

The Teaching and Learning Research Programme began its research in 2000. It aimed to contribute to the improvement of learning outcomes within the United Kingdom and to increase the quality and quantity of educational research.

Managed by the Economic and Social Research Council, TLRP has attracted support from higher education and research funders in all parts of the UK.

This leaflet illustrates TLRP insights on teaching and learning in all sectors, starting with preschool learning and continuing through school to further and higher education, and on to workplace and lifelong learning. This work is a contribution to public debate and to the professional judgements of practitioners and policy-makers across the UK and beyond.

TLRP has also worked with researchers and users of educational research to improve quality and build capacity. Over 100 research projects, thematic activities and fellowships have been supported. The Programme has also created new infrastructures for research and experimented with contemporary technologies and impact strategies.

The large-scale, generic phase of the Programme will conclude its work by September 2009. In the meantime, a focused phase on technology enhanced learning was established in 2007 and will continue until 2011/12.

#### TLRP Directors' Team

##### Generic Phase (TLRP Generic)

- Andrew Pollard – Cambridge/London (Director) (2002-09)
- Charles Desforges – Exeter (Director) (1999-02)
- Alan Brown – Warwick (2002-09)
- Miriam David – Keele/London (2005-09)
- Mary James – Cambridge/London (2002-09)
- Steve Baron – Strathclyde (2004-06)
- Kathryn Ecclestone – Newcastle/Exeter/Brookes (2002-05)
- John Siraj-Blatchford – Cambridge (2002-05)
- John Kanefsky – Exeter (1999-02)

##### Technology Enhanced Learning Phase (TLRP TEL)

- Richard Noss – London (Director) (2007-12)

##### TLRP Programme Office (2005-09)

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## Developing educational research



#### Establishing strategies for research development

TLRP has applied a robust set of developmental strategies: user engagement for relevance and quality; knowledge generation by project teams; knowledge synthesis through thematic activities; knowledge transformation for impact; capacity building for professional development; partnerships for sustainability; adding value through innovative review.

#### Pathfinding user-engagement strategies

TLRP has demonstrated the value of working with practitioners in research sites and with high-leverage national bodies at all stages of research from conception to dissemination. Whilst practitioners tangibly validate and enrich ongoing work, national organisations provide exceptional support for dissemination and impact activity.

#### Investigating learning outcomes

TLRP's projects have wrestled with the identification, study and measurement of a broad range of learning outcomes, accepting that narrow performance scores may not adequately represent educational goals. The results confirm that definitive evidence of 'what works' is extremely difficult to achieve in such a complex field, but that carefully warranted evidence can enhance the necessary judgement of practitioners and policy makers.

#### Extending researcher experiences

TLRP has provided unique opportunities for senior researchers in education to lead and manage large-scale interdisciplinary research projects. Additionally, many early career researchers report that engagement in the Programme has significantly enriched their careers.

#### Enhancing research expertise across the UK

TLRP has invested heavily in capacity building. The Programme has trialled and evaluated learning from courses and workshops, social practices in research projects, the use of on-line resources and knowledge exchange through mentoring. It has actively supported related initiatives in Wales, Scotland, Northern Ireland and England.

#### Pioneering technologies for collaborative research

TLRP and the Centre for Applied Research in Educational Technologies, University of Cambridge, have developed a series of virtual research environments and other tools to support collaborative activity between research networks and distributed project teams. This technology is now being taken up by the British Educational Research Association.

#### Improving knowledge accumulation

TLRP has developed a specialist electronic repository, DSpace, containing over 1000 items, underpinned by a theoretically-informed meta-tagging system, and accessed through www.tlrp.org. The Programme has contributed to debates on approaches to reviewing knowledge and is developing a series of International Handbooks on Teaching and Learning in different sectors.

TLRP has worked to create and support new research initiatives, to enhance research expertise and careers and thus to strengthen the UK's educational research capacity.

#### Exploring knowledge transformation strategies

TLRP has attempted to be innovative in relation to outputs and impact strategies. Working with journalists, it has produced acclaimed Commentaries on public issues. Other outputs include web sites, press articles, research briefings, DVDs, drama, on-line activities for practitioners, the Improving Learning and Improving Practice book series and a textbook for student teachers. Much of this material is available via our web site.

#### Contributing knowledge for democratic debate

TLRP has adopted a policy of constructive engagement with civil servants, politicians and representatives of civil society in each part of the UK. It has liaised directly with leading Westminster politicians, contributed to Parliamentary enquiries and to national reviews on primary education, 14-19 education, workplace and lifelong learning, mental capital and wellbeing, and published Commentaries on contemporary issues.

#### Focusing UK research strategic development

TLRP has promoted and facilitated formation of the UK Strategic Forum for Research in Education (SFRE) as a way of exchanging good practice and achieving greater coordination in the development of the field. The goal is to strengthen the provision and use of educational research evidence for the improvement of policy and practice.

#### Exchanging experience of national research initiatives

TLRP has attracted international attention because of its quality, scale and strategic coherence. Invitational presentations and visiting delegations have included colleagues from: Argentina, Australia, Brazil, China, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Korea, Netherlands, New Zealand, Norway, Singapore, South Africa, Spain, Sweden, Switzerland and the United States.

#### Facilitating new fields of research

TLRP has been a focal point for strategic discussions about future efforts for UK educational research. The TLRP Commentary on Science Education contributed to new funding in that area whilst investment on Widening Participation in Higher Education and on Technology Enhanced Learning extended the Programme itself. Responses to TLRP's Commentary on Neuroscience and Education encouraged consideration of further research investment in this area.

#### Passing the baton

Development and improvement is an enduring commitment for any profession, such as that of educational research. TLRP has been proud to contribute to this process during the first decade of the 21st century. Wherever possible, its outputs and resources will be sustained elsewhere – with particular take-up of various capacity building activities by the British Educational Research Association.



# impact and significance

## Teaching and Learning Research Programme

www.tlrp.org

# Developing understanding of teaching and learning



As a contribution to evidence-informed policy and practice, TLRP has worked to enhance knowledge and understanding about teaching and learning across the life-course – as the topics in this leaflet illustrate.

## The engaged learner

TLRP evidence shows that pupils learn best when they are committed to their own learning and know how to go about it. Teachers and schools provide the best opportunities when they use established principles of learning. These include pupil consultation, assessment for learning, thinking skills development and activities to promote positive learner identities. These need to be integrated into the curriculum so that learners develop a sense of agency and autonomy in their learning. TLRP projects have been influential in system-wide initiatives within and beyond the UK. They have affected England's review of teaching and learning methods for the future, 2020 Vision, the recent curriculum reviews in Scotland and Northern Ireland, the Pedagogic Strategy in Wales, and initiatives in Hong Kong, Thailand, the Caribbean and elsewhere. TLRP's associated project on Effective Provision of Pre-School Education has provided the evidence for system-wide change in pre-school provision in the UK and beyond.

## Innovative teaching strategies

TLRP's evidence shows that teachers and teaching are the most significant factors in improving educational outcomes. At the core of teacher expertise lies the ability to scaffold learning so that supported learners are confidently able to sustain their learning alone. Evidence suggests that explicit teaching designed to increase learner awareness of the learning process can produce general breakthroughs in learning as well as gain in specific subjects. Projects on literacy and numeracy, learning how to learn, study lessons, concept mapping and group work show serious learning gains when this is achieved. These insights have been drawn into the centre of pedagogic innovation. They feature strongly in England's National Primary Strategy. TLRP's work on neuroscience and education received enormous media coverage in arguing for a cautious approach. Popularised neuroscience is seductive, but can be dangerous when prematurely applied in the complexities of classrooms.

## Technology enhanced learning

Enhancing learning with technology requires much more than just the hardware and software. These are just tools. What matters is how their use is framed by skilful teachers to enrich learning experiences. In nursery schools for instance, guided interaction by teachers in support of children's ICT encounters significantly enhanced dispositions to learn, knowledge of the world and operational skills. Maximising the learning benefits of ICT thus requires responsive, reflective pedagogy which values pleasure and engagement as well as operational skill. Research has developed a compelling case for professional development in the use of ICT. While ICT can help learners engage with lesson content, this does not always happen in the way intended by teachers. Teachers must be aware of what one project calls the difference between "idiosyncratic" and "intended" learning. Professional development which involves teachers designing and operationalising their own approaches to using ICT have been very successful. One TLRP project showed that 70 per cent of teacher-partners used ICT to enhance student learning.

## Understanding literacies

Literacy is essential to individuals in contemporary society. But TLRP research shows that approaches to literacy that stress "basic skills" fail to recognise that reading and writing are meaningful social practices. A study of the teaching of writing showed the importance of morphemes, units of meaning within words, rather than just phonemes, the sounds that make up the words, in achieving confident progress in spelling. In work on further education, everyday literacy capabilities were contrasted with the formal demands of courses. There is a tendency to undervalue learner capabilities, but the researchers and practitioners working together showed that there is enormous scope for unlocking neglected potential. A project on bilingualism in Wales produced similar insights. TLRP's message is an optimistic one. If literacy capabilities are understood, they can be built on to improve formal learning. In place of the tendency to alienate learners, there is the potential to engage them.

## Teacher learning in schools and further education

Committed and resilient teachers are more effective practitioners, who enhance students' overall learning. TLRP research indicates that levels of commitment and resilience are influenced by many factors including teachers' own background, their initial professional education and induction and the learning environment within which they are working. The nature of teacher learning varies during their careers, with cognitive processes being less significant than emotional and relational aspects during the early stages. An emphasis on narrowly-focussed learning outcomes often restricts teachers' professionalism. The extent to which the values underpinning teaching are addressed varies across different contexts, but teacher identities are more positive where such matters are a common subject for professional discussion. It is important for teachers to be provided with opportunities to undertake reflective, collaborative, classroom-focussed inquiry in order to develop a well-informed approach to their own learning and career. Initial teacher education and continuing professional development should aim to support teachers in this way.

## Mathematical and scientific understanding

TLRP research shows that teaching of mathematical quantities in primary schools focuses on extensive issues such as distance or price, but commonly neglects intensive quantities such as speed, density or value for money. A more balanced teaching programme led to clear improvements in children's mastery of fractions. Another project developed diagnostic techniques to assess secondary students' understanding of core science topics, and findings were incorporated into national curricula provision. The project also created research-informed teaching interventions which significantly affected pupils' conceptual understanding. The need for deeper understanding was evident in workplace research too. One project showed that while "techno-mathematical" literacies are not easily acquired at work, they can be fostered by redesigning workplace artefacts to facilitate interactive exploration, making mathematics more visible. This research achieved remarkable success across manufacturing in helping workers understand routine workplace processes. Important TLRP work is also being undertaken on mathematics and identity and on the ways these impact on capability in higher education.



## Transforming learning and teaching in further education

TLRP's research in further education establishes the central role of the tutor-student relationship in meeting learner needs, particularly in helping disadvantaged, under-achieving and excluded people of all ages to develop their often fractured identities as learners. It showed the importance of FE tutors in shielding learners from extended policy turbulence in the sector. The TLRP's analysis of the weaknesses of the learning and skills sector's planning and target-setting was widely accepted following evidence given by our researchers to national policy reviews, parliamentary committees and the Learning and Skills Council. The message about relations between tutors and students being at the heart of successful FE has been endorsed by practitioners and those charged with implementing policy. It has been used by the Learning and Skills Network and the Learning and Skills Improvement Service as one of the pillars of the 'relaunch' of FE.

## Informal learning and inclusion

TLRP research suggests that the structured nature of formal learning systems can have unintended excluding and restrictive effects. These often occur when the backgrounds and needs of learners are not adequately taken into account, but can be reversed if more affirming inclusive and expressive approaches are adapted. For example, TLRP work on everyday learning at home shows how this can improve the effectiveness of learning at school; projects on school and staff strategies demonstrate how inclusion can be improved through organisational and classroom development; analysis of the experiences of students in further and higher education shows how these impact on participation; and life-course analysis affirms the significance of culturally meaningful learning. The challenge for policy makers is how to provide teachers with a flexible structure of formal provision which facilitates building on the cultural knowledge and personal capabilities from other spheres of learners' lives.

## Technology and learning partnerships

The Technology Enhanced Learning phase of TLRP was launched late in 2007 with three large projects, and joined in Autumn 2008 by five more. Jointly funded by the ESRC and EPSRC, together with partners such as JISC, Becta and the Higher Education Academy, these projects will focus on the role of technology in four key areas: fostering personalisation, flexibility, inclusion and productivity. These themes were first mooted some years ago by government and are key ways in which technology might repay investment. TEL research will bring together interdisciplinary teams of computer scientists and social scientists, developers and evaluators, and designers and practitioners. Their work will investigate what kinds of design are effective in promoting these themes, and what types of learning emerge from them.

## Widening participation in further and higher education

TLRP's evidence shows that the different funding regimes for post-compulsory further and higher education influence not only access for different types of student but also forms of curriculum and teaching and learning experience. TLRP's projects demonstrate that policy needs to focus on combining further and higher education as part of a common enterprise, narrowing the socio-economic, ethnic and gender gaps in university participation, and expanding the types of higher education accessed by diverse students. TLRP's projects have been influential in developing this kind of approach to understanding and implementing policy. They also provide a cautionary note for the development of equity and skills agendas. Parity of esteem between vocational and academic qualifications remains to be achieved. TLRP's projects are also influential in providing a strategic steer for the introduction of diplomas, and for combining academic and vocational qualifications to widen access to higher education.

## Diversity and practice in further and higher education

TLRP's evidence shows that current notions of diversity are associated with non-traditional students, which leads to simplistic, patronising and stereotypical adaptations to curricula and pedagogy. Students' own expectations, aspirations, and academic and social identities as learners are not sufficiently valued in higher education. TLRP projects also show that teaching and learning approaches have excluded learners' prior experiences and particular needs. They demonstrate that inclusive programmes and pedagogies can have a positive impact on learning outcomes. Institutional strategies that rely on 'efficiency' or market criteria tend to have a corrosive effect upon inclusive pedagogies and programme design. The development of inclusive and flexible curricula means that fewer adjustments need to be made for disabled, disadvantaged or other diverse students, and ensures fairness for all whilst ensuring the maintenance of academic standards. If we value inclusion, practitioners and policy-makers should maintain high expectations of students, whilst recognising the diversity of their needs, cultures and identities.

## Subject teaching and learning in higher education

TLRP projects have examined the effects of mass higher education. Whilst there are now larger classes, more diverse students and lower unit costs, there is also more interest in teaching quality, in student learning outcomes and in conceptions of learning. However, the quality of learning and teaching is predominantly shaped by subjects and their settings in different institutions. TLRP projects demonstrate strong differences between courses and institutions that relate not only to the distinctive ways of thinking characteristic of each subject but also to forms of pedagogy and to individual students' diverse identities. TLRP's message to universities is that they need to take account of a range of student orientations and types of academic or personal engagement. Policy priorities for knowledge, skills and employability are not in tune with the priorities of many students. Diversity requires that the very different needs of students be addressed in teaching and learning strategies.



## Workplace learning in the global economy

TLRP researchers have examined the impact of globalised production systems on opportunities for workplace learning and workforce development. Their analysis challenges the policy assumptions underpinning national and European policy. The emergence within major companies of skills webs incorporating low, medium and high skills and straddling national boundaries means that China, India, the U.S., Germany, the UK and other countries will all share high-skills work. This analysis challenges the assumptions of the European 'Lisbon strategy' of aiming for a high-skill, high-pay economy. Highly skilled work is likely to be widely shared around the world. The UK should focus upon supporting the breadth and depth of learning at all levels of education and training, with a premium on learning to learn, creativity and supporting the learning of others. This analysis has been widely promulgated in national and European policy contexts and will feed into the 2010 review of the 'Lisbon agenda.'



## Adult learning, policy and accreditation

TLRP researchers focused upon the development of skills in the workplace. Achievement here depends partly upon the quality of the workplace as a learning environment, and on the extent of challenge in the work itself. Learning at work can encourage employees to engage in further learning and on employee retention. But research evidence questions whether motivation to learn at work is always primarily economic. Accreditation policies and targets do not always reflect the 'distance travelled' by some learners and the possibility of learning slipping back if they are not given opportunities and encouragement to continue their learning and development. The researchers achieved extensive engagement with policy-makers and practitioners. In one instance, changing how knowledge is represented led to breakthroughs in understanding underlying processes at work, in this case statistical process control. They have been taken up by major employers and are now used on a global scale.



## Professional and organisational learning

While feedback and support are important in early career learning, challenges at work act as a stimulus to continuing learning at all stages of a career. TLRP research found that collaborative learning and development are key to progress in particularly challenging learning environments, such as those associated with inter-agency and multi professional working. Organisations are increasingly recognising the importance, particularly for team working, of employees who are skilled in supporting the learning of others. Organisations vary in how they approach training and workforce development, which can constrain or facilitate opportunities for learning at work. The work of TLRP researchers in this area has informed national policy reviews, parliamentary committees, sector skill councils, professional bodies, and the professional development underpinning the reorganisation of children's services in over 80 local authorities.

## Learning through the life-course

TLRP projects have investigated individuals' experiences and perceptions of learning through the life-course. These projects have demonstrated the importance of listening to the voices of adults, who are the current target of government policies to increase and widen the take-up of qualifications. The TLRP's evidence challenges the economic imperatives that underpin current policies and demonstrates the importance of understanding learning across the life-course in terms of meaningful biographies. The TLRP message is that learning cannot easily be divorced from its personal, cultural and contextual meaning. If employers were able to combine work-related but personally meaningful provision, latent employee demand could be released. There is also an untapped need for professional information, advice and guidance for adults on the social and economic benefits of post-compulsory education and how to access it, especially across and within generations of adult learners.