

RESEARCH AREA & SOURCE	DESCRIPTION & MAIN FINDINGS / ARGUMENTS
<p>Curriculum Implementation</p> <p>Journal of Curriculum Studies Vol. 39, No. 1 pp. 97 - 121</p>	<p>Rogan, John (2007) An uncertain harvest: a case study of implementation of innovation.</p> <p>This is a case study of the implementation of an outcomes-based curriculum in South Africa. The study focuses in particular on two teachers.</p> <p>The study proposes the idea of a 'zone of feasible innovation' along the lines of Vygotsky's zone of proximal development. Within this theory, curriculum implementation strategies would be effective when they proceed just ahead of current practice and when they are scaffolded to help teachers move beyond their current level of practice.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● The policy directives in the implementation effort lacked detail on how ideals might be realized in practice ● Teachers were in favor of the changes as they saw them as being beneficial for their learners but they struggled to implement them and were unhappy about the pace of change and the level of support. ● In general many aspects of the new policy were not understood by teachers and teachers made sense of the intended curriculum in superficial ways. The teachers latched onto the idea of students working in groups and therefore saw implementation of outcomes-based education as being a change in teaching style. They failed to address the specific outcomes in any meaningful way. ● The low level of implementation was not a product of lack of effort by teachers but rather reflected the fact that teachers had attempted to make sense of the new curriculum in terms of their past experiences and ended up using new teaching styles to achieve the same goals as before - the transmission of knowledge.
<p>Professional Development</p> <p><i>British Educational Research Journal</i>, Vol.</p>	<p>Poulson, L. & Avramidis, E. (2003) Pathways and possibilities in professional development: Case studies of effective teachers of literacy</p> <p>A set of case studies analyzing the relationship of professional development to effective teaching of literacy in the UK.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● Effective teaching of literacy evolved through the interweaving of different kinds of experience (eg. personal learning, experimentation,

<p>29, No. 4, pp. 543 - 560</p>	<p>course, opportunities to collaborate, being mentored etc.) rather than through specific courses.</p> <ul style="list-style-type: none"> ● Five contexts of professional development were identified - personal, classroom, school, local authority and regional / national. Each of the five contexts is important. ● Professional learning was often long-term and non-linear. ● Effective teachers were supported across a range of the five contexts and over time to develop coherent personal philosophies to underpin their literacy teaching. ● Reflection plays a central role in professional learning ● Teachers need opportunities to learn but also need challenges and the 'learning space' to handle the challenges constructively (learning space includes stimulation of creative risk-taking, engagement in innovations, recognition and reward of effort, teacher perception of some degree of control over their work) ● Professional learning is considerably enhanced through collaborative organizational cultures within schools. ● Personal learning and collaborative learning exist in a dialectical relationship. ● Opportunities for longer-term collaboration in curriculum projects beyond the school create communities of knowledge that greatly enhance professional learning.
<p>Educational Change / Leadership <i>Research Papers in Education</i> Vol 21, No 2, pp. 201 – 215</p>	<p>Swaffield, S. & MacBeath, J. (2006) Embedding learning how to learn in school policy: the challenge for leadership</p> <p>As part of the Learning How to Learn Project, school leaders were interviewed about the processes and strategies used within their schools to embed the idea of learning how to learn in classroom practice. Interviews were coded and strategies were categorized.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● Two basic approaches were identified - changing structures and changing culture. Individual leaders tended more towards one or the other, though the dichotomy was rarely distinct. Change tended to flow from structure to culture or in the opposite direction.

	<ul style="list-style-type: none"> ● Four categories of strategy were identified - <ul style="list-style-type: none"> (1) <i>professional collaborative activity</i> - formal PD, working groups, peer observation, exchange of practice, etc. (all activities in this category can be viewed through the lens of wither structure or culture), (2) <i>external influences</i> – motivational speakers, network meetings, web sites, staff libraries, applying models gleaned externally etc. (3) <i>integration with management mechanisms</i> - staff bulletins, staff meeting agendas, learning newsletters, policies, recruitment, etc. (mostly structural, but can have a flow-on effect on culture) (4) <i>embedding through cultural leadership</i> - modeling and leading by example, encouraging the spread of ideas through developing and sharing understandings, creating a culture of talk, etc. (mostly cultural, longer-term strategies) ● The challenge for leadership seemed to be more the dismantling of entrenched ideas and conventions than the embedding of innovation. ● The choice is not between approaches that highlight changes to either structure or culture, but rather a matter of sequence, timing and emphasis. ● There is a tension between creating a shared purpose while at the same time respecting diversity and professional autonomy.
Professional Development <i>American Educational Research Journal</i> Vol. 38 No. 4 pp. 915 – 945	Garet, M. S., Porter, A., Desimone, L., Birman, B. & Yoon, K. (2001) What makes professional development effective? Results from a national sample of teachers. A large-scale study using regression modelling to examine how components of professional development led to self-reported changes in teachers' knowledge and practice. The research was conducted with Math and Science teachers and the PD investigated was sponsored by the Eisenhower Math and Science Program. Main Findings: The following structural components were found to be effective: <ul style="list-style-type: none"> ● reform orientation (with reform-oriented activities such as teacher study groups being more effective than traditional workshops or college courses). ● duration (both in terms of time span and total contact hours) ● the collective participation of teachers from the same school

	<ul style="list-style-type: none"> ● a focus on content knowledge ● active or inquiry-oriented learning approaches ● a high level of coherence with other activities and with standards in the teachers' local school contexts
Professional Development / Curriculum Implementation <i>American Educational Research Journal Vol. 44 No. 4 pp. 921 – 958</i>	Penuel, W., Fishman, B., Yamaguchi, R. & Gallagher, L. (2007) What makes professional development effective? Strategies that foster curriculum implementation. Professional development for the implementation of the GLOBE Science Program offered by a number of different providers was investigated and compared with teacher self-reports on implementation measures of the program. The study included data from 454 teachers and 28 professional development providers. Main Findings: <ul style="list-style-type: none"> ● The design elements of PD that mattered most for GLOBE implementation varied according to the aspect of implementation being measured. ● To increase data reporting (data collected by students had to be uploaded to a central website), the most effective strategy was to focus on promoting student inquiry ● To increase the use of the GLOBE classroom protocols and the teachers' feelings of preparedness for student inquiry, the opportunity within the PD to plan who to tailor GLOBE to the local circumstances of teachers' classrooms was significant ● To increase teachers' feelings of preparedness to lead student inquiry (GLOBE is an inquiry-based program), a focus on the content of GLOBE was significant. ● Results in relation to duration of PD were inconclusive. ● Perceived coherence of the PD activities with teachers' own districts' goals for student learning and with their own goals for PD was a strong predictor of use of GLOBE protocols and feelings of preparedness for student inquiry ● Taken together, the pattern of findings were in agreement with general findings about PD (such as those in the Garet et al. study above) but that particular aspects of some programs can make some features of PD more or less important.
Brain Research / Curriculum Development Handbook of Research on Curriculum	Bereiter, C. & Scardamalia, M. (1992) Cognition and curriculum. This is an article summarizing research into cognition as it relates to curriculum. Main Arguments / Findings: Conceptual change <ul style="list-style-type: none"> ● A growing body of research supports the proposition that all concepts are grounded in implicit theories. If this is true, then dealing effectively with students' misconceptions is to require digging beyond the manifest errors to the underlying system of beliefs that gives rise to them. Such belief systems are almost always tacit. The centrality of knowledge

- Background knowledge, in the form of hierarchically structured schemata, affects how new information is encoded or registered, by determining what elements are attended to as significant. It affects remembering by providing plans used to search memory. It provides a basis for inferential elaboration and gap-filling.
- Research on expertise suggests that experts are distinguished from novices more by what they know than by their ability to reason more effectively. Chess experts do not think more deeply or cleverly than novices. Rather they can take in chessboard configurations at a glance because they have stored a huge number of patterns in memory. Humans are poor at extended chains of reasoning but good at pattern recognition. Becoming an expert involves shifting the cognitive burden from what we are poor at to what we are good at.
- Researchers in artificial intelligence have found that they get the best results by having a relatively simple inferential system and putting the expertise into the knowledge base.

Metacognition

- Research shows that students are often unaware of the nature and purpose of what they are learning
- Learners are often unaware of the cognitive demands being placed on them and tend to assume that these are of a lower order than they actually are.
- Teachers often do not recognize metacognition as an important part of competence and therefore do most of the metacognitive work (such as setting objectives, activating relevant knowledge, judging what is important, evaluating understanding and identifying difficulties) themselves, so that learners never become responsible for it.
- The importance of metacognition during teacher-directed learning is shown by studies which have found that successful learners monitor every interchange when the teacher is calling on students, covertly responding themselves and trying to learn from the feedback teachers give other students. Less successful students think only about their own turns to perform.

Learning as problem solving

- Ng and Bereiter found that in a computer programming course about half the learners concentrated exclusively on accomplishing the programming tasks with hardly any attention to what they were supposed to be learning from the tasks (ie learning through problem solving). The other half, to varying extents, focused on the learning itself as problematic. These students showed superior learning.
- Chi found that high achieving students, rather than merely transferring procedures from a worked example of a problem, spent time studying the example and trying to understand why the modeled procedures worked and how they related to underlying laws.

Learning through problem solving

- Studies by Sweller indicate that textbook problems of the usual kind are a poor vehicle for learning generalizable concepts and principles. They induce students to use means-end methods in which they focus on answer-generating formulas and devote little attention to the concepts to which the formulas refer.

Automaticity and processing load

	<ul style="list-style-type: none"> ● There are three related ways that we can overcome the limitations of working memory (considered to be able to deal with approximately 4 pieces of information at once) <ol style="list-style-type: none"> 1. Using long-term memory for look-up (eg – number facts in mathematical word problems) 2. Chunking (combining several ideas so that they are treated as a single unit in working memory) 3. Automaticity (eg – alphabetic decoding becomes automatic and frees working memory to concentrate on meaning)
<p>Brain Research</p> <p><i>Scientific American Mind</i></p> <p>Vol. 18. No. 4</p> <p>p. 12</p>	<p>Flores, Graciela (2007) Sleep on it: Give your brain a break, and it will find hidden connections.</p> <p>Subjects were given a learning task involving images then different groups were tested at different intervals after the learning experience.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● Subjects tested 20 minutes after the learning period performed no better than chance. ● Subjects tested after 12 hours were much more successful. ● Subjects tested after having slept outperformed the other groups in the most difficult inferences. <p>The conclusion – “ As we sleep or focus on other tasks, our brain forges connections in the background, fitting newly learned information into a bigger picture.”</p>