

Learning how to learn – in classrooms, schools and networks

Research on assessment for learning has demonstrated that it can lead to improved learning and achievement. Less is known about how these results can be scaled up and sustained without intense support. This project, involving 40 primary and secondary schools, investigated the conditions in classrooms, schools and professional networks that support the creation, embedding and spread of new knowledge and practice. Links which were made between assessment for learning and learning how to learn focused on how schools and teachers can help pupils become autonomous learners.

Assessment for Learning (AfL) helps teachers promote learning how to learn (LHTL) in ways which are in line with their own values, and reduces excessive performance orientation. But it is difficult to shift from reliance on specific techniques to practices based on deep principles.

➔ Advice on AfL techniques is useful to teachers in the short term. But progressive professional development requires teachers to re-evaluate their beliefs about learning, the way they structure tasks, and the nature of their classroom roles and relationships.

Classroom-focused inquiry by teachers is a key condition for promoting learner autonomy. Schools that embed LHTL make support for professional learning a priority.

➔ School leaders need to create structures and cultures that focus on learning and support teachers in sharing and evaluating innovations in classroom practice.

Teachers are optimistic about the value of electronic tools for professional development purposes and networking, but they are not well-used.

➔ There is much still to be done to provide resources, services and online environments that support knowledge creation about teaching and learning, and which align with teachers' professional development needs.

Educational networks are much talked about but little understood. They are subjective phenomena rather than objective structures and the way they are perceived varies according to a person's position.

➔ Building network capacity is complex. It is best understood by analysing the roles and perspectives of those involved and the pathways by which they communicate. More work needs to be done on this.

The research

Background and rationale

In a world where new knowledge is constantly emerging, most observers believe that learning how to learn (LHTL) is crucial for lifelong learning. Yet there is little clarity or consensus about what LHTL is, how it can be promoted, what challenges it poses for teachers, or how to support the teacher development that may be necessary.

Researchers from four universities were brought together to investigate these issues over four years (2001–2005). They had expertise in assessment for learning, subject teaching, teacher professional development, school leadership and improvement, network analysis and new technologies.

The work was based on three premises:

First, practices likely to promote LHTL overlap with, and build upon, those associated with assessment for learning (AfL). These include clarifying learning goals and criteria, reflecting on learning, and acting on formative feedback. We wanted to examine this link, especially the shift from the somewhat teacher-centred approach of AfL to the more pupil-centred approach that learning how to learn implies. We were interested in the potential of LHTL to develop autonomous learners, and whether this has parallels for pupils, teachers and schools as learners.

Second, evidence for the effectiveness of AfL is derived from carefully controlled but small-scale experiments which have involved intensive support to teachers. If these innovations are to be scaled up and sustained across the system, they will have to grow with much less support. Conditions for the creation and spread of knowledge and practice would be crucial to their successful implementation.

The aims of the research were therefore derived from a set of linked hypotheses with the following logic (see Figure 1): pupils' learning outcomes are the result of classroom interactions with teachers, peers and resources; classroom practices are influenced by teachers' and pupils' beliefs about learning; and these beliefs and practices are outcomes of teachers'

professional development, school culture, management practices, and networking opportunities, in which electronic tools might have a role. Background variables might also have an impact.

Third, we knew that LHTL practices, based on AfL, were novel and would need to be stimulated in most schools. We needed to do a minimum level of development work, consistent with what was achievable within the normal resources of schools. The level of engagement of schools with our project would be influential but, in schools where many initiatives interact, we expected to treat this as just one variable among many.

What we did

We worked with 17 secondary, 21 primary and two infant schools from five local authorities and one Virtual Education Action Zone. They were chosen to provide a balance of urban and rural, large and small, and mono-ethnic and multi-ethnic schools. Performance results in 2000 indicated room for improvement in all of them.

On the development side of the project, we introduced the project ideas to schools in initial INSET sessions, provided optional workshops and feedback from baseline questionnaire results, allocated a small amount of 'critical friend' time to each school, convened meetings for school and local authority co-ordinators, and created a website for the exchange of ideas and materials.

On the research side, we observed how project ideas 'landed' in schools, and collected evidence to describe and explain the different patterns of implementation and impact. Questionnaires were developed to collect quantitative data on: teachers' and pupils' beliefs about learning; staff values and reported practices concerning classroom assessment, professional learning, school leadership and management; and the use of electronic tools. Responses were used to establish a baseline for each school, and change over time in half the sample. School performance data were used as indicators of pupils' academic achievement.

Qualitative data were collected to investigate the links between these measured variables. Indicators of mediating variables included accounts of policies, initiatives, networks, processes and events derived from classroom observation, interviews,

documents and network maps. All these instruments are available on the project website as self-evaluation resources for schools.

What we found

Classrooms

What we defined as 'the spirit', or underlying principles, of assessment for learning were hard to achieve. While most teachers adopted the procedures or techniques associated with AfL, such as sharing success criteria or increasing class 'thinking time', few did so in a way that enabled pupils to become more independent as learners, a defining characteristic of learning how to learn. However, 20 per cent of teachers were identified as capturing that spirit. They shared key characteristics. The way they structured and sequenced learning tasks exhibited what education thinker John Dewey has termed 'high organisation based on ideas'. They all held a strong belief in the importance of promoting pupil autonomy, and articulated a clear conviction that they were responsible for ensuring that this took place. They viewed nothing as fixed or beyond their control, and they took this empowering philosophy into the classroom and communicated it to the pupils in the way they taught.

These findings from 27 video-recorded lessons compare with results from the project's survey of 558 classroom teachers. Responses to questions about classroom assessment revealed three factors underpinning practice. These are: making learning explicit, promoting learning autonomy, and performance orientation. The first two were learning-orientated and incorporated successful AfL and LHTL practices. In the first administration of the survey, in 2002, only around 20 per cent of teachers reported that they practised the promotion of pupil autonomy in line with their stated values. The majority felt constrained to put more emphasis on performance targets than they wished.

By contrast, analysis of responses to our staff questionnaire in 2004 indicated that gaps between values and practices had diminished in ways that supported LHTL. The project may have influenced this but, at whole sample level, it was impossible to disentangle this from other factors.

Questionnaire responses on the beliefs and attitudes to learning of 1,182 pupils from Years 5, 6, 8 and 9 also changed during the course of the project. As with the staff questionnaire, there were significant differences between schools and sectors. It seems that primary pupils saw little connection between particular school learning practices and the extent to which they felt involved and took initiative in their learning. By contrast, secondary pupils saw these two factors as related, although their sense of active involvement in their learning declined. This last finding is similar to other studies that have shown decline in engagement between primary and secondary school, and we think it unlikely that this finding is specific to this project.

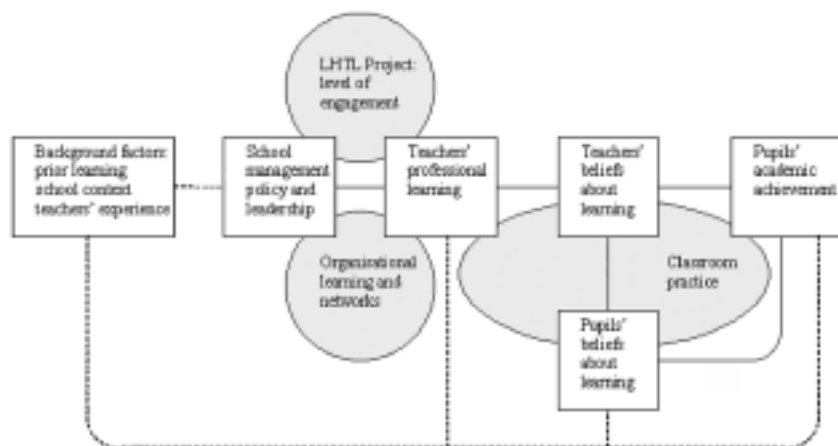


Figure 1: Logic model for a casual argument

Schools

Further factor and regression analyses of the staff questionnaire, involving 1,212 responses in 2002 and 698 in 2004, revealed that opportunities for teachers to engage in professional learning through inquiry into their classroom practice are crucial in helping them to promote learning how to learn to pupils. Teachers' learning of this kind seems to be the route by which school leaders can influence what happens in classrooms (see Figure 2).

In 2004, we found that what teachers thought of as important dimensions of school management were still not being practised extensively at schools in our sample. These included deciding and acting together, providing a sense of direction, supporting professional development, and auditing expertise and supporting networking. This underlines the considerable challenges for leadership if LHTL is to be embedded.

Interviews with head teachers and school coordinators showed that schools approached these challenges in two ways: through structural approaches epitomised by procedural mechanisms, and via cultural approaches based on a more gradualist infusion of change through shifts in cultures. The project found that schools placed different emphases on these, although the two were closely related.

Pupils' measured academic performance varied between project schools. These results need to be treated with caution as possible outcomes of the project. All schools were responding to numerous initiatives at the time, each of which could be expected to have some impact.

Performance tables for 2002–2004, comparing pupils in project schools with the progress of 'similar pupils in similar schools' nationally, revealed that three of the secondary schools in the project achieved contextualised value-added (CVA) results significantly higher than expected in both KS3 and KS4, and four schools were significantly higher at one key stage. Of the primary schools, one achieved CVA results significantly higher than expected in all three core subjects, and five did so in one or two subjects.

Three of the four schools with the highest value added had high levels of engagement with the project and explicit organisational strategies to support teachers' professional development and networking.

Staff in the highest-scoring secondary school, although starting from a relatively high base, achieved significant increases in their practice of 'making learning explicit' and 'promoting learning autonomy' and significant decreases in their practice of 'performance orientation'. Their mean factor score for the promotion of learning autonomy was the highest of all schools. Moreover, in relation to practices that support change in the classroom, this school achieved significant increases in classroom-based teacher learning practices. Significant increases were also recorded in school support for professional development and networking. This is a striking success story.

Major implications

Our research has implications for classroom practitioners, for school leaders, for local authorities, for agencies that provide support and guidance, and for policy makers.

Our enquiries led us to the conclusion that learning how to learn is highly contextualised and cannot easily be separated from learning 'something'. It is not profitable to plan, teach or assess LHTL separately from planning, teaching or assessing learning in a specific subject. This is similar to the 'infusion' approach of the TLRP Thinking Skills project (<http://www.sustainablethinkingclassrooms.qub.ac.uk/>).

However, effective change is only likely to be achieved if individuals and organisations go beyond the implementation of surface procedures and engage with deeper principles of learning and teaching. Teachers need the intellectual resources to 'know what to do when they don't know what to do'.

Practical tips for teachers, including advice on AfL practices, are helpful for beginning or less confident teachers in the short term. But they need to be rapidly built on in coherent, progressive programmes of professional development. Central to such programmes should be opportunities for teachers to re-evaluate their beliefs about learning, the way they structure tasks, and their conceptions of classroom roles and relationships.

Classroom-focused inquiry has a crucial part to play in this. But it involves considerable demands on individuals and institutions because it requires risk-taking, opening practice up to critical scrutiny, collaboration, and a willingness to take responsibility for decisions, action and consequences.

The current performance-orientated climate in schools in England seems to make it difficult

for teachers to practise what they value. Engaging teachers in critical inquiry fosters a greater alignment between their values and their practices.

To make such change easier for teachers, school leaders need to create structures and cultures that focus on learning. They must support teachers in creating, sharing and evaluating innovations in classroom practice. It takes confident and well-supported leaders to provide their staff with the space and permission to innovate, and perhaps learn from failure. This is an important support role for agencies such as the Training and Development Agency, the National College for School Leadership and teachers' professional associations.

Local, regional and national bodies, including the commercial sector, have an important role to play in providing IT resources that support knowledge creation about teaching and learning. They should start from an analysis of how teachers work and what they need. The LHTL project developed its own website in response to the needs of its dispersed community of researchers and practitioners. This has now been taken up and adapted for wider use by the TLRP and a number of other educational research communities. However, more general culture change will be needed if electronic environments are to engage teachers effectively in professional development.

Understanding how knowledge moves around networks and what happens to it in the process is crucial to this analysis. Our research suggests that networks and networking in education are poorly understood, although we made a start by clarifying a number of important concepts, dimensions and relationships.

Networks

Our findings on how networks supported change confounded expectations. We carried out a survey of 250 teachers and an audit of schools' IT infrastructures. We also invited teachers and head teachers to draw up maps of their networks and interviewed them about what they showed. We found that while IT is now a well-established element of classroom practice, teachers made little use of electronic networks to develop their own professional practice, even when they were part of networks designed to help them do so. Nevertheless there was optimism that new technologies can offer such benefits.

As a result of this early finding we turned our attention to trying to understand teachers' networks – an under-researched area. We discovered that networks are 'ego-centred' – viewed at 'eye-level' rather than from '10,000 feet' – and that teachers differentiate between the strength of network links and their value, which is characteristically related to their potential impact on classroom practice.

We also found evidence of different kinds of networks in schools. Head teachers used embedded links, based on personal association, to generate and share practices. Others, including project co-ordinators, deliberately created and managed networks for particular purposes.

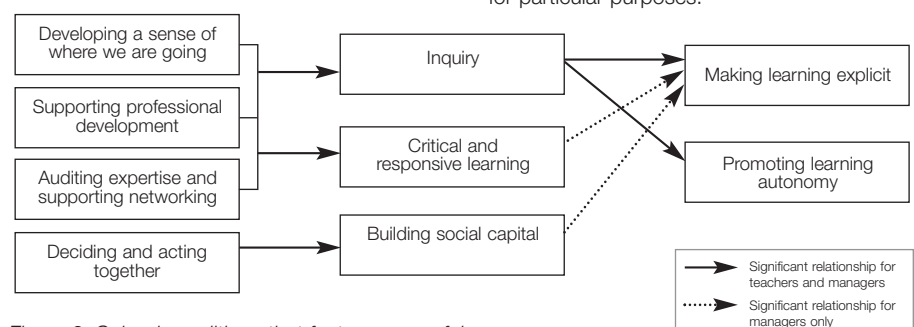


Figure 2: School conditions that foster successful classroom promotion of learning how to learn

Further information

Further information, including downloadable training and self-evaluation materials for use by school leaders, teacher educators and researchers, can be found on the project website (see below). This website can also be accessed via the TLRP website: www.tlrp.org.

Print materials linked to the website are to be found in a book in the TLRP Improving Practice series: M. James et al. (2006) *Learning How to Learn: Tools for schools*, London, Routledge. This will be of special interest to those responsible for staff development in schools.

A book in the TLRP Improving Learning series will provide a more general account of the project including case studies of schools: M. James et al. (2007, in preparation) *Improving Learning How to Learn in Classrooms, Schools and Networks*, London, Routledge. This will be of interest to school leaders, advisers, teacher educators and researchers.

For academic readers, the findings of the project are published in articles in refereed journals. A special issue of *Research Papers in Education*, 2006, volume 21, number 2, is dedicated to the project and contains seven articles. *The Curriculum Journal*, 2006, volume 17, number 2, contains two articles. A number of other articles are published, or being published, elsewhere (see websites for updates).

The warrant

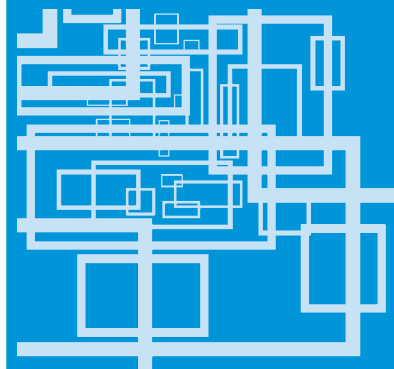
The project built on existing, highly regarded research that has shown through controlled trials that AFL practices improve learning and achievement. It also built on accumulated evidence of effective school and professional development.

The project brought these two fields together by developing a 'logic model' interrogated by studying how development based on existing theory was implemented in a sample of 40 schools in a range of contexts. It sought to understand the influences that would affect scaling up and sustainability in authentic settings. A number of thoroughly piloted and trialled quantitative measures (e.g. questionnaires to 1200+ practitioners and 4000+ pupils) was used to investigate patterns of responses to key variables of interest, across the sample as a whole, within different schools, and over time. Standard procedures for factor, cluster and regression analyses were used to explore relationships between these variables. Extensive qualitative data were systematically analysed and used to develop alternative rival explanations of patterns of difference. In this way quantitative and qualitative data were combined.

A detailed account of our research aims, design and analysis has been published in a peer-reviewed article in *Research Papers in Education*, 21(2), 2006, pp. 101–118.

Regular meetings of the whole research team (once a month), the research and development team (including local authority coordinators), and the project's advisory group (twice a year) ensured that progress and findings were regularly scrutinised by both researchers and users. Two major dissemination events, for practitioners and policy-makers, also provided opportunities for feedback and refinement of findings.

Teaching and Learning Research Programme



TLRP involves over 30 research teams with contributions from England, Northern Ireland, Scotland and Wales. Work began in 2000 and will continue to 2008/9.

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