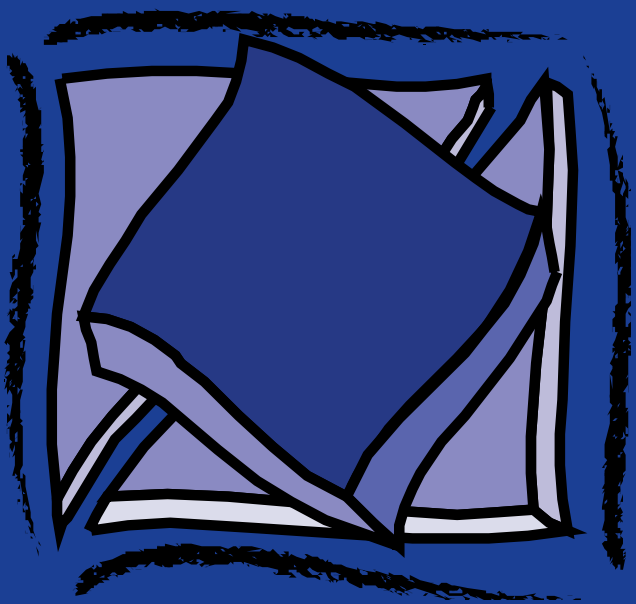
Quality teaching in NSW public schools

An annotated bibliography



NEW SOUTH WALES
DEPARTMENT
OF EDUCATION
AND TRAINING

Professional Support and Curriculum Directorate
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Quality teaching in NSW public schools
An annotated bibliography

Department of Education and Training
Professional Support and Curriculum Directorate
SYDNEY NSW

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Quality teaching in NSW public schools: Starting the discussion

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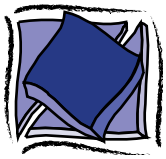


Introduction

This annotated bibliography presents research literature relevant to the model of pedagogy presented in *Quality teaching in New South Wales public schools: Discussion paper* (NSW Department of Education and Training, 2003). The model is based on empirical and theoretical research that has shown how teaching and school improvement can promote improved student academic learning outcomes. Building on the growing documentation of best practice in NSW and the most reliable national and international research, the dimensions of this model of pedagogy can be applied across all years of schooling, from Kindergarten to Year 12, and across all key learning areas in NSW.

This bibliography summarises the research that:

- explains why a central focus must be placed on the quality of pedagogy
- supports the dimensions and elements of the NSW model of pedagogy as they have been successfully applied in a range of school contexts and shown to lead to improved student learning.

While much of this research comes from the United States, research conducted in the Australian context also supports the NSW model of pedagogy.

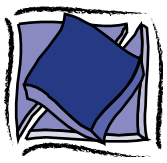
The annotated bibliography has not attempted to provide a comprehensive listing of all research literature in this area. Rather its purpose is to highlight the key studies that can be consulted in order to understand the rationale behind the development of the NSW model of pedagogy, and to develop further teachers' understanding of the model for implementation purposes. All research cited in this annotated bibliography is readily accessible through normal library sources and, where possible, via the Web.

Why focus on the quality of pedagogy?

For many teachers, for a very long time, it has been common sense to say that what matters most in students' learning occurs within classrooms (or whatever the learning setting happens to be). Educational research has finally caught up with teachers in recognising the importance of teaching.

Australian educational researchers working within the effective schools tradition have now established clearly that teaching is a prime factor in promoting improvements in student outcomes (Hill and Rowe, 1998). The strength of this general idea cannot be overstated. It is also true even when considering the vexed dilemmas of understanding differences in achievements between boys and girls (Rowe and Rowe, 2002).

There are at least two significant qualifications that have to be acknowledged here, and have received significant attention from some of Australia's foremost educational researchers. First, pedagogy does not occur in isolation from the rest of school life. In particular, we know that the nature of the curriculum with which teachers work has a serious impact on just what kind of outcomes students obtain (Teese, 2000; Teese and Polesel, 2003). Another serious question, only recently raised in Australian educational research, relates to the organisational practices schools employ to group students (Lamb and Fullarton, 2002). While the impact of curriculum and school organisational practices on student learning must be recognised, their impact is realised through the ways in which they differentiate and stratify learning opportunities for students. That is, the impact of curriculum and school organisational practices occurs through teaching and assessment practices, that is, through pedagogy.



Clearly there is a need for further research in the Australian context to unpack the effects of curriculum differentiation. However, like similar research in the United States context, these early investigations clearly show that one of the main things schools differentiate in the context of differential curriculum is the quality of pedagogy. Thus, whatever new studies of Australian curriculum do eventually conclude, the importance of delivering high quality teaching for all students will assuredly remain a central challenge for schools.

The second qualification is that it is incredibly difficult to determine just which kinds of pedagogy actually do promote improvements in student learning outcomes, given the complexity of studying these phenomena. The history of research into teaching is full of studies that have either failed to achieve this goal or only met with very modest success (see Gage, 1978). That history has been changing, and recent developments in educational research have led to some serious insights into the fundamental educational question of what makes effective pedagogy. The model of pedagogy presented in the *Quality teaching in New South Wales public schools: Discussion paper* is built from these recent developments.

So, why focus on pedagogy? Simple: the answer is because it matters most when it comes to improving student outcomes, and because we now have a good idea of just what kind of pedagogy works.

Gage, N.L. (1978) *The scientific basis of the art of teaching*. Teachers College Press, New York.

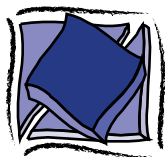
Hill, P.W. & Rowe, K.J. (1998) Modeling student progress in studies of educational effectiveness. *School Effectiveness and School Improvement,* 9(3), pp. 310–333.

Lamb, S. & Fullarton, S. (2002) Classroom and school factors affecting mathematics achievement: A comparative study of Australia and the United States using TIMMS. *Australian Journal of Education,* 46(2), pp. 154–171.

Rowe, K.J. & Rowe, K.S. (2002) *What matters most: Evidence-based findings of the key factors affecting the educational experiences and outcomes for girls and boys throughout their primary and secondary schooling*. ACER, Melbourne. (available through http://www.acer.edu.au)

Teese, R. (2000) *Academic success and social power*. Melbourne University Press, Carlton North.

Teese, R. & Polesel, J. (2003) *Undemocratic schooling*. Melbourne University Press, Carlton North.



The NSW model of pedagogy

Dimensions and elements

The model of pedagogy presented in the *Quality teaching in New South Wales public schools: Discussion paper* has three dimensions that represent classroom practices that have been linked to improved student outcomes. These three dimensions are:

1. Pedagogy that promotes high levels of **intellectual quality**.

> **Intellectual quality** refers to pedagogy focused on producing deep understanding of important, substantive concepts, skills and ideas. Such pedagogy treats knowledge as something that requires active construction and requires students to engage in higher-order thinking and to communicate substantively about what they are learning.

2. Pedagogy that establishes a high **quality learning environment**.

> **Quality learning environment** refers to pedagogy that creates classrooms where students and teachers work productively in an environment clearly focused on learning. Such pedagogy sets high and explicit expectations and develops positive relationships between teachers and students and among students.

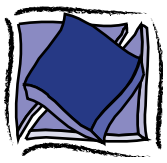
3. Pedagogy that generates **significance** by connecting students with the intellectual demands of their work.

> **Significance** refers to pedagogy that helps make learning more meaningful and important to students. Such pedagogy draws clear connections with students' prior knowledge and identities, with contexts outside of the classroom, and with multiple ways of knowing or cultural perspectives.

Each of the three dimensions of the NSW model of pedagogy is comprised of a number of elements. These elements are presented in Table 1.

	Intellectual quality	Quality learning environment	Significance
Elements	Deep knowledge	Explicit quality criteria	Background knowledge
	Deep understanding	Engagement	Cultural knowledge
	Problematic knowledge	High expectations	Knowledge integration
	Higher-order thinking	Social support	Inclusivity
	Metalanguage	Students' self-regulation	Connectedness
	Substantive communication	Student direction	Narrative

Table 1: The dimensions and elements of the NSW model of pedagogy



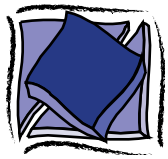
The three dimensions of the model represent a synthesis of a solid and reliable research base that empirically links these general qualities of pedagogy to improved student learning. The clusters of elements for each dimension also have a solid empirical or theoretical base, although some elements are more solidly grounded in empirical studies than others. This is largely due to the fact that historically it has been difficult to link very specific teaching techniques to improvements in student learning outcomes (cf., e.g. Gage 1978).

One of the strengths of the model is that it synthesises general characteristics of pedagogy, thus making it applicable across subjects, key learning areas and years of schooling. In so doing, it offers a coherent vision of quality teaching necessary for developing a shared vision of pedagogy on a school-wide basis.

Structure of this document

This annotated bibliography is organised around the three dimensions of the model and summarises the research literature relevant to each dimension and its cluster of elements. Given the integrated nature of most elements under **intellectual quality** in the research literature, the format used to present the research for this dimension differs from that used for **quality learning environment** and **significance**.

That is, where each of the elements in **quality learning environment** and **significance** primarily has its own unique research background, many of the elements in the **intellectual quality** dimension have been synthesised into a unified construct, "Authentic Pedagogy", in the work of Fred Newmann and his colleagues (see Newmann and Associates, 1996). Thus, when discussing these elements of **intellectual quality**, the research on Authentic Pedagogy is presented in its own right.



The dimension of intellectual quality

Introduction

The **intellectual quality** dimension builds directly from research into Authentic Pedagogy, but has been elaborated further to include elements not originally part of the Authentic Pedagogy model. Like the NSW model of pedagogy, Authentic Pedagogy incorporated a focus on both classroom practices and assessment tasks. The original Authentic Pedagogy model included higher-order thinking, deep knowledge, deep understanding, substantive communication (known as "elaborated written communication" in tasks), plus connectedness to the world.

Later work in Australia, conducted by the Queensland School Reform Longitudinal Study (2001) under the co-direction of James Ladwig of The University of Newcastle and Bob Lingard of The University of Queensland, expanded the Authentic Pedagogy model substantially and found that:

- metalanguage and problematic knowledge were also indicators of intellectual quality
- connectedness to the world was better understood as an indicator of a separate dimension of pedagogy.

Thus, the **intellectual quality** dimension in the NSW model is comprised of: deep knowledge, deep understanding, problematic knowledge, higher-order thinking, metalanguage and substantive communication. The following outline of research related to **intellectual quality** first presents research on the Authentic Pedagogy model, and follows with a brief discussion of the two new elements of metalanguage and problematic knowledge.

Queensland School Reform Longitudinal Study (2001) *The Queensland school reform longitudinal study final report (QSRLS)*. Education Queensland, Brisbane.

Precursor to Authentic Pedagogy

In a preliminary study of secondary schools across the US, Fred Newmann and colleagues (1991) investigated the teaching of **higher-order thinking** in social studies, and found that students who received lessons high in "classroom thoughtfulness" did better on an assessment requiring critical thinking and persuasive writing. This study was foundational to Newmann's subsequent work on authentic achievement and pedagogy.

Newmann, F.M. (1991) Classroom thoughtfulness and students' higher order thinking: Common indicators and diverse social studies courses. *Theory and Research in Social Education*, 19(4), pp. 409–431.

Authentic Pedagogy and the Center on Organization and Restructuring of Schools (CORS) school restructuring study

The Center on Organization and Restructuring of Schools (CORS) at the University of Wisconsin-Madison, conducted its studies from 1991–1995. In these works, Newmann and colleagues present their vision for authentic intellectual work and report on their research in 24 restructuring schools in the US. Each school was studied intensively for one year, and teachers in mathematics and social studies were observed and submitted important assessment tasks along with students' work. Lessons, tasks and student work were coded on such dimensions as **higher-order thinking**, **depth of understanding**, substantive conversation and elaborated written communication (In the Authentic Pedagogy model, "substantive conversation" is the classroom observational indicator linked to "elaborated written communication" in students' work; whereas in the NSW model, both are joined under the label **substantive communication**.)

They found that across elementary, middle and senior high schools, authentic pedagogy was strongly associated with students' authentic academic performance. That is, when teachers provided instruction and assessments that emphasised intellectual quality, students did better on classroom-based assessments. These results are shown in Figure 1.

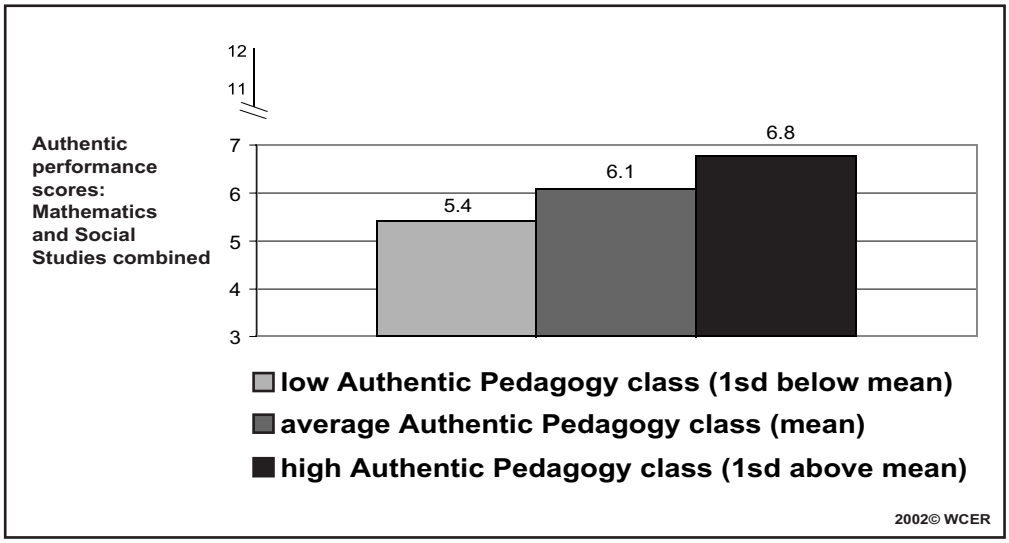


Figure 1: Mathematics and Social Studies authentic student performance in classes with low, average and high levels of Authentic Pedagogy in 24 restructuring elementary, middle and high schools

The research also found that authentic pedagogy can be equitably distributed among students of diverse social backgrounds and that comparable gains were made by students from different social backgrounds. That is, after students' prior achievement levels were taken into account, neither race, ethnicity, sex nor socioeconomic status affected the impact of authentic pedagogy on authentic student achievement.

Newmann, F.M., Marks, H.M. & Gamoran, A. (1996) Authentic pedagogy and student performance. *American Journal of Education,* 104 (August), pp. 280–312.

Newmann, F.M. & Associates. (1996) *Authentic achievement: Restructuring schools for intellectual quality*. Jossey-Bass, San Francisco.

Authentic Pedagogy and the National Educational Longitudinal Survey (NELS)

In these studies by Lee and colleagues (1995; 1997), also conducted by CORS, researchers used data from the US National Educational Longitudinal Survey (NELS), and followed a representative sample of over 10 000 students from Year 8 through to Year 12 in about 800 high schools from 1988–1992. These studies examined factors that influenced gains in student learning on conventional achievement tests over four years. Students in schools with higher levels of authentic instruction, as reported in student, teacher and principal surveys, had higher achievement gains in mathematics and science.

These studies also provide very encouraging findings on educational equity. The NELS analyses show that authentic pedagogy can reduce the inequalities in mathematics and science achievement between students of high and low socioeconomic status, as shown in Figures 2a and 2b.

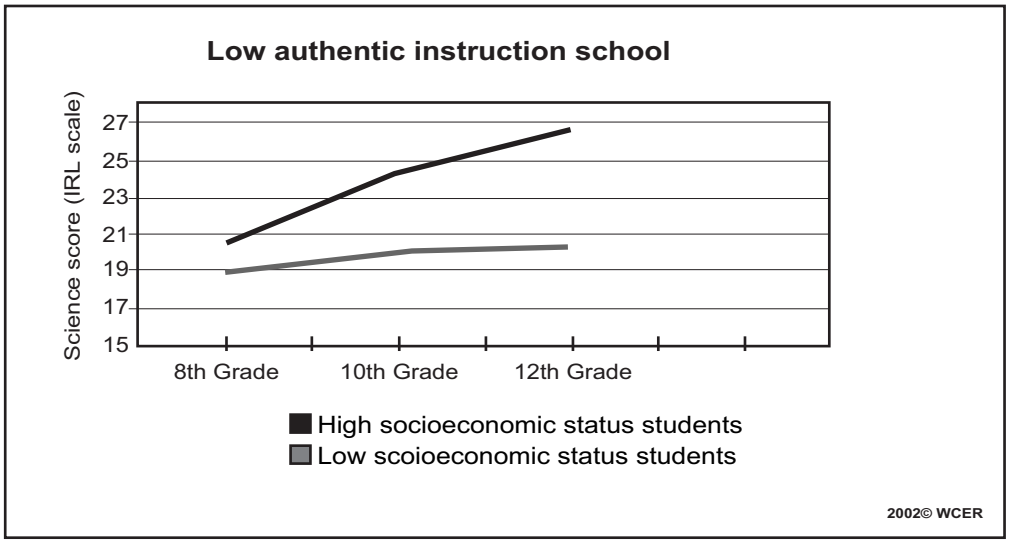


Figure 2a: High school authentic instruction and conventional achievement for low and high socioeconomic students

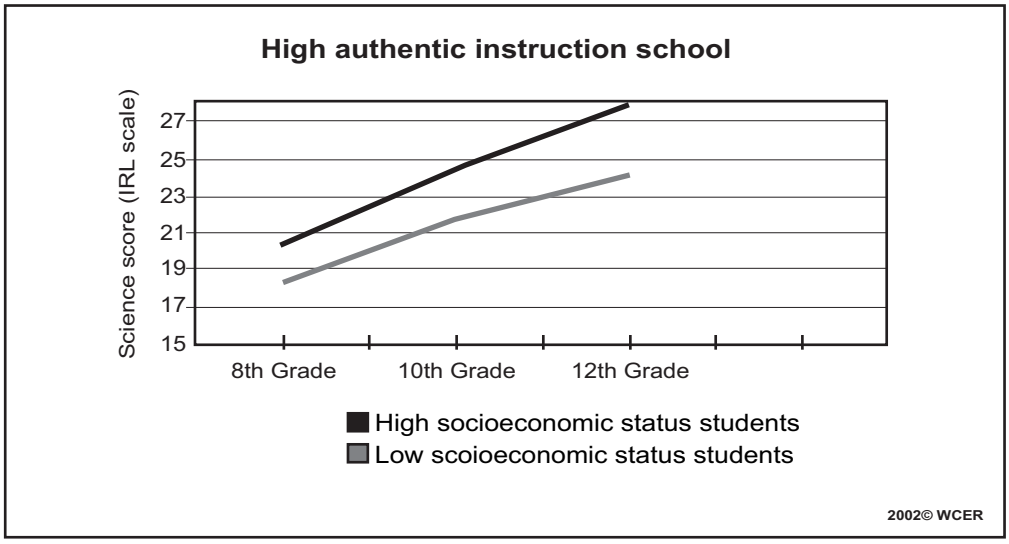


Figure 2b: High school authentic instruction and conventional achievement for low and high socioeconomic students

Lee, V.E., Smith, J. & Croninger, R. (1995) Another look at high school restructuring. *Issues in Restructuring Schools, No. 9*. Center on Organization and Restructuring of Schools, Wisconsin Center for Educational Research, University of Wisconsin, Madison, WI. (http://www.wcer.wisc.edu/archives/completed/cors/Issues_in_Restructuring_Schools/)

Lee, V.E., Smith, J. & Croninger, R. (1997) How high school organization influences the equitable distribution of learning in mathematics and science. *Sociology of Education,* 70 (April), pp. 128–150.

Authentic intellectual quality in Chicago

These studies extend the work of CORS on authentic intellectual quality in an examination of reform in Chicago public schools. The Newmann, Lopez and Bryk (1998) study looked at classroom-based tasks in writing and mathematics in Years 3, 6 and 8 and student work on the tasks, coding them on dimensions of analysis (**higher-order thinking**), disciplinary content (**deep knowledge** and **deep understanding**), and elaborated written communication (**substantive communication**). Tasks and student work generally scored low on these elements. However, when teachers gave more intellectually demanding tasks, there was a strong relationship between the quality of

tasks and student work. Teachers giving tasks with higher levels of intellectual quality got higher levels of authentic work from students than teachers who assigned less challenging tasks. Findings are shown in Figure 3.

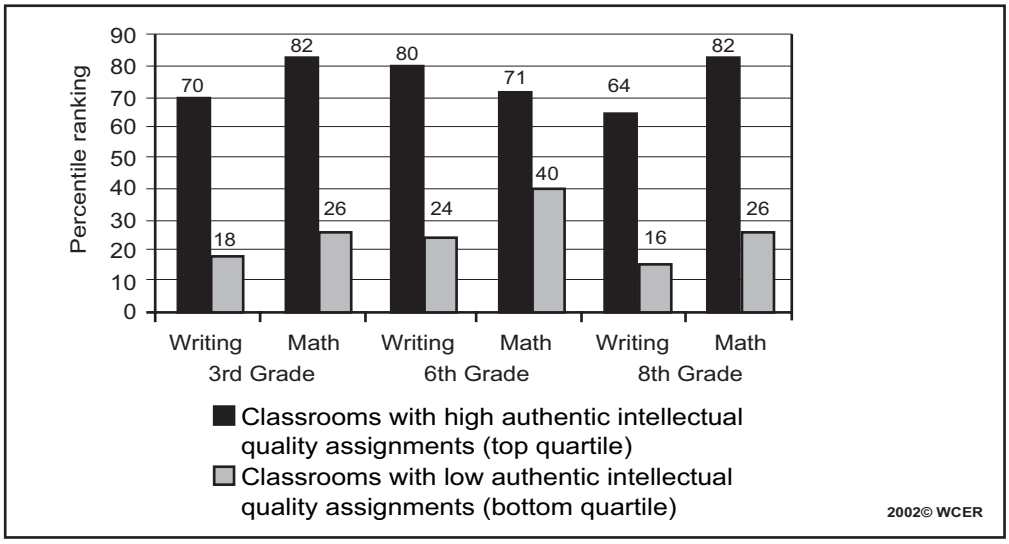


Figure 3: Writing and mathematics authentic student performance according to authentic intellectual quality of teachers' assignments in twelve Chicago schools

Newmann, Bryk and Nagaoka (2001) examined the connection between the quality of teachers' tasks and levels of student achievement on standardised tests. In both reading and mathematics, students in Years 3, 6 and 8 who received higher levels of authentic tasks did significantly better on the Iowa Test of Basic Skills (ITBS), which is comparable to the NSW Basic Skills Test (BST), than those receiving lower levels. Results are shown in Figure 4.

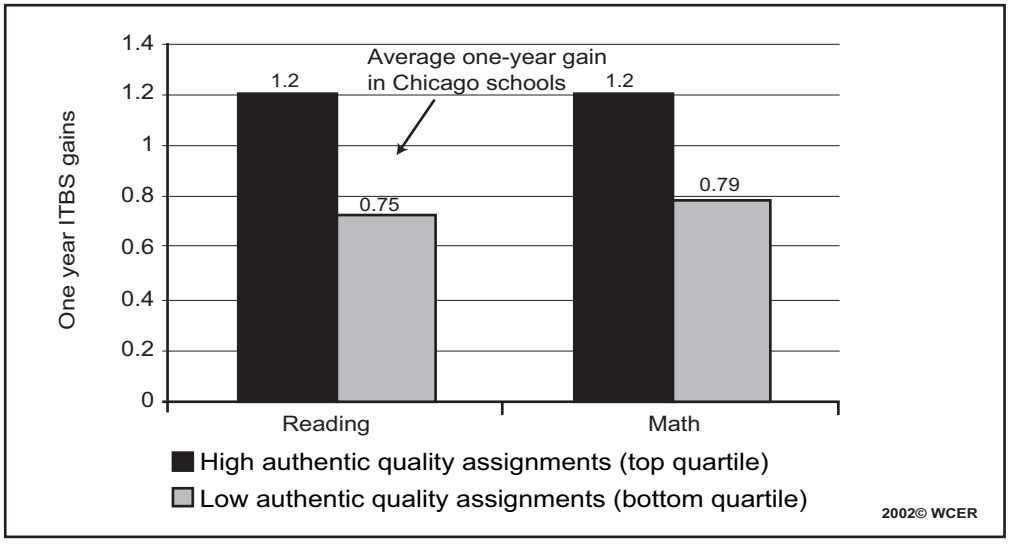
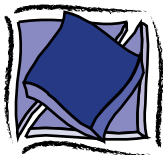


Figure 4: Elementary students' gains in reading and mathematics on the ITBS according to authentic quality of teachers' assignments in reading and mathematics in 46 Chicago schools, gain scores averaged across grades 3, 6 and 8 for 96–97, 97–98, 98–99

Smith, Lee and Newmann (2001) investigated the link between "interactive" instruction and learning in Chicago elementary schools. Interactive instruction comprised key elements of intellectual quality: **higher-order thinking**, **problematic knowledge**, **deep understanding** and extended substantive discussion and writing (**substantive communication**). Using teachers' survey reports of instructional practice and student standardised test score data, the researchers found clear and



consistent evidence that interactive teaching methods were associated with more learning in both subject areas.

Newmann, F.M., Lopez, G. & Bryk, A.S. (1998) *The quality of intellectual work in Chicago schools: A baseline report*. Consortium on Chicago School Research, Chicago.

Newmann, F.M., Bryk, A.S. & Nagaoka, J. (2001) *Authentic intellectual work and standardized tests: Conflict or coexistence*. Consortium on Chicago School Research, Chicago.

Smith, J., Lee, V.E. & Newmann, F.M. (2001) *Instruction and achievement in Chicago elementary schools*. Consortium on Chicago School Research, Chicago.

(all Consortium on Chicago School Research publications are accessible from: http://www.consortium-chicago.org/)

Authentic instruction on its own

Drawing on the CORS work, Avery (1999) measured the extent of authentic instruction (**higher-order thinking**, **deep knowledge**, **deep understanding** and **substantive communication**) provided by five teachers in twelve history classes in one high school in the US. All teachers taught the same month-long unit on immigration and gave the same assessment task that was intellectually challenging. Strong empirical evidence shows that when pedagogy entails high levels of intellectual quality, student performance is higher.

The quality of teachers' instruction had a much stronger influence on student performance than gender, ethnicity or socioeconomic status, providing more evidence that the model is salient across these social differences and is consistent with equity initiatives designed to improve all students' academic performance. The significance of Avery's study also lies in the fact that all the teachers used the same assessment task, showing the important positive effects of high levels of intellectual quality in teachers' day-to-day instruction. That is, since these teachers employed the same task, the differences between students' experience was the quality of instruction in the classroom.

Avery, P.G. (1999) Authentic instruction and assessment. *Social Education,* 65(6), pp. 368–373.

Authentic Pedagogy and special education inclusivity

These studies by King and colleagues (2001; in press) provide important evidence that students with disabilities can be successfully included in secondary classrooms that emphasise teaching and learning of high intellectual quality. Researchers coded lessons, teachers' assessment tasks and student work in mathematics, writing, science and social studies in four high schools. Indicators of intellectual quality included **higher-order thinking**, **depth of understanding**, substantive conversation and elaborated written communication (**substantive communication**).

The major findings of these studies were:

- Regular education teachers across all four schools were firmly committed to inclusion. However, there was considerable variation across the schools in the extent to which teachers espoused authentic instructional practices and held challenging expectations for both students with and without disabilities.
- Students with disabilities in the four schools had access to generally the same instructional and assessment practices as their non-disabled peers. Challenging lessons and assessments were provided to mixed groups of students that included students with disabilities. At all four schools, at least some of the teachers conducted lessons of high intellectual challenge for both students with and without disabilities. Accommodations for students with disabilities did not significantly affect levels of authenticity.
- Student performance was closely related to the extent of authenticity of lessons and teacher tasks. Importantly, students with disabilities who received higher

levels of authentic pedagogy performed as well as or better than non-disabled students who received lower levels. Figure 5 shows how well students with disabilities did on tasks coded below and above average on intellectual quality.

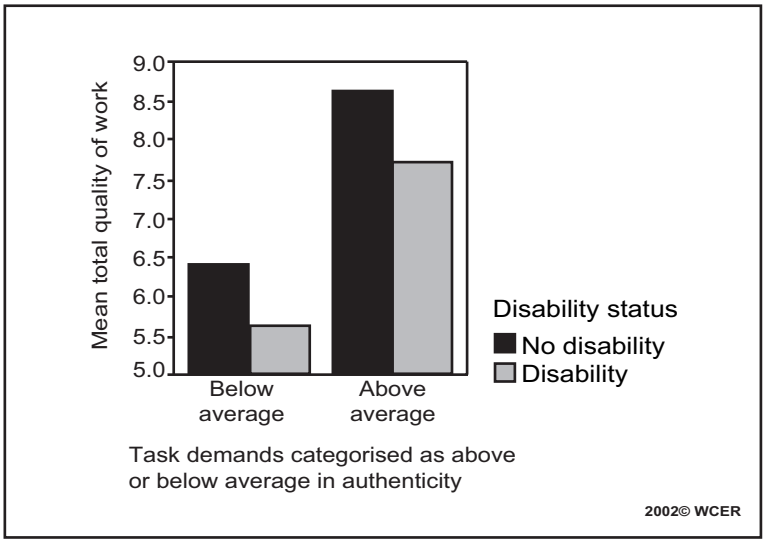


Figure 5: High school authentic performance for students with and without disability in mathematics, writing, social studies and science on teachers' assessments that were below or above average

King, M.B., Schroeder, J. & Chawszczewski, D. (2001) *Authentic assessment and student performance in inclusive schools, Brief #5*. Research Institute on Secondary Education Reform (RISER) for Youth with Disabilities, Madison, Wisconsin. (Available through http://www.wcer.wisc.edu/riser/briefs.htm)

King, M.B., Schroeder, J. & Buckley, J. (in press) Authentic pedagogy and achievement in inclusive classrooms. In Phelps, R.A., King, M.B. and Associates, *Authentic learning in inclusive high schools: Evidence-based practices that make a difference for all learners* (Chapter 3). Wisconsin Center for Educational Research, Madison, Wisconsin.

Intellectual quality and students with low prior achievement

One of the most important findings from research into the effects of **intellectual quality** has come from the study Newmann, Bryk and Nagaoka (2001) conducted in Chicago when they examined results on the Iowa Test of Basic Skills (ITBS). Newmann and his colleagues were particularly interested in re-examining what had been a preliminary finding from the CORS earlier work in relation to students who had low prior achievement, where it seemed that high intellectual quality benefited students who were either high or low achievers.

The results of this later analysis were very clear. When examining the one-year learning gains students made on ITBS scores, Newmann, Bryk and Nagaoka (2001) compared the gains of students in classrooms with high intellectual quality versus those with low intellectual quality in mathematics and writing tasks and found that both high and low achievers benefited substantially from high intellectual quality. The degree of benefit of intellectual quality did differ between mathematics and writing for these two groups of students, where in mathematics low achieving students gained more benefit than their high achieving counterparts and in writing high achieving students gained more than low achievers (see Figure 6).

However, the overall pattern was quite simple. As Newmann, Bryk and Nagaoka (2001) put it: "Taken together, these results indicate that a diverse array of students benefit from participation in a classroom with high quality intellectual assignments (tasks). Both students with high and low prior achievement levels learn more over the course of an academic year than comparable students in classrooms with low

quality assignments. In short, authentic intellectual assignments enrich instruction not only for able children, but for all students." (p. 27).

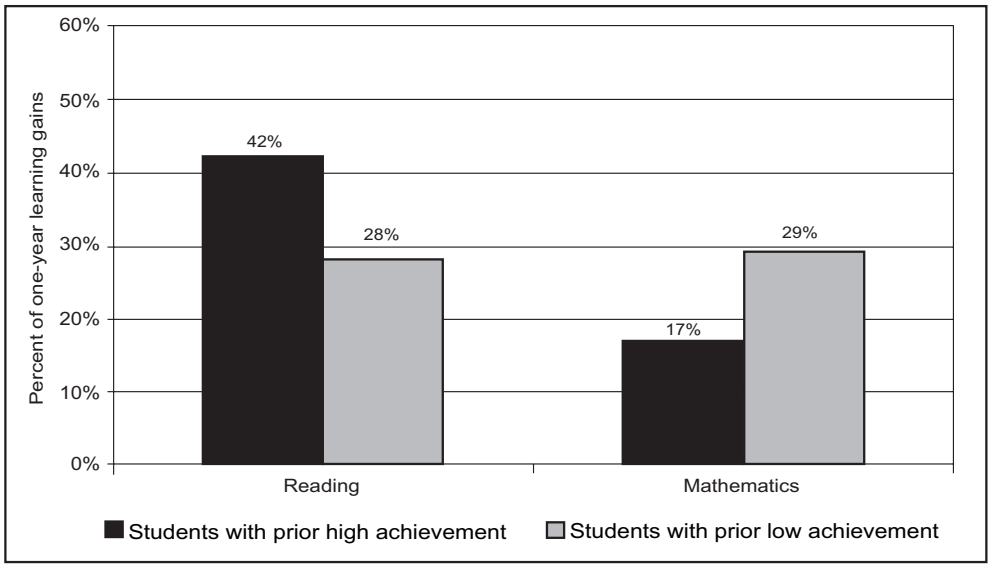


Figure 6: Students with high and low prior achievement levels: Benefit of being exposed to high quality assignments

Newmann, F.M., Bryk, A.S. & Nagaoka, J. (2001) *Authentic intellectual work and standardized tests: Conflict or coexistence*. Consortium on Chicago School Research, Chicago.

The Queensland School Reform Longitudinal Study (QSRLS) and the inclusion of problematic knowledge and metalanguage

Directed by James Ladwig of The University of Newcastle and Bob Lingard of The University of Queensland, the QSRLS developed a research construct known as "productive pedagogy" building largely on the work of Newmann and his colleagues (of which Ladwig was one). Analyses of the relationship between productive pedagogy and student outcomes remains limited, but what is available can be accessed via: http://education.qld.gov.au/public_media/reports/curriculum-framework/qsrls/

Of particular note here is the expansion of **intellectual quality** in the Authentic Pedagogy framework to include **problematic knowledge** and **metalanguage**. Both of these elements have been the focus of specific educational research, and their inclusion in the productive pedagogy framework derives from a theoretical argument about their relationship to the overall dimension of **intellectual quality**—they work as good measurement items in research terms.

The initial source of the interest in **problematic knowledge** stems from the work of Harold and Ann Berlak (1981). The focus on **metalanguage** stems from the work of Australian educational socio-linguists (Baker and Freebody, 1989; Christie, 1990; Freebody, Ludwig and Gunn, 1995).

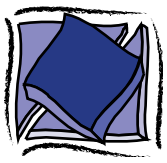
Baker, C.D. & Freebody, P. (1989) *Children's first school books*. Blackwell, Oxford.

Berlak, H. & Berlak, A. (1981) *Dilemmas of teaching*. Methuen, London.

Christie, F. (Ed.) (1990) *Literacy for a changing world*. Australian Council for Educational Research, Melbourne.

Freebody, P., Ludwig, C. & Gunn, S. (1995) *Everyday literacy practices in and out of schools in low socioeconomic urban communities*. Department of Employment, Education and Training, Canberra.

Queensland School Reform Longitudinal Study (2001) *The Queensland school reform longitudinal study final report (QSRLS)*. Education Queensland, Brisbane.



The dimension of quality learning environment

Introduction

While the nature of learning and the knowledge addressed in classrooms is crucial, it is also equally clear that students' learning is enhanced in an environment that is directly supportive of learning. The elements in the **quality learning environment** dimension are each characteristics of what you can observe in classrooms where there is a high quality learning environment. Some of these elements are techniques for building such environments, while others are observable in quality learning environments.

The research supporting these elements is quite diverse, coming from traditional questions of educational psychology (motivation), from social-linguistic studies of pedagogy, and from the history of reform in curriculum and pedagogy (practice-based ideas). In general terms, the Queensland School Reform Longitudinal Study (2001) found these elements of pedagogy to be much more regularly observed than the elements of intellectual quality in the 300 classrooms of that study. In many ways the elements of the **quality learning environment** dimension are well known to teachers, many of whom already provide high quality learning environments for their students. What the research behind the elements of the NSW dimension of **quality learning environment** provides is a body of work that can develop further teachers' thinking about some things they already do, and provide some possible new ideas of other things to try.

Explicit quality criteria

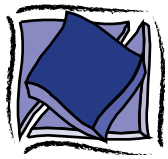
Bernstein's impressive work on the sociology of pedagogy (five volumes of *Class, Codes and Control*, 1971–1996) shows how pedagogy can serve to disadvantage students from working class backgrounds, and thus serve as mechanisms of cultural reproduction. In this work Bernstein addresses "visible" and "invisible" forms of pedagogy. In evaluating students, visible pedagogy employs clear criteria that are standardised. In invisible pedagogy, on the other hand, evaluation criteria are multiple, diffuse and not easily subject to precise measurement.

Invisible pedagogy, although a common characteristic of "progressive" forms of teaching, tends to disadvantage working class students because:

- they do not have the elaborated language codes that invisible pedagogy entails
- parents cannot provide specific educational support for their children since they do not have a clear understanding of the criteria used or expected for success.

This is one of the arguments supporting the use of **explicit quality criteria**.

In Australia in the 1990s, a strong critique of implicit pedagogy was developed by literacy educators who argued that children from socioeconomically marginal and non-mainstream backgrounds were systematically excluded by the failure of progressive education to make clear performance expectations and to, thereby, structure pedagogy towards the achievement of these outcomes (Cope and Kalantzis, 1995). Several analyses of secondary examination systems suggested that the reliance on implicit criteria and "connoisseur approaches" to evaluation (where the question of what counts as high quality performance remains hidden) systematically discriminated against working class and non-mainstream learners (Freebody, 1993). The "connoisseur" metaphor is fairly direct here. For example, a "connoisseur" of "high art" might well be able to say why some abstract art works are very high quality and some are not; but anyone not already knowledgeable about such distinctions (a



non-connoisseur) may well have no idea what makes one good and the other not-so-good. In this case, the hidden code is the code of school pedagogy.

The aim of "genre pedagogy", developed by Australian linguists, was to give children "explicit access" to how texts work, with criteria of teacher expectations and actual textual outcomes made very explicit through the provision of models—as against constructivist and discovery approaches to literacy (Halliday and Martin, 1996).

This work appeared to corroborate those findings of Gray (1990) and others who demonstrated that explicit instruction in behavioural routines and expectations improved non-urban Aboriginal children's performance at early literacy tasks. Delpit (1988) made a similar case regarding the literacy education of African American children, arguing that explicit and direct skills instruction was required for those children whose cultural backgrounds were less apt to be able to "create", "construct" or "discover" performances that might appear to be common sense or second nature to middle class, mainstream learners. This argument extends Bourdieu and Passeron's (1977) case that middle class children are "schooled before schooling" by virtue of their prior familiarity with behavioural and discourse expectations (Heath, 1983). Finally, in an extensive study of the home–school literacy practices and discourses of lower socioeconomic and migrant children, Freebody, Ludwig and Gunn (1995) argued that the lack of explicitness by teachers about their expectations of student performance was a systematic hindrance to improved literacy outcomes.

We should note that the element of **explicit quality criteria** can present something of a paradox for curriculum areas where students are asked to engage in activities which have an implicit or an undefined set of quality criteria at the start of an activity. For example, teaching strategies in the creative arts include activities which are based on giving students the opportunity to demonstrate quality in a number of different ways in order to not limit their creativity. Here the paradox essentially is that the pedagogy explicitly rejects imposing explicit criteria. Even in this paradoxical context, however, it is possible to analyse the degree to which a lack of imposed criteria is explicit to students.

Bernstein, B. (1997) Class and pedagogies: Visible and invisible. In Halsey, A.H., Lauder, H., Brown, P. & Wells, A.S. (Eds.) *Education: Culture, economy and society.* Oxford University Press, Oxford, pp. 59–79.

Bourdieu, P. & Passeron, J-P. (1977) *Reproduction in education, society and culture*. Richard Nice, trans. Sage, Beverly Hills.

Cope, B. & Kalantzis, M. (Eds.) (1995) *The power of literacy*. Falmer Press, London.

Delpit, L. (1988) The silenced dialogue: Power and pedagogy in educating other peoples' children. *Harvard Educational Review* 58, pp. 280–298.

Freebody, P. (1993) Social class and literacy. In Luke, A. & Gilbert, P. (Eds.) *Literacy in contexts*. Allen & Unwin, Sydney, pp. 68–84.

Freebody, P., Ludwig, C. & Gunn, S. (1995) *Everyday literacy practices in and out of schools in low socioeconomic urban communities*. Department of Employment, Education and Training, Canberra.

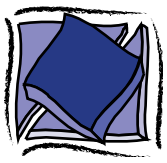
Gray, B. (1990) Natural language learning in Aboriginal classrooms: Reflections on teaching and learning style for empowerment in English. In Walton, C. and Eggington, W. (Eds.) *Language: Maintenance, power and education in Australian Aboriginal contexts.* NTU Press, Darwin.

Halliday, M.A.K. & Martin, J.R. (1996) *Writing science*. Taylor & Francis, London.

Heath, S.B. (1983) *Ways with words*. Cambridge University Press, Cambridge.

Engagement and social support

The interconnections between supportive classrooms and student **engagement** have long been recognised. In the context of contributing to the **quality learning environment** dimension, it should be noted that these classroom characteristics



are fundamental to student achievement. The studies discussed here are those that report the research on which Authentic Pedagogy built its focus on support and engagement (Newmann, 1989; Newmann, 1992), and later demonstrated the link between support and student achievement in the CORS School Restructuring Study (Marks, Doane and Secada, 1996).

According to Newmann (1992), engaged students make a "psychological investment in learning. They try hard to learn what school offers. They take pride not simply in earning the formal indicators of success (grades), but in understanding the material and incorporating or internalising it in their lives" (pp. 2–3). According to this definition, an engaged student is one who is motivated to learn; that is, motivated from a desire for competence and understanding or simply from a love of learning, rather than a desire for a good grade, a teacher's approval or acceptance into university.

In the classroom, one of the main means of encouraging student **engagement** is building **social support**. Based on the CORS study of restructuring in 24 schools in the US, Marks and colleagues (1996) show that teachers and schools that aim toward high levels of intellectual quality need to offer learning environments that communicate high expectations to students and offer consistent help to students to meet those expectations. Key aspects of **social support** for student achievement at a general, cultural level included:

- teachers listened to students
- students made friends with peers from diverse backgrounds
- students were not put down by other students
- students were treated fairly by their peers and by adults.

At the classroom level, support included:

- students worked cooperatively on intellectually challenging tasks
- teachers were relentless in their demands for students' best efforts
- teachers were actively attentive to individual students
- teachers and students shared responsibility for all students' learning.

Newmann, F.M. (1989) Student engagement and high school reform. *Educational Leadership*, 46(5), pp. 34–36.

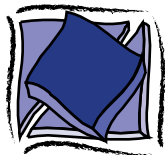
Newmann, F.M. (Ed.) (1992) *Student engagement and achievement in American secondary schools*. Teachers College Press, New York.

Marks, H.M., Doane, K.B. & Secada, W.G. (1996) Support for student achievement. In Newmann, F.M and Associates (Eds.) *Authentic achievement: Restructuring schools for intellectual quality*. Jossey-Bass, San Francisco, pp. 209–227.

High expectations

The **high expectations** element of the NSW model was developed to explicitly name what was assumed in many of the instruments of prior research. For example, the notion of a supportive classroom environment in both the Authentic Pedagogy and productive pedagogy research presumed that high expectations were a baseline characteristic of support. Since the NSW model of pedagogy was developed for professional development purposes, and since there is a vast amount of research documenting its importance, **high expectations** has been named explicitly as an element of **quality learning environment** in its own right.

While much research has documented both the negative effects of low expectations and the benefits of high expectations, the general value of **high expectations** is unquestioned. The difficulty for teachers is that applying high expectations is quite



complex. On the one hand, the first step in developing high expectations is to avoid behaviours that convey low expectations. On the other hand, on the positive side of the issue, there is a need to not interpret high expectations in a static way. Rather, high expectations need to be flexible and continually a matter for professional judgement (when to set what expectation for whom).

Brophy (1998) and Good and Brophy (2003) provide excellent discussions of all of these issues. These two references can be regarded as foundational texts as they give both the research background and guidance to teachers on how to think about and convey high expectations in their pedagogy. Creemers (1994) is an example of how this question interrelates with the effective schools tradition often noted in Australian policy.

It is important to note here that in addition to a general concern about the negative effects of low expectations (which tend to feed into a negative, downward spiralling cycle in relation to student behaviour), the issue of **high expectations** is of particular importance when determining which students get what pedagogy. What may be an educationally sound rationale for a differentiation of expectations (and of pedagogy and curriculum) has all too often translated into low expectations for precisely those students who benefit most from high expectations (students who don't traditionally do well in school). There are many ways in which this issue has sociological implications—where many social differences and inequities can be linked to the differentiation of pedagogy and curriculum. Thus, one of the first points to audit in relation to the question of expectations is determining which students get which expectations, and to check that differentiation is based solely on educational grounds and is not inadvertently contributing to unintended discriminatory practices. Oakes, Gamoran and Page (1992) offer an overview of these sociological issues in relation to the larger question of curriculum differentiation.

Brophy, J. (1998) *Motivating students to learn*. McGraw-Hill, Boston.

Creemers, B.P.M. (1994) Effective instruction: An empirical basis for a theory of educational effectiveness. In Reynolds, D. et al (Eds.) *Advances in school effectiveness, research and practice*. Pergamon, Oxford, pp. 189–205.

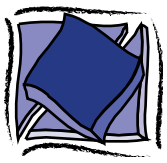
Good T.L. & Brophy, J.E. (2003) *Looking in classrooms, 9th edition.* Pearson Education, Sydney.

Oakes, J., Gamoran, A., & Page, R.N. (1992) Curriculum differentiation: Opportunities, outcomes and meanings. In Jackson, P.W. (Ed.) *Handbook of research on curriculum*. Macmillan, New York, pp. 570–608.

Students' self-regulation

Many contemporary approaches to classroom management that have been popular in NSW, such as Glasser's (1984, 1986) "Control Theory Reality Therapy", are based on students taking increasing responsibility for their own behaviour (see also Meichenbaum and Biemiller, 1998). The principle is to minimise disruptions to the learning process where teachers need to spend inordinate amounts of time on management matters. In addition to a focus on students' behaviour in a management sense, however, there is a specific learning focus to **students' self-regulation**. Research into learning strategies and meta-cognition has demonstrated that students' self-regulation of their own learning is linked to academic achievement (Zimmerman and Schunk, 1989).

Achieving high levels of **student self-regulation**, however, is a difficult task. Australian student-teachers consistently identify classroom management as one of their greatest areas of concern (Groundwater-Smith, Cusworth and Dobbins, 1998) and it is a major reason why some students choose field placements in schools which are deemed "easier". There would be few educators who would advocate high levels of explicit management or disciplinary control. At the same time, most would



recognise that in many teaching situations, teachers spend much more time on the regulation of behaviour than they (and many of their students) would like. It is the inverse relationship between time spent on explicit control and time spent engaged in learning that justifies the inclusion of this element in the NSW model of pedagogy.

Glasser, W. (1984) *Control theory: A new explanation of how we control our lives*. Harper & Row, New York.

Glasser, W. (1986) *Control theory in the classroom*. Harper & Row, New York.

Groundwater-Smith, S., Cusworth, R. & Dobbins, R. (1998) *Teaching challenges and dilemmas*. Harcourt Brace, Sydney.

Meichenbaum, D. & Biemiller, A. (1998) *Nurturing independent learners: Helping students take charge of their learning*. Brookline Books, Cambridge, Mass.

Zimmerman, B. and Schunk, D. (Eds.) (1989) *Self-regulated learning and academic achievement*. Springer-Verlag, New York.

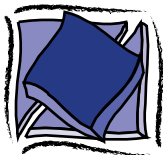
Student direction

As discussed previously, Smith, Lee and Newmann (2001) investigated the link between "interactive" instruction and learning in Chicago elementary schools. Interactive instruction comprised key dimensions of **intellectual quality**, but also included an element of **quality learning environment**—student choice on questions or topics they study (**student direction**). Researchers found clear and consistent evidence that interactive teaching methods were associated with more learning in reading and mathematics.

The theoretical basis of **student direction** is extensive and, like many of the elements of the NSW model of pedagogy, has a broad research basis. As has been widely documented, traditional didactic modes of teaching rely on teachers, or some other authority (via the teacher), determining what is to be done within a classroom. Where students do not influence the class activities, the teacher explicitly determines what activities students do, and hence determines how students will meet the specified objectives required within the period. Despite many attempted reforms, this form of instruction is still the most prevalent mode of teaching, as has been documented in most descriptive studies of teaching (e.g. Goodlad, 1984).

The question of student determination of activities relates directly to what Bernstein defines as "framing", where framing included reference to who controls the selection, sequencing, pacing and evaluation criteria in instructional discourse (see Bernstein, 1990, for further elaboration of the concept of framing). Bernstein repeatedly points out that the different elements of instructional discourse referred to in his concept of framing (i.e. selection, sequencing, pacing and criteria) do not necessarily interrelate (it is possible for students to control one, but not others).

Student direction sees students influence what specific activities and/or tasks they will do in the learning period, and/or how these will be realised. These tasks may be student-centred, as in group work, individual research or investigative projects, whereby the students assume responsibility for the activities with which they engage, and/or how they complete them. Past reforms which promoted student direction of activities included the 1970s forms of progressive pedagogy, current middle-schooling curricular models (Beane, 1993) and some forms of collaborative learning (Slavin, 1983; Slavin and Fashola, 1998). This form of instruction also is generally consistent with current pushes for "constructivist" curricula, such as that proposed by the US National Council of Teachers of Mathematics (NCTM 1989; 1991), and more meta-cognitive research which emphasises the need for students to actively determine and monitor their learning (Biggs, 1992).



Beane, J.A. (1993) *A middle school curriculum: From rhetoric to reality*, 2nd edition. National Middle School Association, Columbus, OH.

Bernstein, B. (1990) *The structuring of pedagogic discourse: Class, codes and control: Volume IV.* Routledge & Kegan Paul, London.

Biggs, J.B. (1992) *Teaching for learning*. Australian Council for Educational Research, Melbourne.

Goodlad, J.I. (1984) *A place called school: Prospects for the future*. McGraw-Hill, New York.

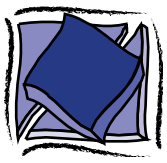
National Council of Teachers of Mathematics. (1989) *Curriculum and evaluation standards for school mathematics*. Author, Reston, VA.

National Council of Teachers of Mathematics. (1991) *Professional standards for teaching mathematics*. Author, Reston, VA.

Slavin, R.E. & Fashola, O.S. (1998) *Show me the evidence: Proven and promising programs for America's schools*. Corwin Press, Thousand Oaks, CA.

Slavin, R.E. (1983) *Cooperative learning*. Longman, New York.

Smith, J., Lee, V.E. & Newmann, F.M. (2001) *Instruction and achievement in Chicago elementary schools*. Consortium on Chicago School Research, Chicago.



The dimension of significance

Introduction

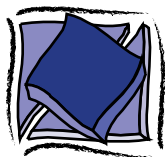
Clearly one of the main challenges teachers face is trying to make it clear to students why and how what they are learning matters. The dimension of **significance** is comprised of specific ways teachers can link students into the new and challenging knowledge presented to them. Overall, **significance** has both a psychological and a socio-cultural basis, as both these aspects of students' lives are the basis from which students build meaning for themselves.

For many of the elements in this dimension it is also helpful to keep in mind a general principle that has been well documented in teaching: what can be described as "shunting" or "shuttling". That is, teachers know well the idea of working back and forth between old and new knowledge for students (or shunting back and forth), gradually working further and further to new knowledge and consistently building on students' prior knowledge. The reason this concept is important here is simply that teachers may find some of the elements in the **significance** dimension to be unconventional in their specific subject or key learning area. In mathematics, for example, it would be somewhat rare to expect the end goal of a mathematics program to be a narrative account, but it can be quite helpful to use narratives along the way in getting students to high levels of abstract reasoning. Likewise, few subjects would see background knowledge as the place where you want students to end up, but building from students' background knowledge is something most teachers would do. What is the shared end point in this dimension, like the other dimensions of the NSW model, is the overarching concept—in this case, building **significance**.

Background knowledge

There are psychological, linguistic and socio-cultural arguments for taking into account students' background knowledge in curriculum development and lesson planning. The **background knowledge** element is about the extent to which, and frequency with which, teachers explicitly invoke and use student background knowledge in the teaching of their lessons. Bruner (1977) defines the educational process as the connecting of the "known" to the "new". "Schema" theoretical models of teaching and learning are consistent with this general principle and examine a learner's background knowledge as structured information stored in medium and long-term memory or "schemata". From a cognitivist perspective, the explicit recognition, appraisal and use of students' background knowledge is a necessary component of effective teaching and learning. These may involve "priming" prior academic knowledge from previous lessons, subjects and courses, as readily as they may involve the use of community-based experiences and knowledge (e.g. Tierney and Pearson, 1994).

Throughout the 1980s and early 1990s, there was an extensive body of experimental and applied research that argued that learning occurs optimally when there is "goodness of fit" (Anderson, 1994) between students' prior knowledge and the new knowledge structures of curriculum and instruction. The insight that low comprehension may be the result of a systematic "mismatch" between students' structured prior knowledge and the structured knowledge of curriculum yielded a range of practical strategies which were implemented in the 1980s and 1990s. These included the systematic revision of text books to better represent the prior cultural experiences, linguistic competences and community contexts of students (Altbach, Kelly, Petrie and Weis, 1990). They also included the building of pre-reading and pre-lesson activities that both assessed the relevance of student background knowledge and, where necessary, attempted to elaborate or "prime" existing schemata (Ashman and Conway, 1993; 1997).



Altbach, P., Kelly, G., Petrie, H. & Weis, L. (Eds.) (1990) *Textbooks in American society*. State University of New York Press, Albany.

Anderson, R.C. (1994) Role of the reader's schema in comprehension, learning and memory. In Ruddell, R., Ruddell, M.R. & Singer, H. (Eds.) *Theoretical models and processes of reading*, 4th edition. International Reading Association, Newark, pp. 469–482.

Ashman, A. & Conway, R. (1993) *Using cognitive methods in the classroom*. Routledge, London.

Ashman, A. & Conway, R. (1997) *An introduction to cognitive education: Theory and application*. Routledge, London.

Bruner, J. (1977) *Processes of education*. Harvard University Press, Cambridge, Mass.

Rosenshine, B. & Meister, C. (1992) The use of scaffolds for teaching higher-level cognitive strategies. *Educational Leadership*, 49(7), pp. 26–33.

Tierney, R. & Pearson, P.D. (1994) Learning to learn from text: A framework for improving classroom practice. In Ruddell, R., Ruddell, M.R. & Singer, H. (Eds.) *Theoretical models and processes of reading*. 4th edition, International Reading Association, Newark, pp. 496–513.

Cultural knowledge

The **cultural knowledge** element focuses on the degree to which non-dominant cultural knowledges are valued in the classroom. For the purposes of this element, the determination of which cultures are taken to be non-dominant is based on a generalised (and defensible) ideal type of the traditional dominant culture historically presented as "Australian" in most school curricula. **Cultural knowledge** can be distinguished by social group characteristics such as gender, ethnicity, race, religion, economic status, disability or age (youth). In the Australian context, non-dominant cultural knowledge would include: Indigenous and women's interpretations and forms of academic subjects such as mathematics, history, science and literature; youth cultural forms of art, music and politics; non-European versions of mathematics, science, economics and literature. As has been argued by many cultural analysts of curriculum, curriculum knowledge constructed and framed within the dominant set of ("Australian") cultural definitions, symbols, values, views and qualities, often assumes and attributes higher status to this singular culture than it would to other non-dominant cultures (e.g. Delpit, 1995).

By contrast, non-dominant cultural knowledge is valued when there is explicit valuing of cultural identity represented in such things as beliefs, languages, practices and ways of knowing. Valuing all cultural knowledge requires more than one culture being present and given status within the curriculum. It means legitimating these cultures for all students, through the inclusion, recognition and transmission of the relevant cultural knowledges.

It should be noted that this element addresses an area of curriculum reform that has received much specific attention in the Australian and NSW context. In terms of the formal curriculum, examples of recent changes related to **cultural knowledge** include attempts to increase the coverage of women's role in history, and the inclusion of feminist and working-class historical perspectives, Aboriginal history and Aboriginal knowledge in the history curriculum. Similar reforms can also be readily noted in the English curriculum and many other areas of the Human Society and Its Environment key learning area.

Valuing non-dominant cultural knowledge, however, is not limited to these areas of the curriculum. It is equally possible to understand the development of science and mathematics within a historical perspective that acknowledges and presents alternative scientific and mathematical knowledge systems. In terms of pedagogy, the **cultural knowledge** element focuses on the degree to which these formal curricular changes are evident in classroom practices, that is, in pedagogy. This

element estimates the degree to which recent attempts to include non-dominant cultural knowledge in the formal curriculum are evident in actual classroom practice (the "curriculum-in-use"). While the inclusion of non-dominant cultural knowledge in pedagogy is a complex issue (see Nakata, 1995; 1998), it is one means of making pedagogy significant for many students (Connell, 1993).

Cazden, C.B. (1992) *Whole language plus*. Teachers College Press, New York.

Connell, R.W. (1993) *Schools and social justice*. Pluto Press, Sydney.

Delgado-Gaitan, C. (1995) *Protean literacy*. Falmer Press, London.

Delpit, L. (1995) *Other people's children: Cultural conflict in the classroom*. The New Press, New York.

Heath, S.B. (1983) *Ways with words*. Cambridge University Press, Cambridge.

Kintsch, W. (1998) *Comprehension*. Cambridge University Press, Cambridge.

Nakata, M. (1995) Culture in education: A political strategy for us or for them? *Ngoonjook*, 11, pp. 40–61.

Nakata, M. (1998) Anthropological texts and indigenous standpoints. *Journal of Aboriginal Studies*, 2, pp. 3–12.

Knowledge integration

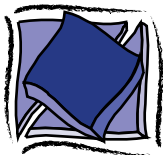
School knowledge is typically segregated or divided in such a way that specific sets of knowledge, understandings and skills are relatively unique and discrete to each specified school subject. Segregated knowledge is identified by clear boundaries between subject areas. Connections between knowledge in different subjects are less and less clear the stronger the dividing knowledge boundary. In the extreme, such boundaries prevent interdisciplinary or multidisciplinary learning.

At the opposite end of the spectrum, it is possible to develop curriculum, programs, units and lessons which use links between subject areas to build students' learning. The inclusion of **knowledge integration** in the NSW model points to the degree to which the integration of subject knowledge assists students in recognising the meaning, purpose or **significance** of what they are learning.

There have been a number of attempts to integrate subject areas in Australia and overseas in recent times. In a sense, the development of key learning areas in Australia in the 1990s marked one attempt at the integration of subjects within broader key learning area groupings. More recent curriculum reform initiatives in Australia have taken the push toward knowledge integration much further in such reforms as Queensland's "New Basics" and Tasmania's "Essential Learnings". (See: http://education.qld.gov.au/corporate/newbasics/ and http://www.education.tas.gov.au/itproject/els.htm)

There are many initiatives advocating **knowledge integration** from specific sectors or interests in schooling. For example, those concerned with middle schooling reforms have advocated the development of curriculum based on integrating subject areas in an attempt to make learning meaningful for adolescents (e.g. Beane 1993; 1995). In Australia, the Australian Curriculum Studies Association (ACSA) has also become a strong advocate of integrating curriculum knowledge, and has developed its own set of resources for those interested in this area (see http://www.acsa.edu.au/projects/middle/docs/bibmstoc.htm).

Other advocates for integrating knowledge come from initiatives that seek to integrate areas of study, such as the creative arts, across other curriculum areas. One example that is incorporating a strong research base in its work is the "Learning through the Arts" initiative of the Canadian Royal Conservatory of Music (see, http://www.rcmusic.ca/ltta/index.asp and http://www.ltta.ca). While it is very difficult for research to isolate the specific effects of knowledge integration when that is but



one aspect of a wide ranging reform (such as is also the case in the "New Basics" framework in Queensland), research focusing on "Learning through the Arts" (where **knowledge integration** is a central feature) has demonstrated improvements in student outcomes (Upitis and Smithrim, 2002).

Beane, J.A. (1995) Curriculum integration and the disciplines of knowledge. *Phi Delta Kappan* (April), pp. 616–622.

Beane, J.A. (1993) *A middle school curriculum: From rhetoric to reality*, 2nd edition. National Middle School Association, Columbus, OH.

Upitis, R. & Smithrim, K. (2002) *Learning through the arts national assessment 1999–2002: Final report to the Royal Conservatory of Music Part I: Grade 6 student achievement and engagement*. The Royal Conservatory of Music, Toronto (available via: http://www.discussionzone.ca/press/LTTAnov02-ResearchReport.pdf).

Inclusivity

By **inclusivity** the NSW model is focusing on the degree to which students from all socio-cultural groups are presented as integral members of the classroom community. Such inclusion in the classroom is typified by the extent to which students are encouraged and provided with opportunities to take full part in all lessons, regardless of their socio-cultural backgrounds. It means that all students from multiple backgrounds should have equitable access to the benefits provided by schools. Thus, for our purposes, **inclusivity** is given a broader meaning than is sometimes the case in the special education literature where it is used to refer to the "mainstreaming" of special needs students (Jorgensen, 1998; Thomas, Walker and Webb, 1998). This broader meaning links **inclusivity** to other publicly known non-dominant groups (as defined in **cultural knowledge**) and is consistent here with the emergent usage of "inclusion" in European social and educational policy.

The special education literature, along with those concerned specifically with race, ethnicity, gender, sexuality and disability (Malin, 1998; Smyth, Hattam and Lawson, 1998), have advocated for ensuring that differences are regarded positively and included in the culture of classrooms. Here, there is both a normative commitment to the notion of **inclusivity**, as well as an argument that inclusive classroom practices will lead to improved social and academic outcomes for all students. Indeed, the classic Lewin, Lippitt and White (1939) study indicated that democratic classrooms, which were inclusive and respectful of difference, produced academic outcomes of equal quality to those produced by more authoritarian and laissez-faire classrooms which paid little attention to matters of inclusivity or of respecting difference.

Jorgensen, C. (Ed.) (1998) *Restructuring high schools for all students: Taking inclusion to the next level*. Brookes, Baltimore.

Lewin, K., Lippitt, R. & White, R. (1939) Patterns of aggressive behaviour in experimentally created "social climates". *Journal of Social Psychology*, 10, pp. 271–299.

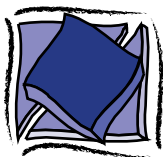
Malin, M. (1995) Aboriginal education, policy and teaching. In Hatton, E. (Ed.) *Understanding teaching: Curriculum and the social context of schooling* (pp. 315–326). Harcourt Brace, Sydney.

Smyth, J., Hattam R. & Lawson, M. (Eds.) (1998) *Schooling for a fair go*. Federation Press, Sydney.

Thomas, G., Walker, D. & Webb, J. (1998) *The making of the inclusive school.* Routledge, London.

Connectedness

In some senses, connection to the world beyond the classroom is the temporal converse of linking with students' background knowledge. Instead of focusing on how lesson knowledge and activities rely on prior knowledge, **connectedness** is focused on present or future utility. As a focus of curriculum development, connectedness has been defended as a valuable pedagogical strategy at least since the early twentieth century work of educators such as Dewey (1916) and Bruner (1966).



The inclusion of **connectedness** in the NSW model is most directly based on the link with Authentic Pedagogy. "Connection to the world beyond the classroom" was always a specific part of the Authentic Pedagogy model, and the benefits of connectedness cannot be easily separated from those demonstrated for authentic achievement. Most directly, as discussed previously, Smith, Lee and Newmann (2001) investigated the link between "interactive" instruction and learning in mathematics and reading in Chicago elementary schools. Interactive instruction comprised key dimensions of **intellectual quality**, but also included an element of **significance**; relating class work to their own current and future lives (**connectedness**). Researchers found clear and consistent evidence that interactive teaching methods were associated with more learning in both subject areas.

As a means for demonstrating the significance of students' learning, the rationale for **connectedness** would be common sense to many teachers. A broader discussion and rationale can be found in Newmann's original elaborations of the Authentic Pedagogy model (Newmann, 1993; Newmann and Associates, 1996).

Bruner, J. (1966) *Toward a theory of instruction*. Little, Brown, Boston.

Dewey, J. (1916) *Democracy and education*. Free Press, New York,

Newmann, F. (1993) Beyond common sense in educational restructuring: The issue of content and linkage. *Educational Researcher*, March, pp. 4–13.

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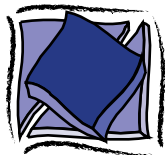
Narrative

The NSW model uses a definition of **narrative** as a series of events, actions or incidents involving people or characters (as in children's fables) "chained together" in a sequence to constitute a text (Luke, 1988). Historically, narrative has evolved for purposes of entertainment, aesthetic description, moral instruction, the maintenance of kinship systems and historical archives (Goody, 1977). Various disciplinary approaches to the study of narrative have been developed. These range from psychological analyses of text (examining psychological aspects of grammar), literary studies of narrative structure (as in the narrative structure of novels, children's stories or Hollywood movies that always have a good ending), linguistic propositional analysis of spoken texts (studies of how people construct speech), and ethnopoetic studies of traditional oral narratives (understanding oral traditions as the poetic history of particular cultural groups). Each of these differing approaches has its own specific definition of narrative with its own particular research purpose and outcome. Toolan (1988) and Hymes (1996) provide an overview of many of these differing approaches. Across all these differing approaches, however, there is a shared underlying distinction that differentiates narrative from more Eurocentric-based notions of formal structures of language and knowledge.

Whatever the specific research interest, **narrative** is seen as quite different to the way in which knowledge and language are conventionally structured in formal schooling and examination systems. For example, scientific texts, by contrast, can be characterised as a specialised text form for the intellectual work of analysing the natural and social world, for abstraction and theorisation (Halliday and Martin, 1996). Historically, expository prose such as that found in science emerged both as a mode of public persuasion (e.g. the Sophists' rhetoric) and as a mode for the development of a scientific disciplinary code (what Aristotle referred to as a "codex"). Arguably, this expository prose, this way of making knowledge formal and transportable, is one of the hallmarks of "Western Enlightenment" and progress. It is clearly of very high value in schooling by the time students reach levels where they sit formal examinations such as the Higher School Certificate (HSC).

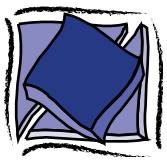


The argument made by systemic functional linguists is that expository prose, whether spoken or written, is a specialised form of text ideally suited for the transmission and exploration of scientific knowledge, facts, data, abstraction and critical analysis. Hence, according to Lemke (1996), Halliday and Martin (1996) and others, the teaching about and through expository prose forms is ideally suited to some kinds of technical knowledge. According to Corson (1996), the New London Group (1998) and many other educational researchers, it is precisely these sophisticated text forms, and the mastery of specialised "discourses" and "registers", that create a systematic impediment to the academic achievement of students from marginalised socioeconomic groups. In a system of schooling that places high value on expository forms of language and knowledge (abstract, formal, technical knowledge), the tension is clear, and the use of narrative as a pedagogical tool for opening up access to more formal expository prose becomes paramount.

Supporting research suggests that some non-mainstream learners, for example, Indigenous children, may learn best through narrative structures because of strong oral traditions and narrative practices in their communities (Christie, 1985; Harris and Malin, 1994). Similarly, post-structuralist feminist and critical pedagogy advocates make the case for student life stories, biographies and narrative accounts as crucial ways of bringing classroom "voice" into play in the mainstream classroom and thereby empowering women and working-class students (e.g. Shor, 1996). For example, in her advocacy of narrative form, Davies (1993) argues that learners "story themselves into existence", and that narrative forms are culturally appropriate and powerful modes of expression for women and girls.

Early schooling in particular often employs **narrative** based on Piagetian models of children's psychological development. However, claims for the educational value of narrative go beyond these models of development. Egan (1997), for example, makes the argument for the universal value of "story form" as a significant strategy for teaching and learning. Specifically, he argues that using narrative is appropriate and effective for scientific and moral education. What is unique about Egan's argument is his stress on narrative not just as selected curriculum content, but also as constituting a significant instructional approach in face-to-face classroom settings. In a widely cited work, Egan (1988) advocates "teaching as story-telling". While narrative may be part of some specific subjects in the school curriculum, in subjects where most of the knowledge is more formal and the prose is mostly expository, **narrative** can work as a means of linking students into that formal knowledge, as a means of building the **significance** of the students' learning.

For teachers, the most evident analogy can be drawn to educational research on teaching. Teachers are very familiar with large quantitative studies that "measure" what they do in classrooms and "measure" student outcomes. Quite often many teachers have a hard time "seeing themselves" in the reports generated by such research (because they really disagree with the research or feel it has missed a major part of their lived experience in schools). Educational researchers have developed whole traditions of classroom-based research that attempt to better describe what goes on in school, and the use of narratives of real teachers is a big part of that research. The tensions of educational research are also probably clear to most teachers. While we can develop stories of a small number of real teachers or real schools, that form of research is hard to use when trying to get a broad idea of what most teachers and most schools are doing everywhere in a given system. The tension is in many ways very simple. On the one hand, there are narratives based on local settings in "lived" time, involving specific individuals. On the other hand, there are more formal expository research accounts based on (necessarily) partial measurements across a wide range of settings, with faceless human actors and with the intent of being true beyond the lived time. The same tensions teachers and systems deal with in relation to educational research are true for students who have to learn to work with, live in, and eventually master formal expository prose and knowledge.



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