



**MASSEY UNIVERSITY**  
COLLEGE OF EDUCATION  
TE KUPENGA O TE MĀTAURANGA

Hon Hekia Parata  
Minister of Education  
Freepost Parliament  
Private Bag 18 888  
Parliament Buildings  
Wellington 6160

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Tēnā koe Minister

**The effects of class size on teaching and learning (Questions for oral answer, question 12, 8 February 2012)**

In answer to a question from Catherine Delahunty MP regarding the advice given by Treasury in its *Briefing to the Incoming Minister of Finance: Increasing Economic Growth and Resilience*, you said that you would not rule out increases in class sizes. You explained, this was because:

*'... Treasury's independent observation was actually, quote, that "Student achievement can be raised by improving the quality of teaching, ... Increasing student/teacher ratios, and consolidation of the school network, can free up funding that could be used to support initiatives to enhance the quality of teaching, ...".'*

In answer to a supplementary question in which Ms Delahunty referred to media comments by me that class size matters most for the learning of the very groups of disadvantaged students the Ministry of Education wishes to prioritise, you referred her and me to Professor Hattie's reported view that *'we need to direct attention at higher-quality teaching'*.

I have done you the courtesy of looking once more at Professor Hattie's research on class size and the quality of teaching. This letter summarises my careful re-reading, which has resolved none of the errors in the Treasury's briefing. Consequently, I then explain why other, directly relevant and more sophisticated research studies on class size effects on teaching, learning and achievement are more useful to schooling policy development in Aotearoa New Zealand.

These more relevant studies lead to quite different, empirically robust conclusions on the interaction effects between class size and student achievement. In short, these studies clearly demonstrate that changes in class size affect the quality of both teaching and learning.

The changes to teaching and learning processes that occur in larger classes are shown have the most adverse effects on achievement of the groups of students that the Ministry of Education has prioritised. In other words, there is good evidence to suggest that the Treasury's suggestion to increase student: teacher ratios in schools will lead to poorer quality learning experiences and lower achievement among the very groups of students the Ministry wishes to ensure have better learning and higher achievement.

Treasury's advice is contradicted by the relevant evidence.

Consequently, I request that you, your officials and advisers will now do a similar courtesy: both to Ms Delahunty by reading the research paper by Professor Peter Blatchford that she tabled in the House after she asked her questions of you, and to me by reading other research publications from his various large-scale studies of class size in primary and secondary schools in England that I shall refer you to in section (d) below.

I appreciate that the Minister of the day has many portfolio responsibilities and relies largely on officials and advisers to provide accurate policy advice, speech notes and briefs, etc. I assume that you and the Minister of Finance will have relied on such advice in making your respective statements. For example, similar comments to yours were made by the Minister of Finance on National Radio (2 February) when he stated;

*'... we need to be sure that it's adding to achievement ... there is now pretty clear evidence that class size is not a driver of achievement ... it's more about the quality of teaching ... the evidence is quite clear cut ... class size is not a big variable, that's not to say there aren't benefits from it...'*

Based on the answers you gave in the House, the concern I have is that senior government Ministers would seem to have been given misleading advice and briefings on education research findings based in turn on either (a) poor understandings of that research held by their officials and advisers, or (b) a reluctance by those same people to provide advice that is full and frank.

The other possibility is that well-informed, full and frank advice on the effects of class size on educational achievement has been provided to Ministers, but has been ignored or rejected because it is out of line with the government's political ideology.

Whatever the reasons, the shortcomings in both Ministerial statements, and the Treasury's briefing are that they are (a) incoherent, (b) misinformed about the research facts on which they claim to be based (c) confused about whether it is the quality of 'the teacher' or of 'teaching approaches' that supposedly most affect student achievement; and (d) just plain wrong.

Sadly, the combined effect of these entirely avoidable errors is to give the appearance that 'quality of teaching' has become no more than a conveniently nebulous catchphrase, to be

deployed whenever required in order to justify any schooling policy change the government wishes to introduce. This is unethical. It also undermines the credibility of educational research as a field of serious scholarly endeavour, and the reputations of those who engage in it.

**(a) Incoherent**

In the book *Visible Learning*, Professor Hattie reports his findings on the ‘quality of teaching’ as one of the ‘contributions’ to student achievement from the teacher. He ranks it as the 56<sup>th</sup> important influence out of 138 in his ‘league table’ rank ordering of effects on student achievement. The average effect size of ‘quality of teaching’ is 0.44, considerably smaller than either home environment (average effect size 0.57, rank 36) or socioeconomic status (average effect size 0.57, rank 37). More seriously, perhaps, in terms of the relevance of his view for schooling policy, *‘all the meta-analyses on the relation of the quality of teaching to learning come from student ratings of teachers by college and university students’* (p. 115). Thus meta-analysis evidence on the ‘quality of teaching’ has no demonstrable relevance to schooling.

Also, if one were to use this definition of ‘quality of teaching’ literally, the statements would assert that achievement should be raised by asking school students to rate their teachers. This is incoherent.

One conceivable explanation is that the statements may be using Professor Hattie’s work in an imprecise fashion, more ‘broad-brush concept’ or ‘slogan’ than ‘hard fact’, as it were. This would appear to be entirely inconsistent with the State Service Commission’s widely publicised drive over a decade or more for better-quality, evidence-based policy advice to government. Moreover, it does not permit any rational discussion of either class size or the quality of discussion.

Alternatively, it is logical to assume that the three statements above were instead intended to refer to Professor Hattie’s conclusion that a collection of ‘active and quality teaching strategies’ (average effect size 0.68) might have much greater and more direct a combined influence on student learning than various educational structures and working conditions (average effect size 0.08) (p. 244). Class size is listed among Professor Hattie’s working conditions (average effect size 0.21). Hence, plausibly, the two Ministers’ impression that ‘quality teaching’ is in practice much more effective at raising school students’ achievement than ‘reducing class size’. Moreover, the statements appear to be based on the erroneous assumption that the two policy variables may be manipulated by government independently of each other without any possibility of causing adverse educational consequences.

A major problem with this line of argument is that class size is not simply a ‘working condition’ or a ‘classroom compositional effect’ (p. 85) to use Professor Hattie’s terms. Other kinds of mixed methods analyses based on large-scale observations of what actually takes place in real primary and secondary school classrooms, clearly show that class size

significantly affects the kinds of practical teaching and learning processes that occur in the classroom, i.e. class size is a 'condition' of *both* teaching and learning (see (d) below).

It appears that neither the Ministers nor Treasury have been adequately briefed on these hard facts (or 'inconvenient truths', perhaps).

### **(b) Misinformed**

Professor Hattie's research comprised a synthesis of more than 800 meta-analyses relating to achievement. These meta-analyses cover early childhood education, schooling and college (tertiary) level education. It is important to note, therefore, that some of the studies included in (i) the synthesis; (ii) calculations of the average effect size of the studies within a topic category; and (iii) the rank order of effect sizes, are not in fact studies of *schooling*.

This creates two policy problems. First, the synthesis contains studies that have no proven relevance to the schooling sector and schooling policy decisions; and second, the inclusion of these studies skews the stated average effect size for a particular topic and, as a consequence, its overall position in Professor Hattie's rank order.

If as Minister of Education you wish to use the *Visible Learning* synthesis as evidence to inform policy decisions in the *schooling* sector then I would point out that, minimally, all the studies unrelated to schooling need to be removed and the remaining average effect sizes recalculated and reranked.

Even if this were to be done, though, the problems with the evidence on which your and other official position statements are said to have been made do not end there. For example, Professor Hattie states at the outset that his '*is not a book about classroom life and does not speak to the nuances and details of what happens in classrooms.... It is more concerned with main effects than interactions*' (p. viii).

This alone is a problem for both education policy makers and classroom teachers because, briefly, the method used in the book was simply to read and catalogue meta-analysis studies from diverse sources according to topic or 'influence' on student achievement, average their effect sizes, create a rank order of influences and, then, infer from this how best to raise overall student achievement based on a ranking of individual influences.

Moreover, the tenor of the narrative is that each influence has an independent effect on achievement. For example, the use of a 'barometer' graphic suggests that any intervention with an average effect size above 0.4 is likely to produce '*desired effects*' and consequently will '*have the greatest impact on student achievement outcomes*'. Conversely, it is stated that most effects below the 'hinge-point' of 0.4 are merely '*similar to what teachers can accomplish in a typical year of schooling*' (pp. 19 & 20).

The synthesis has no interest in uncovering interaction or mediating effects (e.g. what happens in school classrooms when class sizes are reduced *and* teachers and learners interact differently, *or* the curriculum is changed). This is problematic for educators at all levels not least because real classrooms are all about interactions among variables, and their effects. Professor Hattie implicitly acknowledges this shortcoming when he states that '*a review of non-meta-analytic studies could lead to a richer and more nuanced statement of the evidence*' (p. 255). He also explicitly acknowledges that when different teaching methods or strategies are used together their combined effects may be much greater than their comparatively small effect measured in isolation (p. 245).

Logically, if the only difference as a result of class size change is that the number of students is reduced, but the teacher does nothing differently then it is highly probable that there will be no or very limited measurable effects on student achievement. This, in effect, is Professor Hattie's own conclusion: '*this lack of outcome difference is most likely because teachers do not change their current teaching strategies*' (p. 88).

However, because the synthesis consciously excludes all qualitative and non-meta-analytic studies the author is no position to state, at least on the basis of the meta-analysis evidence, what may or may not happen to classroom interactions between teachers and students in larger or smaller classes, or when changes are made to class sizes.

Let me state the basic shortcoming more bluntly. The non-meta-analytic and qualitative or mixed methods studies Professor Hattie has excluded are precisely the research investigations that *do* make visible not only (a) that class size matters to student achievement, but also (b) what the observed effects of different class sizes are on classroom teaching and learning practices as a whole, and furthermore (c) which sub-groups of students are most materially affected by larger or smaller class sizes and the attendant changes in classroom processes they require (see [d] below).

Ironically, it is (b) and (c) that are of most practical significance to the Ministry of Education's stated goals and priorities with respect to increasing student achievement, as set out in its *Briefing to the Incoming Minister* (December 2011). It is (b) and (c) which are also conspicuously absent from Professor Hattie's synthesis and Treasury's briefing.

### **(c) Confused**

There are numerous confused and conflated arguments in the Treasury briefing statement that:

*"Student achievement can be raised by improving the quality of teaching, which the evidence shows is the largest inschool influence on student outcomes. Increasing student/teacher ratios, and consolidation of the school network, can free up funding that could be used to support initiatives to enhance the quality of*

*teaching, such as more systemic use of value-add data and a more professionalised workforce.” (p. 21)*

For one thing, this flatly contradicts Professor Hattie’s own last word on the matter in his book: *‘the positive sign of the average effect size suggests that increasing class size is poor policy’* (p. 88).

For another, it wrongly uses the term ‘quality of teaching’ and instead puts forward two policy initiatives that are not mentioned in Professor Hattie’s synthesis, either in relation to class size or any other meta-analyses in the book: *‘value add data and a more professionalised workforce’*. It cannot truthfully be claimed by Treasury that the suggested initiatives have anything to do with the quality of teaching as the term has been used by you and the Minister of Finance. Unfortunately, this would also lead one to the conclusion that your comments in the House about ‘Treasury’s independent observation’ were incorrect and that in fact their observation appears to be no more than hackneyed Treasury ideology.

Third, one of the ironies of the Treasury’s briefing argument is that New Zealand is in practice one of the few countries that does not routinely collect or provide data to the OECD on mean (average) class sizes in its primary and secondary schools (*Education at a Glance 2011*, Chart D2.1). Nor does the Ministry of Education itself appear to collect or report actual class size data from schools (the real numbers of students that each teacher has in the class).

The most recent student teacher ratio data that were provided to the OECD by member countries (Table D2.2) show that New Zealand ratios are 16.3 in primary and lower-secondary schools and 12.8 in upper secondary schooling.<sup>1</sup> New Zealand ranks 19<sup>th</sup> out of 35 countries that provided data on primary school ratios, 26<sup>th</sup> out of 31 on reported lower secondary school ratios and equal 16<sup>th</sup> out of 31 on reported upper secondary school ratios. However, the Ministry of Education’s briefing states that New Zealand school teacher numbers increased by approximately 17 percent between 2000 and 2011 (p. 11). Therefore it is reasonable to assume that the latest reported ratios reflect some improvement on those of a decade earlier.

Overall, it seems reasonable to argue that the limited information publicly available from OECD and Ministry of Education sources provides no justification for increasing ratios above their present levels in New Zealand schools. If there is a logical case of any kind to be made for policy change in this area, it is for New Zealand to adopt the mean OECD primary (*reduce* the NZ ratio to 16.0), *and* lower secondary (*reduce* to 13.5), *and* upper secondary (*increase* to 13.5) ratios as maxima. Whether such an adjustment would ‘free-up’ significant funding in the short term as the Treasury asserts is doubtful.<sup>2</sup>

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<sup>1</sup> In the United Kingdom, where Professor Blatchford’s class size studies were conducted, the comparable student teacher ratios in 2009 were 19.9, 16.1 and 12.3.

<sup>2</sup> According to related Ministry of Education data, while the senior secondary school retention rate has increased since 2008, it is currently 84 percent.

Nevertheless, it appears evident that Treasury is intent on advocating a policy initiative both without knowing what real average class sizes are, and in ignorance of the demonstrated effects of smaller classes on priority groups of learners (the ‘average’ effect of class size meta-analysis studies is of no practical utility in terms of addressing the Ministry of Education’s student achievement priorities).

One alternative explanation for Treasury’s suggested ‘initiatives’ is that they are simply trying to help reduce the cost to government of employing teachers in schools. This possibility is given weight by various data reported in the Ministry of Education’s ministerial briefing:

*‘In the schooling sector, real public expenditure increased by 2% per year from 2000 to 2011. Per-pupil expenditure rose from \$5,615 to \$7,010 in real terms over the same period. Teachers on average were paid 12% more in 2010 than they were in 2000, and teacher numbers have increased by about 17% during the same period.’ (p. 11)*

Moreover, it is stated both that (a) *‘Of the \$9.4 billion allocated to Vote Education in 2011/12, 86% or \$8.1 billion is for schooling’*; and (b) *‘Teachers’ salaries represent approximately 46% of the spending in the schooling sector (\$3,677 million)’* (p. 21). Clearly, if one of the National coalition government’s economic priorities is to significantly reduce the largest single expenditure category in Vote Education, a plausible argument has to found to reduce the overall number of teachers. If this is the case, then for the Minister of Education’s statements on this matter to appear truthful, the real policy goal should be stated and defended publicly.

Another worrying confusion in the statements is that neither the Treasury nor the two senior Ministers appear to know precisely what they mean when the term ‘quality of teaching’ is used with reference to Professor Hattie’s work. Does it mean contributions of ‘the teacher’ or ‘teaching approaches’? In either case, there are serious problems in using a crude league table of effect sizes as a practical guide to policy choices. For example, as Professor Hattie himself concedes, (a) correlations between particular teacher behaviours and student achievement are not to be confused with the causes of that achievement (p. 3); and (b) *‘most of the successful effects come from innovations, and these effects may not be the same as effects of teachers in regular classrooms’* (p. 6). It is therefore both naïve and very unwise to pick schooling policy solutions directly from a rank ordering of one-dimensional statistical effect sizes and assume that student achievement levels in classrooms will rise as a result.

While *Visible Learning* has been described in popular media internationally as ‘teaching’s Holy Grail’, and has anecdotally proved very influential in New Zealand government circles, the method of the synthesis and, consequently, the rank ordering are highly problematic for the teachers and policy makers whose practical decisions it is intended to inform. Appendix A of *Visible Learning* lists the meta-analyses by topic and this enables the reader to scrutinise the references and begin to establish whether the sources used in the synthesis are (a) school-specific or should be discarded for the present purpose; (b) quality assured or not – I

discarded unpublished conference papers but retained doctoral theses; (c) studies of general or specific populations of students such as those with learning disabilities, or of specific learning areas.

I limited my reading to the first twenty nine items in his rank ordering (Appendix B in the book), partly because of the time involved but also because these are the influences that rank higher in Professor Hattie's analysis than home environment (effect size 0.57, rank 30) and socio-economic status (effect size 0.57, rank 31), which the author claims 'cannot be influenced in schools' (p. viii).<sup>3</sup> I also looked only at teacher and teaching influences given that this appears to be the main area of confusion in the official statements above that refer to the importance of improving the 'quality of teaching'.

If the Ministers and Treasury are referring to Professor Hattie's overall domain about contributions of 'the teacher' to student achievement, then there are a couple of apparent problems with the ranking of the influences and their reported average effect sizes in terms of a general strategy for improving the quality of teaching *in schools*. At the very least, the problems below should give you and your officials pause for thought rather than unquestioningly accepting Professor Hattie's research at face-value, as appears to have been the case.

- (i) The 'micro-teaching' influence (average effect size 0.88, rank 4) must be discounted as the synthesis provides no evidence that it has had any effect on school students' achievement, only on that of pre-service teachers;
- (ii) the 'professional development' average effect size (0.62, rank 19) should be recalculated as one of the studies discussed provides no evidence of student effects; another cites the general effect size not the lower student achievement effect. Recalculation gives an average effect size of 0.49 and drops the 'influence' to 48 in the rank order. This is a considerable difference which both illustrates the overall fragility of the ranking, and suggests extreme caution in its use as a simplistic policy 'takeaway menu'.

If, instead, the statements refer to 'teaching approaches', a major problem is that many of the meta-analyses are of studies conducted with particular subject areas or specific sub-groups of students. It is therefore impossible given the way the studies are synthesised to state clearly and precisely which of the 'influences' may be relevant generally to all children in all primary and secondary schools, or even to one sector or the other. Given their quite different organisation and structure, some finer-grained differentiation of policy initiatives would seem to be logical and desirable.

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<sup>3</sup> Since 2003, the Ministry of Education has also strictly limited its focus to 'in-school influences', despite the well-established fact that out-of-school factors almost invariably have significantly greater influence on student achievement than those within the school or classroom teacher's control. The fact that these influences are viewed as beyond the control of education policymakers, or that they may be 'controlled' for the purposes of abstract statistical analysis, does not lessen in any way their very real effects on students' dispositions, learning and achievement at school.



For example,

- (iii) 'providing formative evaluation [to teachers]' (average effect size 0.9, rank 3) is based on two meta-analyses only, both involving students with special educational needs and therefore is not obviously generalisable to all schools, classrooms and teachers;
- (iv) similarly 'comprehensive interventions for learning disabled students' (average effect size 0.77, rank 7) does not have demonstrated general applicability;
- (v) the 'feedback' influence (average effect size 0.73, rank 10) is significantly increased by inclusion of one meta-analysis on the use of music as an education reinforcement (effect size 2.87). The meta-analysis contains a high proportion of studies with participants who have severe learning and/or developmental delays, in both school and out of school settings, and includes both adults and children. If this one source is excluded, the average drops to 0.63 (rank 19). (It should be noted that feedback is one of the few teaching influence domains where there is a sufficient number of studies to indicate more clearly which single aspects of feedback are likely to have the most general practical effect on student achievement (e.g. 'immediacy of teacher feedback') and which least (e.g. 'teacher praise');
- (vi) the influence 'spaced vs. massed practice' (average effect size 0.71, rank 12) includes two meta-analyses specifically on the learning of motor skills with an average effect size of 0.96. If these are discarded on the grounds that they are not of general relevance to most learning areas of the curriculum, the influence of spaced practice drops to 0.46 (rank 53);
- (vii) the general importance and ranking accorded to 'meta-cognition strategies' (average effect size 0.69, ranking 13) must also be questioned on the basis that the two meta-analyses both refer to reading interventions only;
- (viii) the findings for 'problem-solving teaching' (average effect size 0.61, rank 20) are derived from six meta-analyses, three of which are unpublished doctoral studies and one an unpublished conference paper. The average effect size of the two peer-reviewed journal meta-analyses (one in mathematics, the other science) is 0.46 (this would give a reduced rank of 53);
- (ix) the commentary (p. 201) on the influence 'teaching strategies' (average effect size 0.6, rank 23) lists numerous possible strategies for inclusion in teachers' pedagogical repertoires but gives no policy or practice guidance on which should be used with which learners, in which subjects, under what conditions and in which sequence or combination, nor for how long or with what frequency. Equally, the author comments that 'most of these meta-analyses relate to special education or students with learning difficulties' (p. 200). Their general applicability for all school students has not been demonstrated;
- (x) the ranking of 'co-operative vs. individualistic learning' (average effect size 0.59, rank 24) must also be recalculated because the studies include one of adults (effect size 0.68) and one unpublished conference paper (effect size 0.88). If these are excluded the average effect size falls to 0.4 (rank 64);

- (xi) in contrast, for study skills, (average effect size 0.59, rank 25), if the five college level meta-analyses are excluded, the average effect size of the remaining meta-analyses rises markedly to 0.74 (rank 9);
- (xii) finally, for mastery learning (average effect size 0.58, rank 29) the meta-analysis with the largest effect size is an unpublished conference paper. If this is excluded, the average effect size is reduced slightly to 0.55 (rank 35) but even so this reduces its measured effect on student achievement to less than those of the home environment or socio-economic circumstances influences which Professor Hattie says at the outset cannot be influenced in schools.

**(d) Wrong**

Leaving aside, for a moment, all the concerns outlined thus far, the gravest problem with Treasury's briefing statement is that it is just plain wrong. This is particularly distressing given the government's laudable and ambitious agenda to (i) raise functional literacy and numeracy proficiencies by the end of primary schooling; (ii) ensure that students leave secondary schools with useable 'pathway' credentials; and (iii) enable Māori and Pasifika students to achieve at similar levels to their Pakeha peers.

On his own admission, Professor Hattie's work is not about what goes on in classrooms. One must therefore logically look to sources other than *Visible Learning* for useful evidence and policy guidance on the interaction or mediation effects between class size and teaching and learning processes.

Following your response in the House, Ms Delahunty sought leave to table a copy of a 2008 conference paper by Professor Peter Blatchford and colleagues at the Institute of Education, University of London. In the paper (since published in 2011 in the prestigious international journal, *Learning and Instruction*), Professor Blatchford makes the point that class size effects are 'multiple'. For children at the beginning of schooling, there are significant potential gains in reading and maths in smaller classes. Children from ethnic minorities and children who start behind their peers benefit most. There is also a positive effect on behaviour, engagement and achievement, particularly for low achievers, where classes are smaller in the lower secondary school. This suggests that the achievement of weaker students in primary and secondary schools (largely Māori and Pasifika students and/or those from poorer families) may be put at risk if teacher student ratios and class sizes are increased.

Such research findings, I would suggest, are of crucial importance to securing the government's plans for schooling and the Ministry of Education's stated vision and goals.

But the Treasury and Ministry should both already know some of this, at least.

(1) Small-scale Ministry of Education funded research in South Auckland schools and classrooms resulted in a 2002 report, including a glowing Foreword written by the former

Secretary of Education, entitled *Picking up the Pace: Effective Literacy interventions for accelerated progress over the transition into decile one schools*. One of its recommendations was that learners with poorly developed literacy in low decile schools should experience a maximum class size of 18 in the first year of schooling in order to have the support they need to become confident readers. Even on the basis of this single study, the Treasury's proposal, which would inevitably lead to more students per teacher in classes, would appear to be in direct conflict with the government's 'crusade' around National Standards and should properly be treated with considerable scepticism.

(2) As Ms Delahunty has noted in her Blog, in 2001 Treasury commissioned a Working Paper, *The effects of class size on the long-run growth in reading abilities and early adult outcomes in the Christchurch Health and Development Study*. The researchers' statistical analysis concluded, among other things, that 'lower class sizes were associated with more completed education as of age 21, lower incidence of unemployment spells, and conditional on experiencing an unemployment spell, substantially shorter durations' and, more specifically, 'We found that persistent class size reduction policies were associated with significant increases in Burt Word Reading performance from age 8 to 13' (p. 39).

Tellingly, they commented that their findings were not simply of interest to researchers:

*'They are also of public policy interest, since it indicates that class size reductions are not just efficacious in raising academic outcomes, but also outcomes pertaining directly to the utility and well-being of the individuals themselves.'* (p. 39)

I believe many people, both in education and in the general community, would find it deeply disturbing that policy advice and briefings to Ministers should directly contradict the evidence from research studies that were commissioned by those very government departments in the first place.

The more salient point for the present argument is that class size also affects what it is possible for teachers and learners to do, what they actually do in the classroom, what students achieve, and which students are most affected by smaller or larger classes. We know this as a result of naturalistic, mixed methods studies of the kind specifically excluded from Professor Hattie's *Visible Learning* analysis by which government appears to set such singular store.

Naturalistic studies examine classrooms as they are. As designed by Blatchford and colleagues, they focus in fine-grained detail on what occurs in classes of many different sizes using multiple quantitative and qualitative methods. They provide a rich and nuanced picture of complex classroom life and social interaction. They follow both cohorts of students and targeted individuals across several years. They use sophisticated multi-level statistical modelling techniques to identify, examine and determine the weight of relationships between numerous educational variables.

Professor Blatchford and various co-researchers have conducted several large-scale naturalistic classroom studies in English schools. The following sources would permit your officials and advisers to prepare a summary of the published evidence for you. My advice

would be that the Ministry should invite Professor Blatchford to present on his methodology and findings to government, officials, practitioners and the education research community in order to enable all these groups to gain a richer and more nuanced understanding of the evidence on class size effects.

- (i) The *Class Size Research Project*, was conducted with students in their first three years of primary schooling;<sup>4</sup>
- (ii) The *Deployment and Impact of Support Staff* project;<sup>5</sup> data from this study were used to extend the earlier class size research to students in both primary and secondary schools;
- (iii) The *Class Size and Pupil Adult Ratio Study*,<sup>6</sup> was conducted with students throughout the primary school years.

As a coherent programme of empirical classroom research, the studies have considerable policy and practice value across the compulsory schooling sector. Very briefly, and without wishing in any way to distort the research findings through over-simplification, Professor Blatchford's research has shown, for example, that larger classes produced more groups of students in the class and larger numbers of students within the groups. This had negative effects on teaching, learning and students' concentration. In smaller classes, teachers were more likely to spend time with individual students – this is exactly how teachers support the kind of 'personalised learning' approach that our Ministry of Education says it wants and which larger classes would appear to seriously threaten.

The Ministry of Education also wants our 'world-class' revised curriculum implemented. The New Zealand Curriculum is premised on social learning and students actively taking more control of their learning. In smaller classes, Professor Blatchford reports that students are more likely to be engaged in learning and less disruptive; in larger classes they are more likely to just passively listen to the teacher; in smaller classes students actively interact with the teacher about their learning.

While small classes reportedly have demonstrable benefits for all students in terms of teacher attention, they may be particularly beneficial in the first years of primary and secondary school and, in the latter, especially for lower attaining students who otherwise have been shown to be more likely to disengage from learning.

The results from Professor Blatchford's research are consistent with those of other 'multiple effects' classroom studies conducted internationally.

Finally, a 'best description of relationships' model that has been developed and used by the research teams over the years in response to the research findings (e.g. Blatchford 2003, p.

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<sup>4</sup> E.g. Blatchford, P. (2003). *The class size debate: Is small better?* Maidenhead, UK: Open University Press.

<sup>5</sup> E.g. Blatchford, P., Bassett, P. & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher-pupil interaction: Differences in relation to pupil prior attainment and primary vs. secondary schools. *Learning and Instruction*, 21, 715-730.

<sup>6</sup> Blatchford, P., Russell, A. & Brown, P. (2009). Teaching in large and small classes. In L.J. Saha & A.J. Dworkin (Eds.). *International handbook of research on teachers & teaching* (pp. 779-790). New York: Springer.

158), may serve also as a useful visual heuristic in your ongoing discussions with officials and advisers.

If nothing else, the heuristic permits everyone concerned with school students' learning and achievement to ask one obvious question:

*What exactly does the research evidence say is likely to happen for teaching, learning and achievement if class sizes increase, and for which groups of students?*

The heuristic is based on the following aspects of behaviour, interaction and their consequences for student participation, engagement and achievement.

(a) Class size differences demonstrably affect the interactional framework of the classroom as a whole:

- The size and number of within-class groups, with consequences for curriculum coverage and the quality of students' work

(b) They demonstrably affect the teacher:

- Task time with students
- Individual support for learning
- Classroom management and control
- Teacher stress/compensatory efforts

(c) They demonstrably affect the student:

- Active involvement with the teacher
- Student attentiveness/off-task behaviour
- Peer relations.

In conclusion, Minister. A dispassionate assessment of all the available research evidence on class size effects clearly shows that the Treasury's advice is wrong. The evidence also suggests that in order to raise student achievement, the country needs to adopt a different education policy research and development stance entirely on this issue.

The Ministry of Education's briefing to you states the achievement gap, and the policy challenge, succinctly:

*'Despite some overall improvements, the gap between our high performing and low performing students remains one of the widest in the Organisation of Economic Cooperation and Development (OECD). These low performing students are likely to be Maori or Pasifika and/or from low socio-economic communities. Disparities in education appear early and persist throughout learning.'* (p. 8)

The consistent position of your government has been that it is possible to address this challenge within schools by raising achievement standards in literacy and numeracy, ensuring that lower achieving students are supported to remain sufficiently engaged and thereby gain secondary school credentials; and meeting the particular needs of Māori and Pasifika students.

Treasury asserts that it is possible to increase student teacher ratios in schools without adversely affecting this complex challenge.

However, the evidence on which this assertion is based is seriously flawed because it fails to take into account what happens to real teaching and learning processes, and student achievement in larger classes.

New Zealand's student teacher ratios are presently higher than the OECD mean in primary and lower secondary schools, which infers that average class sizes are also larger than the OECD mean.

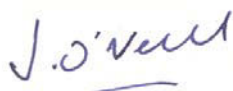
Naturalistic studies of class size effects on teaching and learning clearly demonstrate multiple links between class size and classroom processes.

These same studies suggest that larger class sizes have the most adverse consequences for the achievement of the very groups of learners the Ministry of Education states are its priorities.

There is no evidence-based justification to increase student teacher ratios in schools. On the contrary, OECD data suggests that priority groups of learners would benefit if ratios were to be reduced further in primary and lower secondary schools.

I would respectfully suggest that the only logical and moral actions open to you are to (i) publicly and forcefully reject the Treasury's suggestion to increase student teacher ratios; and (ii) ensure that any class size-related policy proposals you may make to Cabinet are founded on thorough, accurate, informed, free and frank policy advice on the known effects of larger class sizes on your priority groups of students.

Nāku noa, nā



John O'Neill, PhD  
Professor of Teacher Education

Cc

Professor John Hattie

Hon John Banks, Associate Minister of Education

Hon Dr Pita Sharples, Associate Minister of Education

Hon Bill English, Minister of Finance

Catherine Delahunty, Spokesperson, Education

Sue Moroney, Spokesperson, Education

Hone Harawira, Leader

Hon Peter Dunn, Leader

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Professor Gail Gillon (Chair), Deans of Education Group

Cheryl Stephens, President, New Zealand Association for Research in Education

Dr Vicki Carpenter and Dr Iris Dunn, Joint Editors, New Zealand Journal of Educational Studies