of groups and communities
- Processes of clarifying and developing ideas through dialogue are emphasized
- Learning is seen as connected to "what I have to offer to the world".

In addition to this evidence of progression we see signs that learners themselves notice and mention their own progression in learning. Especially supported through learning journals, we find pupils who are able to comment on how their approach to learning now has moved on from what it was some time ago.

These features are not only the features of a more sophisticated or complex view of learning, but they also have an empowering effect on learners whose extended repertoire and versatility can then be evidenced in "results".

Improvements in understanding and performance

The evidence from a range of research projects also shows significant effects of learning about learning on learners' understanding and performance. A more comprehensive review is available elsewhere (Watkins, 2001), the selection here is of key examples through the years of school.

With 3 to 8 year olds, experiments show that "children who have been involved in this form of educational activity [including meta-learning] are better prepared for learning (understanding new content)". Six year olds showed greater understanding in three real-life learning experiments than did their peers (Pramling, 1990).

For pupils aged 6 to 12 years, one programme enhanced children's strategies and metacognition, and helped them advance each others' understanding in small groups. Pupils were (i) encouraged to engage in self-reflective learning, and (ii) act as researchers who are responsible to some extent for defining their own knowledge. The program was successful at improving both literacy skills and subject knowledge. Rates of comprehension doubled, and ways of explaining became more connected (Brown and Campione, 1994).

Having learners pose meaning-oriented questions to themselves and to others, and having them exchange understandings promotes high-level learning. Most effective questions are those posed by the learners themselves. 10 year-olds trained in this performed better in later learning tasks. Questions for linking with the learner's prior knowledge and experience and promoting connections to the lesson are more effective than questions simply designed to promote connections among ideas in a lesson: 10 and 11 year-olds' performance on comprehension tests was greater (King, 1994). Thought-provoking questions (such as "Why is. . . important?" and "What would happen if. . . ?") asked in small pupil groups, elicit more explanations and in turn mediate learning: Year 6 pupils offered better explanations (King and Rosenshine, 1993).

10 year-old pupils who learned about goals and strategies in learning sometimes improved their performance, but they also needed meta-learning in order to use the learning strategies (Kuhn and Pearsall, 1998). Learning about strategies and learning about learning go best hand-in-hand.

At transfer from primary to secondary school, when students view classrooms as having a learning orientation they have positive coping strategies and positive feeling (Kaplan and Midgley 1999). In secondary school, the more students are supported as autonomous learners, the higher their school performance (Fortier et al., 1995). Better academic performance by 12 and 13 year-olds relates to a learning orientation and a malleable view of ability (Wolters et al., 1996).
Reviews of studies in the area of reading show that the teaching of metacognitive awareness, monitoring, and regulating has effects on performance "among the larger ones that have been uncovered in educational research" (Haller et al., 1988).

So at different ages in different contexts, a range of evidence supports the idea that a focus on learning leads to richer approaches to learning and in turn to improved performance. That's not the prime rationale for seeking to develop learning about learning, but in times when teachers are under pressure to "produce results", this evidence can help them not regress to earlier "transmission" models of the classroom. And when teachers learn more about learning, the effectiveness of a school improves and increased performance follows, especially for many of the underachieving students (Munro, 1999).

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