

RESEARCH AREA & SOURCE	DESCRIPTION & MAIN FINDINGS / ARGUMENTS
<p>Assessment</p> <p><i>Learning and Instruction</i> 16, 1-11</p>	<p>Kalyuga, S (2006) Rapid cognitive assessment of learners' knowledge structures</p> <p>A study done by Educational Assessment Australia in an attempt to see whether it is possible to probe learners' underlying knowledge structures as used in solving arithmetic word problems. The research involved comparing results on traditional word problem tests with a test where learners were given only 30 seconds per item to write the first step they would take toward solving the problem. The theoretical underpinning rested on the idea that the more established a learner's knowledge schema relating to a particular problem type was, the quicker they could retrieve and apply it. Points were therefore awarded based on the level to which particular schema (identified in a separate study) relevant to particular problem types were applied. Establishment of a schema would lead to a successful first step toward solving the problem. Automatic application of the schema would allow students to skip steps in the problem solving process. This being because schema allow students to 'chunk' information and thus reduce the cognitive load in working memory. Findings:</p> <ul style="list-style-type: none"> ● Scores on the cognitive structures test were lower than on the traditional test, interpreted by the authors as indicating that students were able to solve problems ' by any means possible' when sufficient time was available. ● The rapid test reduced testing time by a factor of 2.8 ● Suggested first-step assessment could be used as a rapid diagnostic tool of students' mastery of knowledge structures
<p>Assessment</p> <p><i>Curriculum Perspectives</i> 1, 12 - 26</p>	<p>Skalicky, J. (2006) Bringing quantitative literacy into a reform-based curriculum.</p> <p>After quoting research claiming that real-world tasks often involve busy work rather than an opportunity to learn target competences leading to transfer, the author discusses the meaning of authentic assessment. She states that it requires not only the application of knowledge to real-world situations, but demands the cognitive challenge of 'obtaining ones own knowledge and deep understanding of concepts and ideas by undertaking intellectual work within these real-world contexts'. Using the Tasmanian Essential Learnings Framework as a base, the author goes on to propose a unit of work with a complex and detailed assessment task involving a learning targets from each of the areas of the Framework, including a mathematical component.</p>
<p>Curriculum Planning</p> <p><i>Journal of Curriculum Studies</i> 38,4 483-198</p>	<p>John, P. (2006) Lesson Planning and the student-teacher: re-thinking the dominant model</p> <p>This is a discussion paper which scathingly criticizes linear models of lesson planning such as that of Ralph Tyler for a number of reasons:</p> <ul style="list-style-type: none"> ● they do not reflect the inherent complexity and dynamism of the classroom ● they ignore the need for leaning to be negotiated ● they can result in the ends being seen as unchanging ● means and ends are isolated as successive steps rather than being seen as part of the same situation

	<p>Research on experienced teacher’s actual planning is summarized, which suggests that:</p> <ul style="list-style-type: none"> ● rather than planning linearly teachers consider multiple elements simultaneously such as teacher, learner, context, resources, methodology. ● most teachers consider the nature of the content and activities before they consider other curricular elements ● planning also occurs during the interactive phases of teaching as teachers reflect on situations as they arise ● many teachers are guided by broad intuition and tacit knowledge and do not plan in detail either verbally or in writing ● more expert teachers engage in long-range planning whereas novices think more in the short term <p>The author argues that most linear planning tools are decontextualized and that consideration of context is vital. A model is proposed where aims / objectives are in the center and are surrounded in a concept map by all of the elements which interact to create the learning context - resources, activities, classroom control, student learning etc etc.</p>
<p>Curriculum Implementation</p> <p><i>Curriculum Perspectives</i> 26, 27 - 37</p>	<p>Chan, J. (2006). The implementation of an integrated curriculum: A case study in Hong Kong.</p> <p>A case study conducted in a primary school in Hong Kong. The study involved teachers at one grade level. The school’s curriculum prior to the innovation was textbook-based. It is not clear from the article, but it appears that what was implemented was just a single unit of work, not an entire program. The implementation process included support from the principal in terms of resource allocation and attendance at planning meetings. External staff development was provided to initiate the process. A curriculum leader was appointed, who was also a teacher participating in the pilot. The teaching team appears to have made most of the decisions regarding how the unit would be implemented, though it is not clear how the decisions were actually made. In the end the author claims that the implementation process did not go as planned. Findings:</p> <ul style="list-style-type: none"> ● The biggest issue was the necessary shift in teacher’s thinking. ● Teacher’s beliefs about knowledge and learning were contradictory to those the integrated unit was founded on ● Teachers lacked practical experience ● There was a lack of gain in student performance
<p>Brain Research</p> <p><i>The Economist</i> Dec23, 2006 – Jan 5, 2007</p>	<p>Who do you think you are? (p. 3/4) / Captain Kirk’s Revenge (p. 4, 5 &7) / Brainbox (p.5) / Dreamweavers (p. 7 – 9), As Others See Us (p. 9,10) I Think, Therefore I am, I Think (p.11,12).</p> <p>A series of articles summarizing brain research up to now. Some salient points that may relate to education:</p> <ul style="list-style-type: none"> ● A study by Terrie Moffitt in NZ demonstrated that nature and nurture can interact in predictable ways. An enzyme which regulates neurotransmitters including serotonin and dopamine comes in two versions. One version in combination with abuse during childhood resulted in severely violent adults while either abuse alone or that particular version of the enzyme on its own produced only violent tendencies. ● ‘Higher emotions’ (guilt, shame, sympathy), which have in common that they depend not just on what a person thinks about others,

	<p>but on what the person feeling thinks others are thinking about them, are located not in the limbic system (where more primitive emotions such as fear emanate), but for the most part in the cerebral cortex. This suggests that these emotions work closely together with our rational mind.</p> <ul style="list-style-type: none"> ● Declarative memory involves the hippocampus, whereas procedural memory involves the cerebellum and the basal ganglia. ● There appear to be two types of explicit memory. Episodic memory records our experiences and is stored in the hippocampus. Semantic memory tries to generalize from our experience and is consolidated in the cerebral cortex. ● Memory evolved to serve a purpose, which is to help us learn to react appropriately to stimuli in the environment by drawing on previous experience. The most efficient way to do this is to generalize and disregard individual details. ● The hippocampus replays experiences during REM while we sleep and seems to also do this to a certain extent when we are resting. ● Long-term memory is encoded(at least in part) by changes in the strength of synapses and the recapitulation of experience in the form of neuronal firing patterns appears to be responsible for changing the pattern of synapses. ● Certain sections of our cerebral cortex seem to be able to extract the essential properties of different objects. One are for example responds strongly to faces. Another area seems to handle written words. ● It is impossible that the area of the brain which handles written text is a result of evolutionary processes as writing is too recent an invention. It must be the result of developmental processes. ● Many believe that the evolutionary pressure which drove the enlargement of the human brain was more a need to negotiate the social world than to survive in the physical world. <p>A recent study has suggested that autism may be the result of a failure of what are known as ‘mirror neurons’, which mirror that actions and thoughts of others.</p>
<p>Leadership</p> <p><i>Educational Administration Quarterly</i> 42, 746-772</p>	<p>Somech, A & Wenderow, M. (2006) The Impact of Participative and Directive Leadership on Teacher’s Performance : The Intervening Effects of Job Structuring, Decision Domain, and Leader-Member Exchange.</p> <p>A study of leadership from Israel. The premise of the study was that the effectiveness of leadership style will be contingent on factors in each particular situation and so three potentially intervening factors were chosen to see how they impacted on the effectiveness of participative and directive leadership on teacher performance. Participative leadership was defined as shared influence in decision making and directive leadership as providing team members with a framework for decision making and action in line with the superior’s vision. The three intervening factors were defined as follows:</p> <ol style="list-style-type: none"> 1. Bureaucratic job structuring - creation of such mechanisms as centralization of authority, routinization of job requirements, formalization of work through emphasis on documentation <p>vs Person-job integration – teachers given resources and opportunities to perform supported by feedback and rewards.</p>

2. **Technical decision domain** – deals with students and instruction

vs Managerial decision domain – deals with school operation and administration

3. **Low level of Leader-Member Exchange** – out group / low levels of information exchange between leader and teacher.

vs High level of Leader-Member Exchange – in group / high level of information exchange.

The study used different instruments, mostly based on responses using a Likert Scale to measure each variable. Teacher performance was measured using the standard Teacher Appraisal document from the Israeli Dept. of Education. **Main Findings:**

- Both participative and directive leadership were positively correlated with teacher performance
- When person-job integration was low, teachers performed better when leadership was more directive. When person-job integration was high they performed better when leadership was more participative. When person-job integration was high directive leadership had a negative influence on teacher performance.
- Participative leadership in the technical domain correlated positively and significantly with teacher performance. Directive leadership in the managerial domain correlated positively and significantly with teacher performance.
- With a low LMX relationship teacher performance was better with directive leadership. No significant relationship was found between LMX and participative leadership.

Researcher's Interpretation:

- Leadership style should be integrated with the procedures and processes of the organizational configuration (Person-job integration).
- In the decision domain since it is assumed that principals have more knowledge in the managerial domain and teachers in the technical domain, the appropriate style of leadership depends on who masters the required knowledge.
- Teachers who form a low LMX relationship with their principal do not expect to be part of the in-group and so expect a more directive style of leadership.
- Both styles of leadership can positively impact teacher performance and should be considered as interpersonal processes rather than stable personality traits.

If the situation is vague, leaders should adopt a participative style, but leaders need to identify the main factors in each situation and choose the appropriate style. They must have the capacity to employ both styles where necessary.