

RESEARCH AREA & SOURCE	DESCRIPTION & MAIN FINDINGS / ARGUMENTS
<p>Teaching Strategies - Literacy</p> <p><i>Journal of Educational Psychology</i> Vol. 99, No. 3, pp.445 - 476</p>	<p>Graham, Steve and Perin, Dolores (2007) A meta-analysis of writing instruction for adolescent students.</p> <p>These researchers conducted a meta-analysis of 123 studies into writing interventions with students from Grades 4 – 12. For each study a weighted effect size (on the quality of student writing based on a holistic measure) was calculated related to the treatment variable (the particular instructional intervention). 14 different instructional strategies were covered by the studies. The effect sizes for each of these strategies were compared.</p> <p>Main Findings:</p> <p>The following strategies were recommended as being empirically proven to improve the quality of student writing. They are listed in order of magnitude of the effect size and the effect sizes are listed in parentheses. (Generally, an effect size of 0.20 is considered small, 0.50 is medium and 0.80 is large)</p> <ul style="list-style-type: none"> • Teach strategies for planning, revising and editing writing (0.82). (The effect was even larger when students were taught to self-regulate the use of these strategies.) • Teach strategies and procedures for summarizing material (0.82) • Have students collaborate to plan, draft, revise and edit their writing. (0.75) • Set clear and specific goals for what students are to accomplish with their writing (0.70) • Make it possible for students to use word processing tools (rather than writing by hand) (0.55) • Teach students how to join clauses to make increasingly complex sentences (0.50) • Provide teachers with PD in how to implement a process writing approach (0.46) Without PD this strategy had an overall effect of only 0.03. • Involve students in activities designed to sharpen their inquiry skills (0.32) • Use activities that help students gather and organize ideas prior to writing (0.32) • Provide and jointly analyze good models of writing (0.25)

Instructional Strategies Articles

	<p>The effect of the following strategies on the quality of student writing was unclear, often due to circumstances related to the original studies or to the small number of studies conducted relating to that strategy.</p> <ul style="list-style-type: none"> • The teaching of the structure of various text types • Providing extra opportunities to write • Giving feedback on writing • Providing guides, prompts or heuristics to guide student writing <p>One strategy was shown to have no positive effect on the quality of student writing:</p> <ul style="list-style-type: none"> • Direct instruction of grammar <p># Note: Direct grammar instruction did not have a positive effect in any of the studies included in the analysis. The researchers warn that these results should be interpreted with caution. There is some evidence emerging that teaching functional rather than traditional grammar may have a positive effect.</p> <p>Only experimental and quasi-experimental studies were included in the meta-analysis and only those which specifically examined the effect on the overall quality of student writing. This led to some strategies not being included in the analysis, such as:</p> <ul style="list-style-type: none"> • Teaching spelling, handwriting, punctuation and vocabulary • Conferencing student writing • Procedures to boost student motivation <p>The studies included in the analysis provide no guidance on how much of the recommended activities is needed, or on how these activities could be combined effectively.</p>
	<p>Black, P., McCorkick, R., James, M. and Pedder, D. (2006) Learning how to learn and assessment for learning: a theoretical inquiry.</p> <p>This article explores the construct 'learning how to learn' and relates it to assessment for learning based on the results of different pieces of research.</p> <p>Main Arguments:</p>

	<ul style="list-style-type: none"> ● Learning how to learn is cannot be separated from learning itself and is best viewed as a set of ‘learning practices’ rather a set of separate learning skills that can be taught ● Problem solving is central to learning. Learning as problem solving can be seen as a situation where the goal is to learn and problem solving is the vehicle. Students will not necessarily learn unless they are trying to learn - investing effort in both solving a given problem and transferring their learning to unassigned problems associated with their understanding. Learning must be intentional. ● Learning to learn involves four elements: (1) knowledge about cognition - realizing the degree to which you understand (2) self-regulating strategies - planning what to do next and evaluating the progress (3) agency - taking responsibility for the direction of learning (4) collaboration - effective group interactions encourage students to think about their understanding ● Three particular ‘learning practices’ have been shown by research to be effective: (1) lessons designed to challenge students’ ways of reasoning and thereby develop a set of reasoning skills (Shayer, 1999) (2) group tasks where students practice ways of collaborating in discussion to develop reasoning and problem-solving (Mercer, 2000) (3) Assessment for Learning practices (Black & William, 1998). ● Three of the Assessment for Learning practices that research has shown to be effective are: (1) encouraging teachers to frame their questioning so that it explores key features of learning (2) giving content-only feedback on written work, with the requirement that students respond to the comments by further work (3) the development of peer- and self- assessment. ● Emphasis should be placed on practices that have the potential to promote learner autonomy as this would seem to be the most secure foundation for lifelong learning.
<p>Assessment / Learning Skills</p> <p>The Curriculum Journal Vol. 18, No. 2, pp. 135 - 153</p>	<p>Crick, Ruth (2007) Learning how to learn: the dynamic assessment of learning power.</p> <p>The researchers designed an assessment instrument to measure what they termed ‘learning power’. Variables which have an impact on an individual's capacity and motivation to learn were identified from a range of studies and using factor analysis seven dimensions were identified. In this piece of research teachers were given learning profile data about their students based on the assessment instrument (ELLI – Effective Lifelong Learning Inventory) and invited to design interventions to help their students become better learners based on the data. The practices of the participating teachers were examined to identity underlying pedagogical themes.</p> <p>Main Findings:</p> <p>The seven dimensions are can each be placed on a continuum as follows: 1. Changing and learning - Learning itself it learnable----- the ability to learn is fixed 2. Critical curiosity - Desire to get to the bottom of things----accept what they are told uncritically 3. Meaning-making - Look for links to what is already known----approach to learning is fragmented 4. Dependence and fragility - Like a challenge / have perseverance-- -easily disheartened and dependent on others for learning 5. Creativity - Able to look at things in different way----rule bound 6. Relationships / interdependence - Good at balancing social and private learning---either dependent or isolated 7. Strategic</p>

	<p>awareness - Self-aware and reflective----robotic</p> <p>The key themes which emerged from the teacher's efforts as being essential to improving learner's ability to learn were:</p> <ul style="list-style-type: none"> ● Teacher commitment to learner-centred values and willingness to make professional judgements ● Positive interpersonal relationships characterized by trust, affirmation ad challenge ● Developing a meta-language of learning, particularly through the use of metaphor ● Modeling and imitation ● Learning dialogue (discussions about learning) ● Time for reflection ● Development of learner self-awareness and ownership ● Providing students with choice and the responsibility for making choices ● Sequencing of learning materials - creating challenge through reorganizing the content of learning (particularly - creating situations where students are challenged to make sense of data and make meaning from it and inviting students to make connections with other aspects of the curriculum and with their wider life experiences) <p>For anybody interested in the particular assessment instrument used, information can be found at: http://www.ellionline.co.uk/</p>
<p>Teaching Strategies – Math</p> <p>International Journal of Science and Mathematics Education 4.117 - 143</p>	<p>Sullivan, P., Mousley, J. & Zevenbergen, R. (2006) Teacher actions to maximize mathematics learning opportunities in heterogeneous classrooms.</p> <p>This article described one stage in a three-year investigation into barriers that may inhibit the mathematical learning of some students. At this particular stage of the research a lesson sequence based on elements identified in previous stages is being trialed. The lesson is based on the premise that all students regardless of prior experience and ability should have the same goal focus and should share a common set of learning experiences so that all students can develop a sense of communal experience that will help them both participate in substantive conversations about mathematical concepts and feel successful in their mathematical learning. To this end the lesson contains the following elements:</p> <ul style="list-style-type: none"> ● a goal task (open-ended) with a series of less complex problem-like tasks that form a learning trajectory. The tasks anticipate a set of hypothetical cognitive processes leading to the goal task. (In this case the goal task was: - Given isometric paper and simple two-dimensional representation of two side views of a building, students were asked to draw what the building might look like. An example of one of the scaffolding tasks was : - The initial task was for students to draw on isometric paper two different shapes that could be

	<p>made out of three lamingtons - Australian cakes typically shaped like a rectangular prism)</p> <ul style="list-style-type: none"> • a set of enabling prompts which anticipate the potential difficulties students may have and that can be used to support students with each of the tasks. The prompts typically remove one of the factors contributing to the difficulty and avoid the need for the teacher to direct the student towards a particular solution strategy (for example some students had trouble with the initial task because they did not appreciate the way isometric paper could be used. These students were given an additional isometric sheet with two cubes already drawn) • a set of tasks that could be posed as extension tasks to students who complete the original task. These always extend thinking around the concepts central to the goal task. (for example, students who finished the initial task were asked to draw some cakes that could be made with 4 lamingtons) • a list of specific pedagogies which are made explicit to students. In other words, students are told the purpose behind each of the steps which builds toward the goal task as there is some evidence from research that the use of open-ended tasks can disadvantage students who are less familiar with the goals of schooling. (For example when introducing the initial task the teacher said “This is for you to see if you can use isometric paper to draw cubic shapes. You will learn to draw different shapes in different ways using isometric paper. There is more than one possible answer”) • opportunities to share strategies and thought-processes and discuss them at the end of the process <p>Main Findings:</p> <ul style="list-style-type: none"> • The enabling prompts (used only when needed) allowed all students to re-engage with the tasks and come up with a possible solution. • The nature of the enabling prompts meant that other students were often not aware that a particular student was having difficulty with a task. In fact the lesson observer for the most part did not note that these interventions had taken place. • All students were engaged with the tasks and were able to come up with a possible solution to the goal task (though some solutions of course were simpler than others) and therefore had the possibility of contributing to the final discussions. This was a significant result considering it was a class of 55 students across a broad spectrum of ability levels. • Interviews with the teacher and some students indicated that students had felt successful in the lesson. • Analysis of observations and student products of 10 similar lessons yielded similar results, suggesting that the elements of the lesson may have broad applicability.
<p>Teaching Methods Reading – Learning and Instruction 16, 57 - 71</p>	<p>Souvignies, E. & Makhlesgerami, J. (2006) Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension.</p> <p>A study conducted in Germany as a result of German students' poor performance on the 2002 PISA tests. The hypothesized that optimum reading instruction needed to include strategy instruction, acquisition of knowledge and skills necessary to make choices about appropriate reading strategies for varying purposes and in varying contexts and activities which would help maximize motivation so that students would be inclined to employ the strategies learned. The study therefore included a control group, a group receiving only strategy instruction, a group receiving instruction in strategies and self-regulation of the use of strategies and a group included instruction in all the aspects, strategies, self-regulation (asking which strategy would be appropriate for what reading goal and checking whether the strategy helped achieve the goal) and motivational aspects (such as realistic goal-setting and motivationally beneficial attribution). The time was constant for all three groups, so that the group which only had strategy instruction in effect had much more time to learn and practice the strategies</p>

	<p>taught.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● Immediately after the intervention all three treatment groups outperformed the control group on measures of reading comprehension and strategy use. ● Differences between the three treatment groups were small in the immediate post-test. ● On a post-test conducted at the end of the school year in which the treatments took place (close to one year after treatment) only the group receiving the complete program (including strategies, self-regulation and motivation) outperformed the control group. ● Long term effects for this group exceeded those ascertained immediately after the program. <p>The researchers conclude that becoming a strategic reader is a long-term process. As the number of lessons was held constant for all three treatments groups, the researchers conclude that the findings are anything but trivial.</p>
<p>Teaching Strategies – General Learning and Instruction 15, 539 - 556</p>	<p>Seidel, T., Rimmele, R. & Prenzel, M. (2005) Clarity and coherence of lesson goals as a scaffold for student learning.</p> <p>These researchers looked for correlations between clarity and coherence of lesson goals and (1) students' perception of the supportiveness of the learning conditions (2) students' learning motivation (3) types of cognitive learning activities (4) the development of student competence in physics over a one year period and (5) the development of students' interest in physics.</p> <p>Clarity and coherence of lesson goals was measured by analyzing videos of lessons and rating the criteria on a Likert scale using specific indicators for both criteria. Student competence was measured using a pre-test / post-test format and the other variables were assessed using self-reporting measures by students.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● A strong correlation was found between clarity and coherence of lesson goals and all of the other variables except for student interest in physics. ● In terms of types of cognitive learning activities, the correlation between clarity and coherence and 'organizing activities' (information reduction by integrating ideas and selection of main ideas) was high, but no significant correlation was found with what the authors call basic elaborations (activities to process and understand information) and deep elaborations (activities to further embed information into existing knowledge structures).
<p>Brain Research Engaging Minds. (Chapter 1 p. 1-47 Mahwah, NJ: Lawrence Erlbaum</p>	<p>Davis, B, Sumara, D. & Luce-Kapler, R. (2000) Knowing Looks</p> <p>This chapter has to do with consciousness, our ability to perceive and the implications of what we know about perception for the classroom. Interesting definitions used by the authors:</p> <ol style="list-style-type: none"> 1. learning - has to do with prompting learners to notice certain aspects of their worlds and to interpret those elements in particular ways. 2. information - consists of variations, irregularities, and so on that are significant enough to impinge on the senses.

<p>Associates</p>	<p>Main Arguments / Facts:</p> <ul style="list-style-type: none"> ● Our sense organs combined can register in the range of 11 million bits of information each second, but only a small portion of these sensory possibilities ever reaches consciousness. A typical person can be consciously aware of only 10 to 40 bits of information per second. ● Those sensations that do not impinge on consciousness still affect our learning. ● Much of what we have learned unconsciously can fall apart when conscious attention is drawn to it. ● For sensation to make sense in the context of a human culture, the sensing person must interpret, and that interpretation will affect what is allowed to impinge on consciousness in future experiences (examples are given of research with people who lost their sight as children and regained it as adults - they literally cannot 'see' - meaning they cannot pull coherent images out of the visual 'noise'.) ● Well before we become aware of a perception or a thought, complex non-conscious processes have sorted through and discarded information so that what enters consciousness has already been rendered meaningful. ● Initial research into Artificial Intelligence suggested that computers would one day be able to outperform humans on school-related tasks. This has not happened, because AI researchers made the mistake of regarding conscious knowledge (rules) as more important than the complex web of experiences and interpretations that support conscious thought. AI researchers have now moved away from teaching computers rules toward the provision of examples and experiences. <p>Implications:</p> <ul style="list-style-type: none"> ● Teaching and learning should embrace the breadth of human sensation. Teachers should provide rich, open sorts of activities and work to direct their students' attention toward particular aspects of those activities. ● Strategies for focusing attention include: repetition, well-timed questions, highlights, practice, not-taking, discussion, resymbolization or rephrasing of ideas. ● Activities to be avoided include: elaborate explanations, extended instructions, decontextualised formulations. ● Teaching is about maintaining a balance of richness of detail and narrowness of focus. ● Mindful practice relies on well developed abilities to let other worries slide into the background - so skills necessary for performance need to become automatic or else they will take up too much of working memory when performing a complex task. ● Learners can often make no sense of abstractions without the bodily sensations that are the root of our experience in the world. ● Teaching is less about teaching student what they don't know and more about helping them notice what they haven't noticed. ● Teachers must understand what kind of discernments in perception are important to a given concept and what sorts of artifacts and events might be useful in highlighting those distinctions.
<p>Brain Research / Curriculum Development</p> <p>Handbook of Research on Curriculum</p>	<p>Bereiter, C. & Scardamalia, M. (1992) Cognition and curriculum. This is an article summarizing research into cognition as it relates to curriculum.</p> <p>Main Arguments / Findings:</p> <p>Conceptual change</p> <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. <p>The centrality of knowledge</p> <ul style="list-style-type: none"> ● Background knowledge, in the form of hierarchically structured schemata, affects how new information is encoded or registered, by

	<p>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.</p> <ul style="list-style-type: none"> ● 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. <p>Metacognition</p> <ul style="list-style-type: none"> ● 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. <p>Learning as problem solving</p> <ul style="list-style-type: none"> ● 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 understanding why the modeled procedures worked and how they related to underlying laws. <p>Learning through problem solving</p> <ul style="list-style-type: none"> ● 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. <p>Automaticity and processing load</p> <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>Assessment <i>Research Papers in Education Vol.</i></p>	<p>Marshall, B., Drummond, M.J. (2006) How teachers engage with Assessment for Learning: lessons from the classroom. A set of case studies of teachers examining their use of Assessment for Learning (AfL) strategies in the classroom and relating these to the teachers' beliefs as obtained from interview data. The study attempted to determine whether it was sufficient to merely implement strategies associated with AfL or whether the interpretation of the strategies as influenced by an individual teacher's belief system affected the effectiveness of the way strategies were implemented.</p>

<p>21, No. 2, pp. 133 - 149</p>	<p>Main Findings:</p> <ul style="list-style-type: none"> ➤ Only about a fifth of the 27 lessons observed appeared to capture the 'spirit of Afl' as opposed to merely adhering to the 'letter of Afl' by using the strategies (strategies come under four headings - questioning, feedback, sharing criteria and self-assessment) ➤ The development of autonomy was dependent on the kinds of tasks teachers set and the way they were sequenced. ➤ Tasks - The typical sequence of tasks leading to autonomy involved learners framing their own notions of quality, negotiating and refining these within the group, applying these principles to a piece of work, then finally using this understanding to reassess their own work in the light of the judgments about quality. ➤ Dialogue - In the lesson sequences leading to greater learner autonomy, dialogue pushed learners to think in greater depth about the judgments they make and through discussion, deepen their understanding of what good looks like. ➤ Teachers who believed strongly in learner autonomy and who believed all learners could become autonomous and that it was their responsibility to develop this, tended to develop the kind of open task sequences which described above. ➤ Teachers who believed that some fixed entity (eg. student attitude, ability or readiness) affected the development of autonomy were less likely to take responsibility for the success or failure of the development of autonomy and tended to develop more closed, controlled lesson sequences that were less likely to develop autonomy. These teachers also had a lesser sense of self-efficacy. ➤ In general, beliefs about agency were crucial. The belief that neither the circumstances, nor learner dispositions were beyond change led some teachers to have a greater sense of agency than those who tended to see constraints as beyond their control.
<p>Assessment</p> <p><i>Educational Measurement: Issues and Practice Vol. 27, No. 2, pp. 3 - 13</i></p>	<p>Andrade, H., Du, Y. & Wang, X. (2008) Putting rubrics to the test: The effect of a model, criteria generation, and rubric-references self-assessment on elementary school student's writing.</p> <p>Researchers in the US examined the effect of using models and rubrics on student writing. The test treatment involved: (1) reading a model piece of writing and discussing its strengths and weaknesses, followed by generating a list of qualities of effective writing; (2) giving students a written rubric for the writing task; and (3) using the rubric to self-assess a first draft. Learners in a comparison group also generated a list of qualities of effective writing, but without the support of a model and without receiving a rubric or engaging in self-assessment. Prior rubric use, previous achievement in language and gender were examined for the effect they might have on results. The rubric used to assess writing was based on the 6 + 1 Writing Traits (traits include: ideas, organization, paragraphs, voice, words, sentences and conventions).</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • Prior rubric use did not significantly affect writing scores (possibly because though most learners had been given rubrics in previous classes, they had not used them to self-assess) • Girls achieved slightly better writing scores than boys, but the difference was not significant. • Previous achievement in language was positively related to writing scores. • The treatment group's writing scores were significantly higher than those of the comparison group on all of the writing traits assessed except for 'sentences' and 'conventions'. This was true even when controlling for previous achievement in language. The average grade for the treatment group was a low B and for the comparison group a high C.
<p>Instructional Strategies / Cooperative Learning</p>	<p>Oortwijn, M., Boekaerts, M. Vedder, P. & Stijbos, J. (2008) Helping behaviour during cooperative learning and learning gains: The role of the teacher and of pupils' prior knowledge and ethnic background.</p> <p>Based on previous research, 'high quality helping behaviours' were identified. These were defined as "utterances of peers that ask for explanations, give explanations, or apply them to the task at hand" (p. 147). A CL curriculum of 9 one-hour mathematics lessons was the</p>

<p><i>Learning and Instruction Vol. 18, pp. 146 - 159</i></p>	<p>focus for the study. The experimental groups received 2 lessons of training in effective group work prior to commencing the 9 lessons. The first lesson revolved around general CL rules such as cooperation and listening to each other. The second lesson introduced practices more specific to high quality helping behaviour. Students were instructed when seeking help to “(a) ask precise questions, (b) continue asking questions in case of ambiguities, (c) think before asking a question, and (d) ask for help on time” (p. 152). When giving help students were instructed to “(a) fine-tune the level of help to the need for help that is being requested, (b) give a clear and precise answer, (c) let the receiver apply the help that is given, (d) continue to ask if the question for help is unclear, and (e) give help when needed” (p. 152). Teachers in the experimental classes were asked to support learners in implementing these behaviours. The control classes participated in the same sequence of 9 cooperative learning mathematics lessons without the 2 lessons of instruction and without teacher support for behaviours beyond general cooperative learning practices.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • Giving help a high number of times was a positive predictor of posttest mathematical performance • Requesting explanations a high number of times was a negative predictor of posttest mathematical performance • Immigrant pupils engaged in less helping behaviours than non-immigrant pupils • No relationship was found between high quality helping behaviours and subsequent mathematical performance beyond that already stated above. • Teachers were unable to stimulate high quality helping behaviour, though they were successful in reducing low quality behaviour.
<p>Assessment</p> <p><i>Phi Delta Kappan, October 2007, pp. 140 - 145</i></p>	<p>Heritage, M. (2007) Formative Assessment: What do teachers need to know and do? The article defines formative assessment and the knowledge and skills teachers need to implement formative assessment practices.</p> <p>Main Arguments:</p> <p>Definition:</p> <ul style="list-style-type: none"> • Formative assessment is a systematic process to continuously gather evidence of student learning. The data are used to identify a student's current level of learning and to adapt lessons to help the student reach the desired learning goal. There are three broad types: 1. <i>On-the-fly assessment</i>; 2. <i>Planned-for interaction</i> and; 3. <i>Curriculum-embedded assessments</i>. <p>Elements:</p> <ul style="list-style-type: none"> • There are four core elements: 1. <i>Identifying the gap</i>; 2. <i>Feedback</i>; 3. <i>Student Involvement</i> and; 4. <i>Learning progressions (clearly articulated subgoals that constitute progress toward the ultimate goal)</i> <p>The knowledge teachers need</p> <ul style="list-style-type: none"> • Four basic elements of teacher knowledge are critical: 1. <i>Domain knowledge</i>; 2. <i>Pedagogical content knowledge (knowledge of what instructional strategies are appropriate in particular domain-specific contexts)</i>; 3. <i>Knowledge of students' previous learning</i> and; 4. <i>Assessment knowledge</i> <p>The skills teachers need</p> <ul style="list-style-type: none"> • Teachers need to be able to: 1. <i>Create the conditions that allow for successful achievement</i>; 2. <i>Teacher the students to assess their own learning and the learning of others</i>; 3. <i>Interpret the evidence</i> and; 4. <i>Match their instruction to the gap</i>.
<p>Instructional Strategies – Writing</p>	<p>Kirkpatrick, L. & Klein, P. (2009) Planning text structure as a way to improve students' writing from sources in the compare-contrast genre. The researchers devised a planning template to support student writing of compare and contrast texts. The template was trialed with 7th and 8th grade students. One group in their study was taught how to use the template (and required to memorize it). A control group</p>

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continued with their normal writing lessons.

Design of the template

There is no single accepted structure for compare and contrast texts. However, in an analysis of university students' writing, Spivey (1991) found that when comparing and contrasting, students used one of four text structures:

- (a) information about each object was presented separately
- (b) objects were compared aspect by aspect
- (c) comparisons of aspects were grouped into two sections, one on similarities and one on differences
- (d) aspect-based comparisons were grouped into sections based on macro-aspects (eg. colour, shape, size etc. could be grouped together under the macro-aspect of physical attributes)

In holistic ratings of quality, Spivey found that texts using structure (d), those organized around macro aspects, consistently received higher scores than other types of structure. The template used in the Kirkpatrick and Klein study was designed specifically to help students sort information into categories based on aspects and macro-aspects for comparison.

Number	Paragraph	Aspect	Information (Topic 2)	Information (Topic 1)

Students work from right to left as they fill in the template. The *information* columns are to help students select corresponding information about the two topics and juxtapose it. The purpose of the *aspect* column is to help students connect related information and organize it under aspects. The *paragraph* column allows students to further group the aspects into macro-aspects to be dealt with in a single paragraph. The *number* column helps students decide on the connections between paragraphs and therefore their logical order so that the text overall becomes cohesive.

Findings:

- ❖ For the experimental group, there was very little correlation on the pre-test between the structure of the writing plans and the structure of the texts students wrote based on these plans. At post-test, the correlation had increased substantially.
- ❖ A text structure emerged from the study that had not been observed by Spivey, namely where students structured their text in three sections
 - I. Aspect by aspect comparisons of similarities only
 - II. Differences related object 1
 - III. Differences related to object 2

(This structure was not used by any of the students in the experimental group on the post-test.)
The researchers hypothesize that students of this age, or at this level of experience may not always be able to think about the global structure of the text and may even consider global structure while writing part of the text and only consider local structure in other parts.
- ❖ Students who were taught how to use the template showed significantly greater improvement on holistic grades over those in the control condition.
- ❖ Over half of the students in the experimental group demonstrated a macro-aspect, global level structure on the post-test.
- ❖ All of the students in the experimental group used at least an appropriate local-level comparison structure on the post-test, indicating

<p>Instructional Strategies – ESL / Science</p> <p><i>International Journal of Science Education</i> Vol. 28, No. 5, pp. 491 - 520</p>	<p>that the use of the template was successful in helping students structure their writing more effectively.</p> <p>Fang, Z. (2006) The language demands of Science reading in middle school. This author of this article has examined middle school Science textbook and extracted the typical features which present difficulty for learners, particularly second language learners. The article concludes with suggestions for classroom activities to help students overcome these difficulties.</p> <p>Main Findings / Arguments</p> <ul style="list-style-type: none"> ❖ Somewhere around Grade 4 the language used in school texts moves away from the concrete language everyday language of the world and begins to become more abstract and specialized. Unfortunately, it is also at this point that we reduce the amount of direct instruction in reading. ❖ Current instructional strategies for reading at the secondary level tend to focus on : <ul style="list-style-type: none"> (a) Fluency-oriented strategies - repeated reading, chunking, prosody, monitoring. (b) Cognitive and metacognitive strategies – predicting, inferencing, making connections, visualizing, think-aloud. While these strategies are important, Fang argues that they do nothing to help the student overcome the difficulties presented to students by the particular linguistic devices which each discipline uses to construe meaning. <p><u>Particular language difficulties encountered in Science texts</u></p> <ul style="list-style-type: none"> ➤ Technical vocabulary ➤ Everyday words with different meanings of usages in Science ➤ Connective devices ➤ Ellipsis ➤ Nominalization ➤ Expansion of nominal groups ➤ Subordinate and embedded clauses creating complex sentences ➤ Passive voice <p><u>Strategies for helping students understand how these devices work</u></p> <ul style="list-style-type: none"> ➤ Vocabulary Building - use the Latin and Greek roots, prefixes and suffixes ➤ Noun expansion - analyze noun phrases with students and give them opportunities to expand and elaborate nominal groups. Also, sentence completion exercises where students must synthesize information occurring previously in the text into a nominalization which can be made the subject of a subsequent clause. ➤ Complex sentences - use sentence stripping to explore the ways in which clauses are combined to form sentences in Scientific text ➤ Connectives - explicitly teach the connectives used in Science and how they are used as these form the signposts to understanding the logic of a scientific argument. ➤ Paraphrasing - having students translate back and forth between the Language of Science and Everyday Language can help them understand many of the features of Scientific language.
<p>Instructional Strategies</p> <p><i>Review of Educational</i></p>	<p>Semb, G. & Ellis, J. (1994) Knowledge taught in school: What is remembered? In this article, the authors reviewed 56 articles (many of which related to multiple studies) on knowledge retention. The examined retention based on three types of task: recognition tasks; recall tasks; and cognitive skill tasks.</p> <p>Main Findings:</p>

<p><i>Research Vol. 64, No. 2, pp. 253 - 286</i></p>	<ul style="list-style-type: none"> • Overall the studies showed better retention for recognition tasks over recall tasks and there was no clear pattern for cognitive skills tasks. • In a study spanning 50 years, Bahrck (1984) found that factual knowledge for Spanish learned in school declined dramatically while grammatical knowledge was maintained in a relatively permanent state. • A number of researchers have speculated that “the degree of coherence or inherent organization of the content strongly influences forgetting.”(p. 269). This is backed up by studies which show better retention for concepts than for knowledge items. • Studies where practice and review were manipulated during the retention interval suggest that review or re-learning at an interval after the initial learning boosts long-term retention over learning on a single occasion. • Instructional strategies which required learners to actively interact with and process content led consistently to higher levels of long-term retention in the studies reviewed. This is the ONLY variation in instructional strategies among all those reviewed that produced higher retention. • (One example study was by Specht and Sandlin, 1991. In this study, students in an undergraduate accounting course were taught using either traditional lectures or through role playing. There was no different between the groups on the end-of-course test, but after a six week retention interval the role playing group showed no loss for concept recognition and minimal loss for problem solving (around 13%). The lecture group demonstrated losses of 18% for concepts and 54% for problem solving.) • The authors hypothesize that these kinds of strategies facilitate qualitative changes in the knowledge schematas of the students - ie the students had made meaning from the content and developed understanding beyond simple memorization.
<p>Instructional Strategies – ESL</p> <p><i>Review of Educational Research Vol, 78, No. 4, pp. 1010 - 1038</i></p>	<p>Janzen, J. (2008) Teaching English language learners in the content areas</p> <p>The author reviews multiple articles related to teaching English language learners within mainstream content classes in the areas of: History, Math, English and Science. Some articles reviewed are empirical studies, some are analyses of the language needs of text within the 4 subject areas and some are articles with recommendations for teachers which may or may not be based on empirical studies.</p> <p>Main Findings / Arguments:</p> <p>History</p> <ul style="list-style-type: none"> • History texts are characterized by high lexical density (the number of content words per clause) and extensive nominalization and these features make unique demands on the reader. • Nussbaum (2002) found that the use of graphic organizers to scaffold the writing of historical arguments led to students writing more complete arguments. • Reppen (1995) found that explicit modeling and teaching of the structure and language features of specific genres (narrative, description, argument and discussion) led to positive change in student content knowledge and writing proficiency. There was also a positive impact on attitudes to social studies learning. • Short(2002) found that in sheltered social studies classes for ELLs, teachers were more likely to discuss content and task than language, a finding she considered problematic. • Studies based on Systemic Functional Linguistics seem to present the most compelling perspective on teaching language within the content area. • Many sources recommend teaching techniques designed to foster active processing of content such as: using guiding questions, brainstorming, using graphic organizers, group work. Many also recommend the use of the students’ first language to help with content processing where appropriate. <p>Math</p> <ul style="list-style-type: none"> • The language of Math is characterized by technical vocabulary including specialized meanings for words, complex noun phrases,

use of more than one semiotic system.

- Math language is used to express concepts that are often not necessary or important in everyday usage and so ELLs' exposure to them may be limited to the classroom
- Researchers stress techniques that will assist students in connecting everyday language with the language of math.
- Lager (2006) investigated the linguistic challenges of algebra problems and found that some of the words which cause difficulty were not this generally considered to be part of the language of math.
- Gutierrez (2002) found that teachers who were successful at getting their students to take higher math classes shared some characteristics. They; (1) were careful observers of students; (2) were able to identify students needs and backgrounds without relying on stereotypes; (3) didn't require the students to speak English at all times; (4) had the students work in cooperative groups and ; (5) gave students opportunities to explore ideas through discussion
- Khisty (1991) found that in math classrooms with a significant portion of ELLs, teachers used little actual mathematical terminology, focused most of the lessons on procedures for problem-solving, did not allow for the kind of discussion that would allow students to grasp mathematical concepts, and presented material that was largely decontextualized.
- Many sources recommend that teachers: (1)give students opportunities to talk their way through problems and verbally explain their reasoning (2) use students' knowledge or interests to make connections to the math curriculum; (3) use a variety of grouping practices and (4) make sure assessments clearly distinguish between knowledge of math and knowledge of language.

English

- Carlo et al. (2004) found that explicit teaching of vocabulary in the context of a thematic unit improved both vocabulary knowledge and reading comprehension.
- Jimenez & Gamez (1996) found that when taught how to deal with unfamiliar vocabulary students developed a higher level of awareness of their cognitive behavior and a more positive attitude towards reading.
- Wright (1997) found that when taught several strategies including inferencing, previewing and guessing the meaning of unknown words, students improve their reading comprehension levels and became more confident readers.
- Saunders and Goldenberg (1999) found that that the use of literature logs (where students record written responses to text) and instructional conversations (structured not to transmit knowledge but to support learners in arriving at complex understandings) were beneficial for ELLs.

Science

- Macken-Horarik (2002) found that working explicitly with the structure and language features of the explanation genre helped learners not only in the language side of Science, but also in developing students' scientific understanding of the content.
- Numerous authors recommend explicit teaching of the way in which texts are constructed to convey the meanings of Science.
- Lee and Fradd (1996) investigated classroom discourse patterns on various cultural groups and found that the style of English speakers was most compatible with the discourses of Science.
- Moje, Collazo, Carrillo & Marx (2001) found that the curriculum provided to teachers in the schools they studied focused on questions typical of the science classroom rather than those of actual scientists. They further found competing discourses in the science classrooms, such as an assessment task where students were asked to imagine what would happen if a factory opened in their neighborhood, leading students to produce creative texts that were not connected to the discourses of science.
- Researchers stress the importance of providing ELLs with opportunities to "do" science rather than simply to learn inert facts.
- Dong (2002), in a year-long case study of three biology teachers. Three common traits that proved beneficial to ELLs were: (1) high standards; (2) an approach to teaching ELLs that emphasized elaboration of concepts rather than simplification; and (3)

	<p>attentiveness to student backgrounds and experience.</p> <ul style="list-style-type: none"> Hampton & Rodriguez (2001) found that use of inquiry-based methods where students were involved in asking questions, gathering data and considering evidence increased students skills in both language and science knowledge. <p>General Conclusions</p> <ul style="list-style-type: none"> The following themes stand out: (1) language is central in content teaching and in order for ELLs to succeed they need to be taught the features of genre and language use typical of discourses within a discipline; (2) opportunities to articulate thinking, share ideas in groups and think through new ideas verbally extend student understanding (the language of interaction does not always have to be English); (3) teachers need extended time for professional development related to the language of their discipline, how they can integrate language and content, and cultural diversity : (4) cultural discourses affect academic success and must be acknowledge and valued in teaching, though there is little agreement on how best to achieve this.
<p>Instructional Strategies / Brain Research</p> <p><i>Learning and Instruction Vol. 18, pp. 513 - 527</i></p>	<p>Strømsø, H., Bråten, I. & Samuelstuen, M. (2008) Dimensions of topic-specific epistemological beliefs as predictors of multiple text understanding.</p> <p>In this study with 157 first year undergraduates at Norwegian universities the researchers investigated whether students' beliefs about knowledge and how it is constructed affected their ability to read and understand multiple, complex texts (sometimes containing conflicting viewpoints) on the same topic. Students' beliefs about knowledge were plotted along four continua: "(a) <i>certainty of knowledge</i> – ranging from the belief that knowledge is absolute and unchanging to the belief that knowledge is tentative and evolving; (b) <i>simplicity of knowledge</i> – ranging from the belief that knowledge consists of more or less isolated facts to the belief that knowledge consists of highly interrelated concepts; (c) <i>source of knowledge</i> – ranging from the belief that knowledge is transmitted from external authority to the belief that knowledge is actively constructed by individuals in interaction with the environment; and (d) <i>justification for knowing</i> – ranging from justification through observation, authority, or what feels right to the use of rules of inquiry and the valuation and integration of multiple sources". It should be noted that the instruments used to ascertain students' beliefs in this study related specifically to the topic of climate change. The extent to which an individual's epistemological beliefs are domain-specific or domain-general is contended.</p> <p>Understanding of text was measured on three levels using different instruments: (1) students' surface level understanding of individual texts (factual recall); (2) students' deeper understanding of individual texts (intratextual understanding); and (3) students' ability to draw inferences from the combined information of multiple texts (intertextual understanding).</p> <p>Main Findings:</p> <ul style="list-style-type: none"> Students who believed knowledge to be complex and theoretical scored higher on the test of factual recall. Students who believed knowledge to be complex and theoretical scored higher on tests of inference related both to single texts and across texts, indicating that this belief enabled them to compare and integrate key information. Students who believed knowledge to be constructed by individuals interacting with their environment scored lower on measures of deep understanding of texts. The authors interpret this as suggesting that when reading a complex set of expository texts, readers should pay close attention to the author's intended meaning and not rely too heavily on their personal interpretations. There needs to be a balance of personal judgment and reliance on external authority. Students who believed knowledge to be tentative and evolving scored higher on the measure of intertextual understanding. Beliefs about justification of knowing did not relate with measures of understanding. The authors advance two possible reasons for this: (1) possible difficulties in validly measuring justification; or (2) students may accept that knowledge claims in multiple texts should be verified through reasoning and the use of other sources, but may not have the skills to perform such an evaluation. Prior knowledge predicted scores on all three reading measures, confirming that topic knowledge does affect understanding.

<p>Instructional Strategies – ESL / Literacy</p> <p><i>Journal of Education for Students Placed at Risk</i> Vol. 14, No.1, pp. 97 - 119</p>	<p>O’Day, Jennifer (2009) Good instruction is good for everyone - or is it? English language learners in a balanced literacy approach</p> <p>As part of a study on the implementation of literacy strategies in San Diego schools, this researcher compared the effects of on reading instruction strategies on the reading comprehension of native English language learners compared to proficient English speakers.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ❖ The strategies found to be most effective with proficient English speakers were: (1) higher-level questioning / discussion about the meaning of text; (2) incorporation of writing instruction; and (3) accountable talk (including a focus on ideas rather than facts and recall, a press for evidence from the text to support arguments, student response to and elaboration on each other’s contributions - the teacher played a more facilitative than directive role in accountable talk. ❖ The effect of these three strategies on English language learners was still positive, but was substantially less than the effect on proficient English speakers and was not statistically significant. One possible explanation for this is that some of these activities were happening at a linguistic level that was beyond the ability of the ELs to comprehend. ❖ None of the specific strategies investigated had a statistically significant effect on the reading comprehension scores of ELs. ❖ During classroom observations, in addition to observing the specific strategies under study, teacher-student and student-student interaction patterns were coded. <ol style="list-style-type: none"> I. “Telling” (where a teacher simply provided information rather than engaging students in the creation of that information) had a negative effect on the learning of proficient English speakers but a positive effect for ELs. The researchers hypothesize that ELs needed to be provided more directly with background information in order to access the texts they were trying to read. II. The other interaction pattern affecting EL student’s reading comprehension was the opportunity to participate in discussion / conversation. Participation in discussion had a greater positive effect for ELs than for proficient speakers. The researchers hypothesize that this is due to the opportunity to develop oral language proficiency (Prior research has indicated a relationship between oral language proficiency and literacy development). Interestingly, the positive effect of discussion compared with the negligible effect of accountable talk further supports the researcher’s theory that in order to be of use, activities must take place at a level which is accessible for ELs. ❖ Qualitative data from interviews and observations suggest three implications of the findings: <ol style="list-style-type: none"> I. <i>Use of EL students’ native language</i> - literacy in the native language can function as a bridge to success in English since many strategies transfer between languages II. <i>Differentiation</i> - The program in San Diego had a substantial emphasis on differentiation, including using grouping strategies, specific scaffolding activities for individual learners etc. The findings suggest that in the case of ELs an emphasis in differentiation in general is insufficient. Teachers must: <ul style="list-style-type: none"> • Recognize that strategies need to be tailored for EL students • Know enough about texts to analyze potential barriers to comprehension for ELs • Know enough about literacy and second language acquisition to diagnose and monitor the particular needs of ELs III. <i>Attention to English Language Development</i> – the smaller effect sizes for ELs suggest that it is important to build greater oral English proficiency at the same time as building literacy skills.
<p>Instructional Strategies</p> <p><i>Science Daily,</i> Feb. 1, 2009</p>	<p>College freshmen in US and China: Chinese students know more science facts but neither group especially skills in reasoning.</p> <p>Researchers at Ohio State University tested 6,000 students entering physics and engineering courses at universities in China and the US. Three tests were administered - two on science facts (force concepts & electricity and magnetism) and one on scientific reasoning.</p> <p>Main Findings:</p>

Instructional Strategies Articles

	<ul style="list-style-type: none"> • Chinese students all follow the same curriculum in HS which includes 5 continuous years of physics classes. American science curriculum is more flexible. • On the factual tests Chinese students significantly outperformed American students (for example on the force concepts test, the Chinese average was 90% and the American average was 50%) • Both groups averaged 75% on the test of scientific reasoning (as the researchers point out, this is not a particularly high score for students hoping to major in science or engineering). • The researchers conclude that teaching facts alone, no matter how thoroughly they are taught, does not necessarily improve reasoning skills. They recommend more inquiry-based learning.
<p>Instructional Strategies</p> <p>Science Daily, January, 29, 2009</p>	<p>Is technology producing a decline in critical thinking and analysis? Patricia Greenfield, professor of psychology at UCLA and director of the Children’s Digital Media Center analyzed more than 50 studies on learning and technology.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • Over the past 50 years our skills in critical thinking and analysis have declined. Professor Greenfield links this to a decline in reading for pleasure in recent decades. She claims that reading engages the imagination and enhances thinking in a way that visual media do not. • Studies have shown that reading develops imagination, induction, reflection, critical thinking and vocabulary. Since visual media such as video games or movies are real-time media, they do not allow as much time for reflection, analysis or imagination. • Over the past 50 years our visual skills have improved. Greenfield links this to increased use of technology. • While video games have been shown to improve the ability to multi-task, multi-tasking during a task requiring undivided attention can prevent students from gaining a deeper understanding of the information • Greenfield claims that as people spend more time with visual media, assessment tasks that involve the use of visual media will give us a better picture of what students actually understand. • Overall Greenfield claims that “no one medium is good for everything” and that in order to develop a variety of skills we need “a balanced media diet”.
<p>Instructional Strategies / Cooperative Learning</p> <p><i>Learning and Instruction Vol. 18, pp. 83 - 95</i></p>	<p>Kutnick, P., Ota, C. & Berdondini, L. (2008) Improving the effects of group working in classrooms with young school-aged children: Facilitating attainment, interaction and classroom activity.</p> <p>This study was conducted with 980 children aged 5 – 7 in the United Kingdom and sought to investigate whether activities explicitly designed to foster trusting, interdependent relationships among children could lead to group work which supported cognitive development. The study took place over a full school year.</p> <p>The activities used to address the skills involved in building relationships were designed by the classroom teachers involved in the study. They followed a developmental sequence over the school year beginning with activities emphasizing trust (such as ‘blind walk’), continuing with activities practicing communication skills (such as ‘partnered discussions of favorite actions’) and leading to the final component - activities around joint problem-solving (such as ‘joint drawings’). For the purposes of comparison, only the experimental classes were offered these activities. Control classes did not participate in them.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • Group Work - During group work experimental classes were less dependent on the teacher for ‘procedural’ guidance and showed significantly higher levels of ‘on-task’ behavior. Learners in experimental classes also showed significantly higher levels of ‘co-

	<p>regulation' (meaning active participation from all group members) and significantly lower levels of 'disengagement' (meaning either that one member was disruptive or that group members did not share any aspect of the activity). These differences became more pronounced as the year progressed. Overall, learners in the experimental classes became more task-focused, engaged and aware of other group members in communication compared with learners in control classes.</p> <ul style="list-style-type: none"> • Attainment - Pre- and post-tests in reading / literacy showed increased attainment for all pupils with experimental classes gaining more than control classes. In the area of mathematics the experimental learners demonstrated significantly higher gains over learners in control classes. • Motivation - At the beginning of the year there were no significant differences between the classes in relation to their attitude to group work. By the end of the year the experimental classes demonstrated an increased liking of group work, reporting that it helped them 'think better', 'learn more' and 'try harder', while control classes showed a decreased liking for group work.
<p>Teaching Strategies – ESL</p> <p><i>TESOL in Context Vol. 18, No. 1, pp. 21 - 28</i></p>	<p>Rushton, K. (2008) Cooperative planning and teaching for ESL students in the mainstream classroom.</p> <p>This article describes a pilot program conducted in disadvantaged urban schools where ESL teachers and mainstream classroom teachers were supported in developing a unit of work which was jointly planned and jointly taught.</p> <p>Main Arguments / Findings:</p> <p>Intellectual Quality</p> <ul style="list-style-type: none"> • The teaching focused on a model of intellectual quality drawn from research and including the following elements: Deep knowledge; Deep understanding; Problematic knowledge; Higher-order thinking; Metalanguage; and Substantive communication • Within the model, in relation to language, <i>deep knowledge</i>, <i>deep understanding</i> and <i>metalanguage</i> were developed through analysis of the language demands of the teaching and learning strategies. This language knowledge was then clearly articulated to students and they were explicitly taught about the language choices available to them. <i>Higher-order thinking</i> was developed by having students to think about these language choices and opportunities for <i>substantive communication</i> were provided through guided reading and writing exercises. <p>Support for Participating Teachers</p> <ul style="list-style-type: none"> • It was found that teachers in general clearly recognized the importance of language and literacy learning but generally did not provide this for their students in a systematic way. • In order to address this situation the following support was provided: demonstration lessons and planning support from the project coordinator; the provision of time for ESL teachers to meet, plan and work together with classroom teachers to identify and meet the needs of students; and working guidelines such as the requirement that students be given details of assessment procedures and criteria at the beginning of the unit and that these should be linked to explicit teaching; the provision of protocols with specific questions to support writing conferences. <p>Project Results</p> <ul style="list-style-type: none"> • For students: In general it was found that the learning in terms of language transferred to student work in subsequent units and teachers felt that student writing in general had been enhanced by the project. • For teachers: The explicit teaching of language and literacy was a constant focus in teachers' reflections about the unit. The unit was felt to have demonstrated "what teachers can do", but to also have demonstrated the importance of ongoing support to achieve this.
<p>Teaching Practices – Homework</p>	<p>Trautwein, U. (2007) The homework-achievement relation reconsidered: Differentiating homework time, homework frequency, and homework effort.</p> <p>The PISA studies reported evidence for a positive relationships between homework and achievement for a great majority of the countries included in the study. Researchers in Germany questioned the validity of the PISA conclusions for a number of reasons; (1) though the</p>

<p><i>Learning and Instruction</i> Vol. 17, pp 372 - 388</p>	<p>homework data related to three subjects, the only achievement measure used was a reading score; (2) no distinction was made between homework assigned and homework completed; and (3) no control was made for prior achievement or other possibly confounding variables. The researchers conducted a series three studies with students in German secondary schools to attempt to separate and measure the effects of (1) actual time spent working on homework; (2) frequency of homework assignments; and (3) effort expended on homework (as measured by a self-reporting survey).</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • In terms of time spent on homework, there was far greater variance between students within a school than between schools. • In all three studies, amount of time spent on homework was negatively related to achievement at the student level (possibly indicating that more time spent on homework may indicate problems of understanding or motivational problems). • Higher frequency of homework assignments was related to higher achievement (in a longitudinal study) • Higher levels of effort expended on homework were positively related to achievement gains. • There was no positive correlation between homework effort and time spent on homework (indicating that time spent on homework is not a suitable indicator of the effort students put into homework).
<p>Teaching Practices - Homework</p> <p><i>Journal of Educational Psychology</i> Vol. 99 No. 2 pp. 432 - 444</p>	<p>Trautwein, U. and Ludtke, O. (2007) Students' self-reported effort and time on homework in six schools: Between-students different and within-student variation.</p> <p>In this study of 511 Grade 8 and 9 students in German schools, the researchers investigated variables affecting the amount of effort and the amount of time students spent on homework.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • 47% of the variance in homework effort was at the between students level and 53% at the with student level - indicating that whether students put effort into homework depends both on their general tendency to do homework and on factors specific to certain subjects. • Between-students level - students who are generally more conscientious spend more time on homework. • Within-student level - Students reported putting more effort into homework where they perceived the quality of homework to be high, where they perceived teacher control of homework to be high, where they perceived that their parents valued the subject highly, where their previous level of achievement was high and when homework expectancy and value belief (the expectancy of being successful on a homework task and the belief that putting effort into homework will pay off in terms of future achievement) was high. • The correlation between homework expectancy / value belief and homework effort remained even when prior achievement was controlled for. • There was considerable consensus in classes as to the perceived quality of homework. • Perceived homework control had a greater effect on less conscientious students and almost no effect on the most conscientious students. • Parental help with homework did not relate positively to homework effort. • The association between homework effort and homework time was negative, indicating that students spend more time on their 'weaker' subjects • Students with lower cognitive abilities spent more time on homework.
<p>Teaching Practices -</p>	<p>Grubb, W. (2007) Dynamic inequality and intervention: Lessons from a small country.</p> <p>The author notes the fact that Finland scored highest on literacy and second on math in the 2000 PISA results. More importantly, Finland</p>

<p>Differentiation / Intervention</p> <p>Phi Delta Kappan, October 2007, pp. 105 - 114</p>	<p>had significantly smaller variations in scores than most countries, indicating a higher level of equality in the education system. Finland achieved similar results in 2003. The author compares interventions for struggling students in Finland and the US to determine some possible causes for the differences in equality.</p> <p>Main findings / arguments</p> <ul style="list-style-type: none"> • Finland has a series of interlocking, consistent policies for dealing with students who appear to have difficulties with the curriculum - (1) classroom teachers are responsible for identifying students who are failing to master a particular competence (they do not wait for diagnostic testing to do this). The teacher works with identified students one-on-one or in small groups to correct the particular problems, sometimes during the day, sometimes before school at lunch or after school. (2) If a student needs further help classrooms have a teacher assistant, who though not a fully qualified teacher has done a year of specialized study in supporting students who are behind. (3) If a student needs further help a multidisciplinary team is established consisting of the teacher, the special-needs teacher, the counselor and individuals from outside the school (social workers, representatives from public housing etc.). Special needs teachers do not only work with students who have diagnosed special needs, but also with those who just need some extra help. Individuals from outside the school can supply services beyond the capacity of an individual school. • In the US, intervention policy is largely the domain of individual schools who tend to have a grab bag of fragmented policies, often following the policy of intensification (more of the same) and often with no attempt to link regular classroom work with the intensification work. The Finnish approach of having the classroom teacher direct the support leads to substantially greater consistency. • Finland has some features which further support equity - (1) Class sizes are small (generally 16 – 20). (2) Schools are small (generally 200 – 300) (3) Teacher training is more thorough (4) Teaching programs in universities are highly selective (with an acceptance rate of only 10%) (5) Teachers are treated as independent professionals with judgment and expertise in both their subject and related pedagogy (rather than deliverers of a ‘teacher-proof’ curriculum) (6)The Finnish welfare state supports equity in many ways.
<p>Teaching Strategies - Behavior Management</p> <p>Phi Delta Kappan, November, 2008, pp. 160 - 167</p>	<p>Greene, R. (2008) Kids do well if they can.</p> <p>The author identifies two possible approaches to student misbehavior:</p> <ul style="list-style-type: none"> - Kids do well if they <i>want</i> to. - Kids do well if they <i>can</i>. <p>Teachers and parents with the first philosophy assume that misbehaving kids aren’t doing the right thing because they don’t <i>want</i> to. Common solution strategies include rewards and / or punishments and consequences.</p> <p>Parents and teachers with the second philosophy assume that misbehaving students <i>lack the skills</i> to do the right thing. The adult challenge is to figure out which skills the child needs to be taught to behave more appropriately.</p> <p>Greene proceeds to identify several clusters of skill deficits that are quite common in troubled students:</p> <ul style="list-style-type: none"> • <i>Difficulty reflecting on several thoughts or ideas simultaneously (disorganized); difficulty considering a range of solutions to a problem; difficulty considering the likely outcomes or consequences of one’s actions (impulsive).</i> • <i>Difficulty expressing concerns, needs, or thoughts in words.</i> • <i>Difficulty shifting gears from an emotional response to thinking rationally about a situation (separation of affect)</i> • <i>Difficulty seeing the “grays”; concrete, literal, black-and-white thinking; difficulty deviating from rules, routines, or the original plan; difficulty handling unpredictability, ambiguity, uncertainty, or novelty; difficulty shifting from an original idea or solution; difficulty adapting to changes in plan</i> <p>The following standard responses to misbehavior, don’t work well for students who lack skills:</p>

	<ul style="list-style-type: none"> - Telling the child that we don't approve of the behavior and suggesting alternatives. - Natural consequences such as embarrassment, being scolded, being disliked, etc. - Logical consequences such as being kept in from recess, put on detention, or suspended. <p>Greene concludes that "kids who haven't responded to natural consequences don't need more consequences; they need adults who are knowledgeable about how challenging kids come to be challenging, who can identify the lagging skills and unsolved problems that are setting the stage for maladaptive behavior, and who know how to teach those skills and help solve those problems."</p>
<p>Teaching Strategies – Literacy / ESL</p> <p><i>Phi Delta Kappan</i> November 2007, pp. 229 - 231</p>	<p>Ness, M. (2007) Reading comprehension strategies in secondary content-area classrooms.</p> <p>The research set out to answer two questions: (1) To what degree do teachers in Science and Social Studies classrooms on middle and high school incorporate reading comprehension strategies into their teaching? (2) Which reading strategies are most frequently used? 2,400 minutes of instruction in 8 MS and HS classrooms were observed.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • Only 3% of instructional time was devoted to reading comprehension. • Teachers mainly used only a couple of strategies: asking literal questions and having students write summaries of text. • Some teachers also used had students examine text structure. • The National Reading Panel review of research on comprehension contained 8 research-based strategies, but of these only the three listed above were used in the classrooms observed. • Three recommendations are made to remedy this situations: (1) Provide explicit PD for teachers (2) Create an inquiry-based environment where teachers critically reflect on their instructional goals and priorities and (3) Make use of literacy coaches and curriculum specialists.
<p>Teacher Quality / Instructional Supervision / Teaching Strategies</p> <p><i>Journal of Personnel Evaluation in Education</i>, Vol. 20, pp. 165 - 184</p>	<p>Stronge, J., Ward, T., Tucker, P., Hindman, J. (2007) What is the relationship between teacher quality and student achievement? An exploratory study.</p> <p>This study identified the top and bottom quartiles of teachers in terms of effectiveness in promoting student learning (while controlling for factors such as gender, previous achievement, socio-economic background etc.) and then conducted in-depth case studies of teachers within each of the two categories (most effective and least effective teachers) to see which instructional strategies were most useful in promoting student learning.</p> <p>Main Findings:</p> <p>Instruction</p> <ul style="list-style-type: none"> • Effective teachers provided more complex instruction with a greater emphasis on meaning than memorization. • Effective teachers demonstrated a broader range of instructional strategies, using a variety of materials and media to support the curriculum. <p>Assessment</p> <ul style="list-style-type: none"> • Effective teachers provided more differentiated assignments <p>Learning Environment</p> <ul style="list-style-type: none"> • Effective teachers were more organized, with efficient routines and procedures for daily tasks. • Behavioral expectations for students were higher in the classrooms of effective teachers <p>Personal Qualities</p> <ul style="list-style-type: none"> • The effective teachers showed a higher degree of respect for and fairness toward students <p>Teacher Questioning</p> <ul style="list-style-type: none"> • Effective teachers asked seven times as many higher-level questions as ineffective teachers, though the number of lower-level

	<p>questions did not vary between the two groups.</p> <p>Student Off-Task Behavior</p> <ul style="list-style-type: none"> • Effective teachers had incidences of disruptive behavior about once every two hours whereas ineffective teachers had a disruptive event approximately every 12 minutes. <p>Results can be summarized around three distinct differences: (1) Differentiation and complexity of instructional strategies; (2) questioning strategies and; (3) level of disruptive student behavior.</p>
<p>Teaching Strategies – General / ESL</p> <p><i>Journal of Curriculum Studies Vol. 39, No. 2, pp. 177 - 194</i></p>	<p>Chan, E. (2007) Student experiences of a culturally-sensitive curriculum: ethnic identity development amid conflicting stories to live by.</p> <p>This researcher describes three case studies where curriculum events intended to be culturally inclusive were not entirely successful.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • In the first case study a graduation event aimed at celebrating all cultures ended up highlighting the differences in practices, beliefs and values between norms in the home culture and those in the school culture. The result was a Muslim girl who had difficulty convincing her mother she should attend. • In the second case study, a “Family Studies Unit” was intended to focus on all the cultures in the classroom, but some students were reluctant to share aspects of their home cultures, perhaps because these were seen to be “badges of difference”. The story suggests that it may be naïve to assume that all students want their home cultures to be focused on at school. • In the third case study, a multi-cultural night was perceived by some students as really being a celebration of Chinese New Year, suggesting that well-intentioned activities may be perceived in complex ways depending on the relations of various ethnic groups within the school.
<p>Teaching Strategies / ESL</p> <p><i>Journal of Curriculum Studies Vol. 38, No. 4, pp. 413 - 429</i></p>	<p>Coffin, C. (2006) Learning the language of school history: the role of linguistics in mapping the writing demands of the secondary school curriculum.</p> <p>In this study the language demands of secondary school history assessment tasks were examined. The results of the examination were used as the basis of a 6 day professional development workshop with history teachers. A language specialist then worked with the history teachers to plan and implement work in a team teaching situation over a school term so that students were being explicitly taught (a) the generic structures necessary to write successfully in history and (b) the grammar and lexis necessary to successfully write in history. The intervention involved a teaching-learning cycle with the following phases : deconstruction phase (using model texts), joint construction phase (where teacher and students jointly constructed a text) and independent construction phase. Texts used in the deconstruction phase also served to build historical knowledge relevant to the unit.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • As students progress through the secondary years in history, the writing tasks demanded of them move from being predominantly recording genres though to explaining genres and finally more arguing genres. • Initially teachers were concerned that valuable time needed for teaching content would be lost if they focused on language as well, but by the end of the study there was increased recognition that attention to language and writing is integral to attaining the objectives of the history curriculum. • A significant shift in teacher use of language was observed, with teachers focusing much more explicitly on the language system itself. • There was a marked improvement in the organizational features of student texts as a result of the intervention. • Students who were previously only able to copy work were able by the end of the intervention to recontextualize the information in a meaningful way.

	<ul style="list-style-type: none"> • Improvement at the grammatical level was less evident, though this may have been due to the length of the intervention and / or to the fact that teachers themselves were also less confident in this area. • The involvement of a language specialist proved vital for the achievements made by students and teachers as part of the project.
<p>Teaching Methods Reading</p> <p>–</p> <p><i>Learning and Instruction</i> 16, 57 - 71</p>	<p>Souvignies, E. & Mokhesgerami, J. (2006) Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension.</p> <p>A study conducted in Germany as a result of German students' poor performance on the 2002 PISA tests. The hypothesized that optimum reading instruction needed to include strategy instruction, acquisition of knowledge and skills necessary to make choices about appropriate reading strategies for varying purposes and in varying contexts and activities which would help maximize motivation so that students would be inclined to employ the strategies learned. The study therefore included a control group, a group receiving only strategy instruction, a group receiving instruction in strategies and self-regulation of the use of strategies and a group included instruction in all the aspects, strategies, self-regulation (asking which strategy would be appropriate for what reading goal and checking whether the strategy helped achieve the goal) and motivational aspects (such as realistic goal-setting and motivationally beneficial attribution). The time was constant for all three groups, so that the group which only had strategy instruction in effect had much more time to learn and practice the strategies taught.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● Immediately after the intervention all three treatment groups outperformed the control group on measures of reading comprehension and strategy use. ● Differences between the three treatment groups were small in the immediate post-test. ● On a post-test conducted at the end of the school year in which the treatments took place (close to one year after treatment) only the group receiving the complete program (including strategies, self-regulation and motivation) outperformed the control group. ● Long term effects for this group exceeded those ascertained immediately after the program. <p>The researchers conclude that becoming a strategic reader is a long-term process. As the number of lessons was held constant for all three treatments groups, the researchers conclude that the findings are anything but trivial.</p>
<p>Teaching Strategies Language</p> <p>-</p> <p><i>Journal of Educational Psychology</i> 98, 44-62</p>	<p>Biemiller, A & Boote, C (2006) An Effective Method for Building Meaning Vocabulary in Primary Grades.</p> <p>This article covers two studies of vocabulary acquisition with students from Kindergarten to grade 2. 50% of the population of students in the classes studied were learners from non-English speaking backgrounds. The method involved the teacher reading stories to children. Conditions where words were explained were compared with a no explanation condition. Only brief word explanations were given. Conditions with two and four readings were compared where different vocabulary items were explained at each reading. In the second study a review of the words explained was added at the end of each day as well as a final review day where words were reviewed using different context from those in the story. Study 2 also contained a no intervention group. The format was pre-test / post-test.</p> <p>Main Findings:</p> <p>Pre-study</p> <ul style="list-style-type: none"> ● Students in were distracted and annoyed if word explanation interrupted the initial reading of a book but not on subsequent readings so explanations were only included in subsequent readings in the studies. <p>Study 1</p> <ul style="list-style-type: none"> ● Overall students acquired 12% of unexplained vocabulary items and 22% of explained items meaning that adding explanations resulted in a gain of 10% ● There was no significant difference between reading a book two times or reading it four times in grade one and two, but for Kindergartners the extra readings resulted in a 6% increase in vocabulary learned.

	<p>Study 2</p> <ul style="list-style-type: none"> ● With reviews added vocabulary acquisition increased to 41%. ● There was little difference in accuracy between testing words using old or new context sentences. ● Scores on a delayed post-test were higher than on the immediate post-test, indicating that perhaps the story readings had sensitized students to the vocabulary so that they could continue learning for 4 weeks after the study. ● The no intervention group gained only 6% of word meanings. <p>The authors quote statistics which suggest that by the end of Grade 2 average children have acquired 600 root word meanings, but the gap between the highest (8,000) and lowest (4,000) groups at this point is significant and most primary school classrooms do not systematically teach enough vocabulary to lower this gap, leading to a potential ‘slump’ in reading comprehension around Grade 4. At the end of the article the authors do their sums to determine whether this method would lead to a significant enough increase in vocabulary to make it worth implementing and conclude that from K-2 an additional 1,000 -1,500 word meaning could be added making the strategy worthwhile, since it would account for a meaningful proportion of the 2,000 root word difference between the lowest quartile and the average student at the end or Grade 2.</p>
<p>Teaching Strategies – General</p> <p><i>Learning and Instruction 15, 539 - 556</i></p>	<p>Seidel, T., Rimmel, R. & Prenzel, M. (2005) Clarity and coherence of lesson goals as a scaffold for student learning.</p> <p>These researchers looked for correlations between clarity and coherence of lesson goals and (1) students’ perception of the supportiveness of the learning conditions (2) students’ learning motivation (3) types of cognitive learning activities (4) the development of student competence in physics over a one year period and (5) the development of students’ interest in physics.</p> <p>Clarity and coherence of lesson goals was measured by analyzing videos of lessons and rating the criteria on a Likert scale using specific indicators for both criteria. Student competence was measured using a pre-test / post-test format and the other variables were assessed using self-reporting measures by students.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> ● A strong correlation was found between clarity and coherence of lesson goals and all of the other variables except for student interest in physics. ● In terms of types of cognitive learning activities, the correlation between clarity and coherence and ‘organizing activities’ (information reduction by integrating ideas and selection of main ideas) was high, but no significant correlation was found with what the authors call basic elaborations (activities to process and understand information) and deep elaborations (activities to further embed information into existing knowledge structures).
<p>Leadership / Teaching Strategies (General)</p> <p><i>The Sydney Morning Herald September 10, 2007</i></p>	<p>Gittins, Ross. It takes more than money to make the world go round.</p> <p>This article summarizes work done by Professor Bruno Frey at the University of Zurich on motivation.</p> <p>Main Arguments:</p> <ul style="list-style-type: none"> ● In situations where intrinsic motivation is important, introducing extrinsic rewards can ‘crowd out’ that intrinsic motivation. ● Three processes account for the way this ‘crowding out’ takes place: <ol style="list-style-type: none"> 1. when individuals perceive the external intervention to be controlling, in the sense that it reduces the extent to which they can determine their own actions, then the extrinsic reward substitutes for intrinsic motivation 2. if outside intervention implies that the person’s own intrinsic motivation is not acknowledged, the person can feel their competence is not appreciated, their self-esteem can be impaired and their intrinsic motivation can be undermined. 3. if an intrinsically motivated person is deprived of the chance to exhibit their motivation to others it can be undermined. ● The effect is not always negative. External intervention can increase intrinsic motivation if the person involved perceives it to be supportive as this can foster self-esteem and self-determination.

	<ul style="list-style-type: none"> ● The undermining effect will exceed the supportive effect the more that the rewards are expected, the more conspicuous the reward is, the more conditional the reward is on performance, the more deadlines and threats are used, the more intensive the surveillance is and the more routine the work is that is being rewarded. ● The more highly motivated a person was before the reward was offered, the more the intrinsic motivation is likely to be undermined. ● Monetary rewards are more undermining than other material rewards. ● Praise and social approval tend to be perceived as more supportive and less controlling. ● When intrinsic motivation is undermined the person is likely to substitute quantity for quality, is likely to learn less about complex tasks and is likely to be less creative. ● A 'motivational transfer effect' exists, where the undermining of intrinsic motivation can spread to other areas of a person's involvement.
<p>Teaching Strategies / Educational Change / Assessment</p>	<p>Hayes, D., Mills, M., Christie, P. and Lingard, B. (2006) <i>Teachers and Schooling Making a Difference: Productive pedagogies, assessment and performance</i>. Crows Nest : Allen & Unwin</p> <p>This is a book written using the results of the Queensland School Reform Longitudinal Study (2001), which launched the New Basic program in Queensland. The study began by observing classrooms attempting to determine the pedagogical and assessment practices which correlated with student achievement, then moved on to attempt to determine the school structural characteristics which supported those pedagogies. They distilled 20 elements of what they termed productive pedagogy and grouped them into four dimensions. Some of the major findings as reported in the book are:</p> <ul style="list-style-type: none"> ● Pedagogy and assessment do make a difference to student achievement, especially for disadvantages students ● The intellectual quality of classroom activities correlated strongly with student academic achievement ● Supportive classroom pedagogies also correlated strongly with student academic achievement ● Connectedness to the world correlated with students academic achievement but not as strongly as intellectual quality or supportive classroom pedagogies ● There was no correlation between valuing difference and academic achievement but this did correlate with significant positive social outcomes. ● A crowded curriculum reduces the latitude for teaching for depth of understanding ● What the study termed as productive pedagogies, assessments and performances were not widely found to be in practice in classrooms ● There was a widespread absence in classrooms of expectations for students to understand other cultural knowledges. ● There was a large disconnect between what teachers reported as their goals for their students' education on surveys and the practices that took place in their classrooms both in pedagogy and assessment ● Students who received intellectually challenging tasks mediated by supportive classroom pedagogies are more likely to remain engaged in learning ● The structural aspects which supported productive pedagogy and assessment were: valuing of teachers and their knowledge and ongoing learning, dispersed leadership across the school, a culture of linking teachers' ongoing learning to the enhancement of student learning, a culture or professional dialog and pedagogically focused leadership. <p>The four dimensions and 20 elements of productive pedagogy were:</p> <p><u>Intellectual Quality</u> - problematic knowledge, higher-order thinking, depth of student understanding, substantive conversation, metalanguage</p> <p><u>Connectedness</u> – connectedness to the world beyond the classroom, knowledge integration, background knowledge, problem-based curriculum</p>

	<p>Supportive Classroom Environment – student direction, explicit quality performance criteria, social support, academic engagement, student self-regulation</p> <p>Working with and Valuing Difference – cultural knowledges, active citizenship, narrative, group identities in learning communities, representation</p>
<p>Teaching Methods - Language</p> <p><i>Curriculum Perspectives</i> 26, 34 - 43</p>	<p>Berry, R. (2006) Activating learners using the learner autonomy approach: An action research on the relevance of teaching to classroom practice.</p> <p>A Hong Kong case study comparing curricula written and implemented by student teachers. They are compared in terms of the success of implementation of 'The Learner Autonomy approach'. Two useful taxonomies are given:</p> <ol style="list-style-type: none"> 1. Student readiness for autonomous learning depends on both psychological readiness and capability readiness. 2. Teachers who want students to be autonomous need to play the following roles: informants, providers and facilitators.
<p>Teaching strategies / Brain research</p> <p><i>Scientific American Mind</i> 18.4. p. 11</p>	<p>Sachan, D. (2007) Behave Yourself! Kids who can control their impulses do better in school.</p> <p>A study by Pennsylvania State University researchers of 3 – 5 year olds.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • The ability to self-regulate (defined as the ability to pay attention to a task and inhibit impulsive behavior) was the best predictor of performance in math and reading in kindergarten, despite that fact that most people believe that intelligence plays the key role. • The researchers recommend that curricula should provide children with regular activities to decrease impulsiveness and instant gratification and promote attention and awareness of one's own and others' thoughts and feelings. Recommendations include activities that involve taking turns, paying attention for sustained periods and giving incentives for thoughtful responses.
<p>Teaching Strategies</p> <p><i>Innovations-report</i> 01 August, 2007</p>	<p>Devitt, J. (2007) Phonics, Whole-Word, and Whole-Language Processes Add Up to Determine Reading Speed.</p> <p>A study done at New York University using 11 adult readers. A text was manipulated in ways that attempted to knock out the effects of each of three reading processes (whole word recognition, phonics and whole -language processes) on reading speed.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • Letter by letter decoding accounted for 62 percent of reading speed, whole-language processes accounted for 22 percent and holistic word recognition accounted for 16 percent. • The results showed that the three processes are additive, meaning that the contribution of each process to reading speed is the same whether the other processes are functioning or not and none are redundant. The processes appear to be not working on the same words.
<p>Leadership / Curriculum Development / Curriculum Implementation / Teaching Strategies (General)</p> <p><i>Submitted to Education Queensland</i> by</p>	<p>Queensland School Reform Longitudinal Study (2001)</p> <p>This study investigated 975 classrooms in 24 schools in Queensland, Australia. The study mapped backwards from student outcomes to pedagogy and assessment to school organizational capacity and leadership to determine what factors had a positive impact on student learning. The vision for student performance was largely based on the criteria developed by Newmann and Associates in their work on Authentic Achievement. The categories developed by Newmann were extended and refined. Two of these revisions are of particular interest. One was to include descriptions of social learning as well as academic learning. The other was to extend the idea of connection to the real world to a much broader vision of connectedness including to the world beyond school to other subject areas, to students' background knowledge etc.</p> <p>Main Findings:</p> <ul style="list-style-type: none"> • A majority of teachers rate basic skills of numeracy and literacy as being their primary goal and social skills as being their second most important goal. The study found an overemphasis on the 'basics' to be counterproductive. Without a greater focus on more complex learning goals, these will never be achieved.

<p><i>the School of Education, University of Queensland</i></p>	<ul style="list-style-type: none"> • General levels of ‘productive pedagogy’ and hence ‘productive performance’ as defined by the study were low in schools. • Teachers tended not to see assessment as an integral part of good practice • Teachers tended to harbor a number of misbeliefs including that behavior management must be taken care of prior to considerations of classroom practice and that the achievement of academic and social goals required some kind of ‘trade off’ • Leadership in schools tended not to focus on learning • There was no strong emphasis in classrooms on intellectual quality or connectedness, though social support for learning in schools was generally rated highly. • Many assessment tasks set by teachers do not require the application of complex skills or higher order thinking. • The study developed a model of school leadership (which they called productive leadership) with 9 dimensions based on analysis of the 24 schools. This model was able to account for 96.2% of the variance between schools. The dimensions were: <ol style="list-style-type: none"> 1. A focus on pedagogy - from strong to weak 2. A focus on structures and strategies – (to facilitate the smooth running of the school) - from high to low 3. A focus on a culture of care (in particular emotional support for teachers and support for teacher risk-taking) – from high to low. 4. A focus on supporting professional development and learning community – from strong to weak. 5. Nature of change commitment - from focused and thick (where fewer changes are implemented in a more considered way) to widespread and thin. 6. Hot / Cold knowledge as a basis for change; pedagogy - from hot knowledge of pedagogy which is grounded in practice) to cold (disconnected from practice) 7. Hot / Cold knowledge as a basis for change; political – from hot (knowledge of the political scene including the local community and society more broadly) to cold (disconnected from political contexts) 8. Commitment to dispersal of leadership – from strong to weak 9. Relationships amongst school community (teachers, students, parents, administrators and others) – from involved to aloof. • Schools tended to form three clusters when analysed for leadership - low leadership (on all dimensions), incoherent leadership (having a managerial focus, without the corresponding concern for pedagogy and professional development) and coherent leadership (with a strong focus on structures and a focus on pedagogy and commitment to change). • No correlation was found between the construct of productive leadership and student productive performance. The researchers speculate that since the relationship of leadership to learning is indirect, perhaps their measures were not sensitive enough to capture it. • A number of individual dimensions of the model were related to student performance, however. They were as follows: <ol style="list-style-type: none"> 1. Highly structured leadership was correlated with low recognition of difference and low levels of citizenship as exhibited in student performance. 2. A high culture of care was correlated with higher levels of transformative citizenship. • The following correlations could be seen between individual dimensions of leadership and productive assessment in classrooms: <ol style="list-style-type: none"> 1. Culture of care is related positively with integration of knowledge (connectedness) and an audience beyond the school. 2. Dispersal of leadership is related to a decrease in the integration of students’ background knowledge into tasks and less consideration of alternatives built into task design. The researchers find this puzzling, but something which needs to be considered and further investigated. They say it is possible that an increase of dispersal of leadership focused on managerial aspects may lead to increased burdens on teachers which may then negatively impact on assessment practices.
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