Teachers’ fundamental beliefs, commitment to reform, and the quality of pedagogy

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This paper draws on data from approximately 350 interviews and 1800 surveys from teachers across NSW to explore their understandings of and commitment to quality teaching (in both the generic sense and in terms of the NSW Quality Teaching model). Our analysis of the data focuses on links between measures of the quality of teachers’ pedagogy and their commitment to and understanding of QT, some school characteristics, and teachers’ fundamental beliefs about themselves, their work and their students.

Looking first at teachers’ commitment to the QT initiative we find while this is important, as is the case with any reform initiative, there is no clear correlation between their expressed support for QT and measures of their performance. Second, no consistent patterns are found between performance and a school’s SES, its proportion of Aboriginal and Torres Strait Islander students, or its teachers’ years of experience. Rather we find that the goals of changed practice in line with QT, leading to improved student outcomes, are linked to teachers’ deep understanding of QT, teachers’ fundamental commitment to their students’ learning and belief that their teaching makes a difference, as a basis for their efforts to teach well.

There is a considerable body of research literature that demonstrates a strong correlation between teachers’ knowledge, beliefs, and attitudes and their classroom practices (Aguirre & Speer, 2000; Calderhead, 1996; Cohen, 1990; Dwyer, Ringstaff, & Sandholtz, 1991; Richardson, 1996; Sato & Kleinsasser, 2004). At the same time, there is substantial debate and uncertainty about precisely how beliefs and practice are related and how they interact. Anderson and Helms (2001), for instance, argue that “while it is clear that changes in teacher values and beliefs are central to reform, the nature of these changes and the circumstances under which teachers personally can best reassess these values and beliefs are not fully understood” (p.13). This uncertainty about beliefs and practice is clear from the following research conclusions: Dwyer et al. (1991) found that “instructional change can only proceed with a corresponding change in beliefs about instruction and learning” (p. 52); Richardson, Anders, Tidwell and Lloyd (1991) found that a change in beliefs preceded change in practices, and; Guskey (1986) found that change in beliefs will occur only after evidence is provided about changes in
student learning outcomes. Richardson (1996) attempted to summarise what is known about beliefs and practice, stating that “beliefs are thought to drive actions; however, experiences and reflection on action may lead to changes in and/or additions to beliefs” (p.104).

The study reported in this paper is based in a system-wide attempt to reform pedagogical practice through what is known as the NSW Quality Teaching framework. In this paper, we explore the relationship of teachers’ beliefs about Quality Teaching, and about pedagogy more broadly, with the quality of their pedagogy. These analyses are designed to tease out the specific potential of Quality Teaching in improving the pedagogical practices of teachers, as well as to draw more general inferences that can be used in pedagogical reform attempts elsewhere. In this way, the analyses contribute to the thorny task of deepening understanding about the complex relationships of teacher beliefs and practice.

**The reform**

In an attempt to lift the quality of pedagogy in NSW public schools, the NSW Department of Education and Training worked with James Ladwig and Jennifer Gore, to develop a three-dimensional model of pedagogy, known as Quality Teaching (QT). With a focus on the dimensions of Intellectual Quality (IQ), Quality Learning Environment (QLE), and Significance (SIG), the NSW Quality Teaching model draws on the significant work of Newmann and Associates (1996) on Authentic Pedagogy, as well as other elements of classroom and assessment practice that have been linked through empirical research to improved learning outcomes for students across the spectrum of social backgrounds. (See www.curriculumsupport.education.nsw.gov.au/qualityteach for an overview of the Quality Teaching model and its research background, especially Ladwig and King, (2003). Quality Teaching is not a set of teaching skills or practices. Rather, it draws attention to how teaching is organised and conducted in order to: ensure deep understanding of important concepts and relationships; produce classroom environments that support learning, and; help make learning meaningful to students.

One aspect of the QT initiative is professional development based around materials designed to support teachers in developing their understanding of Quality Teaching through dialogue about classroom and assessment practices. These materials centre on coding activities for each of the three dimensions and 18 elements of the Quality Teaching framework (see Appendix 1 for an overview of the framework), whereby teachers code and discuss videotaped extracts of lessons and sample assessment tasks (see Appendix 2 for samples of the coding materials). Subsequently teachers are encouraged to apply these processes to their own lessons and assessment tasks, with a view to improving practice. While it is clear that beliefs might impact on teachers’ willingness to even engage with QT, either as a framework against which to assess their own practice or as a set of processes
designed to promote reflection and deepen understanding about practice, the professional development materials certainly create the opportunity for teachers to have the kinds of experiences and reflection on action that Richardson (1996) argued might precipitate changes in beliefs.

It is worth noting that New South Wales is most populous state in Australia, with all 2200 public schools (providing for 760,000 students) governed by a single state authority, the NSW Department of Education and Training. As such, the NSW Quality Teaching (QT) initiative is perhaps one of the world’s largest systemic attempts to improve the nature and quality of pedagogical practice. Understanding the critical relationship between teachers’ beliefs and pedagogy in this context thus has significant ramifications for both scholarship in this field and educational policy development in Australia and elsewhere.

The study

The data for this paper are drawn from a large, multi-method, longitudinal study (2004-2007) that is exploring the relationships between teacher professional learning, the quality of pedagogy, and the quality of learning outcomes for students. The study, titled “Systemic Implications of Pedagogy and Achievement in New South Wales Public Schools” (SIPA), represents a major collaboration between the NSW Department of Education and Training (NSWDET) and university researchers, underpinned by the Quality Teaching initiative. If the impact of QT is to be properly understood, then we thought it critical to examine how the framework is being interpreted and recontextualised (Bernstein, 1990) by teachers.

Each of the 33 schools involved in SIPA expressed an interest in being a part of the study. Selection criteria for schools were employed to ensure that the sample included primary and secondary schools, schools with a range of prior involvement with the QT framework, and variation across the demographic variables of geographic location, socio-economic status, and the proportion of enrolled students of Aboriginal and Torres Strait Islander (Indigenous) descent and from Non English Speaking Backgrounds (NESB). Around half of the schools in the sample reported that they had already involved their teachers in professional development on Quality Teaching. For this reason, we expected the sample to be, if anything, slightly more advanced in its engagement with QT and slightly more committed to QT than would be the case for the entire sample of schools across the state.

The specific data used for this paper come from the base-line data points of the four-year longitudinal study. As such, this paper represents an initial, cross-sectional analysis of the relationship between teachers’ beliefs and the quality of pedagogy. For measures of the quality of pedagogy, we employ the coded observations of 330 lessons and 199 assessment tasks using the same QT instruments used for professional development (Appendix 2). To document beliefs, we have drawn on interviews with
178 teachers and questionnaires completed by 975 teachers in which we gathered information about teachers’ goals for, and views on, teaching as well as their perceptions and understandings of QT and their role as teachers. Pajares (1992) reminds us that “beliefs cannot be directly observed or measured but must be inferred from what people say, intend, and do” (p.314). For this analysis of teacher beliefs, we have relied primarily on what our participants said.

Of particular note for this analysis are seven scales incorporated into the SIPA questionnaire (SIPAQ). These scales are: 1) a measure of the teachers’ estimate of the importance of QT; 2) a measure of teachers’ estimate of the effect of QT; 3) a measure of the extent to which teachers’ report that they have felt support for engaging in the QT initiative; 4) a measure of the degree of teacher responsibility for student learning; 5) a measure of the degree to which teachers believe in student capacity to learn; 6) a measure of the degree to which teachers believe in outside factors affecting them, their capacity to teach; and 7) a measure of the degree to which teachers believe in self efficacy, believe that they can make a difference (see Appendix 3).

Three of these scales were included in the questionnaire to gain insights into teachers’ beliefs and understandings of Quality Teaching. As a system-wide pedagogical initiative (intended for use K-12 and across all subject areas), the questions of whether or not teachers believed QT to be important, whether or not they felt QT had a positive effect, and whether or not they felt supported in their own efforts to understand and learn about QT, were all of interest in relation to the potential of QT in bringing about the intended pedagogical reform. As Lawrence (2005) states, “studies on professional development change efforts reveal that major changes are seldom effective unless all parties involved in teaching and learning – teachers, students, parents and school administrators – support the proposed changes” (p.351, our emphasis). These three scales enable us to gauge the level of support among the teachers.

The scales for teacher responsibility, and belief in students, belief in the impact of outside factors, and belief in teachers’ own capacity to make a difference, have their origins in the work of Louis, Kruse and Marks who began a substantial line of research documenting, in the US school restructuring context, a significant link between the degree to which teachers individually and collectively adopt a sense of responsibility for student learning and subsequent pedagogy and student achievement (see, e.g., Louis, Kruse & Marks, 1996; Louis & Marks 1998; Lee & Smith, 1996). Here, we have incorporated a replication of the original teacher responsibility scale developed by the Centre on the Organisation and Restructuring of Schools (CORS) and reported by Louis, Kruse and Marks (1996) and Louis and Marks (1998), and have developed subsets of the scale to address the specific issues of belief in students, outside factors, and self efficacy. These four scales enable us to explore some fundamental beliefs teachers hold in relation to teaching and their own role as teachers.
We should emphasise that the questionnaire from which these data were drawn was administered mid 2004, approximately one year after the first Quality Teaching support materials were sent to schools. Interviews were conducted between mid 2004 and early 2005. As such, the data reported here represent base line indicators of teachers’ beliefs and pedagogy. Given the nascence of the QT initiative, we were unsure of the levels of understanding and commitment to QT that might be expected at this point in time. In subsequent years, we will be able to examine the important question of changes over time, thus contributing to literature on such issues as the intransigence of beliefs, the conditions that facilitate change in beliefs, and how change in beliefs and/or practice is related to teacher characteristics, such as years of experience, or the impact of school contexts.

The specific research questions guiding this paper were: what are teachers’ understandings and beliefs about QT; what are teachers’ understandings and beliefs about pedagogy; how do these sets of beliefs interact; and how do the beliefs interact with the quality of pedagogy? We examined these issues for the whole sample as well as for samples comprised of the teachers with the highest and lowest pedagogy scores.

**Is recognition of importance enough?**

In addressing the potential impact of the QT initiative on teachers’ pedagogy, a primary question to explore is whether the teachers in the study saw the QT initiative as something important, working from the premise that, at minimum, a general commitment to the reform initiative is required for an impact on teachers’ practice (Lawrence, 2005; Shue-Tak Yu, 2000). Our data demonstrate that participants in the study acknowledge the importance of the QT initiative. A scale measuring teachers’ perceptions of the Importance of QT (See Appendix 3) found high ratings across the sample of 975 teachers (see Figure 1). (Note that no imputations have been done for missing data in these analyses).
In terms of the specific questions within this scale, there was very strong agreement from teachers with the three questionnaire statements which most directly correspond to the three dimensions of the Quality Teaching framework (Intellectual Quality, Quality Learning Environment, and Significance). That is, on a 1-6 Likert scale (where 1 was strongly disagree and 6 was strongly agree), teachers responded that:

- It is important for teaching to promote high levels of intellectual quality for all students (mean 5.26, SD 0.78, n=937)
- A strong, positive and supportive learning environment affects the quality of students’ work (mean 5.59, SD 0.56, n=946)
- If students are to value what they learn, they need to be able to link their school work to their lives beyond the classroom (mean 5.5, SD 0.69, n=941)

As a measure of teachers’ self-reported perceptions of the QT reform initiative, these results suggest a high level of agreement, among participating teachers, with the principles that underpin the QT initiative.

Other individual questionnaire items aligned with this general agreement about the perceived importance and value of QT amongst participating teachers. For example, teachers agreed that the QT model is an important focus for the NSWDET (mean 4.89, SD 0.89, n=874), and disagreed with the statement that no-one around here cares about the QT framework (mean 2.15, SD 1.15, n=860).\(^1\) Hence the positive valuing of QT appears to be linked to recognition of its importance to the system and among colleagues. In line with these perceptions, many teachers reported that QT had an impact on their practice, evident in their agreement with the following statements:

\(^1\) Note that negatively worded items were located within larger scales including positively worded statements (see Appendix 3).
• The QT model has influenced the way that I plan my teaching (mean 4.01, SD 1.13, n=909); and
• The QT model has influenced the way that I develop learning tasks for my classes (mean 4.06, SD 1.11, n=907);

and their disagreement with these statements:
• The QT model has had no impact on my students’ learning (mean 2.61, SD 1.11, n=817); and
• The QT model has made no difference to the way that I teach my students (mean 2.63, SD 1.17, n=887).

These results suggest a high level of teacher commitment to QT in general, with teachers acknowledging its importance and expressing a belief in its capacity to impact on pedagogical practice. In light of the research identifying a link between beliefs and practices, the question remains as to whether there was a correlation between this general commitment to QT and measures of teachers’ pedagogical performance. This question is considered below via whole sample measures of the quality of both classroom practice and assessment tasks in relation to teacher beliefs. In subsequent sections of the paper, we conduct the same analyses for groups of teachers at the extremes of measured performance, in order to more deeply examine the relationship between beliefs and practice.

**Beliefs and pedagogy**

Although there was general agreement with QT principles amongst teachers, and perceptions that it has impacted on their practice, the quality of pedagogy as measured by our instruments (See Appendix 2 for examples)\(^2\) indicated only modest levels of performance. Using the same QT materials available to the teachers in our sample, mean scores for the whole sample for classroom observations and tasks are reported in Table 1. Note that for classroom observations, a five-point scale was used to code the six elements within each of the three QT dimensions (IQ, QLE, SIG), for a range of 6-30 within each dimension, and 18-90 overall. For task scores, a similar five point scale was used to code the six elements of the IQ dimension; three elements in the QLE dimension; and five elements of the SIG dimension, for a range of 14-70 overall).

<table>
<thead>
<tr>
<th>QT by dimension and total</th>
<th>Observations (n=169)</th>
<th>Tasks (n=136)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
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</table>

\(^2\) Some elements cannot be applied in the coding of tasks, resulting in different ranges of scores as noted in Table 1.
While mean scores at the top of the range are not expected across a broad sample such as this, the mean scores for observations and tasks reported above are relatively low, in view of the possible range of scores, highlighting the potential for improvement. They were, however, recorded in the early stages of the implementation of the Quality Teaching framework in NSW public schools. Additionally, these mean scores compare favourably with similar measures of pedagogy and assessment practice in the State of Queensland, as part of the Queensland School Reform Longitudinal Study (see Education Queensland, 2001) which targeted designated high performing schools, and thus a less representative sample, within the Queensland system.

More significantly for our current analysis, very few correlations were found between teachers’ beliefs about QT and the quality of their pedagogy, measured against both classroom observation and assessment task scores (see Table 2). There was a positive correlation between the Effect of QT scale and the level of Significance observed in classrooms and an interesting negative correlation between the Effect of QT scale and scores for Quality Learning Environment in relation to tasks. Critically, there are no consistent patterns between teachers’ beliefs about QT and their pedagogy. That is, whether or not teachers thought QT was important, thought it had an effect on their practice, or thought it had been supported, bore no direct correlation with the quality of their classroom or assessment practice as measured against the QT dimensions.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Observations</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IQ</td>
<td>QLE</td>
</tr>
<tr>
<td>Importance of QT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.08</td>
<td>.06</td>
</tr>
<tr>
<td>n</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Effect of QT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.11</td>
<td>.17</td>
</tr>
<tr>
<td>n</td>
<td>97</td>
<td>97</td>
</tr>
<tr>
<td>Support for QT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.07</td>
<td>.08</td>
</tr>
<tr>
<td>n</td>
<td>96</td>
<td>96</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

*Correlation is significant at the 0.05 level (2-tailed).
At this early stage in both the systemic QT reform initiative, and the longitudinal SIPA study, there is no clear correlation between teachers’ level of commitment to QT and the quality of their pedagogy. Whether or not correlations are found as teachers engage more deeply with QT remains to be seen. For now, while research cites the need for teacher “support [for] proposed changes” (Lawrence, 2005, p. 351) as a pre-requisite for effective change, our data imply that garnering in-principle support for a pedagogical reform framework like QT may be necessary, but is not sufficient to produce high quality pedagogy as defined by QT.

Do fundamental beliefs about pedagogy matter?

In contrast to the findings relating to teachers’ commitment to QT, consistent patterns were found between teachers’ more general beliefs about pedagogy and the quality of their classroom practice (see Table 3). Significant positive correlations were recorded for the Teacher responsibility and Teachers’ belief in self efficacy scales and each dimension of classroom practice, while the Teachers’ belief in student capacity and Teachers’ belief in outside factors affecting them scales recorded correlations with the Quality Learning Environment, Significance, and Total observation scores. There were no significant correlations between these belief scales and the quality of tasks.

Table 3: Pearson Bivariate Correlations, Teacher Fundamental Beliefs about Pedagogy v. Pedagogy Measures, r and n (pairwise deletion, teacher level aggregates)

<table>
<thead>
<tr>
<th></th>
<th>Observations</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IQ</td>
<td>QLE</td>
</tr>
<tr>
<td>Teacher Responsibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.21*</td>
<td>.35**</td>
</tr>
<tr>
<td>n</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Teachers' belief in student capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.13</td>
<td>.26**</td>
</tr>
<tr>
<td>n</td>
<td>108</td>
<td>108</td>
</tr>
<tr>
<td>Teachers' belief in outside factors affecting them</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>-.16</td>
<td>-.28**</td>
</tr>
<tr>
<td>n</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>Teachers' belief in self-efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.23*</td>
<td>.33*</td>
</tr>
<tr>
<td>n</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

These findings relate to teachers’ more fundamental beliefs about pedagogy, their students and themselves, rather than their particular understandings of or support for QT. Interestingly, in demonstrating a link between such conceptions of themselves and their work with students, and the quality of their classroom practice, the results point to the potential status of such fundamental or
underlying beliefs, rather than those about a particular reform, as a pre-condition for high quality practice. Datnow and Castellano (2000), in relation to the “success for all” reform in California, found that those teachers who embraced the program most strongly were “those for whom there was an ideological fit about what constitutes good teaching” (p.794). In our study, there were statistically significant inter-correlations between the teachers’ views about QT (as measured by the scales for importance, effect and support) and their more fundamental beliefs (as measured by the scales for teacher responsibility, belief in students, belief in outside factors, and belief in self efficacy) but at a low level (r < .2). As the longitudinal study progresses and as engagement with QT deepens, these patterns will be monitored.

Depth of understanding

One possible explanation for the lack of correlation between pedagogy and the valuing of QT relates to the depth of teachers’ understanding of the Quality Teaching framework. Anderson and Helms (2001) argue that much of what is advocated as reform may only understood at an abstract level by practitioners, leaving them to construct understanding themselves. If teachers hold partial or misunderstandings of the framework, translating its intent into practice is less likely to occur, hence the moderate pedagogy scores. The high level of commitment to QT apparent in the questionnaire data was not matched by the depth of understanding revealed in interviews. Indeed, our analysis of the interview data, reported below, revealed a wide range of views about QT, its purposes and potential.

Some teacher understandings were highly consistent with the QT framework. For instance, the following comments taken from interviews highlight QT as promoting accountability, reflection on practice, and engaging students with challenging and relevant knowledge and activities:

“I think it [QT] is good. I think that anything that’s going to encourage teachers and students to become more involved and interested is great, because I think it’s easy to slip into routines and just fly by the seat of your pants and not keep the purpose . . . in your head. So I think it makes teachers more accountable to themselves and to the school.”

“Evaluating what you’re doing and reflecting is important … it’s about making people, staff, more accountable for their lesson preparation and what they’re teaching and to be more aware of what they’re doing and their strategies.”

“the real essence [of QT] is to increase student engagement, to get them thinking in a broader capacity … really pushing them to use their brains in a way that gives them more engagement,
more enjoyment for what they’re doing. Linking it to the real world, I think that’s really important … trying to link it through and make it relevant.”

These understandings accord with the framing of the QT model as it was delivered to schools and highlight the potential for QT to impact on teachers’ pedagogy. The initial Discussion Paper distributed to NSW public schools presented the QT model as “a framework for teachers’ professional self-reflection and for school improvement practices”, adding, “with the aim of improving pedagogy and hence student learning, the model is available for use by schools and teachers to focus their discussion on teaching and assessment practices that take place in classrooms” (NSW DET, 2003, p.4). Some teachers have embraced these views, as indicated in their comments on the reflection and accountability for teaching that has been prompted by the QT model.

On the other hand, many comments from teachers indicated partial or misunderstandings of QT. For instance, encouraging students to talk with their peers to solve substantive problems is something that QT encourages. However, the first two quotes below illustrate the tendency among some teachers to reduce these ideas to rather non-specific notions of ‘group work’. This is one example of how QT is often (mis)understood as a set of teaching strategies or, as in the third quote below, a series of skills.

“I have done a 180 degree turn as far as student conversation goes. I used to demand quiet independent work. Now I encourage them to talk to their peers about their work and problem solve together.”

“I think it’s fantastic. I can’t imagine any other way. I don’t really know about the previous model because I graduated in 2000 so working in groups is brilliant.”

“Having now worked with it for quite some time now I can see the value of it, in as far as it is dissecting teaching, quality teaching, into more what I call a skills basis. Then you look at each skill and look at [the] monitoring of [those] skills…”

Quality Teaching is not a series of teaching skills which, if practised enough, will yield good outcomes for students. Rather, QT focuses teachers’ attention on the depth evident in what students are learning, the extent to which classrooms are truly positive environments which support student learning, and the extent to which learning experiences provided for students have any meaning beyond doing school work for the sake of getting through school. Teachers who conceive of QT as a series of skills, or set of classroom strategies such as group work, miss the critical point of QT’s focus on how knowledge and experiences are structured to improve student learning.
The lack of correlation between teachers’ beliefs about QT and the quality of their pedagogy across the whole sample, coupled with the diversity in teachers’ understanding of QT, warranted further investigation. In order to better understand the interaction of beliefs about QT, general beliefs about pedagogy, and the quality of pedagogy, we conducted more focused analyses as documented in the next section.

Comparing high and low scoring teachers

To more deeply investigate the relationship between beliefs and pedagogy, we examined the interview and questionnaire responses of teachers whose classroom and/or assessment practice fell at the extremes of measured performance. That is, from the groups of teachers whose scores were more than one standard deviation above or below the mean, we selected the 15 teachers with the highest and the 15 with the lowest classroom observation scores and the 15 with the highest and 15 with the lowest assessment task scores, yielding four groups aligning with the tails of recorded performance (see Figures 2 and 3 below). Hence, for these analyses, we focused on 60 teachers from the total sample of 169 teachers from whom we had classroom observation scores (n=330 observations), and the 136 teachers from whom we had coded assessment tasks (n=199 tasks). Note that for individual teachers we had on average two coded observations and more than one task.

Figure 2. Observation scores by teacher

![Figure 2](image1.png)

Mean = 46.34  
SD = 9.67

Figure 3. Task scores by teacher

![Figure 3](image2.png)
Within this sample of 60, only two teachers appeared in more than one category. One teacher was in the top 15 for classroom observations but the bottom 15 for assessment tasks. Another teacher appeared in the bottom 15 for both assessment tasks and observations. The interview and questionnaire responses (where available) of the 58 different teachers who appeared in these four groupings were examined to look for any patterns in teachers’ beliefs in relation to the quality of their pedagogy. Demographic data for the schools in which all of these teachers were located were available (see Table 4). However, not all of the teachers in the study who were observed, and / or who submitted an assessment task, were interviewed or completed the voluntary questionnaire, such that the available sample within each of the four groups of teachers, for whom we had all of this data, ranged from seven to thirteen.³

Potential confounding factors

Before exploring patterns in understanding shown by the different groups of teachers, it is instructive to examine whether school type and/or years of teaching experience were explanatory factors in the composition of these top and bottom scoring groups of teachers. Lee and Burkam’s (2002) study of disadvantage in US schools led them to conclude that, “Whether “quality” is defined in terms of school sector, class size, school outreach to parents, teacher qualifications, teacher attitudes, or school environmental conditions, disadvantaged and minority children begin their educational careers in schools of consistently lower quality” (p. 84). There is also substantial evidence of difficulties retaining teachers in these “hard to staff” schools, leading to them having disproportionately large

³ As a consequence, data on teachers’ years of experience could only be reported for 38 of these 58 teachers (see Table 5).
numbers of early career teachers (Cochran-Smith, 2004; Martinez, 2005). Examining characteristics of schools, and average years of teaching experience, for the schools in which teachers in the top and bottom groups are located offers insight into the extent to which these factors might impact on the capacity to produce high quality pedagogy.

School type

A number of different aspects of school type were considered. First, in light of attention given to differences in pedagogy within school sectors, particularly associated with the concept of middle schooling (Chadbourne, 2001), we identified each of the teachers by school sector. Next, given a perception that teaching is harder in poorer schools (Swanson Gehrke, 2005), and/or that the average lower outcomes for students from poorer schools is in part a result of the quality of teaching they receive (Lee & Burkam, 2002), we considered the socio-economic status (SES) of the schools in which these teachers were located. Australian Bureau of Statistics measures of the economic resources of districts surrounding schools were divided into quartiles, where SES Band 1 is the poorest, and Band 4 the wealthiest, of the schools. Another issue commonly believed to impact on teaching in Australian schools is the proportion of Indigenous students (those of Aboriginal and Torres Strait Islander (ATSI) descent) (NSWAECG & NSWDET, 2004). Table 4 reports these characteristics of the schools in which the top and bottom groups of teachers were located.

Table 4. School characteristics for top and bottom teacher groups

<table>
<thead>
<tr>
<th>Group</th>
<th>School characteristics</th>
<th>Primary</th>
<th>Secondary</th>
<th>Number of SES Band 1 Schools</th>
<th>Avg. % (% range) ATSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>Top 15</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>3.56% (0-9%)</td>
</tr>
<tr>
<td></td>
<td>Bottom 15</td>
<td>2</td>
<td>13</td>
<td>8</td>
<td>14.35% (0-33%)</td>
</tr>
<tr>
<td>Tasks</td>
<td>Top 15</td>
<td>5</td>
<td>10</td>
<td>7</td>
<td>4.85% (0-25%)</td>
</tr>
<tr>
<td></td>
<td>Bottom 15</td>
<td>14</td>
<td>1</td>
<td>8</td>
<td>29.5% (0-61%)</td>
</tr>
</tbody>
</table>

Looking first at primary / secondary sectors and classroom observation scores, teachers with the top performances are quite evenly distributed, while secondary teachers are over-represented among the bottom performances (13 of 15). When we turn to the task scores, the top performances were more commonly found among secondary teachers (10 of 15) while primary teachers were overwhelmingly
represented among the bottom task performances (14 of 15). These patterns are consistent with the whole sample statistics, and might, at least in part, be explained by the structure of schooling in each sector. In primary schools there is a clear focus on processes and activities to support student learning which might contribute to the higher levels of classroom practice observed. On the other hand, the more acute focus in secondary schools on high-stakes assessment might help to explain the relatively high proportion of secondary teachers (two-thirds) among the top task group. In QT terms, and particularly in terms of Intellectual Quality, what these data illustrate is that primary teachers may require more of their students in class while demanding less of them in the tasks they set, while the reverse is true for secondary teachers, where the demands they place on students through assessment tasks may be greater than what they offer in class.

Considering the SES of the schools within these groups, a disproportionate number of teachers who recorded the bottom performances in both observations and assessment tasks were located in SES Band 1 schools. Eight of the 15 teachers whose classroom practices scored lowest were in Band 1 schools, and the same was true for assessment tasks. Similarly, among the bottom performances there were a disproportionate number of schools with higher percentages of Indigenous students (noting that the State average is 4.7%) (see Amosa & Cooper, 2006 for a fuller account of the impact of these contextual factors on the quality of pedagogy). One anomaly among these data was the high proportion of teachers in SES Band 1 schools among the top task performances (7 of 15). In Haberman’s (2002) analysis of successful and unsuccessful teachers in poor schools in the US, he found that even in difficult circumstances some teachers succeed because they hold high expectations and demand high quality work from their students. In the NSW context, the historical legacy of extra support given to low SES schools through the Disadvantaged Schools Program, and more recently, the Priority Schools Funding Program and Priority Action Schools Program, all of which have focused on moving beyond a deficit approach to disadvantage and raising teachers’ expectations of students (Ruge, 1999), may help to explain the convergence on tasks.

The analysis of school type in relation to the quality of pedagogy among the top and bottom teaching performances thus outline some broad patterns along fairly predictable lines. The best observed classroom practice appears less likely to be found in low (Band 1) SES schools, or those with higher than average percentage enrolments of ATSI students, while the quality of assessment tasks appears unrelated to SES. A significant conclusion to be drawn from this analysis, however, is that these demographic characteristics of schools did not preclude high quality teaching performances.

**Years of teaching**

In terms of years of teaching experience across these four groups, there are no definitive patterns (see Table 5). For instance, looking at teachers who are relatively new to teaching finds them among both
the top and bottom observation and task performances. Interestingly, whereas tasks appeared to be least affected by school type, all but one of the teachers found in the bottom task group have less than 9 years experience, the exception having been teaching for more than 24 years, while teachers in the top task group were more broadly distributed across the range of teaching experience. Looking at observations, patterns are no more evident. For example, while six of the eleven teachers in the bottom observation group have three years or less teaching experience, teachers in this group are spread across the full range of teaching experience. The spread is more even for top observations. Here too then, these results clearly show that years of experience do not preclude high or low teaching performances.

Common developmental understandings of teachers’ careers suggest that teachers take some years to develop competence and stability and that some teachers end their careers rather cynically (Guskey & Huberman, 1995), but these data show no clear relation between point in teaching career and the quality of pedagogy (see Gore, Williams and Ladwig, 2006 for a specific examination of some of these issues in relation to early career teachers). All teachers, it seems, are capable of producing high levels of Quality Teaching and no group of teachers, by years of experience, appears to be more or less capable than any other.

**Table 5. Years of teaching for comparison groups**

<table>
<thead>
<tr>
<th></th>
<th>Top observations</th>
<th>Bottom observations</th>
<th>Top tasks</th>
<th>Bottom tasks</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>1-3 yrs</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>4-6 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-9 yrs</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>10-12 yrs</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>13-15 yrs</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16-18 yrs</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>19-21 yrs</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>22-24 yrs</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>&gt; 24 yrs</td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Average yrs teaching</td>
<td>9</td>
<td>7</td>
<td>10</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>11</td>
<td>13</td>
<td>7</td>
<td>38</td>
</tr>
</tbody>
</table>

**Beliefs about Quality Teaching**

Given that the four groups in these analyses were largely comprised of different teachers (with the two exceptions noted above), and in light of the lack of a clear correlation in the whole sample’ differences in whole sample correlations between teachers’ fundamental beliefs and observations, and these
beliefs and tasks, we analysed the survey and interview responses of the top and bottom observation groups separately from the top and bottom task groups. The only statistically significant differences between the top and bottom observation groups were that the higher scoring group believed more strongly that they had found the QT model to be a useful resource for their teaching \((t(15) = 2.25, p<0.05)\), and were less likely to see the QT model as having had no impact on their students \((t(14) = -2.91, p<0.05)\). The first of these findings suggests that the top scoring teachers’ beliefs about teaching may have been more consistent with the QT framework, while the second finding is an indicator that they value its impact on their work. These findings are confirmed in their interview responses, with the top observation teachers stating:

“Evaluating what you’re doing and reflecting is important. … The quality of my lessons has improved. It’s more work to begin with, but once you become more familiar with the three dimensions then I think it becomes an integrated part of the way you operate.”

“I actually think it’s [QT’s] fantastic . . . This is the first time since I started teaching that I am actually teaching, rather than just giving students work to do . . . it’s a bit scary really.”

“It makes me more aware of connecting what’s going on in the classroom to what’s going on outside in society and in students’ lives. I’m really aware of the significance part. I’m very aware of making it overtly significant. It’s raised my awareness of the importance of significance.”

These responses from top performing teachers reveal an understanding of the QT initiative that moves beyond particular skills or teaching strategies to fundamental principles of teaching and learning upon which all such skills and strategies might be based. In contrast, interview responses from teachers with the lowest observation scores demonstrate less of a commitment to, or understanding of, QT.

“For me personally, I haven’t changed, but I feel justified with some of the things that I do that I didn’t feel justified . . . I thought I was doing the right thing but I didn’t have the justification and now I have it all confirmed.”

Indeed, in light of the measures of pedagogy recorded, this statement suggests a false sense of security in the quality of the teacher’s practice.

The same analyses were conducted for the top and bottom task groups with similar patterns identified. Teachers whose tasks scored highest were more likely to report that they had been supported by their school executive to engage with QT \((t(15) = 2.01 \ p<0.05)\), and were more likely to agree that their own
enthusiasm for QT had been dampened by others who do not care about it (t(13) = 3.60 p<0.05). The first of these findings confirms the value of school leader support for such reform within a school, while the second highlights the negative potential of a lack of support from colleagues within the school. Interestingly, teachers whose tasks scored in the top group were also less likely to report that their QT professional learning had focused on the use of the model in relation to assessment tasks (t(15) = -3.27 p<0.05). This finding was recorded prior to the NSWDET’s distribution of QT support materials on assessment practice, thus raising questions about the extent to which any QT professional learning focused on assessment, received by teachers in the bottom group, may have contributed to their understanding or (mis)understanding of the model.

Interview responses from teachers with the highest task scores focussed on its impact and on its value as a tool for enhancing their practice:

“The model [is] about depth in teaching, not just skimming the surface.”

“The model has made me stop and think . . . is what I’m doing appropriate, is it suitable for them, is it challenging for them? . . . I just choose lessons of quality rather than quantity.”

“Some people might just think they’re in Year 2, you can’t expect too much. Well, I’ve sort of gone the other way . . . They all know what to do and what’s expected and just their level of writing is really amazing. . . . I really like ‘explicit quality criteria’. If you know what that is and the kids know what that is, well then it just makes their learning so much easier and their grasping. They know what’s expected and they’re able to work independently.”

“I’m really quite excited about the whole thing [QT] . . . Seems to make me want to come to school . . . It gives me something to focus on . . . No-one is forcing me to look at this in great, terrible detail . . But I’m very interested in it, and I can see that it’s useful.”

“It’s a really good reflective tool; a framework that gives teachers a way to reflect on their classroom, assessment and programming practice. That’s where it’s value lies.”

“We’ve got people who have no idea what the QT model is and I can’t understand their opposition. I want to know what their alternative is. What’s the alternative to Quality Teaching? Crap? . . . What it does is it makes you question your practice and that is very threatening to teachers.”
Like the responses of those with the highest observations, teachers here show some grasp of the underlying principles of QT, in terms of fundamentally re-thinking their practice. Interview responses from teachers with lowest task scores, on the other hand, demonstrate either a more limited knowledge of QT, or an interpretation of the model that confirms their existing practice:

“I am not well versed in the [QT] model at this stage.”

“The only work I’ve done on QT is what we have done in the staffroom. And after you have heard that you go away and forget about it . . . and focus on managing the kids.”

“Teachers are doing a lot of what is in the model.”

“I think everyone’s probably doing it without realizing the degree to which they’re doing it.”

These analyses indicate some differences in how the top and bottom groups understand QT and how it might be useful in their own practice. Teachers in the top groups appear to hold deeper understandings of the substance of the model and how it can be used to critically reflect on, and challenge, their own practice, while those in the bottom groups reveal less developed understandings that are unlikely to impact on their practice.

Fundamental beliefs about teaching

We also examined differences in how the top and bottom groups of teachers view teaching more broadly. It was in this area of analysis that some stark differences were found between high and low scoring teachers, based on their QT observation (classroom practice) scores (Table 6). Statistically significant differences (p< 0.05) between these groups were found in three of the four teacher belief scales used in our survey: Teachers’ beliefs in student capacity, Teachers’ belief in self efficacy, and Teacher responsibility. Given the very small sample sizes, these differences are highly significant in statistical terms. The fourth scale, Teachers’ belief in outside factors, while not statistically significant, represents a substantive difference of more than one standard deviation. (See Appendix 3 for details of scales used in analysis of SIPAQ survey results).
Table 6. Group Statistics for Teacher Belief Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers’ belief in student capacity</td>
<td>Top obs</td>
<td>7</td>
<td>9.86</td>
<td>2.04</td>
<td>.77</td>
<td>2.55</td>
<td>15</td>
<td>.022*</td>
</tr>
<tr>
<td></td>
<td>Bottom obs</td>
<td>10</td>
<td>6.8</td>
<td>2.66</td>
<td>.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers’ belief in outside factors</td>
<td>Top obs</td>
<td>6</td>
<td>8.83</td>
<td>3.31</td>
<td>1.35</td>
<td>-2.12</td>
<td>13</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>Bottom obs</td>
<td>9</td>
<td>13.33</td>
<td>4.42</td>
<td>1.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers’ belief in self efficacy</td>
<td>Top obs</td>
<td>7</td>
<td>16.00</td>
<td>1.91</td>
<td>.72</td>
<td>2.23</td>
<td>14</td>
<td>.043*</td>
</tr>
<tr>
<td></td>
<td>Bottom obs</td>
<td>9</td>
<td>13.11</td>
<td>3.22</td>
<td>1.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher responsibility</td>
<td>Top obs</td>
<td>6</td>
<td>35.00</td>
<td>4.20</td>
<td>1.71</td>
<td>2.44</td>
<td>13</td>
<td>.030*</td>
</tr>
<tr>
<td></td>
<td>Bottom obs</td>
<td>9</td>
<td>27.78</td>
<td>6.36</td>
<td>2.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05

These results reveal that the teachers in the top observation group have significantly different fundamental understandings, compared with their peers in the bottom observation group, of their responsibility for their students’ learning, their own capacity to make a difference, the capacities of their students to learn, and the impact of external factors beyond their control. That is, the teachers whose lessons scored in the top 15 of the 169 teachers for whom we have observation data, expressed a stronger belief in the capacity of their students to learn, a stronger belief in their own capacity to make a difference, and a stronger belief in their own responsibility for their students’ learning. These teachers also expressed a weaker belief in the negative impact of external factors on their work with students. These findings are consistent with the Queensland School Reform Longitudinal Study (QSRLS) (Education Queensland, 2001) which found that teachers with the highest pedagogy scores demonstrated a much stronger sense of responsibility for student learning than did teachers with the lowest scores.

In contrast to these beliefs, a teacher in the bottom observation group stated:

“not everyone is going to excel, but you need to give them the basics … it’s sometimes hard teaching stuff you know they are not going to get and are not that interested in. I had this idea that I’d have this class and everyone would be interested in learning and I’d be able to get them thinking and creating and problem solving, but it’s just not like that in reality. Now it’s just ‘try and get them through the basics.’

Similarly, some teachers in the bottom task identified perceived limitations of some students as negatively impacting on their capacity to learn:
“Life throws curve balls and interruptions … It’s impossible to have a 100 percent strike rate with students … Some students can’t produce work in the time frame and fall short of the benchmarks.”; and

“Academic excellence in subject matter is not achievable for every student.”

The QT framework is grounded in the idea that all groups of students can and should be engaged in high quality, intellectually demanding work. The results here clearly point to the importance of teachers’ fundamental beliefs about teaching that connect with this feature of the QT framework with respect to the quality of their teaching practice. Whereas commitment to QT is insufficient to impact on practice, teachers’ beliefs about QT, and their fundamental beliefs about their work, appear to be more directly linked to their practice, and hence to prospects of achieving systemic change in teachers’ pedagogy.

**Conclusion**

The identification of links between teachers’ knowledge, beliefs and attitudes, and their teaching practice, stands to provide insights into the conditions that support pedagogical reform. Early findings from the longitudinal SIPA study in NSW begin to develop such insights by examining links between how teachers view, interpret and seek to implement the Quality Teaching model of pedagogy, their more fundamental beliefs about themselves, their work and their students, and measures of their performance.

Our study shows a high level recognition of the value and importance of the QT initiative amongst respondents which, given the importance of teacher support for, and a sense of ownership of, change initiatives in schools for successful reform, holds some promise. However, with no clear correlation between this expressed support and measures of teachers’ performance, the whole sample findings seem to confirm that, on its own, this does not have a significant impact on practice.

We might expect to find strong correlations between aspects of school type and teacher performance, given the well established links between demographic features like the socioeconomic status of the school, and / or the proportion of Aboriginal and Torres Strait Islander students within the school, and student outcomes. Neither these features, nor years of teaching experience, produced consistent patterns when examining performance amongst groups of top and bottom performing teachers within the whole sample. Rather, data from these groups showed links between performance and aspects of their expressed understandings of the QT model, and more fundamental understandings of their work.
and their students. That is, in addition to high levels of support for QT, teachers in the top groups showed a deeper understanding of the substance of the model and how it relates to their practice. Similarly, teachers in the top group were more likely to express a sense of responsibility for their students’ learning, and show more faith in both the capacity of their students to learn, and their own capacity to make a difference, than their counterparts in the bottom groups.

These initial indications are positive, suggesting that regardless of the particular setting or years of experience, there are reasonable grounds to argue that all teachers can implement QT in their practice. In a sense, anyone can do it. The crucial questions appear to be finding ways to enhance teachers’ understanding of the model, and their broader understanding of their role in the profession, given the relationship between such beliefs and the quality of their practice. Subsequent analyses of the longitudinal data may provide insights into the extent to which changes in practice impact on teachers’ beliefs, and/or changes in their beliefs impact on practice. The critical finding here is clear evidence of a positive relationship between beliefs and practice, and hence support for ongoing system and school level attempts to promote both changes to practice in line with QT, and deeper understanding of QT. As demonstrated in this paper, the pedagogical reform that is the goal of the QT initiative is unlikely to occur without teachers’ support for QT, teachers’ deep understanding of QT, teachers’ deep commitment to their students’ learning and belief that their teaching makes a difference, and associated efforts to teach well.
References


Chadbourne, R. (2001). *Middle Schooling for the Middle Years; What might the jury be considering?* Southbank: Australian Education Union.


The NSW model of pedagogy

The model of pedagogy presented in the *Quality teaching in New South Wales public schools: Discussion paper* (NSW Department of Education and Training, 2003) 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.

<table>
<thead>
<tr>
<th>Elements</th>
<th>Intellectual quality</th>
<th>Quality learning environment</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep knowledge</td>
<td></td>
<td>Explicit quality criteria</td>
<td>Background knowledge</td>
</tr>
<tr>
<td>Deep understanding</td>
<td></td>
<td>Engagement</td>
<td>Cultural knowledge</td>
</tr>
<tr>
<td>Problematic knowledge</td>
<td></td>
<td>High expectations</td>
<td>Knowledge integration</td>
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<td>Higher-order thinking</td>
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<td>Social support</td>
<td>Inclusivity</td>
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<td>Metalinguage</td>
<td></td>
<td>Students’ self-regulation</td>
<td>Connectedness</td>
</tr>
<tr>
<td>Substantive communication</td>
<td></td>
<td>Student direction</td>
<td>Narrative</td>
</tr>
</tbody>
</table>

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

1.1 Deep knowledge

Description

Knowledge is deep when it concerns the central ideas or concepts of a topic, subject or KLA and when the knowledge is judged to be crucial to the topic, subject or KLA. Deep knowledge is evident when either the teacher or the students provide information, reasoning or arguments that address the centrality or complexity of a key concept or idea, or when relatively complex relations are established to other central concepts.

Knowledge is shallow or superficial when it does not concern significant concepts or key ideas of a topic, subject or KLA, or when concepts or ideas are fragmented and disconnected from a central focus. Knowledge is also shallow when important ideas are treated superficially by the teacher or students, or when there is no clear focus on an important idea or concept. This superficiality can arise from trying to cover large quantities of fragmented information that results in the content covered remaining unconnected to central ideas or concepts.

Coding scale

To what extent is the knowledge being addressed focused on a small number of key concepts and the relationships between and among concepts?

Deep knowledge

1. Almost all of the content knowledge of the lesson is shallow because it does not deal with significant concepts or ideas.

2. Some key concepts and ideas are mentioned or covered by the teacher or students, but only at a superficial level.

3. Knowledge is treated unevenly during instruction. A significant idea may be addressed as part of the lesson, but in general the focus on key concepts and ideas is not sustained throughout the lesson.

4. Most of the content knowledge of the lesson is deep. Sustained focus on central concepts or ideas is occasionally interrupted by superficial or unrelated ideas or concepts.

5. Knowledge is deep because focus is sustained on key ideas or concepts throughout the lesson.
Sample elements from the NSW Quality Teaching model: Appendix Two

Classroom Practice Guide

**Intellectual Quality**

**Notes**

1. The essential difference between deep knowledge and deep understanding is that deep knowledge is about how content is presented in a lesson, while deep understanding is about the learning students demonstrate. It is possible for deep knowledge to be presented (by the teacher, students or guest speakers), but for students to demonstrate only superficial understanding, or vice versa.

2. In curriculum debates, a strong distinction is often made between depth and breadth of knowledge, which at times pits one against the other. It is important to recognise that substantial syllabus content coverage (some breadth) is necessary in order to achieve depth of knowledge. Consequently, depth cannot be achieved simply by focusing on “less” content.

3. The main issue related to deep knowledge is one of quality. Deep knowledge requires relevant syllabus content to be organised and taught in such a way that a small number of ideas or concepts are clearly established as the focus of the lesson. Depth is present if the content of a lesson is structured such that the central focus brings coherence and purpose to the lesson.

**Suggestions**

- Identify and review students’ prior knowledge as a starting place for addressing deep knowledge.
- Identify significant concepts in syllabuses by reviewing objectives, outcomes, content (e.g. learn about and learn to statements) and stage statements. Reflect on how the syllabus content can explicitly illustrate the concepts.
- Identify the key concepts and relationships to be addressed by asking the questions: What do I want the students to learn? and Why does that learning matter?
- Check that you have identified the key concept or relationship by asking the question: How well does the concept or relationship draw the content together?
- Map outcomes and content during unit planning so that each lesson focuses on illustrating significant concepts while addressing manageable amounts of content.
- Connect key concepts being addressed from lesson to lesson.
- Use learning tools in both planning and teaching to connect, identify and clarify knowledge, e.g. concept maps which explain relationships within a complex issue or topic.
- Select specialised resources carefully to build deep knowledge. These could include field experts, the local community and services, the Internet, multimedia and out-of-school visits.
- Provide unit or module overviews for students so that they can see how the concepts fit into the overall picture.
Sample elements from the NSW Quality Teaching model: Appendix Two
Assessment Practice Guide

INTELLECTUAL QUALITY

1.1 Deep knowledge

Description

Knowledge is deep when it concerns the central ideas or concepts of a topic or subject and when the knowledge is judged to be crucial to the topic or subject. Deep knowledge is evident in a task when students are required to address the centrality or complexity of one or two key concepts or ideas, and to articulate relatively complex relationships between central concepts.

Knowledge is shallow or superficial in a task when it does not require students to address significant concepts or key ideas of a topic or subject, and when concepts or ideas are fragmented and disconnected from a central focus.

Coding scale

To what extent does the task focus on a number of key concepts within topics, subjects or KLAs, and require clear articulation of the relationships between and among concepts?

<table>
<thead>
<tr>
<th>Deep knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The task does not require students to address significant concepts or ideas.</td>
</tr>
<tr>
<td>2. The task requires students to address some key concepts and ideas but only at a superficial level.</td>
</tr>
<tr>
<td>3. The task requires students to address a significant idea, but in general they are not required to sustain a focus on key concepts and ideas.</td>
</tr>
<tr>
<td>4. The task requires sustained focus on key concepts or ideas but does not require articulation of the relationships between and among concepts.</td>
</tr>
<tr>
<td>5. The task requires sustained focus on key concepts and ideas and requires clear articulation of the relationships between and among concepts.</td>
</tr>
</tbody>
</table>
Sample elements from the NSW Quality Teaching model: Appendix Two
Assessment Practice Guide

**Intellectual Quality**

**Notes**

1. The main issue related to deep knowledge is one of quality. Deep knowledge requires relevant syllabus content to be organised in such a way that a small set of ideas or concepts (one or two) is clearly established as the focus of the task. A task incorporates deep knowledge when it is structured such that it assists students to develop a coherent and purposeful response around a few key concepts.

2. In determining whether or not concepts or ideas are 'key' concepts, consider their broader meaning. Ask: "Does this concept or idea have significance for a lot of people?"; "Has its meaning lasted over time?"; "Does its meaning hold across a wide range of locations?" One of the tasks included in Continuing the discussion about assessment practice asks students to use the 3 on 2 situation in sport to their advantage. The deep knowledge lies in recognising the tactical advantage in using open space as a strategic principle in multiple contexts, including non-sporting contexts.

3. In curriculum debates, there has been a strong distinction made between depth and breadth of knowledge, which at times pits one against the other. It is important to recognise that some breadth is necessary in order to achieve depth of knowledge. Consequently, depth cannot be achieved in tasks simply by focusing on "less" content.

4. It is possible for a task to require students to address deep knowledge but require them to demonstrate only superficial understanding.

**Suggestions**

- Identify significant concepts in syllabuses by reviewing outcomes, content and stage statements. Reflect on how the syllabus content can explicitly illustrate the concepts.
- Focus tasks on relating central concepts and ideas with other concepts, or to particular contexts. Linking the task to previously addressed ideas (from either prior classwork or other tasks) or to new, as yet unexplored, concepts or contexts are two ways to strengthen the deep knowledge of a task.
- Ensure the task connects and scaffolds key concepts being addressed.
- Design tasks that require students to draw content together through the use of key concepts.
- Require students to carefully draw on a wide range of resources to help build deep knowledge. Such resources could include field experts, local community services, the Internet and other multimedia sources.
2.1 Explicit quality criteria

Description

High explicit quality criteria is identified by frequent, detailed and specific statements about the quality of work required of students. Explicit quality criteria become reference points when the teacher and/or students use the criteria to develop and check their own work or the work of others.

Low explicit quality criteria is identified by an absence of written or spoken reference to the quality of work expected of students. Reference to technical or procedural requirements only (such as the number of examples, length of an essay or the duration of a presentation) is not evidence of explicit quality criteria.

Coding scale

To what extent are students provided with explicit criteria for the quality of work they are to produce? To what extent are those criteria a regular reference point for the development and assessment of student work?

<table>
<thead>
<tr>
<th>Explicit quality criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No explicit statements regarding the quality of work are made. Only technical and procedural criteria are made explicit.</td>
</tr>
<tr>
<td>2. Only general statements are made regarding the desired quality of the work.</td>
</tr>
<tr>
<td>3. Detailed criteria regarding the quality of work are made explicit during the lesson, but there is no evidence that students are using the criteria to examine the quality of their work.</td>
</tr>
<tr>
<td>4. Detailed criteria regarding the quality of work are made explicit or reinforced during the lesson and there is evidence of some students, some of the time, examining the quality of their work in relation to these criteria.</td>
</tr>
<tr>
<td>5. Detailed criteria regarding the quality of work are made explicit or reinforced throughout the lesson and there is consistent evidence of students examining the quality of their work in relation to these criteria.</td>
</tr>
</tbody>
</table>
Sample elements from the NSW Quality Teaching model: Appendix Two

Classroom Practice Guide

**Quality Learning Environment**

**Notes**

1. Designating what students are to do in order to complete a task does not by itself clarify what counts as high quality work. Merely outlining what students are supposed to complete is procedural. Explicit quality criteria, on the other hand, clarify for all students what the teacher expects in terms of a high quality completion of a task.

2. In some lessons and activities, explicit quality criteria should not be pre-specified, but rather allowed to develop as students are required to create their own work. When observing these lessons or activities, the question of explicit quality criteria relies on whether you can see students interacting with the quality criteria as they develop.

3. While the coding scale places value on the articulation of detailed criteria, simply listing detailed criteria may not give a full picture of what constitutes high quality work. For instance, at times when the “whole is greater than the sum of the parts”, it may be useful to discuss the difference between a holistic impression in contrast to a point by point analysis.

**Suggestions**

- Ask the questions: What do I expect the students to produce? and How well do I expect them to do it?
- Provide students with clear criteria that explicitly describe the quality of work expected. This could be developed with the class through initial brainstorming and then discussion and refinement or through the development of an assessment rubric.
- Assist students to clarify the criteria to reach a shared understanding of what is expected, e.g. have students re-state in their own words what is meant by the criteria and identify examples of the criteria in their work and the work of other students.
- Assist students to use the quality criteria to reflect on and modify their work as it develops. This may assist students to develop skills in self-evaluation.
- Use the criteria to assess student work and to provide feedback during development, as well as on completion of the task.
- Provide annotated exemplars, work samples or models that illustrate high quality student performance based on the criteria. These exemplars could be work from past students and other sources.
Sample elements from the NSW Quality Teaching model: Appendix Two

Assessment Practice Guide

2.1 Explicit quality criteria

**Description**

High explicit quality criteria in a task is identified by detailed and specific statements about the quality of work required of students. Explicit quality criteria become a reference point for assessing student work when it is clear how those criteria will be used to assess students’ work.

Low explicit quality criteria in a task is identified by an absence of written reference to the quality of work expected of students. Reference to technical or procedural requirements only (such as the number of examples, length of an essay or the duration of a presentation) is not evidence of explicit quality criteria.

**Coding scale**

*To what extent does the task provide explicit criteria for the quality of work students are expected to produce, and use those criteria as a reference point for assessing the student work?*

<table>
<thead>
<tr>
<th>Explicit quality criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No explicit statements regarding the quality of work are made. Only technical and procedural criteria are made explicit.</td>
</tr>
<tr>
<td>2. Only vague statements are made regarding the desired quality of work.</td>
</tr>
<tr>
<td>3. Clear statements are made regarding the quality of work but there is little elaboration of what it means to do well.</td>
</tr>
<tr>
<td>4. Clear statements are made regarding the quality of work and there is some elaboration of what it means to do well.</td>
</tr>
<tr>
<td>5. Statements regarding the quality of work are made explicit and it is clear how these criteria will be used in assessing student work.</td>
</tr>
</tbody>
</table>
Sample elements from the NSW Quality Teaching model: Appendix Two

Assessment Practice Guide

QUALITY LEARNING ENVIRONMENT

Notes

1. Designating what students are to do in order to complete a task does not by itself clarify what counts as high quality work. Merely outlining what students are supposed to complete is procedural. Explicit quality criteria, on the other hand, clarify for all students what the teacher expects in terms of a high quality completion of a task.

2. Teacher modelling of a task does not constitute clear quality criteria as students may merely mimic what they have observed. However joint construction with the teacher, or a group of students, where students are engaged in producing their own model of what constitutes a high quality response to a task, can be regarded as high in explicit quality criteria.

3. In some practical creative tasks, it may not be possible to develop explicit quality criteria for particulars of the required product, as students may create their own work by determining the style, genre and materials they select. However, it is still possible to provide some general criteria which may be refined as the students develop their work.

4. While the coding scale places value on the articulation of detailed criteria, simply listing detailed criteria may not give a full picture of what constitutes high quality work. For instance, at times when the "whole is greater than the sum of the parts", it may be useful to clarify the difference between a holistic impression in contrast to a point by point analysis. In the construction of a holistic grading rubric associated with a set of marking criteria, clear connections should be made between the elements within a rubric and the separate criteria. Holistic rubrics should make clear how credit is given to the components within the rubric.

Suggestions

- As you design the task, keep in mind the questions: What do I expect the students to produce? and How well do I expect them to do it?
- When devising rubrics for assessment, consider whether the criteria refer to the quality of the work explicitly, or merely give procedural or technical instructions.
- Involve students in joint construction of clear criteria for the task that explicitly describe the quality of work expected. If the students have some control over the development of the assessment rubric they may have a greater understanding of what quality means.
- Use the criteria to assess student work and to provide feedback during development, as well as on completion of the task.
- Provide annotated exemplars, work samples or models that illustrate high quality student performance based on the criteria. These exemplars could be in the form of work from past students and/or other sources.
- Be clear about what counts as a high quality performance and communicate these criteria clearly so that all students know what quality work looks like, rather than spending lots of time articulating different bands or levels of performance.
Importance of Quality teaching

SIPAQ examined participants' opinions on the importance of the NSW model of pedagogy, Quality Teaching. A construct was created, made up of four items. The reliability score attained for this scale was alpha = .65. Respondents were asked to rate their opinion of Quality Teaching and its dimensions. The lowest possible score is 4 (Strong Disagreement) and the highest possible score is 24 (Strong Agreement). The mid-point of this scale is 14, so any score above a 14 indicates agreement. The closer a score is to 24, the stronger the agreement with the concept of seeing Quality Teaching as important.

The items included in this scale all led with the general prompt, ‘What are your opinions about the NSW model of pedagogy, Quality Teaching? Mark the choice which is closest to your opinion’ and included the following stems:

- The Quality Teaching model is an important focus for the NSW DET.
- It is important for teaching to promote high levels of intellectual quality for all students.
- A strong, positive and supportive learning environment affects the quality of students’ work.
- If students are to value what they learn, they need to be able to link their school work to their lives beyond the classroom.

Effect of Quality Teaching

SIPAQ examined participants' opinions on the extent of influence of the NSW model of pedagogy, Quality Teaching. A construct was created, “Effect of Quality Teaching”, made up of nine items. The reliability score attained for this scale was alpha = .91. The lowest possible score is 9 (Strong Disagreement) and the highest possible score is 54 (Strong Agreement). The mid-point of this scale is 31.5, so any score above 31.5 indicates agreement. The closer a score is to 54, the stronger the agreement with the concept of seeing Quality Teaching as influential.
The items included in this scale all led with the general prompt, ‘To what extent have you engaged with the NSW model of pedagogy, Quality Teaching? Mark the response which is closest to your opinion’ and included the following stems:

- I often engage in conversations with colleagues at my school about the Quality Teaching model.
- I have attempted to use the Quality Teaching model as a self-reflective tool.
- The Quality Teaching model has influenced the way that I plan my teaching.
- The Quality Teaching model has influenced the way that I develop learning tasks for my classes.
- The Quality Teaching model has had no impact on my students’ learning (reversed).
- I have tried to keep up-to-date with the Quality Teaching publications released by the NSW DET.
- The Quality Teaching model has made no difference to the way that I teach my students (reversed).
- I have found the Quality Teaching model to be a useful resource for my teaching.
- The Quality Teaching model has influenced the way that I develop assessment tasks for my classes.
Support for Quality Teaching

SIPAQ examined participants' opinions on the extent to which they felt they have been supported to engage with the NSW model of pedagogy, Quality Teaching. A construct was created, “Support for Quality Teaching”, made up of three items. The reliability score attained for this scale was alpha = .67. The lowest possible score is 3 (Strong Disagreement) and the highest possible score is 18 (Strong Agreement). The mid-point of this scale is 10.5, so any score above 10.5 indicates agreement. The closer a score is to 18, the stronger the agreement with the concept of being supported to engage with Quality Teaching.

The items included in this scale all led with the general prompt, ‘To what extent do you agree with the following statements?’ and included the following stems:

- I have been supported by my colleagues to engage with Quality Teaching.
- I have been supported by my school executive to engage with Quality Teaching.
- I have been supported by the NSW DET to engage with Quality Teaching.

Teacher responsibility scale

SIPAQ examined the extent to which participants agreed that they are responsible for student learning. A construct was created, “Teacher responsibility”, made up of seven items. The reliability score attained for this scale was alpha = .67. The lowest possible score is 7 (Strong Disagreement) and the highest possible score is 42 (Strong Agreement). The mid-point of this scale is 24.5, so any score above 24.5 indicates agreement. The closer a score is to 42, the stronger the agreement with the concept that teachers are responsible for student learning.

The items included in this scale included the following stems:

- I feel that I have been successful in providing the kind of education that I would like to provide for students.
- Many of the students I teach are not capable of learning the material I am supposed to teach them. (reverse coded)
- The attitudes and habits my students bring to my class greatly reduce their chances for academic success. (reverse coded)
• My success or failure in teaching students is due primarily to factors beyond my control rather than to my own efforts and ability. (reverse coded)
• Sometimes it is a waste of time to try to do my best as a teacher. (reverse coded)
• I am certain that I am making a difference in the lives of my students.
• The level of student behaviour and/or drug or alcohol use in this school interferes with my teaching. (reverse coded).

**Teachers’ belief in student capacity scale**

SIPAQ examined the extent to which teachers’ believed in student capacity to learn as a sub-set of the Teacher responsibility scale. A construct was created, “Teachers’ belief in student capacity”, made up of two items. The reliability score attained for this scale was alpha = .65. Scores for the included items with reverse coded for this scale to reflect the directionality of its meaning. The lowest possible score is 2 (Strong Disagreement) and the highest possible score is 12 (Strong Agreement). The mid-point of this scale is 7, so any score above 7 indicates agreement. The closer a score is to 12, the stronger the agreement with the concept that teachers believe in student capacity.

The items included in this scale included the following stems:

• Many of the students I teach are not capable of learning the material I am supposed to teach them. (reverse coded)
• The attitudes and habits my students bring to my class greatly reduce their chances for academic success. (reverse coded)

**Teachers’ belief in outside factors affecting them scale**

As another sub-set of the Teacher responsibility scale, SIPAQ examined the extent to which participants believed in outside factors affecting them. A construct was created, “Teachers’ belief in outside factors affecting them”, made up of four items. The lowest possible score is 4 (Strong Disagreement) and the highest possible score is 24 (Strong Agreement). The reliability score attained for this scale was alpha = .71. The mid-point of this scale is 14, so
any score above 14 indicates agreement. The closer a score is to 24, the stronger the agreement with the concept that teachers’ believe in outside factors affecting them.

The items included in this scale included the following stems:

- Many of the students I teach are not capable of learning the material I am supposed to teach them.
- The attitudes and habits my students bring to my class greatly reduce their chances for academic success.
- My success or failure in teaching students is due primarily to factors beyond my control rather than to my own efforts and ability.
- The level of student behaviour and/or drug or alcohol use in this school interferes with my teaching.

**Teachers’ belief in self efficacy**

For another subset of the Teacher Responsibility scale, SIPAQ examined the extent to which participants agreed teachers’ believed in self efficacy. A construct was created, “Teachers’ belief in self efficacy”, made up of three items. The reliability score attained for this scale was alpha = .56. The lowest possible score is 3 (Strong Disagreement) and the highest possible score is 18 (Strong Agreement). The mid-point of this scale is 10.5, so any score above 10.5 indicates agreement. The closer a score is to 18, the stronger the agreement with the concept that teachers’ believed in self efficacy. One item of this scale was reverse coded as indicated below.

The items included in this scale included the following stems:

- I feel that I have been successful in providing the kind of education that I would like to provide for students.
- Sometimes it is a waste of time to try to do my best as a teacher. (reverse coded)
- I am certain that I am making a difference in the lives of my students.