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Mental Capital and Wellbeing:
Making the most of ourselves in the 21st century

State-of-Science Review: SR-A5
Evidence-informed Principles from
the Teaching and Learning Research Programme

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Summary

This review begins with two ground-clearing discussions – on the interpretation of 'effectiveness' and of 'what works'. It moves on to review the synoptic findings of the UK 's Teaching and Learning Research Programme that are available to date and to relate these to the conclusion of similar international initiatives. The review then develops through a discussion of the contribution of longitudinal studies towards understanding learning through the life-course. It concludes with a speculative section on potential new advances that may occur in the future.

1. Effectiveness and learning through the life-course

The ambitious goals set for this short review of 'what works' are to: 'describe what is known about the most effective teaching practices through all stages of the life-course' and to 'set out the best evidence available for ascertaining effectiveness of all forms of educational provision' (Specification, 24 May 2007).

Use here of the term 'effectiveness' implies the existence of shared understanding of educational aims and values: effectiveness for what primary purposes? Education is intimately connected to material interests and to imagined futures. It links history to the future, through the biographies (and wellbeing) of citizens. Provision for teaching and learning is, thus, a site of social struggle for advantage at all stages of life and, in a democracy, will never be politically uncontentious.

Within contemporary Western democracies, three major strands of philosophical and political thinking on educational purposes are well established. The first concerns teaching and learning linked to economic productivity and has taken various forms historically as labour market needs have evolved. The second concerns social cohesion and the inclusion (or control) of different groups within society, and this remains important within our unequal and diverse societies today. The third strand concerns personal development, fulfilment and expression, with a contemporary manifestation perhaps in the term 'wellbeing'. These three conceptual areas are, of course, deeply interconnected. Indeed, one interpretation of 'effectiveness' would conceptualise a mutually beneficial synergy between the three – the view taken in this review.

A narrow interpretation of 'effectiveness' might focus more exclusively on productivity. Indeed, a majority of educationalists would probably take the view that this priority has been reflected in recent national policies as global economic competition has increased. Evidence suggests that this may be a short-sighted emphasis in terms of offering the types of teaching and learning experiences that are most likely to produce the workers and citizens capable of succeeding in contemporary and future world societies and economies. The Gilbert Review, *2020 Vision* (DfES, 2006) begins to recognise this, as does the general thrust towards the personalisation of teaching and learning (and public services generally). However, there are some doubts about the authenticity of this approach. 'Learning through the life-course' requires more attention to learning disposition, learning how to learn, and to the learner identities that are formed through successive learning experiences. We revisit these themes below.

2. 'What works' and 'evidence-informed principles'

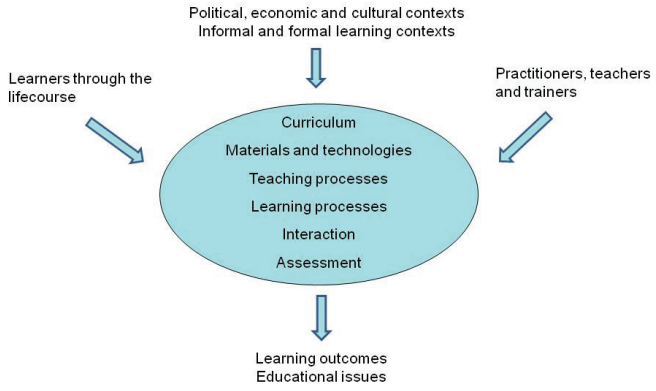
The scientific field of teaching and learning is intrinsically complex. It calls for interdisciplinary expertise from education, psychology, neuroscience, sociology, anthropology, etc. It requires understanding of interactions at multiple levels, for instance, of learners and within school sectors, at classroom, school, community, local government and national government level. It demands contributions drawing on both theoretical and practical knowledge, and it requires contextually appropriate interpretation and application

of such knowledge. The aspiration to specify 'what works' must therefore be approached with caution and recognition that, at many levels of specificity, the notion may be inappropriate. In particular, it is not justified to generalise in categoric terms about teaching and learning across the broad terrain set for this review. The concept of 'evidence-informed principles' about teaching and learning may be helpful. This engages diverse forms of evidence whilst calling for the necessary application of contextualised judgement by teachers, practitioners, policy-makers, etc. It enables the accumulation and organisation of knowledge in more resilient, realistic and practically useful ways, and has the potential to progressively generate understanding for use within public debates. The concept has been developed within the ESRC Teaching and Learning Research Programme (TLRP), the UK 's largest investment in educational research, and is used in this review.

3. Evidence-informed principles from the TLRP

TLRP brings together some 70 research projects covering all phases of the life-course and draws on teams of academics and practitioners from across the UK. These cover a range of substantive topics, from science, maths and literacy education to pupil consultation, learning how to learn, teaching methods, technology-enhanced learning, institutional cultures, home-school relations, workplace learning, community learning and public policies.

Additionally, it has funded some 20 thematic activities to enable analysis of key issues that recur when considering teaching and learning at any age and within any sector. These include curriculum, pedagogy, assessment of learning outcomes, cultures and context, neuroscience and psychology. A generic analytic model has been developed (see below).



TLRP's generic model of factors in teaching and learning

An iterative process of consultation and debate between researchers, practitioners, policy-makers and the core TLRP Directors' Team has produced a synthesis of the major findings, expressed as evidence-informed principles. These are in a continuous process of development. In their present form, reflecting the early conclusion of TLRP's school-focused portfolio, these principles are stated as follows:

1. Learning should aim to help individuals and groups to develop the intellectual, personal and social resources that will enable them to participate as active citizens, contribute to economic development, and flourish in a diverse and changing society. This requires broad conceptions of worthwhile learning outcomes and active engagement with equity and social justice.
2. Teaching and learning should engage learners with the big ideas, key processes, modes of discourse and narratives of subjects so that they understand what constitutes quality and standards in particular domains.

3. Teaching and learning should take account of what the learner knows already in order to plan their next steps. This includes building on prior learning, but also takes into account the personal and cultural experiences of different groups of learners.
4. Teachers should provide activities and structures of intellectual, social and emotional support to help learners to move forward in their learning such that, when these supports are removed, learning is secure.
5. Assessment should be designed and implemented with the goal of achieving maximum validity, both in terms of learning outcomes and learning processes. It should help to advance learning as well as determine whether learning has occurred.
6. A chief goal of teaching and learning should be the promotion of learners' independence and autonomy. This involves their: acquiring a repertoire of learning strategies and practices; developing positive learning dispositions; and having the will and confidence to become agents in their own learning.
7. Learners should be encouraged and helped to build relationships and communication with others for learning purposes, in order to assist the mutual construction of knowledge and enhance the achievements of individuals and groups. Consulting learners about their learning and giving them a voice is both an expectation and a right.
8. Informal learning, such as learning out of school, should be recognised as at least as significant as formal learning and therefore valued and appropriately utilised in formal processes.
9. The need for teachers to learn continuously in order to develop their knowledge and skill, and to adapt and develop their roles, especially through classroom inquiry, should be recognised and supported.
10. Institutional and system level policies need to recognise the fundamental importance of teaching and learning and be designed to create effective learning environments for all learners.

The ways in which the three major educational purposes are interwoven within these principles will be apparent. They are explicit within Principle 1 and permeate thereafter.

The principles then address curriculum, pedagogy and assessment (Principles 2, 3, 4 and 5), each focusing on the meaningfulness, authenticity and explicitness of the content and process of teaching and learning. This reflects the major thrust of understanding, post-Vygotsky, namely that learner development requires both appropriate support from more knowledgeable others and the provision of conditions for self-regulation and progressive, independent thinking. The goal of independent, lifelong learning is made explicit in Principle 6, and the focus moves to recognise the social dimension of learning and the power of informal processes (Principles 7 and 8). The latter are particularly important in settings beyond formal educational institutions: in family, community, workplaces and, indeed, in those phases of life, such as retirement, that call for more independent learning.

Given the nature of education, there is often a tension between socially determined curricular or training requirements and learning that may be more intrinsically meaningful. This matching of learning challenge to learner need is an enduring issue. In formal educational settings, its resolution depends on the expertise of teachers and trainers. In informal settings, the match may be achieved through self-regulation and socially embedded, contextually authentic support. However, whilst the latter has potential for deeper forms of learning, it does not systematically provide for challenge and the progressive improvement of standards of performance. The importance of both formal *and* informal learning is thus affirmed, though recognition of informal learning tends to be weak.

Principles 9 and 10 affirm the enormous importance of teachers' own learning in support of learners, and of government policy in providing the conditions that enable or constrain learning.

TLRP's work has been presented and debated at conferences around the world (e.g., in 2006/7, in Norway, Sweden, Netherlands, Chile, Australia, New Zealand, Hong Kong, USA) where similar analyses of key issues in lifelong teaching and learning are being found. For example, Finland's 'Life as Learning' (LEARN) programme has established strong links with TLRP on the basis of complementary findings, as has New Zealand's Teaching and Learning Research Initiative (TLRI) (see *British Educational Research Journal (BERJ)*, 2007, for review contributions from Germany, USA, Israel, Hong Kong, Finland, Switzerland and New Zealand).

Notwithstanding the growing international understanding about the factors and processes involved in effective teaching and learning, it remains the case that teacher conceptions of their roles, the social organisation of schooling and the presumptions, structures and accountability systems of most countries remain laden with the history of education in the 19th century. The aims and understanding of education during the Industrial Revolution produced an institutionalised form of compulsory schooling based on the transmission of knowledge from teacher to taught. The learner was assumed to be the passive recipient of such knowledge and could be assessed and certificated on the content retained and skills acquired. In contemporary society and in the unfolding 21st century, characterised by complexity and speed of change, the old ambition to provide an education that would last through life is clearly outdated.

4. Learning though the life-course

Effective teaching and learning equip learners for life in its broadest sense, as well as for specific knowledge, skills, attitudes or tests of performance. Key concepts here are learning how to learn and learning disposition, which attempt to denote the capacity to constructively respond to new challenges and circumstances. These concepts occur at the interface of psychology (Dweck, 1999) and sociology (Pollard, 2007). Dweck has located the origin of a 'mastery orientation' within a person's intrinsic self-belief, whilst Pollard traces social influences on the development of a positive 'learning identity' over time.

In an empirical review of the early introduction of the national curriculum and assessment in England, Pollard and Triggs (2000) showed how it appeared to be compromising pupil motivation. Biesta and Tedder (2007), in one of TLRP's largest projects, are demonstating how learners experience and respond to new learning challenges through their lives. This builds on previous work in ESRC's *The Learning Society* programme. Field, among many others, has suggested that the core idea of the learning society is 'the plasticity of the human adult' (Field, 2006, p47) and the inherent capacity of people to adapt to change.

Three simple conclusions may be reached about learning through the life-course.

- People have considerable potential as learners, in the right circumstances, throughout their lives.
- Potential tends to be realised when people are able to exercise meaningful agency, that is, they have a sense of purpose.
- Circumstances may be enabling or constraining, and opportunities are unevenly distributed between different social groups.

Pollard's work uses the concept of 'strategic biography' to analyse the decision-making of individuals as they negotiate successive social contexts through their learning careers. They are, thus, able to maximise the viability of their learner identities and realise some parts of their potential. Other elements may remain unfulfilled.

Educational evidence at many ages suggests that mental health is connected to a sense of agency in developing meaningful identity narratives at different stages of life.

5. Personalisation and the challenge of scaling up

Formal educational organisations find it difficult to recognise and respond to individual uniqueness and potential. Informal settings and social networks can be more responsive, but these are more serendipitous and less accountable. The recent introduction of personalisation into education at all levels can be seen as an attempt to resolve this dilemma and harness motivation.

For expansive advocates such as David Hargreaves, personalisation recognises the needs of the 21st century in which: student identities are fluid; intelligence is multi-dimensional and plastic; schools are culturally heterogeneous and diverse; new technologies free learning from time and place; teachers have new facilitative roles; and education is 'user-led' by students and parents (Hargreaves, 2004, p31). However, the vision of organisations such as the Training and Development Agency for Schools remains more restrictively focused on performance and national standards:

The term 'personalised learning' means maintaining a focus on individual progress, in order to maximise all learners' capacity to learn, achieve and participate. This means supporting and challenging each learner to achieve national standards and gain the skills they need to thrive and succeed' (TDA, Professional Standards for Teachers, 2007).

Conceptualising learning in more expansive or restrictive ways neatly represents the key challenge faced by decision-makers on future educational policy. Although we know a great deal about effective teaching and learning, can authentic forms of expansive provision be developed that can be reliably and cost-effectively scaled up?

The fields of education and lifelong learning offer many examples of achievement that endorse the validity of the principles of teaching and learning reviewed above. And yet, at all stages of the life-course, these cases tend to be characterised by relatively high levels of skill and understanding by those implementing them. In challenging circumstances, exceptional levels of commitment are also needed, whether in a nursery school, college, workplace or care home for the elderly.

In summary then, what works for some (in appropriate circumstances) will often not work for others. This may be a major part of the explanation for the difficulty in overcoming the tail of underachievement that most education systems face. Interrupting this reproductive process, in order to improve mental capital and wellbeing for all, is likely to need interventions at many levels. From the educational point of view, however, the experience of the Teaching and Learning Research Programme suggests that the most amenable point of entry may lie in enhancing the expertise of teachers and other facilitating trainers, lecturers, etc. The emphasis here would need to be on their understanding and the quality of contextualised, professional judgement, rather than on conformity to external standards *per se*.

From the teaching and learning perspective, there do not appear to be any available 'quick fixes' or simple prescriptions for 'what works'. There is, however, a compelling argument for progressive, cumulative and sequenced policies based on coherent principles of learning and teaching.

6. Future advances in scientific understanding

There are many potential, contemporary sources of new understanding, though they face the challenge of interdisciplinary application outlined at the start of this review.

Neuroscience has generated public excitement as a productive source of knowledge about learning, but the scientific community is being very responsible in moderating expectations. The application of neuroscientific insights, as they accumulate, is likely to be most effective in partnership with psychological and educational expertise.

Psychology and education, as contemporary UK academic fields, currently do not interact as much as they have historically. There is considerable potential for further advances in scientific understanding developing from a new synergy between these fields.

Socio-cultural studies have been popular in education in recent years. They have much to offer in respect of understanding the social processes of teaching, learning and identity, but arguably have not yet penetrated public policy in a significant way.

Sociology continues to offer important analyses of educational issues, some of which appear to have slipped into the background of contemporary thinking. Among the most important is the role of social class, which underpins many public debates on the quality of schools and schooling.

Technology enhanced learning (TEL) is attracting considerable research investment. The extent to which technology can provide appropriately differentiated and social support to learners remains to be seen. But it is undoubtedly going to complement face-to-face interaction extremely powerfully.

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