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**The importance of teaching:  
Ensuring *better schooling* by building teacher capacities that maximize the  
quality of teaching and learning provision – implications of findings from the  
international and Australian evidence-based research<sup>1</sup>**

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**Abstract:** Given the level of consensus regarding the importance of school education as an essential element of micro- and macro economic reform, policy issues surrounding *school* and *teacher effectiveness* are of particular importance. However, much of the traditional and prevailing dogmas surrounding ‘factors’ affecting students’ experiences and outcomes of schooling throughout their primary and secondary years, especially socio-cultural and socio-economic factors, are now understood to be products of methodological and statistical artifact, and amount to little more than ‘religious’ adherence to the moribund ideologies of *biological* and *social determinism*. Above all, a good deal of this ‘discourse’ is not supported by findings from evidence-based research. In this paper, key findings are presented that highlight ‘real’ effects from the related international and Australian research on *educational effectiveness*. For example, whereas students’ literacy skills, general academic achievements, attitudes, behaviors and experiences of schooling are influenced by their background and intake characteristics, the magnitude of these effects pale into insignificance compared with *quality teaching*. That is, the *quality of teaching and learning provision* are by far the most salient influences on students’ cognitive, affective, social and behavioral outcomes of schooling – regardless of their gender or backgrounds and the schools in which they are enrolled. Indeed, findings from the related local and international evidence-based research indicate that ‘**what matters most**’ in ‘making school better’ is *quality teaching*: by competent teachers, beginning with initial *teacher education* and *training* supported by *strategic, on-going capacity building* via *teacher professional development*.

## The international context

The provision of schooling is one of the most massive and ubiquitous undertakings of the modern state. Schools account for a substantial proportion of public and private expenditure and are universally regarded as vital instruments of social and economic policy aimed at promoting individual fulfillment, social progress and national prosperity. Moreover, since schooling generates a substantial quantity of paid employment for teachers and administrators, it is not surprising that there has long been an interest in knowing how *effective* the provision of school education is and how it can be improved.<sup>2</sup> What is surprising is the shakiness of our knowledge about *educational effectiveness* in terms of experiences and outcomes of schooling for students, teachers, parents and the wider community. Even more intriguing is that the journey taken by researchers and commentators since the 1960’s in search of answers appears, forty years later, to have only begun to cast light on what **really matters** in affecting students’

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<sup>2</sup> See, for example: Coleman *et al.* (1966); DES, (1984); Edmonds (1979a,b, 19981); Goodlad, (1982, 1983); Jencks *et al.* (1972); Mortimore (1992); OECD (1983, 1986, 1989, 2001); Reynolds, Hopkins and Stoll (1993); Rowe (2001a,b, 2003a, 2004a); Rowe and Lievesley (2002); Rutter *et al.*, (1979).

experiences and outcomes of schooling, namely, *quality teaching* by well-trained and competent *teachers*.<sup>3</sup>

Consistent with the adoption of corporate management models in educational governance and the prevailing climate of 'outcomes-driven' economic rationalism in which such models operate, policy activity related to issues of *accountability*, *assessment monitoring*, *performance indicators*, *quality assurance* and *school effectiveness* is widespread. However, economic and industrial issues surrounding *school* and *teacher effectiveness* are especially sensitive ones at the present time given the level of consensus regarding the importance of school education as an essential element of both micro- and macro economic reform, and in meeting the constantly changing demands of the modern workplace (OECD, 1983, 1986, 1989, 1993, 2001). Proclamations by the international media magnate Rupert Murdoch at the National Press Club on 12 October 2001, serve to underscore this importance. On this occasion, Murdoch asserted that if Australia continues with its reluctance to invest in the quality of its primary, secondary and tertiary educational infrastructure, and especially in *teacher quality*, "...Australia will end up even further behind the international economic '8-ball' than it is at present, such that Paul Keating's 'banana republic' prognostications will become a reality".

Unfortunately, in contrast to Murdoch's assertions, and to both the prominence and emphasis placed on *teaching* and *teacher quality* underlying the 2001 *No Child Left Behind Act* (NCLB) in the USA (see LaTrice-Hill, 2002), the bulk of recent international scholarly discourse concerned with *school effectiveness* has largely ignored the *importance of teaching*. Indeed, with few exceptions,<sup>4</sup> discussions informed by findings from evidence-based research that focus on the importance of *quality teaching* are conspicuous by their absence. Rather, the dominant discourse continues to be characterized by 'offerings' advocating *structural* changes for systemic, standards-based reform (including curriculum *deconstruction* and *reconstruction*) that have a long and not-so-distinguished history of rarely 'penetrating the classroom door'.<sup>5</sup>

Notwithstanding the difficulties entailed in defining an *effective school* or *quality teaching* (see: Cheng, 1996; Mortimore, 1991; Sammons, 1996, 1999), the work on *educational effectiveness* to date has focused primarily on the search for ways to measure the *quality* of a *school* – defined almost exclusively in terms of students' academic achievement progress in Literacy, Numeracy and Science.<sup>6</sup> Although the term *quality* is likewise problematic (Istance & Lowe, 1991), the "...measurement of the quality of schooling is of critical importance at a time when so much school reform in so many parts of the world is being undertaken" (Mortimore, 1991, p. 214). Nevertheless, for the past 25 years, concern about the *quality* of school education has become a high priority policy issue in all OECD countries where attention has focused on ways of assessing the *quality* of schools, of identifying factors associated with *effective schooling*, and on using such knowledge to achieve further improvements in quality.<sup>7</sup>

It has been noted frequently that school effectiveness research grew out of studies of *educational effectiveness* focusing on production functions (Fraser, Walberg, Welch & Hattie, 1987; Hanushek, 1979, 1985, 1986; Monk, 1992), and more especially out of the initial sociologically oriented input-output studies by Coleman *et al.* (1966) and by Jencks *et al.* (1972). These

<sup>3</sup> For sustained accounts of this 'journey' see: Bosker and Scheerens (1994); Creemers and Scheerens (1994); Mortimore, (1991, 1992); Reynolds and Cuttance (1992); Reynolds *et al.*, (1994); Sammons (1999); Scheerens (1992, 1993); Scheerens and Bosker (1997).

<sup>4</sup> See: Alton-Lee (2002a,b, 2003); Beare (2001, 2003); Cheng, Chow and Tsui (2001); Cheng, Mok and Tsui (2001); Hill (2003); Invarson (2002a,b, 2003); Kleinhenz and Ingvarson (2004); Muijs *et al.* (2004); Oser *et al.* (1992); Ramsey (2000); Rowe (2003a, 2004a,c); Zbar (2003).

<sup>5</sup> For examples of emphases on *structural* changes for systemic, standards-based reform, see: Caldwell (2003); Caldwell and Spinks (1988,1992); Cheng (1996); Hargreaves (2003); Harker and Tymms (2004); Stoll (2003); Stringfield *et al.* (2003); Teddlie and Reynolds (2000).

<sup>6</sup> Mortimore (1991, p. 216) suggests the following 'outcomes-oriented' definition: "An effective school is one in which pupils progress further than might be expected from consideration of its intake".

<sup>7</sup> See Ainley, Fleming and Rowe (2002); Banks (1992); Chapman *et al.* (1991); Coleman and Collinge (1991); Creemers and Scheerens (1989, 1994); Cuttance (1992a); Hill *et al.* (1996); Forster, Masters and Rowe (2001); McGaw, Piper, Banks & Evans (1992); Reynolds and Cuttance (1992); Rowe (2001a, 2004b); Rowe, Hill and Holmes-Smith (1995); Rowe, Holmes-Smith and Hill (1993).

researchers were interested primarily in issues of social 'equity' and the influence of the school relative to that of 'sociologically-determined' background characteristics of students. Their findings were interpreted as casting serious doubts on the capacity of schools to make a difference relative to the influence of the socio-cultural and economic capital of home background. Indeed, for the past 40 years, the major theories (or models) of learning processes (e.g., Bennett, 1978; Bloom, 1976; Carroll, 1963), and the 'process-product' research generated by them (Brophy, 1986; Fraser *et al.*, 1987), have primarily focused on *school learning*, or "...holistic conceptions of student learning in classroom settings" (Boekaerts, 1986, p. 129). Such has been the case despite consistent findings indicating that school factors including, financial and material resources, class size, teachers' qualifications, classroom organization and teaching methods, account for less than 15 per cent of the variance in measures of student achievement.<sup>8</sup>

Rather, during these 40 years, influential studies such as those reported by Coleman *et al.* (1966) and Jencks *et al.* (1972) in the USA, "...provided evidence that schools and teachers are not effective in enhancing achievement" (Hattie, 1992, p. 9). In fact, reported 'findings' from these early studies suggested that school effects have little impact on students' learning outcomes. For example, after estimating that only nine per cent of the variance in student achievement measures was due to school effects, Coleman *et al.* (1966) came to the somewhat depressing conclusion that "...schools bring little influence to bear on a child's achievement that is independent of his background and general social context" (p. 325). The consensus of findings from these studies was that ethnic and family socio-economic background factors constituted the dominant determinants of students' educational outcomes. Reynolds, Hargreaves and Blackstone (1980, p. 208) summarized this consensus in the following terms: "...variations in what children learn at school depends largely upon variations in what they bring and not on variations in what schools offer them".

In what has become a familiar pattern, the conclusions arrived at by this early research were consistent with prevailing socio-political opinion. However, a growing number of researchers have since provided contrary evidence to the claims that relative to home background influences the effects of schooling are negligible.<sup>9</sup> Many of these researchers have been critical of findings from studies such as Coleman *et al.* and Jencks *et al.* because the inherent hierarchical structure of the data had not been taken into account (i.e., students within classes, classes within schools, etc.; or repeated measures nested within students within classes, etc.).

Early studies of school effectiveness such as those by Brookover, Beady, Flood, Schweitzer and Wisenbaker (1979), Edmonds (1979a,b), and by Rutter *et al.*, (1979), were conceived largely as a reaction to the conclusions of Coleman and Jencks. The Brookover, Edmonds and Rutter studies adopted a different starting point and focused on identifying contextual features of schools in which students were performing better than their counterparts in comparable schools, after adjusting for the effects of intake characteristics. Given this starting point, the positive conclusions from such studies and the enthusiasm with which they were promoted was not unexpected. The key message from this work was that effective schools are characterized by an 'ethos' or 'culture' oriented towards learning, expressed in terms of high standards and expectations of students, an emphasis on basic skills, a high level of involvement in decision-making and professionalism among teachers, cohesiveness, clear policies on matters such as homework and student behavior, and so on. Moreover, 'effective schools' were also supposed to be characterized by outstanding educational leadership, particularly as implemented by the principal and directed at establishing agreed goals, increasing competence and involvement of

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<sup>8</sup> For example: Bosker *et al.* (1994); Bosker and Witziers (1995); Glass (1992); Glass *et al.* (1982); Hanushek (1979, 1985, 1986); Hattie (1992, 2003); Monk (1992).

<sup>9</sup> There is now a large literature attesting to the effects of schooling on student learning outcomes. Among the most notable include: Bosker *et al.* (1994); Bosker and Witziers (1995); Creemers (1994a,b, 1997); Creemers and Reezigt (1996); Creemers and Scheerens (1994); Goldstein (1980, 1987, 1997); Goldstein and Sammons (1997); Hattie (1992, 2003); Hill (1998); Hill, *et al.* (1993, 1996); Hill and Rowe (1996); Lee and Bryk (1989); Mortimore (1995); Raudenbush and Willms (1991); Reynolds and Cuttance (1992); Reynolds *et al.* (1994); Rowe (1991, 1995, 1997); Rowe and Hill (1994, 1998); Sammons (1996); Scheerens (1992, 1995); Scheerens and Bosker (1997); Stringfield (1994); Teddlie (1994); Tymms, Merrell and Henderson (1997).

staff and at clarifying roles and expectations. Edmonds (1979a) was the first to summarize these features into what has become known as the 'five factor model' of school effectiveness, namely:

1. purposeful educational leadership;
2. challenging teaching and high expectations of students' achievements;
3. involvement of and consistency among teachers;
4. a positive and orderly climate; and
5. frequent evaluation of student progress.

This 'five factor model' continues to form the basis of what might be termed the *optimistic account* of school effectiveness research – an account that presents a positive picture of the role and efficacy of *structural* or *contextual* school influences. In addition to the well-known critiques of the 'five-factor model' (e.g., Ralph & Fenessey, 1983; Scheerens & Creemers, 1989), there are several problems with the *optimistic account*, not the least of which is that it was built upon an extremely fragile research base.

First, the little empirical evidence available was not extensive with most of the knowledge base being derived from small-scale case studies; but mostly from scholarly reviews and comment (e.g., Good & Weinstein, 1986; Levine & Lezotte, 1990; Purkey & Smith, 1993; Wilson & Corcoran, 1988). For example, the Rutter *et al.* (1979) study was based on observations made in just twelve inner London schools. Banks (1992, p. 19) noted that: "...the relevant (research) literature on effective schools is not extensive, with scholarly comment and critique constituting the major proportion".

Second, there have been relatively few large-scale studies capable of providing valid generalizations, and fewer still that have collected longitudinal data that are essential for the estimation of specific effects of schools – over and above that which students bring with them (Raudenbush, 1989). Nuttall *et al.* (1989, p. 775) suggested that it is necessary to be cautious in interpreting "...any study of school effectiveness that relies on measures of outcome in just a single year, or stability over time". While the advice is apt, the logistical problems in mounting and maintaining such studies entail severe practical constraints, resulting in a virtual absence of studies conducted over long periods of time.

Third, the methods typically used to analyze the derived data have not allowed for the modeling of complex interrelationships between inputs, processes and outcomes, including indirect effects and reciprocal effects; nor have they taken into account the inherent nested structure of schooling and the organization of students into classes taught by particular teachers.<sup>10</sup> In the preface to their edited collection of related research articles, Raudenbush and Willms (1991, p. xi) observed:

An irony in the history of quantitative studies of schooling has been the failure of researchers' analytic models to reflect adequately the social organization of life in classrooms and schools. The experiences that children share within school settings and the effects of these experiences on their development might be seen as the basic material of educational research; yet until recently, few studies have explicitly taken account of the effects of particular classrooms and schools in which students and teachers share membership.

These are problems that only relatively recent methodological advances have addressed. Two developments are especially worthy of comment. The first is the development of structural equation modeling techniques that enable the simultaneous estimation of interdependent effects among variables within a framework that takes into account measurement error, as well as structural prediction residual.<sup>11</sup> The second is the development of multilevel modeling

<sup>10</sup> See: Bosker and Scheerens (1994); Hill and Rowe (1996, 1998); Rowe and Hill (1998); Rowe, Hill and Holmes-Smith (1995); Rowe and Rowe (1999); Scheerens (1992); Scheerens and Bosker (1997).

<sup>11</sup> For key texts and applications related to structural equation modeling, see: Arbuckle and Wothke (1999); Bentler (1980, 1989); Jöreskog and Sörbom (1989, 2003); Kaplan (2000); McDonald (1978, 1994); Marcoulides and Schumacker (1996); Muthén (1984); Rowe (1991, 1999, 2002a); Rowe and Rowe (1992a,b, 1998, 1999).

techniques that can account for the inherent hierarchical structure of the data, and enable estimation of the influence of variables operating at different levels of analysis.<sup>12</sup>

Fourth, the criterion measures used in school effectiveness studies have typically been limited to un-calibrated raw scores on standardized tests of students' cognitive achievements (or on public examinations), with scant attention being paid (if at all) to other highly valued outcomes of schooling that include attitudinal, social and behavioral competencies. Whereas the use of scores on achievement tests for the measurement and identification of *educational effectiveness* is typically justified on the grounds of maximizing reliability, this has often been at the expense of validity. That is, while such tests have moderate correlations with measures of student intake characteristics and background factors, they are questionable in terms of their validity as measures of the curriculum taught in classrooms within schools. Moreover, there has long been criticism of the utility of such tests as measures of either learning or competence.<sup>13</sup> Such criticism has gained credence in the areas of standards monitoring and performance assessment, where new approaches to obtaining more curriculum-specific and "authentic" (Wiggins, 1989) measures of assessment have been attempted during the last 20 years,<sup>14</sup> but it is a criticism that has been largely ignored in almost all studies of school effectiveness.

Such methodological criticisms of the early school effectiveness research have provided the impetus for a relatively small number of 'second generation' studies and to an even smaller number of what Scheerens (1992, 1995), and Scheerens and Bosker (1997) refer to as 'state-of-the-art' studies.<sup>15</sup> These more recent studies consistently find that differences between schools, when relevant prior achievement and 'intake' characteristics of students are taken into account, are important but not especially large - a finding that is confirmed by results from comprehensive meta-analytic studies by Bosker and Witziers (1995), Hattie (2003), and by the work of Marks (2000) and Marks *et al.* (2000). Furthermore, they are of an order of magnitude close to that estimated by Coleman and Jencks (i.e., ~ 9 per cent of the variance). At the same time, those studies that have been designed to enable the estimation of class-level effects have consistently identified larger proportions of between-class/teacher variance.<sup>16</sup> This, in turn, has prompted a renewed focus on *teacher quality* and *instructional effectiveness*, and to some re-definition of the fundamental questions underpinning educational effectiveness research (see: Creemers, 1992; Slavin, 1994, 1996; Rowe, 2003a, 2004c; Rowe & Rowe, 2003).

The small number of 'state of the art' educational effectiveness studies undoubtedly reflects the fact that the technical and logistical demands of such studies are immense. In the Australian context, the *Victorian Quality Schools Project* (Hill, Holmes-Smith & Rowe, 1993; Hill & Rowe, 1996, 1998; Hill *et al.*, 1996; Rowe & Hill, 1998; Rowe & Rowe, 1999) was the first major empirical study of school and teacher effectiveness, although there has been an important national study by McGaw and colleagues into parent and teacher perceptions of what makes an effective school (McGaw *et al.*, 1992).

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<sup>12</sup> See: Aitkin and Longford (1986); Bock (1989); Bryk and Raudenbush (1988, 1992); Goldstein (1986, 1987, 1995, 2003); Hox (1994); Kreft and de Leeuw (1998); McDonald (1994); Rasbash *et al.* (2002); Raudenbush and Willms (1991); Rowe (2004c).

<sup>13</sup> For example, see: Darling-Hammond (1994); Lacey and Lawton (1981); Linn (1986); Newman and Archbald (1990, 1992); Rowe and Hill (1996); Wigdor and Garner (1982).

<sup>14</sup> See, for example: Embretson and Hershberger (1999); Goldstein and Lewis (1996); Lesh and Lamon (1992); Masters and Forster (1997a,b); Masters and Keeves (2000); Moss (1994); Murphy (1995); Nisbet (1993); O'Connor (1992); Resnick and Resnick (1992); Rowe (2002c); Rowe and Hill (1996); Rowe and Rowe (2004); Shavelson (1994); Taylor (1994).

<sup>15</sup> That is: Bosker, Kremers and Lugthart (1990); Brandsma (1993); Mortimore *et al.* (1988); Hattie (2003); Hill *et al.* (1996); Hill and Rowe (1996, 1998); Rowe (1991, 1997, 2003a), Rowe and Hill (1998); Rowe and Rowe (1992a,b; 1999); Teddlie and Stringfield (1993).

<sup>16</sup> See, for example: the *ILEA Junior School Project* reported by Mortimore *et al.* (1985, 1988, 1989); the re-analysis of IEA data reported by Scheerens, Vermeulen & Pelgrum (1989); findings from the *Victorian Quality Schools Project* (Hill *et al.*, 1993, 1996; Hill & Rowe, 1996, 1998; Rowe & Hill, 1998; Rowe & Rowe, 1999); key results from the *VCE Data Project* (Rowe, 1999b; Rowe, Turner and Lane, 1999, 2002); and the meta-analytic synthesis of related research by Hattie (2003).

Nonetheless, the little relevant research that has been done during the last thirty years has tended to suggest that administrative and social organizational features of schools are important factors influencing both teachers and students<sup>17</sup>. This work, focused mostly on student achievement outcomes, has stemmed mainly from two sources: research on effective schools,<sup>18</sup> and the relative effectiveness of public and private schools.<sup>19</sup> In fact, organizational factors were seen (and continue to be seen) as important determinants of effective schools,<sup>20</sup> with frequently cited features including the school's organizational culture, ethos or climate (Grant, 1988; Lightfoot, 1983; Rutter *et al.*, 1979).

Even where empirical work has been done, difficulties in demonstrating direct links between school organization and student outcomes continue to be commonplace. The reasons for these difficulties are both substantive and methodological.<sup>21</sup> The substantive difficulties arise from a general failure to realize that it is more appropriate to conceptualize the link between schools and students as *indirect* and mediated by teachers (Lee, Dedrick & Smith, 1991; Hargreaves, 2003). According to this view, school organization factors influence how teachers conduct their work and how they teach. In turn, teachers' pedagogical strategies influence students' learning. While strong relationships have been demonstrated between student achievement and teachers' levels of "efficacy" (Ashton & Webb, 1986) and "commitment" (Rosenholtz, 1985), the findings from such studies are limited because their analyses did not take hierarchical relationships into account.

### The Australian context

In March 1991, focus on school and teacher effectiveness issues were given impetus by the Australian government's provision of \$10.5 million for the three-year *Good Schools Strategy* and its related projects, namely, the *National Schools Project* (NSP) and the *National Project on the Quality of Teaching and Learning - NPQTL* (Schools Council, 1991). Nevertheless, Hill (1992, p. 403) missed the crucial point about *quality teaching and learning* by noting: "The NSP is a major action research activity of the NPQTL to investigate how changes to **work organization** can lead to improved student learning outcomes". Further, following guidelines for school self-management linked to quality outcomes, as outlined by Caldwell (1993) and Caldwell & Spinks (1988, 1992), the incoming Victorian government at the time launched its *Schools of the Future* policy initiative (Directorate of School Education, 1993) that was designed to:

... maximise the proportion of the educational dollar which is deployed at the school level and give schools the capacity to match resources to the educational needs of students. Its major features include the equitable allocation of resources to schools, ... increased accountability for outcomes, and a strengthening of the role of the principal as an educational leader (Caldwell, 1993, p. 1).

Similarly, the expressed aim of the Quality Assurance Directorate of the New South Wales Department of School Education at that time was to "...bring together two distinct aspects of work in education systems: accountability and school development" (Cuttance, 1992, p. 1). In this context, Rowe and Sykes (1989) had noted earlier that: "One of the effects of such proposals has been to signal major shifts in government policy intention to bring the delivery of 'professional' educational services into 'public sector' accounting, underscored by a concern to ensure that such services represent 'value for money'" (p. 129). However, the focus on *teacher quality* via the NPQTL remained as a mere artifact of political and bureaucratic rhetoric.

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<sup>17</sup> See: Ainley, Reed and Miller (1986); Hill, *et al.* (1993, 1996); Lee, Dedrick and Smith (1991); Rosenholtz (1989).

<sup>18</sup> For comprehensive reviews at this time, see: Banks (1992); Bosker, Creemers and Scheerens (1994); Creemers and Scheerens (1989); McGaw *et al.* (1992); Raudenbush and Wilms (1991); Reynolds and Cuttance (1992); Rowe, Hill, and Holmes-Smith (1995); Scheerens (1993).

<sup>19</sup> For example, see: Anderson (1990, 1992); Graetz (1990); Lee and Bryk (1986); Steedman (1983); Williams and Carpenter (1990, 1991).

<sup>20</sup> See: Chubb (1988); Chubb and Moe (1990); McNeil (1986); Metz (1986); Newmann and Archbald (1990); Newman, Rutter and Smith (1989).

<sup>21</sup> See: Bidwell and Kasarda (1980); Ecob *et al.* (1982); Goldstein (1980, 1997); Mortimore *et al.* (1988); Ralph and Fenessey (1983); Rowe (1989); Rowe and Hill (1994, 1998).

Whereas this activity confirmed an increasing national approach to educational governance and accountability by the Australian federal government, first signaled in the paper entitled *Strengthening Australia's Schools* (Dawkins, 1988), the research base and related evidence to support these policy initiatives was, and continues to be, extremely limited. On the basis of an intensive study of models of school effectiveness up to that time, Banks (1992, p. 199) observed:

Research on effective schools is being used to shape major policy-making initiatives in Australia and overseas, even though what makes some schools more effective than others remains an open question. Because clear and unequivocal messages to educators and policy makers are yet to emerge from the research, unquestioning acceptance of the current findings should be a cause for concern.

More recently, issues related to *teacher quality* have arisen in response to manifest 'concerns' related to the *education of boys* - 'concerns' that continue to have both local and international currency. In Australia, these 'concerns' have been brought into sharper focus in response to calls (initially during 2000) for submissions to the federal government's *Inquiry Into the Education of Boys* by the then House of Representatives Standing Committee on Employment, Education and Workplace Relations, and subsequently, during 2002, by the House of Representatives Standing Committee on Education and Training.

At the centre of these 'concerns' is the relative underachievement of boys (compared with girls) and their poorer attitudes, behaviors and experiences of schooling. Unfortunately, much of the related public and academic discussion, and the media 'hype' that surrounded the *Inquiry*, were replete with 'myth', anecdote, opinion and uninformed comment that have little basis in findings from recent and emerging evidence-based research (see Rowe & Rowe, 2002). Even a cursory inspection of submissions to the *Inquiry* suggest that such is the case.<sup>22</sup> This is not to deny the legitimacy of such offerings, but in the absence of substantive, research-based evidence to support the Committee's deliberations, their task has been a particularly difficult one. But what has emerged from the *Inquiry* (*inter alia*) is a clear affirmation of the importance of *teacher quality* as a key determinant of students' experiences and outcomes of schooling throughout their years of primary and secondary education.<sup>23</sup>

Further recognition of the *importance of teaching* and *teacher quality* in Australian schools has been highlighted in the recent work and report by the Committee for the Review of Teaching and Teacher Education (Commonwealth of Australia, 2003a). Under the Australian Government's innovation statement *Backing Australia's Ability*, the purpose of the Review was to identify strategies designed to:

increase the numbers of talented people who are attracted to teaching as a career, especially in the fields of science, technology and mathematics education, and build a culture of continuous innovation at all levels of schooling in Australia (Commonwealth of Australia, 2003a, p. xiii).

Such recognition has gained impetus via the recent establishment of two peak institutes - one at the school level and the other at the higher education level, namely: (a) the *National Institute for Quality Teaching and School Leadership* (NIQTSL), and (b) the *Carrick Institute for Learning and Teaching in Higher Education* (CILTHE). Both these institutes were launched officially by the federal Minister for Education, Science and Training, Dr Brendan Nelson, on 3 June 2004 (Nelson, 2004a) and 11 August 2004 (Nelson, 2004b), respectively. Interestingly, the objectives of the CILTHE (*inter alia*) are to:

- promote and support strategic change in higher education institutions for the enhancement of learning and teaching, including curriculum development and assessment;
- raise the profile and encourage recognition of the fundamental importance of teaching in higher education institutions and in the general community;
- foster and acknowledge excellent teaching in higher education; and

<sup>22</sup> During the course of the *Inquiry*, submissions were made available on the Committee's internet web site at: [Hhttp://www.aph.gov.au/house/committee/edt/Eofb/index.htm](http://www.aph.gov.au/house/committee/edt/Eofb/index.htm)

<sup>23</sup> The report of the *Inquiry* titled: *Boys: Getting it right* (Commonwealth of Australia, 2002), together with its 24 recommendations, was presented to the 40<sup>th</sup> Parliament of the Commonwealth of Australia on 21 October 2002, and on the same day lodged on the House of Representatives web site.



- develop effective mechanisms for the identification, development, dissemination and embedding of good individual and institutional practice in learning and teaching in Australian higher education.

It should also be noted that these proactive initiatives have been supported by the federal Government's funding of research and development projects during 2002 and 2003 for the *Quality Teacher Program (QTP)* – conducted throughout each Australian State and Territory (e.g., Meiers, 2004). Within this context, Australian teachers continue to be encouraged by the initiatives announced in 2002,<sup>24</sup> namely: (a) a *Teachers for the 21<sup>st</sup> Century* initiative – focused on high quality teaching standards supported by teacher professional development programs; (b) a *Review of Teaching and Teacher Education*, and (c) a “...strategy to focus on equipping teachers to better meet the needs of students with disabilities, and with other learning difficulties such as dyslexia and attention deficit disorders”, via the funding of “...projects at the national and State levels in both the early and middle years of schooling”. Nelson (2002) concluded:

In terms of improving educational outcomes for our children there is no higher priority than ensuring that we have quality teachers. A nationally agreed framework on Teacher Standards, Quality and Professionalism is a crucial step in this direction.

In reporting these and subsequent initiatives, Dunn (2003, p. 4) cited Nelson as follows:

Dr Nelson believes the first move is to lift the status of teaching. “We need to be saying ‘this is a highly valued profession, and we should be treating teachers with much more respect than we do’.”

At this point, a brief review of the research evidence-base underlying claims to the *importance of teaching* and the need to *build teacher-capacity* is helpful.

### **Identifying and estimating the magnitudes of major sources of variation in students' experiences and outcomes of schooling**

It is now well documented that studies of *educational effectiveness* in terms of estimating the effects of schooling on student learning over time “...share two key features: the fact that student growth is the object of inquiry, and the fact that such growth occurs in organizational settings” (Raudenbush & Bryk, 1988, p. 424).<sup>25</sup> Raudenbush and Bryk go on to note that these features correspond, in turn, to two of the most troublesome and enduring methodological problems in educational research, namely: (1) the problem of measuring change, and (2) the problem of analyzing multilevel data.

As indicated earlier, until recently relatively few studies have been undertaken that have accounted for the inherent multilevel organizational structure of schooling with students grouped into classes and taught by particular teachers, despite mounting evidence for the importance of instructional effects at the class/teacher-level.<sup>26</sup> Indeed, a powerful conclusion arising from this research is that much of the between-school variation in students' achievements is in fact due to variation among classes. That is, when the organization of students in classes is taken into account, the unique variation due to differences between schools over and above that due to class/teacher-differences is very small indeed. This conclusion is exemplified in a comprehensive review of research into education production functions by Monk (1992, p. 320), who cites a number of studies in support of the observation that:

<sup>24</sup> See Nelson (2002) – a Media Release issued from the Minister's Office on April 4 2002, and on the same date announced at the National Meeting of Professional Educators, Canberra. Essentially, the initiatives announced by the Minister focus on “...a national framework for quality teaching supported by teacher professional development”.

<sup>25</sup> For a more recent note on the importance of monitoring students' educational 'growth', see Masters, Meiers and Rowe (2003).

<sup>26</sup> That is: Alton-Lee (2002a,b, 2003); Brophy (1986); Creemers (1994, 1997); Creemers and Reezigt (1999); Hill *et al.* (1996); Hill and Rowe (1996, 1998); Monk (1992, 1994); Muijs and Reynolds (2000); Schaffer, Nesselrodt, and Stringfield (1994); Scheerens and Bosker (1997); Slavin (1994, 1996); Rowe and Hill (1998); Rowe and Rowe (1999); Teddlie (1994); Willms (2000); Wright, Horn and Sanders (1997).

One of the recurring and most compelling findings within the corpus of production function research is the demonstration that how much a student learns depends on the identity of the classroom to which that student is assigned.

One of the more significant studies to provide evidence regarding the importance of class/teacher effects was that of Scheerens *et al.* (1989). This study presented findings from a secondary analysis of data from the Second International Mathematics Study (SIMS). The findings, as summarized in Table 1, indicate that for eight of the nine countries for which between-class/teacher information was available, adjusted estimates of the proportion of variance in students' achievements due to class/teacher effects in several countries exceeded 40%, while school effects were significantly smaller, ranging between 0-9%. In commenting on these findings, and those from additional research, Scheerens (1993, p. 20) noted:

...teacher and classroom variables account for more of the variance in pupil achievement than school variables. Also, in general, more powerful classroom level variables are found that account for between-class variance than school level variables in accounting for between-school variance.

**Table 1. Comparison of Class/Teacher- and School-Level Effects in Eight Countries\***  
(Secondary Mathematics scores adjusted for father's occupational status)

Country	Class/Teacher Effects (%)	School Effects (%)
Canada	17	9
Finland	45	0
France	16	6
Israel	21	8
New Zealand	42	0
Scotland	31	5
Sweden	45	0
USA	45	9

\* Source: Adapted from Scheerens *et al.* (1989, p. 794).

Further, based on multilevel analyses of students' results on the Year 10 *General Certificate of School Education* (GCSE) and final year *A-levels* assessments in the United Kingdom, Tymms (1993, pp. 292-293) commented:

In every case (subjects) more variance was accounted for by the departmental level (than between schools), and the proportion of variance accounted for at the *class level* was more than for the departmental level. A general principle emerges from data such as these and that is that the smaller the unit of analysis and the closer one gets to the pupil's experience of education, the greater the proportion of variance explicable by that unit. In accountability terms the models indicate that *teachers have the greatest influence* (my emphasis).

Findings from the *Victorian Quality Schools Project* (VQSP) have confirmed this phenomenon.<sup>27</sup> When the variance in student achievement data for Literacy and Numeracy were analyzed (after adjusting for students' prior achievements and 'intake' characteristics), by

<sup>27</sup> A brief outline of key findings from the VQSP is helpful here since they underscore the *importance of teaching and teacher quality* as key determinants of students' experiences and outcomes of schooling.

The VQSP was a four-year longitudinal study of educational effectiveness involving a stratified, cluster-designed sample of 13,900 students, their teachers and parents, drawn from 90 government, Catholic and independent primary and secondary schools in the State of Victoria. In addition to students' progress in Literacy and Numeracy, the full data base for the VQSP consisted of a large number of variables relating to: student background characteristics (including *critical events*), student ability, their externalizing behaviors in the classroom, students' *enjoyment of school*, their perceptions of *curriculum usefulness* and *teacher responsiveness*, classroom instruction, parent participation in and perceptions of various aspects of the schools attended by their children, teacher affect, and teachers' perceptions of their work environment. For detailed descriptions of these variables and key findings from the project, see: Hill and Rowe (1996, 1998); Hill *et al.* (1996); Rowe and Hill (1996, 1998); Rowe *et al.* (1993, 1995); Rowe and Rowe (1999).

taking into account the organization of students within classes within schools, estimates of the proportion of **residual** variance due to school and class/teacher differences were obtained, as summarized in Table 2. The residual variation at the class/teacher-level ranged from 38-45% for Literacy and 53-55% for Numeracy, whereas school effects, *over and above* those due to differences at the class/teacher-level shrank to 4-9%. This is not to say that differences among schools were not substantial in terms of their effectiveness, but rather that these differences were largely accounted for by internal, within-school variation among classes and teachers.

**Table 2. Proportional Class/Teacher and School Effects for Victorian Schools: Achievement Adjusted for Prior Achievement\***

(13,700 students in 90 government, Catholic and independent primary and secondary schools)

	Class/Teacher Effects (%)	School Effects (%)
<b>Literacy</b>		
Primary:	45.4	8.6
Secondary:	37.8	7.4
<b>Numeracy</b>		
Primary:	54.7	4.1
Secondary:	52.7	8.4

\* *Source:* Adapted from Hill and Rowe (1996, p. 20).

The subsequent findings from fitting multilevel structural equation models to the VQSP data reported by Rowe and Hill (1998) and by Rowe and Rowe (1999) indicated strong interdependent effects at both the student-level and at the class/teacher-level between students' *achievement progress, attentive behaviors in the classroom, enjoyment of school, perceptions of teacher responsiveness and curriculum usefulness*. Of particular interest was the finding that whereas students' inattentive behaviors in the classroom had significant negative effects on their progress in Literacy and Numeracy, *achievement* mediated by quality teaching had notably stronger effects on **decreasing** their early and subsequent inattentive behaviors in the classroom (or **increasing** both their early and subsequent attentive behaviors). Above all, the findings underscored the *importance of teaching and teacher quality* by highlighting the crucial role that teachers have in meeting the cognitive, affective and behavioral needs of all students, as well as providing normative classroom environment conditions that are conducive to learning.

The more frequent use of multilevel analytic techniques has highlighted the marked impact that teachers can have on students' measured achievement outcomes. For example, Cuttance (1998, pp. 1158-1159) concluded:

Recent research on the impact of schools on student learning leads to the conclusion that 8-15% of the variation in student learning outcomes lies between schools with a further amount of up to 55% of the variation in individual learning outcomes between classrooms within schools. In total, approximately 60% of the variation in the performance of students lies either between schools or between classrooms, with the remaining 40% being due to either variation associated with students themselves or to random influences.

Likewise, from the British research, Muijs and Reynolds (2001, p. vii) report:

All the evidence that has been generated in the school effectiveness research community shows that classrooms are far more important than schools in determining how children perform at school.

Consistent with the VQSP, the magnitude of class/teacher effects on students' experiences and outcomes of schooling were also obtained from the 1996 *Elementary School Climate Study* in the Canadian province of New Brunswick (Willms, 2000). This study obtained both achievement and affective data using standardized tests and questionnaires administered to the entire population of students in Grades 6 and 8. The questionnaire included four affective outcomes of schooling, namely: *self-esteem, sense of belonging, general well-being, and general health*.

Table 3 records the proportion of residual variation in students' experiences and achievement outcomes, at the district, school and student/class levels.

**Table 3. Residual Variation Among School Districts, Schools and Classes for Eight Schooling Outcomes\***

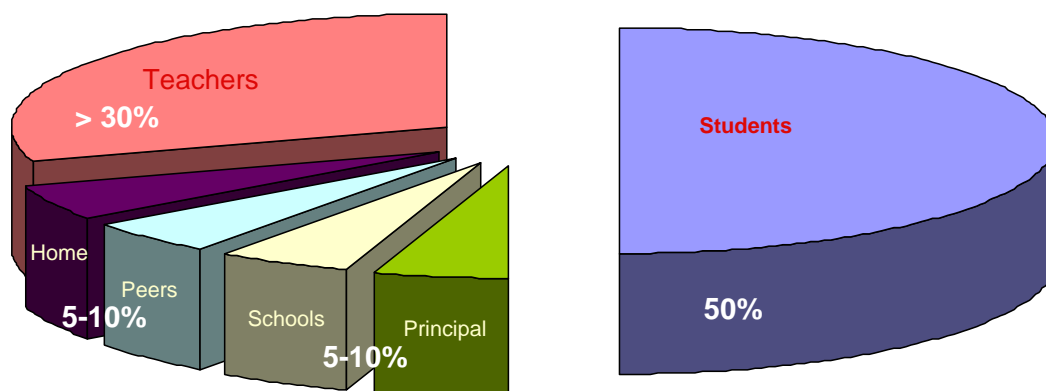
Measured Outcomes	Per cent of Variation		
	Between Districts	Between Schools	Among Students Within Classes
Reading	0.3	0.8	98.9
Writing	1.0	3.4	95.5
Mathematics	1.8	4.7	93.5
Science	0.4	3.8	95.8
Self-esteem	0.1	3.0	96.8
Sense of belonging	0.3	1.0	98.7
General well-being	0.4	1.6	98.1
General health	0.8	0.0	99.2

\* Source: Adapted from Willms (2000, p. 241).

In commenting on these findings, Willms (2000) noted: "These results have ... important implications with respect to the design of monitoring systems for standards-based reform. The first is that the pressure and support for change needs to be directed at particular teachers within schools, not simply at entire schools" (p. 241).

### The importance of *quality teaching*

Professor John Hattie from the University of Auckland (New Zealand) has provided compelling evidence for the *importance of quality teaching* via a recent meta-analytic synthesis of the relevant evidence-based research, drawn from an extensive review of literature and a synthesis of over half a million studies (Hattie, 2003). This work has identified and estimated the magnitudes of major sources of **explained** variance in student's achievement outcomes – the key results of which are summarized in Figure 1.



**Figure 1. Sources and average percentage estimates of explained variance in students' achievement outcomes**

(Source: adapted from Hattie, 2003)

Given its relevance to present purposes, the explanatory text surrounding these findings is particularly worth noting. That is, Hattie (2003, pp. 2-4) claims:

We should be asking where the major source of variance in students' achievements lie, and concentrate on enhancing these sources of variance to truly make the difference. There have

been many studies over the past few years that have asked this question about wherein lies the variance? Most have been conducted using Hierarchical Linear Modelling, which decomposes the variance of many influences such as what the student brings to the task, the curricula, the policy, the principal, the school climate, the teacher, the various teaching strategies, and the home. Ignoring the interaction effects, which are too often, minor, then the major sources of variance are six-fold:

**Students** account for about 50% of the variance of achievement. It is what students bring to the table that predicts achievement more than any other variable. The correlation between ability and achievement is high, so it is no surprise that bright students have steeper trajectories of learning than their less bright students. Our role in schools is to improve the trajectory of all these students.

**Teachers** account for about 30% of the variance. It is what teachers know, do, and care about which is very powerful in this learning equation. Expert teachers do differ from experienced teachers – particularly the way they operate in their classrooms, the degree of challenges that they present to students, and most critically, in the depth of processing that their students attain. Students who are taught by expert teachers exhibit an understanding of the concepts targeted in instruction that is more integrated, more coherent, and at a higher level of abstraction than the understanding achieved by other students.

**Schools** account for about 5-10% of the variance [in student achievement outcomes]. Schools barely make a difference to achievement. The discussion on the attributes of schools – the finances, the school size, the class size, the buildings are important as they must be there in some form for a school to exist, but that is about it.

**Principals** are already accounted for in the variance attributed to schools and mainly, I would argue, because of their influence on the climate of the school. Principals who create a school with high student responsiveness rather than bureaucratic control (i.e., more like a primary school atmosphere than so many secondary schools), who create a climate of psychological safety to learn, who create a focus of discussion on student learning, have the influence. The effect on learning is trickled through these attributes rather than directly on learning.

**Home** which accounts for about 5-10% of the variance – considering that the major effects of the home are already accounted for by the attributes of the student. The home effects are more related to the levels of expectation and encouragement, and certainly not a function of the involvement of the parents or caregivers in the management of schools.

**Peer effects** which account for about 5-10% of the variance. It does not matter too much who you go to school with, and when students are taken from one school and put in another the influence of peers is minimal (of course, there are exceptions, but they do not make the norm). My colleagues, lead by Ian Wilkinson, completed a major study on peer influences and perhaps we are more surprised by the under utilisation of peers as co-teachers in classrooms, and the dominance of the adult in the room to the diminution of the power of the peer. Certainly peers can have a positive effect on learning, but the discussion is too quickly moving to the negative powers with the recent increase in discussion on bullying (which is too real), and on the manner students create reputations around almost anything other than pride in learning.

Hattie continues to note:

When I review the initiatives of the previous Ministries of Education up to a couple of years ago, and when I review the policies in so many New Zealand schools, I note that the focus of discussions are more about the influences of the home, and the structures of schools. We have poured more money into school buildings, school structures, we hear so much about reduced class sizes and new examinations and curricula, we ask parents to help manage schools and thus ignore their major responsibility to help co-educate, and we highlight student problems as if students are the problem whereas it is the role of schools to reduce these problems. Interventions at the structural, home, policy, or school level is like searching for your wallet which you lost in the bushes, under the lamppost because that is where there is light. The answer lies elsewhere – it lies in the person who gently closes the classroom door and performs the teaching act – the person who puts into place the end effects of so many policies, who interprets these policies, and who is alone with students during their 15,000 hours of schooling.

I therefore suggest that **we should focus on the greatest source of variance that can make the difference – the teacher**. We need to ensure that this greatest influence is optimised to have powerful and sensationally positive effects on the learner. Teachers can and usually do have positive effects, but they must have **exceptional** effects. We need to direct attention at higher

quality teaching, and higher expectations that students can meet appropriate challenges - and these occur once the classroom door is closed and not by reorganising which or how many students are behind those doors, by promoting different topics for these teachers to teach, or by bringing in more sticks to ensure they are following policy.

The findings summarized in Tables 1-3 and Figure 1 - of large class/student effects and small to insignificant school effects - are primarily a reflection of variations in *teaching quality*, and point to the conclusion that it is primarily through the *quality of teaching and learning provision* that 'effective' schools make a difference (Creemers, 1994a,b; Reynolds & Packer, 1992; Rowe, 2003a; Slavin, 1994, 1996). In a paper reporting key findings from the initial stages of the *Victorian Quality Schools Project (VQSP)*, Rowe, Holmes-Smith and Hill (1993, p. 15) asserted that: "...on the basis of our findings to date it could be argued that effective schools are only *effective* to the extent that they have *effective teachers*" (p. 15).

With a slightly different but complementary emphasis, Professor Linda Darling-Hammond (2000) has summarized the evidence-based findings for the effects of *quality teaching* on student outcomes as follows:

The effect of poor quality teaching on student outcomes is debilitating and cumulative...The effects of quality teaching on educational outcomes are greater than those that arise from students' backgrounds...A reliance on curriculum standards and statewide assessment strategies without paying due attention to teacher quality appears to be insufficient to gain the improvements in student outcomes sought...The quality of teacher education and teaching appear to be more strongly related to student achievement than class sizes, overall spending levels or teacher salaries.

In this context, the work of John Edwards (together with Rowe, Pollard & Rowe, 2003) provide poignant insights into the negative effects of *ineffective* teaching and learning practices by highlighting the typical "teacher-talk-dominated" classroom experiences of many students who are differentially attentive in what Edwards (2000, pp. 4-5) refers to as "the sea of blah":

The teacher stands at the front of the room and blahs all over the place - blah, blah, blah, blah, blah. The sea of blah fills the room and the students bob up and down like corks in this sea. Every now and again they go under and take a gulp then bob up again for air, and then down again. The gulps are somewhat random. So students spend their days *gulping from the sea of blah* (his emphasis).

The best analogy I can give you is to imagine you are reading your favorite novel, you go off on a mental tangent, when you come back half of the page has just vanished. Imagine the frustration. That is what *sea of blah* learning is like for the listeners. Yet teacher talk is almost certainly the major mode of instruction still in schools (see, for example, Goodlad, 1984) and universities across the world, even though we all know better.

Further evidence for the *importance of teaching* on students' achievements derive from the *VCE Data Project* (Rowe, 1999b Rowe, Turner & Lane, 1999, 2002). This population study of 270,000 Year 12 students' achievements on 53 subjects (known locally as 'studies') over a 6-year period (1994-1999) yielded several findings of interest. Whereas there were strong gender effects in favor of girls (~ + 0.3 standard deviation units), as well as gender/class/school-grouping effects in favor of single-sex classes/schools, the magnitudes of these gender-related effects on students' achievements paled into insignificance compared with class/teacher effects. After adjusting for measures of students' 'abilities' (as measured by the *General Achievement Test*), gender and school sector (government, Catholic and independent), class/teacher effects consistently accounted for an average 59 percent of the residual variance in students' achievements, compared with a mere 5.5 percent at the school-level.

That is, there was significantly more variation *within-schools* than *between-schools*, indicating that the quality of teaching and learning provision was by far the most salient factor accounting for variation in students' achievements at Year 12. Such findings serve to emphasize that it is at the level of the classroom that learning takes place and that there can be very substantial differences in the progress made by students in different classes within the same school. Indeed, **teachers make a difference** - regardless of student gender, intake or other background characteristics (Rowe, 2000, 2002b, 2003a).

Summarizing key findings from a literature review of research related to boys' achievement progress, motivation and participation at school, MacDonald *et al.* (1999, p. 17) drew a similar conclusion, expressed in the following terms:

The role of the teacher was particularly highlighted in influencing boys' propensity to read as well as their choice of reading. Teachers' attitudes more generally may diminish or increase the problem of underachievement. The role of the teacher is crucial in helping pupils develop a positive attitude to learning.

Similarly, in asserting that "teaching is the key", Zbar (2003, p. 218) notes:

...the one key factor that makes a difference in schools, the one process than can focus these initiatives on improving student learning, is the **teaching** that occurs in each class.

In one sense, there is nothing either 'new' or 'surprising' about such findings – whether they are at the student-level, class/teacher-level, or at the school-level. For example, results from a national Australian survey of community views of *What makes an effective school?*, McGaw, Piper, Banks and Evans (1992) found that the most frequently mentioned factor was *the quality of the teachers*, constituting 65 per cent of all responses. What is 'new', is a growing uneasiness related to how little is known about *teacher quality* from the students' own perspectives throughout their progress in contemporary primary, secondary and tertiary education settings. Whereas there have been several attempts to investigate and measure the quality of students' educational experiences at the elementary,<sup>28</sup> secondary<sup>29</sup> and tertiary<sup>30</sup> levels, attempts to document and synthesize students' *actual* perceptions and experiences of the characteristics of 'effective' teachers and teaching in their own words are rare (see Postscript, later). Nevertheless, the work of Ramsey (2000), Slade (2002), Slade and Trent (2000a,b), and Trent (2000) are notable exceptions. For example, based on comprehensive interviews with 1800 boys drawn from a representative sample of South Australian secondary schools, Slade (2002) has provided poignant evidence for the salience of *teacher quality* in 'shaping' both girls' and boys' experiences of schooling in terms of their engagement, motivation and achievement progress. The 'bottom-line' message from this work is: "Good teachers make all the difference" (Slade, 2002, p. 170).

Before addressing some of the major barriers to *educational effectiveness* and *teacher quality* reform, a personal experience is warranted here. In the context of invited keynote presentations by the present author at numerous national/international conferences and teacher PD seminars during the past five years related to *teacher quality*, delegates and participants have been challenged as follows:

Each of you have had the pleasure of working with one or two teachers that you would 'bend-over-backwards' to have your own children taught by. On the other hand, you have probably worked with teachers that you would hesitate about placing any student with. Moreover, the school leaders among you have the all-too-frequent experience of parents 'knocking at your door' requesting that their child be placed (or not placed) with teacher 'so-and-so'. Likewise, Principals are familiar with the pleadings of staff members who have their own child (or children) enrolled in at the school, for placement with a specific teacher.

On each occasion, the audience response has been one of overwhelming endorsement. Hence, in addition to the evidence-based research indicating the importance of *teaching* and *teacher quality* as a key determinant of students' experiences and outcomes of schooling, an understanding of the crucial influence of *teacher quality* is an integral part of teachers' professional craft knowledge and day-to-day work experience.

## Barriers to reform

There continues to be several barriers to reform that: (1) perpetrate prevailing 'myths' of 'school effectiveness' (or 'ineffectiveness'), and (2) generate misinformed and/or misdirected

<sup>28</sup> For example, see: Ainley, Goldman and Reed (1990), and Ainley, Reed and Miller (1986).

<sup>29</sup> For secondary school students' perceptions of the *quality of school life*, see: Thomas, Smees, MacBeath and Robertson (2000); Williams and Batten (1981).

<sup>30</sup> For specific examples of this work, see: ACER (2000); Ainley and Long (1994); Marsh and Roche (1994); Marsh, Rowe and Martin (2002).

rationalizations of students' differential experiences and outcomes of schooling. Perhaps the most notable of these is a persistent tendency to place undue credence on various outmoded forms of *biological* and *social determinism* which assume that individual children – whether they be boys or girls – do poorly or well at school because of developmental differences, because they are 'dumb' or 'smart' or come from 'disadvantaged' or 'advantaged' backgrounds.<sup>31</sup> Similar undue credence is evident in studies estimating student 'compositional' effects (aggregated to the school-level) on school outcomes (e.g., Harker & Nash, 1996; Harker & Tymms, 2004) – the conceptual and methodological approaches to which have been shown to be deficient by: Hill and Rowe (1996, 1998), Rowe (2004b,c), and by Rowe, Cresswell and Hodgen (2003). Regretfully, the longstanding and widespread acceptance of these 'beliefs' and their expectations at the teacher, school and system levels amount to little more than 'religious dogma' and/or avoidance 'cop-outs' that have little substantive justification in the emerging research-based evidence.<sup>32</sup> As Slavin and colleagues' evaluations of the "Success for All" program among low SES schools in Baltimore and Philadelphia have shown, students who, regardless of their gender, socio-economic or ethnic backgrounds (including 'compositional effects') are taught by well-trained, strategically focused, energetic and enthusiastic teachers, are fortunate indeed (Slavin, 1996; Slavin *et al.*, 1994, 1997).

Alternatively, the negative effects of teachers' low expectations of students' success aspirations, and the associated explicit or implicit discouragement, are crushing. Such effects were poignantly illustrated in a Letter to the Editor of *The Age* newspaper (Melbourne), titled '*Apathy starts with the teachers*' by Talbot (2002) who writes:

I am a first-year law student at Melbourne University. Why is it that I know of only three people (including myself) in the course who did the VCE at government schools? It is a sad indictment of our egalitarian society that teachers are so disillusioned they cannot inspire and support the aspirations of their students. I was laughed at by the Careers Counsellor in Year nine when I said I wanted to study Law. In the following four years I saw the dreams of many of my classmates slowly fade, as they were discouraged from believing in their ability to succeed. Our state education system must be rescued in the name of the principles on which our society is founded.

In contrast to mainstream, ideologically-driven *opinion*,<sup>33</sup> the empirical evidence indicates that the proportion of variation in students' achievement progress due to differences in student background (~ 9-15%) is considerably less important than variation associated with class/teacher membership (~ 30-60%).<sup>34</sup> Rather, the key message to be gained from the *educational effectiveness* research cited above, is that quality teachers and their professional development *do* make a difference,<sup>35</sup> and that it is not so much what students bring with them

<sup>31</sup> For example, the work of Marks (2000); Marks *et al.* (2000); Marks, Rowe and Beavis (2003) indicate that in the Australian context, family socio-economic status (SES) indicators (or social class) at both the student-level and at the school-level are very weak predictors of students' educational outcomes, accounting for less than 9 per cent of the unique variance in achievement. Similarly, via secondary analyses of data from the British National Child Development Study, Saunders (in press) demonstrates that "... (social) class origins play only a small role in shaping class destinations in Britain, and that individual ability, individual effort and the achievement of qualifications now play a much bigger part in shaping where people end up in the class system".

<sup>32</sup> See Ainley *et al.* (2002); Scheerens and Bosker (1997); Creemers (1994); Crévola and Hill (1998); Hill and Crévola (1999); Darling-Hammond (1996, 2000); Hill and Rowe (1996, 1998); Marks (2000); Marks *et al.* (2000); Patterson (1991); Reynolds and Packer (1992); Rowe (2000, 2002b); Rowe and Hill (1998); Rowe and Rowe (1999); Saunders (in press); Slade (2002); Slavin (1994, 1996); Willms (2000).

<sup>33</sup> For example, see: Blackmore (2000); Collins *et al.* (2000); Lingard *et al.* (1998, 2002); Slee *et al.* (1998); Teese (2000); Teese and Polesel (2003).

<sup>34</sup> See: Hattie (2003); Hill and Rowe (1996, 1998); Monk (1992); Reynolds and Packer (1992); Rowe and Hill (1998); Rowe and Rowe (1999); Scheerens (1993); Scheerens *et al.* (1989); Tymms (1993).

<sup>35</sup> See: Alton-Lee (2002a,b); Beare (2001); Cumming and Owen (2001); Cuttance (2001); Darling-Hammond (2000); Darling-Hammond and Sykes (1999); Ingvarson (1998, 1999, 2001, 2002a,b); Istance (2001); Kennedy (2001); Martin (2003); Muijs and Reynolds (2001); Ramsey (2000); Rowe (2002b, 2003c); Rowe and Hill (1998); Willms (2000). More recent impetus for this mounting evidence was published in a series of articles in *The Age* newspaper, Melbourne (see Dunn, 2002; Milburn, 2002a,b,c). Highlighted in these reports was the positive impact on student achievement outcomes of quality teacher recruitment and strategic teacher professional development at two 'disadvantaged' and formerly low-performing Victorian secondary schools.



that really matters, but what they experience on a day-to-day basis in interaction with teachers and other students in classrooms.

While it may be difficult to legislate *quality teaching* into existence, the fact that 'teachers and teaching make a difference' should provide impetus and encouragement to those concerned with the crucial issues of *educational effectiveness*, *quality teaching* and *teaching standards*, to at least invest in quality teacher recruitment, initial training, and their on-going professional development.<sup>36</sup> In this regard, the work and contributions of Ingvarson and Bond *et al.* (2000) are of vital importance. For example, in the Australian context, Ingvarson has long been an advocate for the importance of establishing *teaching standards*, the *certification of highly accomplished teachers*, as well as *strategic teacher professional development* that are linked to both status and salary recognition (see: Ingvarson, 1998a,b,c, 1999a,b, 2000, 2001a,b, 2002a,b, 2003, in press; Kleinhenz & Invarson, 2004).

Curiously, a major barrier to reform is a lack of understanding of issues surrounding the vital link between education and health, the developmental and socialization differences between girls and boys, and the needs of those students with learning difficulties – all of which have important implications for teacher training and their on-going professional development. With few exceptions (e.g., Galbally, 2004; Nelson, 2004; Nuttall *et al.*, 1989; Rowe & Rowe, 1992a,b, 1999, 2000), such issues are conspicuous by their absence in the published work of 'school effectiveness' researchers and 'school improvement' commentators. However, these issues are neither minor nor benign, and are of legitimate concern to governments concerned with the provision of *educational effectiveness* for ALL students.<sup>37</sup> For example, in a recent request for tender from the Commonwealth Department of Education, Science and Training (DEST, 2002), the request was expressed in the following terms:

The Commonwealth Government through its *Effective Teaching and Learning Practices for Students with Learning Difficulties Initiative* seeks to assist systems to enhance the literacy and numeracy achievements of students with learning difficulties in the early and middle years of schooling. In furthering this objective the Commonwealth, following consultations with government, Catholic and independent education authorities, has identified the following priority areas for research and development:

- The identification and evaluation of effective teaching and learning practices in the primary and middle years of schooling that lead to measurably improved outcomes in literacy and numeracy for the 'target group';<sup>38</sup>
- professional development for teachers so that they have greater confidence in meeting the special learning needs of this group of students;
- strategies for inclusion of the 'target group' in regular classroom learning; and
- measurement and assessment of achievement, and reporting of outcomes for the 'target group'.

An encouraging feature of this request for research and development, that stands in stark contrast to the presumption underlying the bulk of 'school effectiveness' research, is the

<sup>36</sup> In their longitudinal study, Hill *et al.* (1996a) showed strong direct effects ( $> +0.4$  standard deviations) of teacher participation in literacy in-service, professional development programs on students' *progress in literacy*. By any criterion, these are large effects.

<sup>37</sup> In 1999, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA, 1999) endorsed new *National Goals for Schooling in the Twenty-First Century*, commonly known as the *Adelaide Declaration*. These goals (*inter alia*) are designed to be:

- **student-centered**, focusing on the learning outcomes of students rather than on the bureaucratic rhetoric of *strategies* and *processes* of 'educational provision' typically espoused by government and non-government providers; and
- **inclusive in approach**. That is, the 'goals' are concerned with improving the educational outcomes of ALL students (including those with *disabilities* and *learning difficulties*), and acknowledge the capacity of all children to learn and develop the knowledge, skills and understandings essential to effectively participate in Australian civic life.

<sup>38</sup> The 'target group' refers to those students identified as having significant difficulties in acquiring literacy and numeracy skills due to factors that are intrinsic to the individual, other than social, cultural or environmental factors (e.g., students with 'dyslexia', specific learning difficulties and attention deficit disorders).

recognition that 'school effectiveness' is not independent of the quality of teaching and learning provided; namely, the need to provide "professional development for teachers so that they have greater confidence in meeting the special learning needs of this group of students".

Further, in highlighting issues related to "future directions" for AD/HD research and intervention policies, Farrelly and Standish (1996, p. 81) note: "The impact on mental health and educational systems needs to be examined." The response to this from the present author is best summarized by an edited extract from Rowe and Rowe (1999, p. 92):

A central aim of educational systems is to generate, stimulate and maintain efforts towards the on-going improvement of teaching and learning practices that link directly to the quality of educational outcomes for students. In our view, such improvements are not likely to be brought about by academic polemic, nor by the 'top-down-driven' administrative fiat of bureaucracies, since the products of these enterprises (mercifully, in most cases) have an established record of rarely penetrating the classroom door. Rather, with the 'informed' support of parents and health professionals, sustained improvement can be achieved via teacher professional development that maximizes their teaching and behavioral management skills in the classroom. It has been our experience that under such circumstances, teachers themselves become the empowered agents and purveyors of change, having consequent 'domino' effects on the teaching and classroom behavioral management practices of other teachers, and throughout the profession. Ultimately, of course, the measures of success or otherwise of such efforts, like all endeavors to improve the quality of school education, will be judged in terms of their impact on the key areas of improved student learning, behavior, and the enhancement of teacher professionalism.

For what is demonstratively the most salient and problematic issue in child and adolescent mental health, the challenge into the 'new millennium' is to refocus the prevailing models accounting for the overlap between inattentive behavior problems and poor academic achievement – together with their related intervention emphases – to *educational ones*. In our view, the personal, social and financial costs of failure to meet this challenge will be both unsustainable and unbearable.

Another barrier to reform is the persistent tendency by education systems to allocate considerable financial and organizational resources to curriculum *deconstruction* and *reconstruction*, often at the expense of quality teacher recruitment, training and subsequent maintenance via in-service professional development. For example, "Since 1995 Victoria has invested over \$580 million in a variety of literacy programs designed to ensure that all students reach expected reading standards – especially in Reading" (Rowe & Stephanou, 2003, p. 1)<sup>39</sup> – with little idea of the 'return on investment' in terms of improved student learning outcomes.<sup>40</sup> There is a similar tendency for curricula to treat learning as continuous and cumulative rather than recognizing the different *interests* and *learning needs* of students, especially during the 'middle' years of schooling (i.e., Years 5-10) – for both girls and boys. In this regard, MacDonald *et al.* (1999) argue: "Too many strategies are put in place based on untested assumptions about what boys [and girls] think, do and feel" (p. 17). This has led to a plethora of popular literature – replete with lists of largely untested *intervention strategies* and *pedagogical techniques* for dealing with the claimed educational *interests* and *needs* of boys.<sup>41</sup> Whereas some of these techniques may be helpful, their evidential status in terms of 'effectiveness' is often little more than aspirational.

Clearly, research in *educational effectiveness*, whether it be evidence-based or case-study-based, cannot be reduced to simple 'blueprints' or 'recipes' for improvement such as 'check-lists' of strategies for enhancing the achievement progress of boys or girls, nor those related to the provision of frameworks for the development of students' attitudes and values (see Pascoe, 2002). Nevertheless, there are some powerful messages for policy-makers, school administrators and teachers seeking dramatic improvements in learning outcomes for both boys and girls. Foremost among those messages is that there are strong empirical grounds for believing that

<sup>39</sup> Attempts to obtain similar information from the New South Wales Department of Education and Training have been unsuccessful.

<sup>40</sup> A similar comment could be made about generic competency outcomes for students following their experiences in higher education settings (see Hambur, Rowe & Luc, 2002).

<sup>41</sup> For example, see: Alloway and Gilbert (1997); Alloway *et al.* (2002); Commonwealth of Australia, (2003b); Frater (1997); Lingard *et al.* (2002).

teachers can and *do* make a difference and that consistent high-quality teaching, supported by strategic teacher professional development, *can* and *does* deliver dramatic improvements in student learning (see: Ingvarson, 2003; Rowe, 2003a). Indeed, the key message from Richard Fletcher (Director of the *Men and Boys Program, Family Action Centre* at the University of Newcastle, Australia) is: “We are after good teaching that builds resilience and purpose” (Fletcher, 2000, p. 2).

Another important message relates to the power of information about *educational effectiveness* (in terms of *teacher quality*) as a catalyst for improvement and reform. All too frequently systems, schools and teachers have lacked credible information regarding the magnitude of their relative contributions to performance and effectiveness. Fortunately, this is changing (see Hill, 1995, 1998). The trend now is towards the development of indicator systems that facilitate benchmarking of performance against external standards or reference points<sup>42</sup>. At this stage, however, most of this effort is focused on the *measurement* of students’ achievements rather than on identifying *sources* of variation and estimating the *magnitudes* of key factors that *explain* variation.<sup>43</sup>

The evidence from systems that have put in place indicator systems and more especially those that have begun to collect and use measures to *explain* variation in students’ measured outcomes, is that such information is a powerful stimulant to strategic policy and practice interventions that lead to improvement<sup>44</sup>. With few exceptions,<sup>45</sup> ‘value-added’ measures of educational effectiveness rarely occur outside research projects, and there is notable reluctance by some within the profession to countenance any systematic collection of comprehensive data on students’ experiences and outcomes of schooling, and factors that affect them. Nevertheless, with increasing recognition of the power of information to motivate and shape improvement efforts, this situation is changing rapidly (see: Rowe, 2001a,b; Thomas, 2002; Tymms, 1999).

A further barrier to reform relates to a key reason why so many improvement initiatives in education fail to live up to initial expectations. Hill (1995, 1998) observes that most reforms in education are directed at the *preconditions* for learning rather than at influencing *teaching* and *learning* behaviors *per se*. For example, many schools see the ‘middle years problem’ of schooling, or the ‘education of boys’ as a *structural* one, leading to the establishment of *middle schools, P-12 colleges, special transition programs, and single-sex classes/schools* (Daly, 1996; Rowe, 2000, 2002b). With the possible exception of the differential effects of specific gender/class/school groupings,<sup>46</sup> research-based evidence indicates that such structural interventions are *preconditions*, and their effects on learning *per se* are, at best, small to negligible, including *class*

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<sup>42</sup> See, for example: ACT (2000); Hill and Crévola (1999); Forster, Masters and Rowe (2001); Lokan, Greenwood and Cresswell (2001); OECD (2001); Rowe (2001a,b, 2004c); Rowe and Lievesley (2002); Rowe, Turner and Lane (1999, 2002); Tymms (1999); Victoria (1999); Vischer and Coe (2002, 2003).

<sup>43</sup> It is important to note in this context that mere measurement and location of students on achievement-performance scales via standardized tests or State-wide monitoring assessments does not *ipso facto* generate improvement, regardless of how well or often student progress is measured. Nevertheless, in the absence of *good measurement*, estimating the magnitudes of sources of variation, as well fitting explanatory models to the relevant data, runs the risk of ‘garbage-in-garbage-out’ pathologies.

<sup>44</sup> See: Rowe (2004b); Rowe and Lievesley (2002); Rowe, Turner and Lane (2002); Thomas, Smees and Elliot (2000); Visscher and Coe (2002, 2003).

<sup>45</sup> For example, see: Kingston and Reidy (1997); Sanders, Saxon and Horn (1997); Webster and Mendro (1997).

<sup>46</sup> Understandings are emerging from the research evidence suggesting that co-educational settings may be limited in their capacity to accommodate the large differences in cognitive, social and developmental growth rates of girls and boys – especially between the ages of 12 and 16. Despite some strong *opinions* to the contrary (e.g., Robinson & Smithers, 1999), it is suggested that during these key adolescent years, single-sex settings ‘better accommodate’ the specific developmental needs and interests of students (Watterston *et al.*, 2000). However, it is vital that this evidence is placed in perspective. If it is over-interpreted we miss seeing where the major effects lie. That is, the magnitude of effects due to specific gender-based groupings for schooling pale into insignificance compared with the effects of quality teaching and learning experiences in the classroom that account for more than 30 percent of the explained variance in students’ achievement outcomes, and up to 60 percent of the residual variance – regardless of any *structural preconditions* for learning that might be implemented, including the establishment of specific gender/class/school groupings of students. In other words, *teachers make the difference* – not the gender composition of classes or schools, nor teacher gender (see Rowe, 2004d).

size.<sup>47</sup> A key reason for such small effects of 'structural' interventions is they are based on the fallacious assumption that schools and their administrative arrangements for teaching and learning are *independent* of the stakeholders they serve (i.e., teachers, students and parents). The fact that this is not the case requires emphasis – reflecting a failure to understand operationally the fundamental distinction between *structure* (e.g., single-sex schooling; class size, etc.) and *function* (quality teaching and learning). Schools and their 'structural' arrangements are only as effective as the those responsible for making them work (school leaders and teachers) – in cooperation with those for whom they are charged and obligated to provide a professional service (students and parents).

By contrast, effective improvement initiatives such as strategic teacher professional development (PD) are concerned not just with establishing *preconditions*, but with making teaching and learning more effective.<sup>48</sup> Rather, they typify attempts to make strong connections between knowledge about school and teacher effectiveness and the design of effective improvement programs and initiatives aimed at the enhancement of student achievement progress – especially in *literacy* and the related skills of *verbal processing* and *written communication* – of particular relevance to boys.

Finally, while it may be desirable that schools have flexibility in the ways they utilize resources at the school level, including flexibility in the use of staffing resources, improvements in students' learning outcomes are not guaranteed by providing such flexibility. This will only occur if both the *necessary* and *sufficient conditions* for learning are in place. That is, the provision of *quality teaching* by competent teachers supported by **capacity-building** towards the maintenance of high teaching standards via strategic professional development, may then used to change the ways in which students are taught and learn. Many reforms stop short of changing what happens beyond the classroom door and thus fail to deliver improved teaching and learning outcomes for teachers and students, respectively. Rather, real reform in improving outcomes for ALL students calls for substantial change in *teaching* and *learning strategies*, but unless there is total commitment of all staff to new ways of working, reform efforts soon falter.

## Concluding comments

The 'myth' of 'school effectiveness' (or 'making schools better') is grounded in a widespread failure to understand the fundamental distinction between *structure* and *function* in school education". Whereas a key *function* of schools is the provision of quality teaching and learning experiences that meet the developmental and psycho-social needs of students is dependent on organizational *structures* that support this function, the danger is a typical proclivity on the part of educational policy makers and administrators to stress *structure* at the expense of *function*. Unfortunately, such emphases are indicative of a pervasive ignorance about what REALLY matters in school education, and/or the location of major sources of variation in students' educational outcomes – to inform strategic policy and practice.

What matters most? Certainly NOT the 'pimple' of student 'compositional characteristics' such as *gender*, *socio-economic differences*, nor school *structural* arrangements of interest to 'school

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<sup>47</sup> For almost seventy years, the contentious issues surrounding the link between *class size* and students' educational outcomes have been hotly debated and extensively researched – particularly in the USA and Britain. Reviews of this research, including rigorous meta-analytic syntheses, consistently indicate negligible improvements to student achievement outcomes, even when class sizes of 30 students are reduced to 15. The weight of evidence suggests that reductions in class size do not yield improvements to student learning independent of changes to teachers' classroom teaching practices, nor to students' behaviors in the classroom (e.g., Rowe, 2004e). That is, the personal and professional characteristics of the teacher appear to be key factors associated with notable gains in students' learning outcomes. Slavin (1990) argues that reducing class sizes is a low-yield and expensive policy option. Rather, he suggests that providing additional teachers for one-to-one tutoring in the early years of schooling yields far greater improvements in student achievement and is more cost effective. For relevant reviews of 'class size' issues and research, see: Blatchford and Mortimore (1994); Glass (1992); Glass and Smith (1979); Glass *et al.* (1982); Goldstein and Blatchford (1997); Harder (1990); Hattie (1987); Hill and Holmes-Smith (1997); Prais (1996); Robinson (1990); Slavin (1989, 1990).

<sup>48</sup> Creemers (1994a,b, 1997); Crévola and Hill (1998); Hawley and Valli (1999); Hill *et al.* (1996); Ingvarson (1998c); Meiers (2004); Ramsey (2000); Rowe (1997, 2004a); Rowe, Pollard and Rowe (2003); Slavin (1996).

effectiveness' researchers, but the 'pumpkin' of *quality teaching* and learning provision, supported by strategic *teaching standards* and on-going teacher professional development. The need for a refocus of the predominant 'school effectiveness' research agenda to one that focuses on *quality teaching* and *learning* provision is obvious. Nevertheless, perhaps there IS a need to be reminded that: "Ultimately, most of what we do in school education – including our efforts to improve administrative structures and the quality of the teaching-learning environment – can be judged in terms of their implications for enhanced student learning" (Masters, 1994, p. 2). The same applies to higher education institutions.

Finally, in an invited submission to the recent *Inquiry into the Sex Discrimination Amendment (Teaching Profession) Bill 2004*, by the Australian Senate Legal and Constitutional Legislation Committee, Rowe (2004d, pp. 5-6) notes:

A challenge that needs to be addressed urgently is the development of standards for highly accomplished teaching and school leadership, accompanied by assessment procedures, and a national certification system based on these assessments. Employing authorities then need to be convinced to pay more to teachers who achieve these certified standards. Whether the recently established *National Institute for Quality Teaching and School Leadership* (NIQTSL) will advance this agenda, remains a question at this stage. It will also be important that the profession itself develops and owns standards for highly accomplished practice. The work of the mathematics, science and English associations to develop standards and accompanying assessment procedures is pointing the way. "But Australia now needs a NATIONAL SYSTEM to bring all this together.

For the sake of Australia's students and teachers, let alone its social and economic future (or those of any nation), the enduring hope is that current emphases on the *importance of teaching* and *teacher quality* that continue to be granted strong support by the current Australian Government, will be evident in the 'reality' of major improvements to teacher professionalism and students' learning outcomes. But such 'reality' will not be realized until teachers are at least in receipt of quality initial education and training, salaries, conditions and professional development support that are commensurate with their essential status in terms of the invaluable contributions they are able to make to the enrichment of students' wellbeing and 'life chances', as well as to capacity-building for the nation's social and economic future. Let's 'get real! *Make schools better by making better teachers!*

**Postscript** (Sources: Rowe, 2003a; Slade, 2002):

*Ms xxx is a great teacher; she really cares about us. The other teachers at this school are crap!* (Year 6 student)

*Our Maths teacher is bloody useless – he just gives out work sheets, then sits down and falls asleep!!* (Year 7 student)

*There are too many bad teachers in this school who don't give a shit about us kids* (Year 8 student)

*Whatever they do, is what we do. If they're a good teacher and they do better stuff, we do better stuff. If they're a crappy teacher, we do bad stuff* (Year 9 student)

*English is boring, but Mr xxx knows his stuff and gets excited about it. So we don't muck-around; we work hard and get a lot out of it* (Year 10 student)

*Next year in Year 12, I want to get a good ENTER score so I'm doing those subjects that have the best teachers. The trouble is, there's not enough good teachers. Good teachers make all the difference!* (Year 11 student).

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