



## ***Motivation and Achievement at Secondary School***

### **The relationship between NCEA design and student motivation and achievement: A Three-Year Follow-Up**

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## Executive Summary

**Longitudinal Research on the Impact of the NCEA and Student Motivation and Achievement** was funded as a series of studies by a Ministry of Education research contract awarded to researchers at Victoria University in the Jessie Hetherington Centre for Educational Research and the School of Psychology. The longitudinal research project began in 2005 and extends across junior and senior secondary years in students' school careers to investigate relationships between New Zealand's National Certificate of Educational Achievement (NCEA) and student motivation to learn. This third, multi-method research report follows previous student cohorts attending nationally representative secondary schools but also includes new cohorts encompassing two further years of the project. Part One was published as *The Impact of the NCEA on Student Motivation* (2006) and Part Two as *Longitudinal Research on the Relationship between the NCEA and Student Motivation and Achievement* (2007).

Survey, focus group interview, and achievement data are reported for a large sample of students from 20 demographically representative secondary schools across the country. Concurrent data were analysed for additional Year 10 and Year 11 student cohorts in 2007 and 2008, and data were analysed across years for those still in school in 2007 and 2008 from our Year 10-13 2005, 2006 and 2007 student cohorts. This enabled us to examine longitudinal relationships across motivation orientations and NCEA achievement outcomes. We also investigated relationships of student attributions towards learning and the influences of family/whānau, teachers and peers on achievement outcomes and motivations.

Our research also reports the results of an ongoing validation of our motivation screening measure. Administration of this measure with 2007 and 2008 Year 10-11 student samples allowed us to investigate the extent of student participation in part-time work, child care and other extracurricular activities and how these were related to motivation and achievement. Further, the timing of the announcement of certificate endorsements mid-2007 allowed us to examine how reported knowledge of the endorsements and how much students said they mattered to them were related to motivation and achievement. We report findings regarding self-reported knowledge of the endorsements for both 2007 and 2008.

In 2008, we also probed parent and student perceptions of NCEA design changes and how aspects of the NCEA affected student motivation and achievement. Parent and student focus group participants were identified from five of our national sample of 20 schools and at five new schools. Together, these qualitative data provide additional information from a wide range of schools across the country including *wharekura*, Auckland region schools, and schools enrolling a high percentage of Māori and Pacific students.

### Key Research Findings

In this section, we summarise major findings from our research on the relationship between the NCEA and student motivation and achievement. These findings are

summarised here according to key research questions,<sup>1</sup> and the chapters to follow provide detailed findings.

### ***What is the relationship between student motivation and achievement?***

Our research continues to support the validity of two key motivation orientations *Doing My Best* and *Doing Just Enough* in predicting future achievement. *Doing My Best* significantly predicts more total credits, internally assessed standards with Excellence, and externally assessed standards at all levels—Achieved, Merit and Excellence. *Doing Just Enough* is associated with lower achievement across two years and significantly predicts higher total unit standard credits. These motivation orientations also account for subsequent achievement over and above predictions made based on previous achievement alone.

While motivation patterns were generally stable across two years for most students, individual fluctuations in motivation orientation that related significantly to achievement were also evident. Thus, we constructed low to high motivation categories based on composites of the *Doing My Best* and *Doing Just Enough* scales and examined further the achievement patterns for students in the different categories and those who changed motivations over time. Across two years, one-third of the students maintained their level of motivation, one-third showed a minor shift in motivation, and one-third showed larger shifts in motivation up or down. Students whose motivation stayed the same or shifted upwards from one year to the next achieved more total credits in 2007 and 2008 compared to those whose motivation shifted downwards.

We also investigated the relationship between student motivation patterns and relationships with teachers and peers. We found significant relationships between the motivation dimensions and these interpersonal influences: Students high on *Doing Just Enough* reported that their teachers did not take a personal interest in their achievement, whereas students high on *Doing My Best* reported that teachers showed interest in them and in their work.

### ***Do motivation and achievement vary across gender, ethnicity and school decile level?***

Relationships between gender and ethnicity with motivation and achievement were examined for the two Year 11 student cohorts who completed the survey late 2007 and late 2008 prior to final examinations and who did not receive their NCEA results until early 2008 or 2009, respectively. As in previous years, females reported *Doing My Best* more than males, and males reported *Doing Just Enough* more than females; however, in real terms these differences were quite small despite being statistically significant given the large sample size. Also as in previous years, we found that ethnicity was significantly related to both *Doing My Best* and *Doing Just Enough*, with Asian students showing the most positive motivation patterns, high on *Doing My Best* and low on *Doing Just Enough*. For Māori, overall mean scores for both dimensions were fairly similar.

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<sup>1</sup> Note, however, that some questions could not be answered (e.g., parents were largely unaware of the review of Unit Standards so could not give an opinion of that review). In addition, a planned exploratory study to follow up students who had left school prior to Year 13 could not be completed due to lack of accurate contact information.

Focusing on our longitudinal data set, we investigated how shifts in motivation across years related to gender, ethnicity and school zone socioeconomic decile level. More males than females moved up two or more categories in motivation as they moved from Year 11 to Year 12 in secondary school. Asian students disproportionately increased most in motivation across years and European students disproportionately decreased most in motivation in comparison with other ethnic groups. There were no major differences in shifts in motivation by school zone decile level.

### ***How is knowledge of the endorsements related to motivation and subsequent achievement?***

On the 2007 and 2008 surveys, students were asked whether they were aware of the certificate endorsements for Merit and Excellence and how much these endorsements mattered to them. Overall, a slight majority of the students in each of the two years surveyed reported they knew about the endorsements, with more Year 11 and fewer Year 10 students reporting this knowledge. At the 19 schools returning surveys in both years, there was considerable variation in awareness of the endorsements from a low of just over 10% to nearly 80% at different individual schools.

Students overwhelmingly reported that the endorsements mattered to them, with only a small percentage (less than 10%) of those who knew about the endorsements saying they did not matter. This figure was relatively consistent across school zone decile, perhaps representing that percentage of the school population in all schools who may be the most difficult to motivate.

Knowing about the endorsements was also related to attainment of NCEA Level 1, though students did not have these results at the time they completed our survey (and indeed had not even finished all assessments). In 2007, 69% of those who reported knowing about endorsements compared with 49% of those who said they did not know later attained Level 1. Of those who knew about the endorsements, 34% attained an endorsement whereas only 7% of those who said they did not know received an endorsement. Of those attaining NCEA Level 1 with Merit, 80% had said the endorsements mattered to them mostly or definitely, and of those attaining endorsement with Excellence an overwhelming 98% said they mattered either mostly or definitely.

By examining data available for nearly 600 students from 2006 to 2007, we found that motivation decreased across time for students who said the endorsements did not matter whereas motivation remained stable and even increased for those who said endorsements mattered. The positive relationship of availability of endorsements to motivation across time was evident for students at all levels of achievement. Students in the lowest one-third in terms of total credits who reported knowing about the endorsements showed more positive motivation patterns over time in comparison to those who reported they did not know. The positive relationship with reported knowledge of the endorsements was strongest for the high achieving one-third in terms of total credits. These students may be motivated to continue completing assessments beyond the minimum required in the hope of attaining an endorsement, and student focus group comments support this interpretation. The findings suggest that the endorsements had a positive effect on motivation, though it is possible that the more motivated students were more likely to acknowledge knowing about the endorsements.

### ***How are part-time work and other activities related to student motivation and achievement?***

Again in both 2007 and 2008, we found relatively high percentages of students in Years 10 and 11 reporting part-time work. We also found that high percentages of students were engaged in other activities such as sport and child care for the family outside school hours. For Year 11 students, there was a significant relationship between the average number of hours spent weekly in each activity and student achievement in terms of total credits. Those who did not work or engage in sport achieved significantly fewer total credits than those who worked or engaged in sport between 5-10 hours. That is, engaging in part-time work or sport was positively related to attaining more credits at NCEA Level 1 provided that the number of hours did not exceed 10 hours weekly.

The achievement pattern for those who reported looking after children in the family (e.g., younger siblings) was different, with those who reported no involvement in childcare achieving more credits at NCEA Level 1 than those who spent more than 5 hours in childcare and those who spent fewer than 5 hours caring for children achieving more credits than those who spent more hours weekly. Students from low decile schools and Māori and Pacific students reported more child care, and European students reported less in comparison to all other groups. These differences in gender, decile, and ethnicity did not, however, show strong relationships to motivation or achievement patterns.

### ***What factors do students think contribute to their best and worst marks?***

In both the 2007 and 2008 surveys, we investigated the relationship of attributions for success and failure with motivation and achievement with the addition of measures to assess the influences of family/whānau, teachers and peers. Students rated attributions for ability, effort, luck, and the influences of their teachers, family and friends higher as explanations for their best marks than for their worst marks, and only assessment task difficulty was rated higher for their worst marks than for their best marks. In 2007, students' attributions for their best mark on a single assessment to ability was a significant predictor of higher NCEA achievement, whereas in 2008, students' attributions for their best marks on a range of assessments to effort was a significant predictor of higher NCEA achievement.

Gender was significantly related to attributions for success and failure, with girls more likely than boys to attribute their best marks to effort and their worst marks more to their lack of ability and the difficulty of the assessment task (both relatively stable and unchangeable causes). Female students also attributed both their best and worst marks to the teacher more than boys, who attributed their worst marks more to bad luck than did girls.

Ethnic differences revealed that Pacific students rated both family and friend influences as more important to both their best and worst marks than did European, Māori and Asian students. Māori and Pacific students attributed their best marks less to ability and effort than did European and Asian students. Pacific and Māori students also rated luck as a more important factor in their best marks and rated ability as a less important factor in their worst marks than did European and Asian students. This could suggest that Māori and Pacific students felt less control over their results than their European and Asian counterparts.

### ***What do students say about the influences of their teachers and parents on motivation and achievement?***

Our focus group results provided rich examples of the ways in which teachers and, to a lesser extent, parents were seen as having motivated secondary students to try their best and do well in school and on the NCEA. Most of these influences were positive but some were negative as well. Students reported that their families expected them to do well, took an interest in their schoolwork, and even offered specific rewards for achievement outcomes. There were several comments about older siblings who had left school early and had limited career opportunities or other serious difficulties—they were less than positive models and were cited as motivators for them to stay in school and achieve so that their future would be better.

There were a large number of comments about the influences of teachers on motivation and achievement. Most of these comments were positive and, not surprisingly, students appreciated teachers who knew their subject but also made learning fun and interesting. They appreciated teachers who treated them with respect, “like adults”. Without identifying anyone, some gave examples of teachers who seemed to have favourites, were sexist, got angry, and/or who couldn’t control their classes.

Friends and classmates were reported to have an influence on student motivation and achievement, both positive and negative. One’s friends could motivate higher achievement by supporting study behaviour, by not distracting students with social demands, and through “friendly competition” with one another to see who could get the highest number of Merit and Excellence credits. Friends could also be a negative influence, and students didn’t like to be in groups that were predominantly comprised of poorly motivated and low achieving students. They emphasised the difficulties of being motivated and working hard when surrounded by others who didn’t seem to care or couldn’t do the work. The common practice of banding students into groups by different levels of achievement for core courses in New Zealand secondary schools could be supportive for the higher achieving groups, but could be having a negative impact on both motivation and achievement for students in the lower achieving bands who are trying to improve.

### ***What do students and parents know and think about the 2007 NCEA design changes?***

The 220 focus group students from 10 schools were largely positive about the NCEA while expressing some continuing concerns over particular aspects. The two largest sets of comments made related to aspects of qualifications design and to intrinsic and extrinsic motivators for doing well on the NCEA. Students discussed time and stress management issues, including how to balance the demands of school study with part-time work, cultural competitions, sport and their social lives generally.

Students were overwhelmingly positive about the introduction of the Certificate Endorsements for Merit and Excellence, regardless of gender, school decile, or ethnicity. They also continued to advocate for more recognition in different subjects and having finer grade bands than just the four grades now available. In 2007, a majority of the Year 10 and Year 11 students we surveyed reported being unaware of the endorsements. This percentage declined slightly in 2008, but was still high enough to suggest that more work needs to be done to ensure that students and their families are made aware of the endorsements.

Māori and Pacific parents were positive about what they saw as increased motivation and opportunities for young people to achieve with NCEA in comparison with the previous system. They emphasised the advantages of a mix of assessments whereby internal assessments kept students focused across the year thus complementing end of the year exams. They provided many examples of older siblings who had failed under School Cert and Bursary while their younger children were doing well and were striving for Merit and Excellence rather than just Achieved. Parents reported using a range of motivators and reinforcers to encourage their children to do well, and they also withheld certain activities until homework was done (e.g., television, having friends over).

***What do students think about NCEA assessment issues including consistency across subjects and schools?***

Students continued to express strong support for internal assessments while recognising that external assessments were also important. As in previous years, students commented about a lack of consistency and transparency across schools and subjects, particularly with regard to repeating and re-sitting internal assessments. Though unaware of the review of Unit Standards, they expressed mixed opinions about the relative value of Unit versus Achievement Standards. However, support for Unit Standards was largely based on the notion that they provided an achievement pathway for less capable students, and students also expressed resentment that some subjects offered only Unit Standards (e.g., photography) so that students were prevented from working towards Merit and Excellence.



# Introduction

## Overview

This report encompasses the two final years of a four-year longitudinal investigation of the relationship between student achievement and motivation. The research investigates these relationships between motivation and achievement using NCEA results as a measure of achievement outcomes, as well as the effects of aspects of the NCEA system on motivation. Previous years' research findings are extended by following large student cohorts from each year and by adding two additional year cohorts from nationally representative secondary schools. A motivation and attributions screening measure was developed and validated, and student and parent focus group and individual interviews provide evidence regarding relationships between aspects of the NCEA and attitudes, motivation and subsequent achievement. This included their perspectives on the NCEA qualifications design changes implemented in 2007 as well as further changes underway (see Meyer, McClure, Walkey, McKenzie & Weir, 2006; Meyer, Weir, McClure, Walkey & McKenzie, 2007).

Longitudinal research linking student motivations and attributions to actual achievement is essential to investigate how school policies and classroom practices affect student behaviour and learning. Additionally, we investigate how time spent in out of school activities such as part-time work, childcare, sport and other activities is related to motivation and achievement.<sup>2</sup> This research builds on databases gathered in 2005-2006 and 2006-2007 to investigate these relationships with particular reference to the NCEA, student achievement across time, and student and parent attitudes regarding motivation orientations, study patterns, and NCEA design issues.

## Review of Recent Research on Motivation and Attributions

Educators and educational researchers have long been interested in the role of motivation. Nearly a century ago, Dewey (1913) wrote about the dynamics of how teachers and schools can “catch” student interest and must “hold” that interest and effort in order to promote meaningful learning. Connecting learning to skills that students need in order to meet current and future goals has also been shown to influence interest, effort, and understanding. Individual and situational factors influence heavily the extent to which children and adults pay attention, persist, learn more, seek additional opportunities to elaborate their understandings, and enjoy learning (Ainley, 1994; Apple, 2001; Hidi & Harackiewicz, 2000; Martin, 2006).

There are other influences as well. How teachers approach inquiry in the classroom, provide feedback, structure learning tasks, organise their classrooms, group students, and accommodate specific subject-related requirements have significant effects (Anderson, Hattie, & Hamilton, 2005; Church, Elliot, & Gable, 2001; Eccles, 2005; Eccles & Wigfield, 1995; Hattie & Timperley, 2007). Further,

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<sup>2</sup> An additional study to follow up students who had left school in previous years prior to Year 13 could not be completed during this phase due to lack of accurate contact information.

White (1959) and Deci (1975; 1992) describe how approaches that make learning materials more challenging and that empower students to make choices and exercise autonomy and self-determination can be especially critical to adolescents at secondary level.

### ***Attributions for success and failure***

Students' attributions for their own success and failure at school can have an impact on motivation and achievement (Weiner, 1985). If students see their failure as having been caused by something that is difficult or even impossible to change, such as the difficulty level of the test or one's ability, this attribution has a negative impact on motivation and achievement. By contrast, if they attribute their failure on an assessment to a lack of effort, this attribution is more likely to enhance the student's motivation to try harder on future tasks and is unlikely to lessen motivation. This pattern has also been demonstrated with New Zealand students (Fukui, 2006; Ng, McClure, Walkey & Hunt, 1995). In regard to the NCEA, students' attributions of their best marks in an English test or exam to ability or effort were correlated with better performance in the NCEA, whereas attributions of their worst mark to lack of ability were correlated with lower performance in the NCEA (Meyer, Weir, McClure, Walkey & McKenzie, 2007).

Students' attributions for their performance can be modified, and one practical implication of Weiner's theory and research is that when teachers see students struggling with new tasks, statements such as "*Keep trying, it's easy!*" are likely to affect students negatively rather than encouraging them. If they succeed on something the teacher said was "easy," the accomplishment has been devalued. If they fail, they are likely to infer that they lack the required ability because, after all, the teacher said this task was supposed to be easy. Thus, a more helpful thing to say would be: "*This is a difficult task, and you really have to work at it. Keep trying, and I'll check later to see if you need some help.*"

### ***Intrapersonal influences on motivation and achievement***

In addition to the influences of school, curricula, the teacher, and other contextual factors on student achievement, individual ability and attitudes play major roles in shaping achievement outcomes. Self-perceptions of ability and the individual's sense of self-efficacy have long been regarded as the cornerstones of motivation theory (Meece, Wigfield, & Eccles, 1990). How well students perform in school is a product of both opportunities presented in each learning situation as well as what the individual brings to the task.

Thus, academic engagement and performance is heavily influenced by student attitudes towards school and goals for the future. School alienation accompanied by avoidance of effort has a cumulative negative impact on outcomes (Nicholls, 1999; Nicholls, Cheung, Lauer, & Patashnick, 1989). Students who are not interested or who actively avoid opportunities to learn fall further and further behind their peer cohort in skills and understandings across the school years (Hidi & Harackiewicz, 2000; McCaslin, 2006).

In our previous research, we demonstrated strong positive relationships between student self-reports of different motivation orientations as expressed in their approach to school and to the NCEA (Meyer, McClure, Walkey, Weir, and McKenzie, 2009). Student self-ratings of *Doing My Best* and *Doing Just Enough*

were particularly strong positive and negative predictors, respectively, of how well students would perform on selected NCEA achievement outcomes in future years (Meyer et al., 2007; Hodis, Meyer, McClure, Weir, & Walkey, 2009). These motivational orientations are similar to the “motive to strive” and invested effort constructs of self-reported effort and concentration reported by Brookhart and Durkin (2003), McClelland (1961) and Salomon (1984). Our findings are consistent with the theory of planned behaviour (Ajzen, 2002) and the significant research in Australia being carried out by Martin (2007; Martin & Dowson, 2009).

These motivation orientations extend beyond generalities across multiple domains in being specific to particular performance questions related to school and to the NCEA (Meyer, Weir, McClure, Walkey & McKenzie, 2009). The constructs of *Doing My Best* and *Doing Just Enough* were subjected to further longitudinal investigation in this final phase of our research: we now report evidence that they are significant predictors of achievement three years into the future, over and above what can be predicted based on prior achievement alone.

Our findings suggest considerable utility in exploring interventions to shift motivation patterns in positive directions. Such strategies would be a complement to more traditional approaches modifying underachievement that focus solely on academic remediation. Shifting student motivations away from the more negative *Doing Just Enough* to the more positive *Doing My Best* orientation may require focused academic tasks and activities where students receive support to achieve positive outcomes through their own endeavours (O'Mara, Marsh, Craven & Debus, 2006). Related research on how teachers might best encourage learning and task performance also affirms the need for situation-specific messages and feedback to students, related to particular tasks (Hattie & Timperley, 2007; Wolf, Smith & Birnbaum, 1995). Intervention research focused directly on student motivations carried out in Australia demonstrates the potential of these approaches (Martin, 2008). Connecting motivations to specific tasks would contrast with traditional admonitions to young people, telling them simply to *do your best* without linking a vague generality such as this to specific tasks and approaches.

### ***Interpersonal influences on motivation and achievement***

While the two motivational patterns discussed above were highly predictive for students overall, we also found gender and ethnic group differences. Females were more likely to demonstrate the more positive motivational pattern of *Doing My Best* and less likely to report *Doing Just Enough* in comparison with males, who were more likely to express the motivation orientation *Doing Just Enough*. There were also gender differences on attribution factors, with girls more likely to attribute their best academic performance to effort and their worst academic performance to lack of ability and assessment task difficulty in comparison with boys.

We also found significant differences between students from different cultural groups. For Asian students, ratings on the *Doing Just Enough* orientation was a significant predictor of achievement a year later. Both the *Doing My Best* and *Doing Just Enough* orientations were significantly related to future achievement for New Zealand European and Asian students, and the *Doing Just Enough* orientation was related to achievement for all ethnic groups. As the effects were least strong for Māori and

Pacific students in earlier years, a major focus of our work in 2007-2008 was to explore other motivation dimensions that might be more revealing for these cultural groups.

We have argued that traditional motivation orientations including our own *Doing My Best* and *Doing Just Enough* reflect individualistic, more typically “Western” values and approaches. Social context is, of course, critical for theory in child development (Vygotsky, 1978), yet this theoretical framework is not yet reflected in much of the literature on motivation and achievement. The “social goals” dimension discussed in traditional learning theory is another example of a relatively neglected direction (Ames, 1992; Wentzel & Caldwell, 1997). Urdan and Maehr (1995) summarised these gaps in our understanding of student motivation and called for more empirical investigation of how social goals might influence motivation and achievement. Internationally, there are some examples of research to explore social motivation goals that might better reflect values in more collectivist cultures (Boekarts, de Koning, & Vedder, 2006; Hui & Triandis, 1986; Li, 2006).

Ongoing research in Aotearoa New Zealand reflects the importance of reflecting cultural capital, group belongingness, and positive social relationships in the classroom for promoting Māori learning and achievement (Bishop & Berryman, 2006; Bishop, Berryman, Cavanagh & Teddy, 2007). In New Zealand, the development and validation of culturally responsive practices that will enable Māori to meet their educational aspirations are important issues.

To address these issues, we revised the motivation screening measure to incorporate social and interpersonal motivation and attribution questions. In this report, we present 2007-2008 findings following the development of these additional subscales to measure student affiliations with their teachers and with their peers, friends and classmates. This was a major focus of our work in the final phase of the research.

### ***External influences on motivation and achievement***

In 2006, we found that a relatively high percentage of both Year 10 (approximately one-third) and Year 11 (over 40%) students reported that they were engaged in part-time work outside school (Meyer et al., 2007). In 2007 and 2008, we again asked students for information about their part-time work commitments but also asked them to indicate average weekly hours spent in other activities outside the school day as well—sport, caring for siblings and other children in the family, paid tutorials and other activities.

The literature on the impact of part-time work, child care responsibilities, and extracurricular activities on achievement reveals mixed findings. Empirical research on the influence of part-time work on achievement offers support (Cheng, 1995; Payne, 2003) and refutes (Marsh & Kleitman, 2005) what has been referred to as a “threshold model” whereby achievement varies based on the number of hours spent working outside school, for example. The threshold model generally asserts that part-time work would be related to positive achievement patterns up to a certain limit (e.g., 10 hours weekly), and once this threshold is exceeded achievement patterns become increasingly negative as the hours increase.

Conventional wisdom has proposed that engaging in extracurricular activities including part-time work contributes to children's development as character-building and may also assist in the development of time management skills (Holland & Andre, 1987). Organised extracurricular activities that are highly motivating to young people are generally regarded as a good use of out-of-school time in providing opportunities to learn new skills in settings outside school, contribute to the well-being of the community, enjoy membership in valued groups, deal with challenges, and establish new social networks and supports (Eccles, Barber, Stone, & Hunt, 2003). Furthermore, organised extracurricular activities can provide teens safe places to be during the significant portion of high-risk non-supervised waking hours outside school (Zaff, Moore, Papillo, & Williams, 2003).

Non-school pursuits could be detrimental to student achievement if they erode student commitment to school and schoolwork (Greenberger & Steinberg, 1986; Marsh, 1991, 1992; Warren, 2002). Interestingly, the relationship of school achievement and family child care outside school has not been well-researched. This type of nonschool activity could differ from extracurricular participation which is driven by student interest (e.g., sport) or the pursuit of financial benefits (e.g., work). There is evidence that different types of outside activities have different impact on achievement and for different students. Participation in sport appears unrelated to achievement for most students with one exception: students from low-income backgrounds or who previously were judged "at-risk" appear to benefit with higher achievement and lower drop out rates (Guest & Schneider, 2003; Mahoney & Cairns, 1997). Participation in organized extracurricular activities such as interest-related clubs (drama, band, language, etc) and school publications has been shown to be related to positive academic and social outcomes (Fredricks & Eccles, 2006).

In 2007, we found support for the positive impact of part-time work on achievement up to a threshold of up to 10 hours weekly: Year 11 NCEA achievement for students reporting work up to 10 hours weekly showed positive achievement in comparison to both those students working more hours weekly as well as those students not working at all (Meyer et al., 2007). We also found that school-related extracurricular activities up to 10 hours weekly were positively related to school achievement, whereas participation in caring for siblings and other children for the family was negatively related to achievement. Students in Years 10-11 in 2008 follow similar patterns, but the differences were not large. In general, our findings appear consistent with the international literature.

## **Context of the Research**

### ***Relationship of assessment and learning***

Internationally, the increased focus on educational standards and outcomes represents a shift in the purpose of assessment: Whereas historically educational assessment stratified achievement and sorted students into different groups for education and vocation, the purpose of assessment in a public education system shifts to one of enhancing learning and teaching towards meeting national needs for educated citizens. Finland, for example, provides an example of how major educational reforms including assessment practices have raised the achievement level of all students and resulted in a smaller gap between high and low achievers (Cavanagh, 2005). In New Zealand, the development and implementation of the

National Certificate of Educational Achievement (NCEA) introduced in 2002 represented a major shift in educational policy and practice affecting students, parents/whānau, teachers, and school communities. Perhaps because it was so very different from the previous system, ongoing discussions across the wider public also reflect various levels of understanding about the NCEA as a secondary qualification, how it works, and the role it plays in transitions to higher education and the workplace.

By introducing a secondary school leaving qualification—available at three levels—the NCEA was designed to advance the educational attainment of secondary graduates. It was also designed to focus more directly on measuring student achievement in relationship to learning outcomes (standards) that were largely subject-based but meant to relate to further study, employment and other personal goals. In comparison to a norm-referenced assessment system that graded students according to how well they performed against their cohort, the standards-based NCEA graded students against criterion performance or mastery of learning outcomes. In theory, the NCEA was seen to be better suited to supporting learning for all students, rather than those who were highest achieving and performing at the top. This “criterion-reference” for assessment outcomes is perhaps the defining feature of the NCEA, reflecting a commitment to learning by all students regardless of their programme of study or level of academic achievement.

### ***Influences of NCEA design aspects on motivation and achievement***

Other aspects of the NCEA were also intended to enhance learning and educational outcomes for students. Schools, teachers, and students could choose to focus on achievement standards that provided opportunities for different levels of achievement, including recognition for Merit and Excellence as well as Achieved. Unit standards could also be incorporated, whether newly designed or already available<sup>3</sup> (although these were not typically available with recognition for either achieved or not achieved with only endorsements for Merit available for a small number of credits, e.g., in business subjects). Flexibility in the accumulation of credits and opportunities to complete selected assessments was designed to increase student choice and hypothesised to result in greater responsibility and autonomy by young people (Alison, 2005; Hipkins, 2005; Ministry of Education, 1999). Of course, students could also actively choose to avoid assessments that they find difficult. Wylie, Hipkins, and Hodgen (2008) reported that both teachers and students do make such choices, but argued that these decisions simply reflect the kinds of opportunities typically available in various contexts. Further research would be needed to investigate whether the short and long-term consequences of such choices are negative or positive.

Our research has provided support for the NCEA as a criterion-referenced, standards-based assessment whereby students are measured in relationship to their own effort and achievement, not in comparison to others. Students, parents, and teachers are particularly positive about having a mix of assessments, with internal (classroom) assessments added to end of the year external examinations. Internal

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<sup>3</sup> Unit standards were developed originally in the 1990s prior to the NCEA and were designed to provide flexibility for study in subjects that were less traditional academically (e.g., photography); many were introduced from industry and other private training providers rather than by the schools, though they continue to be used and also developed by schools for specialized options across the curriculum.

assessments were seen as ensuring that students spread their effort and learning across the year, and students appreciated the balance in workload as well as what was seen as better preparation for the future in comparison to single assessments after a full year of study (Meyer, McClure, et al., 2006; Meyer, Weir, et al., 2007). Our previous findings also, however, revealed some unintended consequences of high levels of flexibility, including the possibility that students would cease participation in assessments once they thought they had accumulated the credits needed at each level. Further, students continued to advocate for more recognition for different levels of academic performance on the NCEA, including finer grade bands and recognition for higher achievement in particular (Meyer, McClure et al., 2006; Meyer, Weir et al., 2007). Finally, there continued to be concerns that unit standards largely did not offer challenges for students, and there were perceptions of continuing inconsistencies in practice across subjects and schools.

In July 2007, a number of design changes were announced for the NCEA that could potentially address these challenges (Harris, 2007). These included:

- Certificate endorsements: All 3 levels of the NCEA could be endorsed with Merit or Excellence by attaining the necessary number of credits with Merit and Excellence. This could provide incentive to students to continue striving beyond attaining the required minimum number of credits each year, and it also provided recognition to students who did achieve at higher levels without lowering outcomes for others (as in a norm-referenced system).
- Subject endorsements: In addition to the overall certificate endorsements available at each level, individual subject endorsements for Merit and Excellence were to be introduced at a future date.
- Increased moderation of internal assessment: To address concerns about lack of consistency in marking across teachers, subjects and schools, the NZQA increased moderation of internally assessed standards to 10% of all internal assessments across schools, and a specialised team of moderators was recruited and established to provide expertise for this task across schools.
- Review of standards: A comprehensive review of unit standards would be undertaken to examine overlap with achievement standards, credit parity and other issues, with both expert and stakeholder input into the review.

This research report incorporates data regarding how students, parents and others have responded to these design changes.

# Research Approach

## A Multi-Method and Longitudinal Approach

The research project is multi-method comprising both quantitative and qualitative data collection and analytical techniques. These included student surveys, student and parent focus groups, and records of student achievement on the NCEA. Triangulated data were analysed using mixed methods to describe and investigate patterns in student study behaviour, attitudes and achievement (Creswell, 2005). Each data source (focus groups, surveys, and achievement records) was first analysed separately and across sources to investigate relationships. Prior to final interpretation and preparation of key findings, all data sources were reviewed and interpreted collectively to enable the identification of meaningful patterns of findings that can inform future developments in educational practice that will enhance student achievement and motivation.

The studies reported here focused on a longitudinal investigation of the relationship between student achievement and student motivation orientations and attributions. The context for this research includes design aspects of the National Certificate of Educational Achievement (NCEA), the impact of activities outside of school, and investigation of factors related to student achievement over time in secondary school. Previous work conducted by the researchers at Victoria University and supported by funding from the Ministry of Education has allowed us to build on information gathered in previous years from a nationally representative sample of schools and student cohorts. The ongoing participation of these schools and students provides the basis for identifying motivational factors related to patterns of student outcomes that can be predicted and enhanced (see Meyer, McClure, et al., 2006; Meyer, Weir, et al., 2007; Meyer, McClure, et al., 2009). In addition, five new secondary schools were recruited to participate in student and/or parent focus group research.

## Participants

Several groups of participants are represented in the data reported here, and specific information about participants in each of the studies and analyses will be provided in the chapters that follow. However, this section provides a general overview of the students and parents who participated in the research.

### *Survey and achievement data participants*

Several student groups from different year cohorts completed survey measures and agreed to access to their achievement records; these include:

- A **2005 Year 10** cohort from the 20 secondary schools who completed surveys on the NCEA and motivation and achievement late in 2005. This report analyses relationships of motivation orientation data to achievement in Year 11 in 2006, Year 12 in 2007, and Year 13 in 2008 for those students for whom achievement data were available from NZQA at follow-up.
- **2005 Year 11, Year 12, and Year 13** cohorts from the 20 secondary schools who completed surveys on the NCEA and motivation and achievement late that



year and for whom NCEA achievement data were available from 2005 and, subsequently, 2006 (when the Year 11 students were Year 12 and the Year 12 students were Year 13) and 2007 (when the Year 12 students were in Year 13), respectively, at follow-up.

- A **2006 Year 10** cohort from the 20 secondary schools who completed the motivation screening tool late that year. We also have NCEA achievement data for most students from this cohort who continued on to Year 11 in 2007 and year 12 in 2008, as well as their responses to the revised motivation screening tool in 2007 at follow-up.
- A **2006 Year 11** cohort from the 20 secondary schools who completed the motivation screening tool later that year and for whom NCEA achievement data were available from 2007 when they were in Year 12 and 2008 when they were in Year 13, at follow-up.
- A **2007 Year 10** cohort from 19 of the 20 secondary schools who completed the revised motivation screening tool late that year. For those who continued on to Year 11 at all 20 schools, we collected responses to the revised motivation screening measure late in 2008 and NCEA Level 1 achievement data at follow-up.
- A **2007 Year 11** cohort from 19 of the 20 secondary schools who completed the revised motivation screening tool late that year and for whom NCEA achievement data were available from 2007 early in 2008. For those who continued on to Year 12 in 2008, we collected NCEA Level 1 achievement data at follow-up.
- A **2008 Year 10** cohort from 19 of the 20 secondary schools who completed the revised motivation screening tool late that year.
- A **2008 Year 11** cohort from 19 of the 20 secondary schools who completed the revised motivation screening tool late that year and for whom NCEA achievement data were available from 2008 early in 2009.

Figure 1 provides a graphic overview of the 10 student cohort groups involved in this research to date:

**Figure 1: Overview of Student Data on Motivation and Achievement<sup>a</sup>**

	School Year			
	2005	2006	2007	2008
<b>Year 10</b> student cohort follow-up <ul style="list-style-type: none"> <li>Measures</li> </ul>	A. Year 10 • Motivation	A. Year 11 • Achievement	A. Year 12 • Achievement	A. Year 13 • Achievement
		E. Year 10 • Motivation	E. Year 11 • Achievement	E. Year 12 • Achievement
			G. Year 10 • Motivation	G. Year 11 • Achievement
				I. Year 10 • Motivation
<b>Year 11</b> student cohort follow-up <ul style="list-style-type: none"> <li>Measures</li> </ul>	B. Year 11 • Motivation • Achievement	B. Year 12 • Achievement	B. Year 13 • Achievement	
		F. Year 11 <sup>b</sup> • Motivation • Achievement	F. Year 12 • Achievement	F. Year 13 • Achievement
			H. Year 11 <sup>b</sup> • Motivation • Achievement	H. Year 12 • Achievement
				J. Year 11 <sup>b</sup> • Motivation • Achievement
<b>Year 12</b> student cohort follow-up <ul style="list-style-type: none"> <li>Measures</li> </ul>	C. Year 12 • Motivation • Achievement	C. Year 13 • Achievement		
<b>Year 13</b> student cohort <ul style="list-style-type: none"> <li>Measures</li> </ul>	D. Year 13 • Motivation • Achievement			

<sup>a</sup> Each new student cohort group is identified by an alpha A-J with NCEA achievement followed along in subsequent years for students who were still located at their schools.

<sup>b</sup> Note that in this year some Year 11 students will also have participated in data collection in Year 10 the previous year whereas there will also be Year 11 students new to that year's cohort group for whom we do not have previous Year 10 data.

Participants in the 2007-2008 research samples, as in previous years, were provided with a brief description of the project and given opportunity to indicate participation by signing a formal written consent. Students were encouraged to share information about the research and to consult with their parents and guardians if they wished to do so, but students 14 and older were able to give their own individual consent without formal parental consent in accordance with New Zealand requirements.

The research information sheet, consent form and screening tool were distributed to schools in sufficient numbers for all Year 10 and Year 11 students on the roll, and we relied on each school to distribute them to teachers for administration during “form” period within a specified timeframe early in the final Term 4 (prior to the start of external examinations) of the school year.<sup>4</sup> Participants in the 2007 data set represent approximately 39% of Year 10 and 11 students at the 19 schools that returned surveys, with a return rate that varied considerably by school (over 50% for 8 schools, between 20-49% for 7 schools, and less than 20% for the remaining 5 schools (one small secondary school did not return the 2007 or 2008 surveys). Our return rate in 2008 was considerably higher, representing approximately 62% of Year 10 and 11 students at the 19 schools. Individual school return rates also varied in 2008, from just under 11% at one large secondary school, 25-49% at 5 schools, and 50-100% at 13 of the 19 schools. These figures do not necessarily equate to response rates for the students themselves: students may be missing from the sample because they chose not to participate, but they may also be missing for what could genuinely be regarded as random reasons such as not being asked to participate where teachers did not distribute the information and survey to students.

Given participation by this broad range of student cohorts across several years, we are able to make some comparisons across time for groups of students who had differing knowledge of and opportunities on the NCEA at those different times. While such cross-year comparisons are always confounded by time, they do reveal patterns that are interpretable and can assist in future refinement of the qualification and aspects of the assessment system.

### ***Focus group and interview participants***

Perceptions and interpretations of students on key issues about the NCEA and its relationship to motivation and achievement were also investigated through focus group interviews with a large number of students in both the junior and senior secondary school. These students were from a range of secondary school types, locations, school zone deciles (low, middle, high) and included schools with high percentages of Māori and Pacific. Additional focus groups and individual interviews were conducted with Māori and Pacific parents to investigate their understandings of and attitudes towards NCEA developments as well as how they viewed their children’s’ learning and achievement. Specific information about these groups will be provided later in the report in the sections discussing results.

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<sup>4</sup> The daily form period is available for various homeroom and administrative activities, and the screening tool can easily be completed by students within the designated amount of time.

## Measures

### *The motivation screening measure*

A short, self-report survey or screening measure was designed to solicit self-ratings from Year 10 and Year 11 students on their motivation orientations, attributions about performance on assessments, and the influences of family/whānau, teachers and friends/peers on student learning and achievement (see Appendix A for the revised 2008 measure). The screening tool was based initially on the longer survey from 2005 reported in Meyer, McClure et al. (2006), and developed and validated through the different phases of our research (Meyer, Weir et al., 2007).

The motivation screening measure includes several sections: (a) demographic questions including name, gender, and year in school; (b) a question asking which level/s of the NCEA students expected to complete; (c) whether they engaged in part-time work, sport, caring for younger children in their family or whānau, other extracurricular activities, and/or paid tutorials outside school, with a measure of the range of hours weekly spent in each; (d) 16 items measuring motivation and affiliation factors, with a self-rating 4 point Likert scale (where 1 = “not me” to 4 = “definitely me”); (e) whether or not the student knew that the 2007 NCEA certificate could be endorsed with Merit or Excellence; (f) a 4-point rating of how much the endorsements mattered; and (g) an attribution section where students rated how much they thought their best and worst marks were influenced by seven causes: ability, effort, assessment task difficulty, luck, family/whānau influences, teacher influences, and friend influences on a Likert scale (where 1 = “no influence” and 4 = “big influence”). The full survey is included in Appendix A.

The conceptual sections of the survey relating to motivations (section 2) and attributions (section 3) were developed based on similar factor items in the published literature, first used in our research in 2006, and then revised based on findings from the 2006-2007 research. The attributions section continues to ask students about influences on their academic performance, but rather than focusing their responses on a specific subject as was done in 2006 (i.e., English), these questions referred to rating attributions for best marks and worst marks “in any subject.” Further, in addition to asking for ratings for the traditional attribution categories of ability, effort, task difficulty, and luck, we also asked for ratings that reflected the influences of their family/whānau, teacher, and friends.

In the section on motivation orientations, we included the four items making up each of the factors *Doing My Best* and *Doing Just Enough* that have been demonstrated in our previous research to be most strongly related to achievement. We also added several items intended to assess the social and interpersonal dimensions of Teacher Affiliation and Peer Affiliation; 4 items that had highest face validity for each affiliation were selected, two of which were stated positively and two stated negatively for each dimension that were then reverse scored for analyses. The new items were designed to examine the motivational influences of social affiliation factors that may be related to engagement and achievement and may have particular significance for some ethnic groups (see, for example, Bishop & Berryman, 2006; Urdan & Maehr, 1995; Wentzel & Caldwell, 1997). These items were adapted from items in the literature relating to teacher support and student-to-student relationships. Items were randomly sequenced in the survey, and Table 1 provides sample items for each of these personal and social motivational factors.

**Table 1: 2007 Student survey factors**

Factor name	Sample items <sup>a</sup>
<i>Doing My Best</i>	<ul style="list-style-type: none"> <li>• I will strive for Merit or Excellence even when I don't need this to achieve my goals.</li> <li>• I aim at getting a good education, not just completing tasks to get credits in NCEA.</li> </ul>
<i>Doing Just Enough</i>	<ul style="list-style-type: none"> <li>• I will work for the number of credits I need at each level, no more.</li> <li>• If I get just NCEA Level 1 or possibly NCEA Level 2 before I leave school, I'll be satisfied and have no plans to finish Level 3.</li> </ul>
Teacher Affiliation	<ul style="list-style-type: none"> <li>• I'll learn more in a subject when the teacher cares how well I do.</li> <li>• In general, my teachers are not really interested in me.</li> </ul>
Peer Affiliation	<ul style="list-style-type: none"> <li>• I do best in classes where students can work together.</li> <li>• In class, I would rather work by myself than work with other students.</li> </ul>

<sup>a</sup> Students rate items on a scale: *Not me, Sometimes me, Mostly me, Definitely me*. Items that are negatively worded for a factor are reverse scored.

### ***Student achievement data***

Student achievement data on Levels 1 to 3 of the NCEA were accessed from individual student records of learning; students had given written consent for us to access their records, and the NZQA provided the data to us for those students according to their National Student Numbers, in 2008 and 2009 following the release of 2007 and 2008 student results. Achievement data collected and analysed in this report include, for the current year for each student: (a) total credits attained; (b) total Achievement Standard credits; (c) total Unit Standard credits; (d) credits Not Achieved, Achieved, achieved with Merit, and achieved with Excellence for Achievement Standards; (e) credits Not Achieved (for 2008 only), Achieved, and—if available—achieved with Merit for Unit Standards (e.g., available for some Unit Standards in Business). Attainment of that year's NCEA certificate (levels 1, 2 or 3) and whether the certificate was endorsed with Merit or Excellence were also recorded. Finally, we recorded whether or not students had met requirements for University Entrance (UE).

### ***Focus group questions***

Focus group interview questions for the Year 10 students asked them to tell us what they knew about the NCEA; what they knew and thought about changes to the NCEA and the endorsements; whether they thought any other changes would be a good idea; what they liked and did not like about the NCEA; and how their schoolwork is influenced by friends, teachers, and family/whānau. The senior students were asked similar questions but their questions reflected the fact that they were already engaged in NCEA assessments towards their qualifications so would know more about the system in general.

Focus group interview questions for the parents queried the following issues: (a) what they thought about how well the NCEA was working for their child and why; (b) what they knew about certificate endorsements and what they thought about the endorsements; (c) what strategies they used to influence their child's school performance; (d) what influences they thought that teachers and peers, classmates and friends had on their child; and (e) if there were one thing they

could change and one thing that should stay the same about the NCEA, what would these be and why.

Appendix B includes the full set of questions for both parents and students, and provides detail regarding how the focus groups were conducted and how responses were recorded and checked for accuracy with participants.

## **Ethics Review and Approval**

The research was reviewed and approved by the VUW Human Ethics Committee to ensure that ethical considerations including privacy and confidentiality were addressed at individual, school, institutional and national/international levels. The formal ethical review process undertaken by this committee establishes confidence that all ethical issues are considered and addressed in a satisfactory manner that protects those involved and minimises the potential for harm that is always present in any research with human participants.

Participants were assured that data were confidential for students and others at all phases of the research; no individual data are identifiable or shared in disaggregated form with anyone outside the immediate research team in a way that might enable identification. Schools participating in any phase of the research have also been assured anonymity and confidentiality; their identity is known only to the immediate research team at Victoria University. Coding systems, limited designated access to information by qualified and authorised personnel only, password protected files, and secure/locked data locations through the time period of the project and for any data kept longer are the major processes to ensure meeting these commitments. Informed and signed consent was obtained from all students who gave us access to their achievement records and from all respondents in surveys, focus groups and individual interviews. Data are disaggregated for various analyses but not described in this or any research reports or website publications in such a way as to allow identification of individual schools or persons.

## Follow-Forward of Student Motivation and Achievement

A large number of students who were in Years 10 to 13 in 2005 had consented to participate in longitudinal research; in 2006-2008, additional students in Years 10 and 11 also consented to participation and were added to the longitudinal sample. Thus, for these students from 20 nationally representative schools, we have survey and NCEA achievement data for Year 11-13 students. These students were enrolled in Years 11, 12 and 13 in 2006 and in Years 12 and 13 in 2007 (the 2006 Year 13 students having finished school). In this final phase of the research, we have further monitored achievement for the 2005 Year 10 students who are expected to be in Year 13 in 2008 as well as students from 2006-2007 who have progressed through the senior school.

### Follow-Along of Year 10-11 Students from 2005

#### *Relationships between 2005 motivation and future achievement*

Of those students who were in Years 10 in 2005 at the 20 schools in our sample, we were able to locate 1,531 students who were in Year 12 in the 2007 data, including 789 males and 742 females. Ninety-six percent were in Year 10 in 2005 and 4% reported they were Year 11 in 2005;<sup>5</sup> they were Year 12 in 2007 when achievement was tracked. Sixty-three percent were European, 16% were Asian, 12% were Māori, 7% were Pacific, 2% were classified as Other. The majority of students (59%) were from middle decile schools, 32% were from high decile schools, and the remaining 9% were from low decile schools. Nearly all students were domestic students (97.5%); 2.5% were international students.

In 2008, we were able to locate 1,181 students from the 2005 sample. The majority had been in Year 10 during 2005 (96%): this is as expected, as most students in Year 11 or higher in 2005 would generally have left school by the end of 2007. At follow-up, 51% percent were female and 49% were male; 61% were European, 20% were Asian, 10% were Māori, 7% were Pacific, and 2% were designated as Other. Fifty-seven percent were in middle decile schools, 36% were in high decile schools, and the remaining 8% were in low decile schools.

Table 2 shows the relationships between Year 10 student self reports on those motivation orientations shown in previous reports to be significantly related to achievement—*Doing My Best* and *Doing Just Enough*.

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<sup>5</sup> The small number of Year 11 students in this sample were enrolled in one or more Year 10 classes, hence, are part of this survey group.

**Table 2: The relationships between Year 10 motivation in 2005 and Year 12 achievement in 2007**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>
Total credits	.23*	-.31*
Total unit standard credits	-.21	.25*
Internal – A	-.01	.01
Internal – M	.13*	-.19*
Internal – E	.22*	-.29*
External – N	-.02	.08
External – A	.20*	-.22*
External – M	.24*	-.27*
External – E	.15*	-.16*

Note: \* =  $p < .001$ . Sample sizes differ across achievement measures. A

For these students, the *Doing My Best* orientation in 2005 is significantly related to more total credits, internal standards with Excellence and externally assessed standards at all levels of achievement in 2007. The *Doing Just Enough* orientation is significantly related to fewer total credits, internal standards with Excellence, and externally assessed standards at all levels; *Doing Just Enough* also is significantly related to higher total unit standard credits.

We also followed forward students who had reported their motivation orientations in 2005 as Year 11 students to assess whether their motivation orientations predicted their achievement two years later, in 2007. This sample consisted of 1231 students, 602 males and 626 females; three students did not report their gender. Almost all students were Year 11 in 2005 (94%). Thus the majority of students would have been Year 13 in 2007 when achievement was tracked. Fifty-four percent were European, 23% were Asian, 8% were Māori, 9% were Pacific, 5% were classified as Other, and the remaining 1% did not have a specified ethnicity. The majority of students (62%) were from middle decile schools, 32% were from high decile schools, and the remaining 6% were from low decile schools. Nearly all students were domestic students 96.5%; 3.5% were international students.

Again, we found relationships between motivation orientations in 2005 and student achievement in 2007. Table 3 shows that *Doing My Best* in 2005 was generally associated with higher achievement two years later, and *Doing Just Enough* was generally associated with lower achievement across two years.

**Table 3: The relationships between Year 11 motivation in 2005 and Year 13 achievement in 2007**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>
Total Credits	.34*	-.33*
Total US Credits	-.09	.12*
Internal – A	-.05	-.04
Internal – M	.27*	-.31*
Internal – E	.34*	-.32*
External – N	.06	-.05
External – A	.35*	-.34*
External – M	.39*	-.36*
External – E	.24	-.21*

Note: \* =  $p < .001$ . Sample sizes differ across achievement measures.



Students were followed in 2008 to investigate relationships between motivation in year 10 and achievement in year 13. Table 4 shows that the motivation orientation *Doing My Best* in year 10 was associated with more total credits, more external achieved standards and fewer unit standards credits. The motivation orientation *Doing Just Enough* was associated with fewer total credits, fewer internal and excellence credits and more unit standards credits.

**Table 4: The relationships between Year 10 motivation in 2005 and Year 13 achievement in 2008**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>
Total credits	.17*	-.28*
Total unit standard credits	-.12*	.17*
Internal – N	-.09	.11
Internal – A	-.01	.03
Internal – M	.01	-.08
Internal – E	.12	-.22*
External – N	.05	.05
External – A	.15*	-.22*
External – M	.11	-.23*
External – E	.04	-.19*

Note: \* =  $p < .001$ . .Sample sizes differ across achievement measures.

Multiple regression was also used to explore the interrelationships between motivation and achievement based on the 2005 to 2007 data. Multiple regression was used rather than correlation because we wanted to control for previous achievement. In particular, hierarchical multiple regression enables the effect of prior achievement on later achievement to be controlled first, after which the unique effect of motivation on later achievement is assessed. The number of total credits was the criterion variable and *Doing My Best* and *Doing Just Enough* were the predictor variables. Hierarchical regression was used to examine whether motivation could account for later achievement over and above what could be accounted for by prior achievement. Results showed that the first step of the regression—prior achievement—significantly predicted achievement two years later,  $\beta = .12$ ,  $p < .001$ . Total credits achieved in 2005 accounted for 1% of the variance in total credits during 2007. This low relationship is likely to reflect the attrition in the sample over the two years where students did not stay in school to complete years 12 and 13. The second step of the regression—motivation orientation—showed that both *Doing My Best*,  $\beta = .27$ ,  $p < .001$  and *Doing Just Enough*,  $\beta = -.26$ ,  $p < .001$  significantly predicted higher and lower total credits respectively. Motivation orientations during 2005 accounted for 15% of the variance in total credits during 2007. Therefore, motivation orientations in 2005 predicted the number of credits achieved in 2007 over and above predictions based only on the number of credits students achieved in 2005.

Similar results were found when predicting achievement across the 2006 to 2008 school years. For this analysis, the first step of the regression—achievement in 2006—significantly predicted achievement in 2008,  $\beta = .18$ ,  $p < .001$ . This first step accounted for 3% of the variance in achievement during 2008. The second step of the regression—*Doing My Best* and *Doing Just Enough* in 2006—revealed that both motivation orientations significantly predicted achievement two years later ( $\beta = .29$ ,  $p < .001$  and  $\beta = -.25$ ,  $p < .001$  respectively). This second step of the regression explained 20% of the variance in achievement during 2008.

## Motivation and Achievement Patterns for Senior Students

### *Relationship between 2006 motivation and 2007 achievement*

In 2006, we had administered the survey to a new sample of students in Years 10 and 11. Of those students who were in Years 10-11 in 2006, we were able to locate 3227 students in the 2007 New Zealand Qualifications Authority (NZQA) data, including 1696 males and 1530 females; one student did not indicate gender. Of this sample 47% were Year 10 in 2006, and 53% were Year 11 in 2006. Sixty-six and a half percent were European, 12.5% were Asian, 10% were Māori, 8% were Pasifika and 3% were classified as Other. The majority of students (63%) were from middle decile schools, 29% were from high decile schools, and the remaining 8% were from low decile schools. Nearly all were domestic students (97%); 3% were international students.

From the 2006 sample, we able to locate 2,113 students in 2008, including 1,134 males and 978 females; one student did not indicate gender. Of these students, 63% had been in Year 10 and 37% in Year 11 during 2006. Sixty-seven percent were European, 13% were Asian, 9% were Pacific, 8% were Māori, and 3% were designated as Other. Sixty-four percent were in middle decile schools, 29% were in high decile schools, and 7% were in low decile schools.

Table 5 shows the correlations between student motivation reported by junior students in 2006 and their achievement in 2007. Again, the two motivation orientations in 2006 are significantly associated with student achievement one year later. Specifically, *Doing My Best* is most strongly associated with a higher number of total credits, internal credits with Excellence, and external credits with Merit. *Doing Just Enough* is most strongly associated with fewer total credits, internal credits with Excellence, and external credits with Merit.

**Table 5: The relationships between motivation in 2006 and achievement in 2007**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>
Total Credits	.43*	-.39*
Total US Credits	-.20*	.22*
Internal – A	.01	.02
Internal – M	.25*	-.26*
Internal – E	.36*	-.34*
External – N	-.05	.12*
External – A	.26*	-.24*
External – M	.34*	-.34*
External – E	.27*	-.24*

Note: \* =  $p < .001$ . Sample sizes differ across achievement measures.

### ***Longitudinal patterns of motivation orientation—does motivation change across time?***

In our 2007 report (Meyer, Weir et al., 2007) we reported that student motivation towards *Doing Just Enough* and *Doing My Best* was relatively stable across one year ( $r > .50$ ,  $p < .001$  in both cases). The research reported here replicates these findings in showing that the correlation between *Doing My Best* across 2006 and 2007 was strong (Cohen, 1992) ( $r = .58$ ,  $p < .001$ ), as was the correlation between *Doing Just Enough* across these two years ( $r = .54$ ,  $p < .001$ ). Similarly, the

correlation between *Doing My Best* across 2007 and 2008 was strong ( $r = .65, p < .001$ ), as was the correlation between *Doing Just Enough* across these two years ( $r = .62, p < .001$ ).

While these data reflect a general trend in motivation orientations, overall patterns may mask important individual fluctuations in motivation across time. To explore these fluctuations in motivation, we constructed motivation categories to investigate the magnitude of motivational changes upward or downward by individual students and whether shifts were accompanied by changes in achievement as well.

Categories were constructed based on a summative score comprising *Doing My Best* and *Doing Just Enough* factor scores to create a “motivation total score”<sup>6</sup> for each year. Possible total scores range between 4 and 32, with higher scores reflecting a more adaptive motivation orientation. Thus we treated *Doing My Best* and *Doing Just Enough* as different subscales of an overall motivation scale. This scale was internally reliable for both 2006 ( $\alpha = .78$ ) and 2007 ( $\alpha = .82$ ) data. Similar overall group mean scores were evident during both 2006 ( $M = 23.01, S.D. = 4.56$ ) and 2007 ( $M = 23.32, S.D. = 4.97$ ) on this new scale.

As part of an exploratory approach to develop a practical measure which teachers could use, we created six motivation category groups by identifying the five cut points that would split the distribution into roughly equal sample sizes. The cut points were created using student responses from 2006. This approach allowed us to explore student movement across the categories from year to year, either up or down; a simple check following these procedures could potentially be applied by teachers following interventions designed to motivate students. Table 6 shows the number of students in each motivation category and each group’s respective mean score on the motivation measure for both the 2006 and 2007 sample.

**Table 6: Six motivation categories comprising composite *Doing My Best* and *Doing Just Enough*<sup>a</sup>**

Categories	1	2	3	4	5	6
Total score ranges	<19	19-20	21-22	23-24	25-27	>28
N 2006	780	524	575	534	596	474
N 2007	870	575	516	500	693	702
<i>M</i> ( <i>S.D.</i> ) 2006	16.81 (2.19)	20.49 (.51)	22.47 (.51)	24.49 (.51)	26.91 (.84)	30.07 (1.02)
<i>M</i> ( <i>S.D.</i> ) 2007	16.57 (2.44)	20.48 (.51)	22.46 (.50)	24.50 (.50)	26.94 (.82)	30.25 (1.08)
<i>M</i> / 8 2006	2.10	2.56	2.81	3.06	3.36	3.76
<i>M</i> / 8 2007	2.07	2.56	2.81	3.06	3.37	3.78

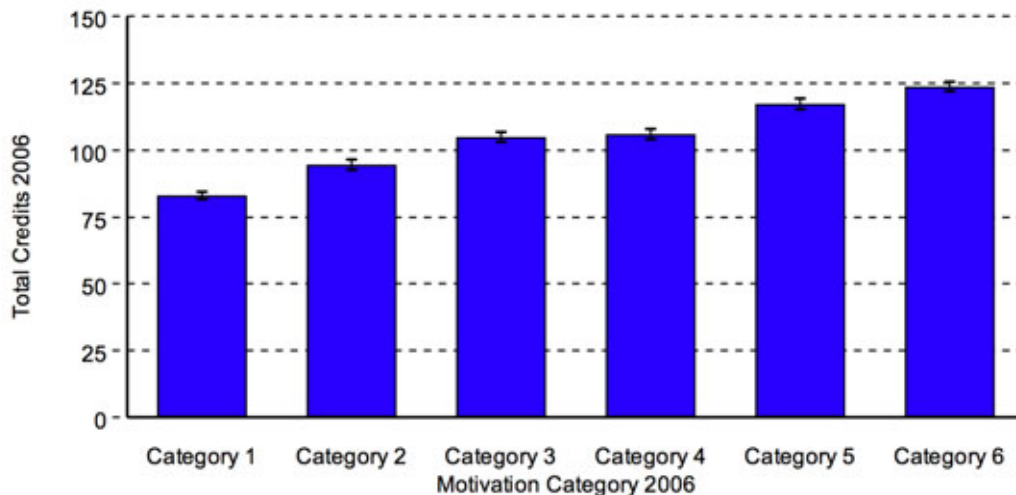
<sup>a</sup> Category 1 represents the lowest motivation orientation total score, with each of the six categories including approximately one-sixth of students up to Category 6 representing the highest motivation orientation total score.

<sup>6</sup> Responses on *Doing Just Enough* were reverse scored prior to summing the motivation total score.

### ***What is the relationship between motivation categories and achievement?***

We used Analysis of Variance (ANOVA) tests to investigate if there were differences between two or more of these six categories of low to high motivation groups (e.g., between the 6 category groups) for given outcome variables (e.g., motivation). ANOVA results reveal whether or not there are significant differences between the groups overall and then, where the ANOVA shows significant differences, we followed up with Bonferroni tests to explore which groups are significantly different from one another. For this series of ANOVAs, there is only one independent variable which is the group category, so there are no interactions to discuss.

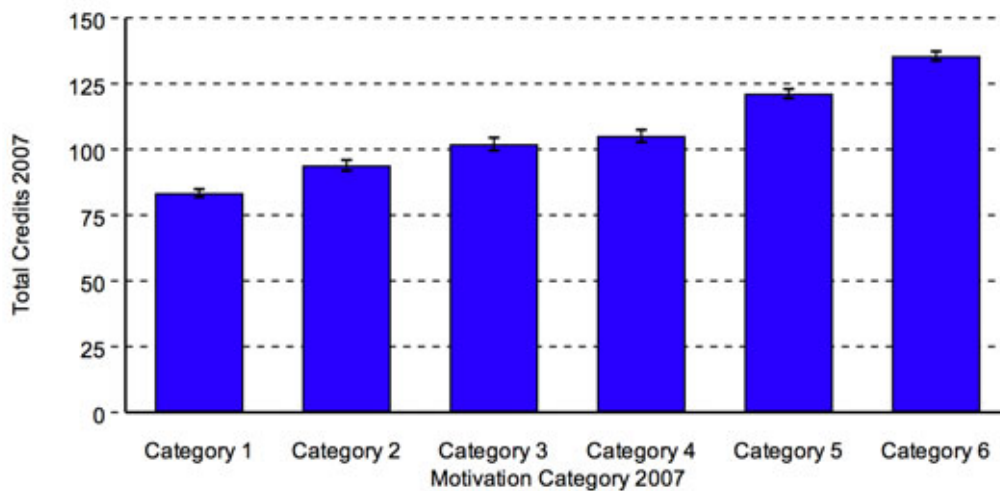
Results from the ANOVA showed that students from different motivation categories in 2006 achieved significantly differently in terms of total credits achieved in 2006,  $F(5, 1920) = 48.95, p < .001, \text{partial } \eta^2 = .11$  (Figure 2). The follow-up post hoc tests with Bonferroni corrections<sup>7</sup> showed that only motivation categories 3 and 4 and categories 5 and 6 were not significantly different from one another in total credits attained.



**Figure 2:**  
**Number of total credits achieved in 2006 by students in the six motivation categories**

Students from different motivation categories in 2007 also achieved significantly different results, in terms of total credits achieved in 2007,  $F(5, 1741) = 72.17, p < .001, \text{partial } \eta^2 = .17$  (Figure 3). Follow-up post hoc tests showed that all motivation categories scored significantly different results (at  $p < .05$ ) except groups 2, 3 and 4.

<sup>7</sup> Standard significance levels were used here because Bonferroni corrections account for the number of comparisons, thus adjust the level of significance. All post hoc tests to follow also use Bonferroni corrections.



**Figure 3:**  
Number of total credits achieved in 2007 by students in the six motivation categories

***How does motivation change over time?***

Across 2006 and 2007 there were 811 students for whom we assessed motivation at both points in time, thus allowing us to assess the number of students who increased or decreased their motivation across the two years. Approximately a third of the sample (36%) did not move categories between 2006 and 2007 while approximately two-thirds of the student sample either increased or decreased their motivation to achieve. Approximately a third of the sample (36%) moved up or down one motivation category, 19.5% percent moved up or down two categories, 7% moved up or down three categories, and the remaining 1.5% moved up or down four or five categories. These changes are shown in Table 7 (percentages) and Table 8 (numbers of students).

**Table 7: Percentage of students who changed motivation category between 2006 and 2007, for each motivation category**

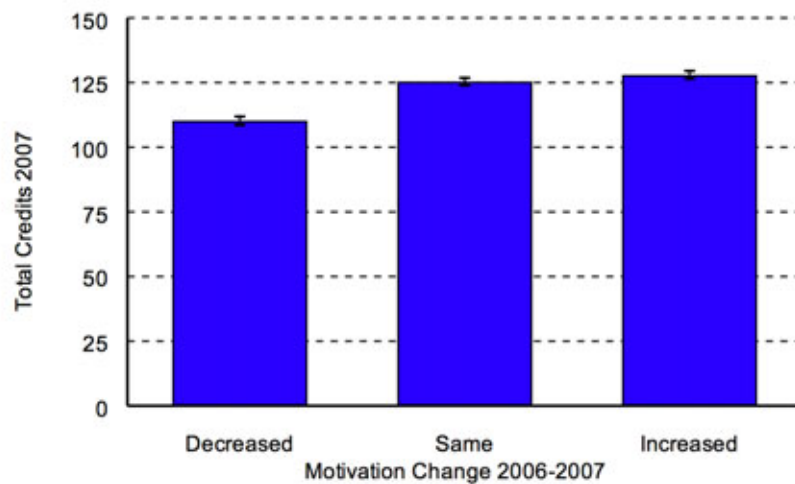
Group	Movement										
	-5	-4	-3	-2	-1	0	1	2	3	4	5
1						56	18.5	12	8	4.5	1
2					40	25	17	9	9	0	
3				23	14	16	18.5	20.5	8		
4			9.5	15.5	15	19.5	26	14.5			
5		3.5	4	11	12	37	32.5				
6	2	2	1	3	18	74					

**Table 8: Numbers of students who changed motivation category between 2006 and 2007, for each motivation category**

Group	Movement										
	-5	-4	-3	-2	-1	0	1	2	3	4	5
1						64	21	14	9	5	1
2					45	28	19	10	10	0	
3				33	20	23	26	29	11		
4			15	25	24	31	42	23			
5		6	7	19	20	63	56				
6	2	2	1	4	20	83					

**How are changes in motivation related to achievement?**

First, we compared those who stayed in the same motivation category against those who increased or decreased motivation on the number of credits achieved during 2007 (Figure 4).



**Figure 4:**  
Total credits attained by students as a function of motivation change

ANOVA results showed that students achieved at different levels depending on whether they increased, decreased or reported the same level of motivation. Specifically, a main effect was evident for motivation category,  $F(2, 808) = 20.61, p < .001, \text{partial } \eta^2 = .05$ . Post hoc tests showed that those who stayed the same or reported higher levels of motivation achieved more total credits in 2007 compared with those who reported a decrease in motivation. There was no statistical difference between those whose motivation stayed the same and those whose motivation increased.

One hundred and twelve students moved up 2 or more categories, and 114 students moved down 2 or more categories. We explored whether or not those who moved up 2 or more categories achieved more total credits than those who moved down 2 or more categories. ANOVA results showed that those whose motivation increased by 2 or more categories achieved significantly more total credits ( $M = 124.68, S.D. = 30.37$ ) than those whose motivation decreased by two or more categories ( $M = 105.34, S.D. = 35.22; F(1, 224) = 19.51, p < .001, \text{partial } \eta^2 = .08$ ).

Thirty-six students moved up 3 or more categories, and 33 students moved down 3 or more categories. We explored whether or not those who moved up 3 or more categories achieved more total credits than those who moved down 3 or more categories. ANOVA results showed that those whose motivation increased by 3 or more categories achieved significantly more total credits ( $M = 123.78$ ,  $S.D. = 25.94$ ) than those whose motivation decreased by three or more categories ( $M = 105.94$ ,  $S.D. = 24.04$ ;  $F(1, 67) = 8.73$ ,  $p < .01$ , partial  $\eta^2 = .12$ ).

An equal number of males and females (57 and 57 respectively) moved down two or more categories. The majority of those who moved down two or more categories were European (69%), 4% were Asian, 14% were Māori, 7% were Pacific, and 6% classified their ethnicity as Other. Most were from middle decile schools (63%), 14% were from low decile schools, and 23% were from high decile schools. These proportions are similar to our sample demographics.

Slightly more males than females (60 and 52 respectively) moved up two or more categories. The majority of those who moved up 2 or more categories were European (64%), 23% were Asian, 5% were Māori, 6% were Pacific, and 1% classified their ethnicity as Other. Most were from middle decile schools (62.5%), 9% were from low decile schools, and 28.5% were from high decile schools.

Similar numbers of males and females (15 and 18 respectively) moved down three or more categories. The majority of those who moved down three or more categories were European (82%), 3% were Asian, 6% were Māori, 3% were Pacific, and 6% classified their ethnicity as Other. Most were from middle decile schools (67%), 9% were from low decile schools, and 24% were from high decile schools.

More males than females (22 and 14 respectively) moved up three or more categories. The majority of those who moved up three or more categories were European (66.5%), 27.5% were Asian, 3% were Māori, 3% were Pacific, and none classified their ethnicity as Other. Most were from middle decile schools (67%), 8% were from low decile schools, and 25% were from high decile schools.

### ***What is the relationship between motivation categories and achievement during 2005?***

ANOVA was also used to explore whether students from higher motivation categories scored more total credits in 2005 than those from lower motivation categories. Figure 5 shows the results of analyses of average total credits attained by students in each of the six motivation categories in 2005, 2006 and 2007. Results for 2005 showed that there was a significant relationship between motivation category and total credits achieved,  $F(5, 3563) = 230.68$ ,  $p < .001$ , partial  $\eta^2 = .25$  (Figure 5). Post hoc tests showed that all groups scored significantly differently from each other.

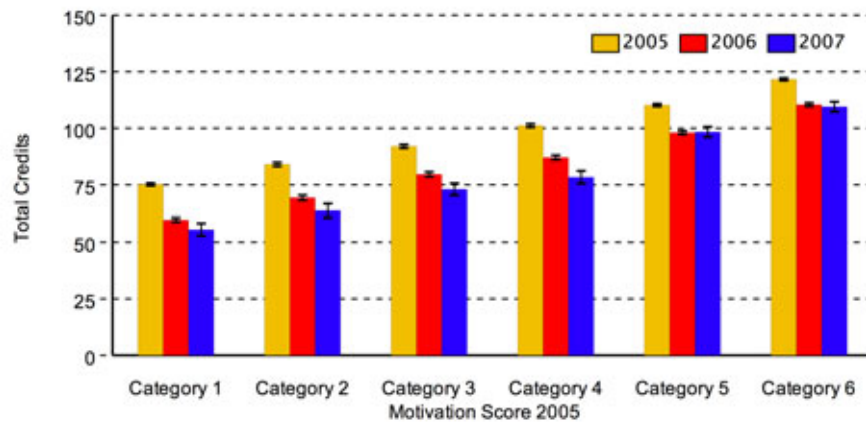


Figure 5: Credits attained by students in different motivation categories

In addition to examining total credits, we explored the total number of Merit and Excellence credits achieved during 2005 in relationship to motivation categories. Results for 2005 showed that those from higher motivation categories scored significantly more Merit credits than those from lower motivation categories,  $F(5, 3563) = 346.60$ ,  $p < .001$ , partial  $\eta^2 = .33$  (Figure 6). Post hoc tests showed all groups scored significantly differently from each other.

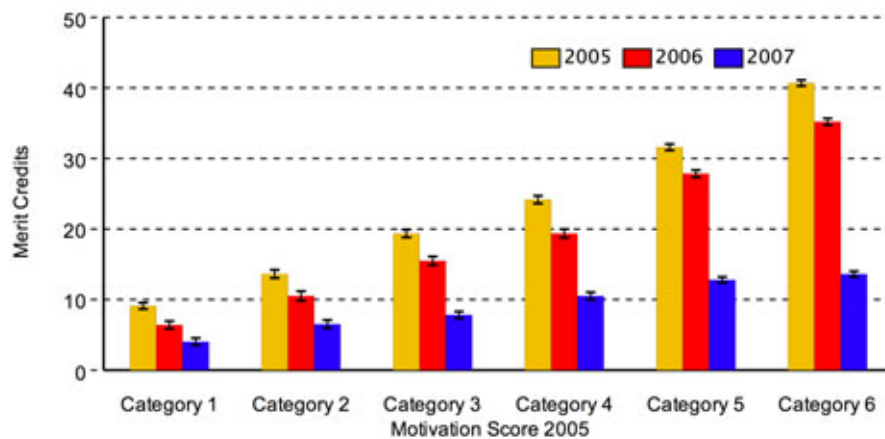


Figure 6: Merit credits attained by students in different motivation categories

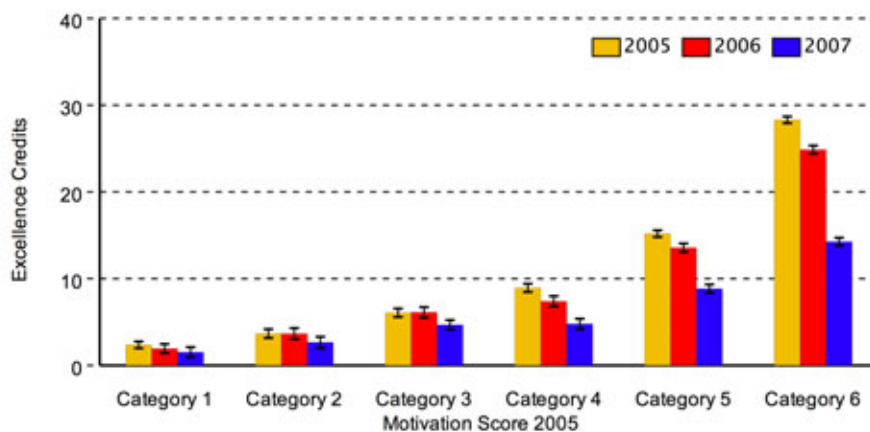


Figure 7: Excellence credits attained by students in different motivation categories.



Regarding Excellence credits, results showed that those from the highest motivation category scored significantly more Excellence credits during 2005 than students from all other motivation categories,  $F(5, 3563) = 329.40, p < .001, \text{partial } \eta^2 = .32$  (Figure 7). Post hoc tests showed that students from motivation categories 5 and 6 achieved significantly more Excellence credits than students from all other motivation categories. Students from motivation category 6 also showed significantly more Excellence credits than those from motivation category 5.

### ***What is the relationship between motivation categories and achievement one-two years later in 2006-2007?***

We also explored whether students in the higher motivation categories in 2005 continued to achieve more total credits one year later in 2006 and two years later in 2007. These data are also displayed in Figure 5. Results showed that students from higher motivation categories during 2005 achieved significantly more total credits the next year in 2006, compared with students who were in lower categories,  $F(5, 2535) = 184.48, p < .001, \text{partial } \eta^2 = .27$ . Post hoc tests showed that all groups scored significantly differently from each other. Those from higher motivation categories continued to achieve more total credits two years later during 2007. Results showed that students who were from higher motivation categories during 2005 still achieved significantly more total credits two years later in 2007,  $F(5, 1225) = 47.82, p < .001, \text{partial } \eta^2 = .16$ . Post hoc tests showed that students from motivation categories 5 and 6 did not achieve a significantly different number of total credits, but both groups achieved more credits than students from all other motivation categories.

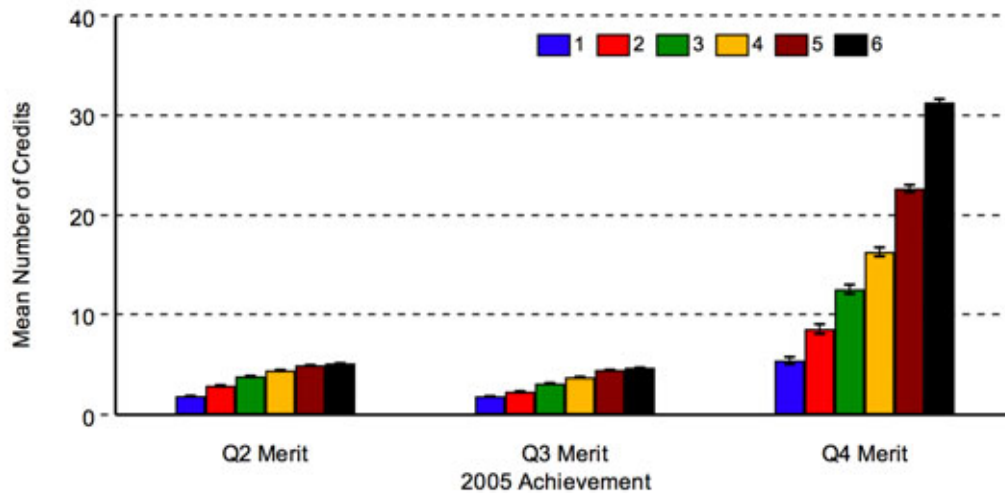
In addition to looking at total credits, we tested whether students from higher motivation categories in 2005 attained more Merit and Excellence credits during 2006-2007. Merit and Excellence credits were examined by considering internal and external results separately. Regarding internal Merit credits, those who were in a higher motivation category in 2005 achieved more internal Merit credits during 2007,  $F(5, 1225) = 33.55, p < .001, \text{partial } \eta^2 = .12$ . Post hoc tests showed that students who were in the highest motivation category achieved significantly more Merit credits than all other categories, except for category 5. Results showed that those from higher motivation categories achieved significantly more Merit credits than those from lower achievement categories,  $F(5, 2535) = 237.92, p < .001, \text{partial } \eta^2 = .32$ . Post hoc tests show that all groups scored significantly differently from each other.

Similarly, results showed that those from higher motivation categories also achieved significantly more Excellence credits during 2006, compared to those from lower motivation categories,  $F(5, 2535) = 17.60, 8, p < .001, \text{partial } \eta^2 = .26$ . Post hoc tests showed that students from motivation categories 5 and 6 achieved significantly more Excellence credits than students from all other motivation categories. Students from category 6 also achieved significantly more Excellence credits than those from motivation category 5.

Regarding internal Excellence credits, those who were in a higher motivation category in 2005 achieved more internal Excellence credits in 2007,  $F(5, 1225) = 53.00, p < .001, \text{partial } \eta^2 = .18$ . Post hoc tests showed that students who were in the two highest motivation categories achieved significantly more Excellence credits than students from all other categories. In addition, those in motivation category 6 scored significantly more internal Excellence credits than those in category 5.

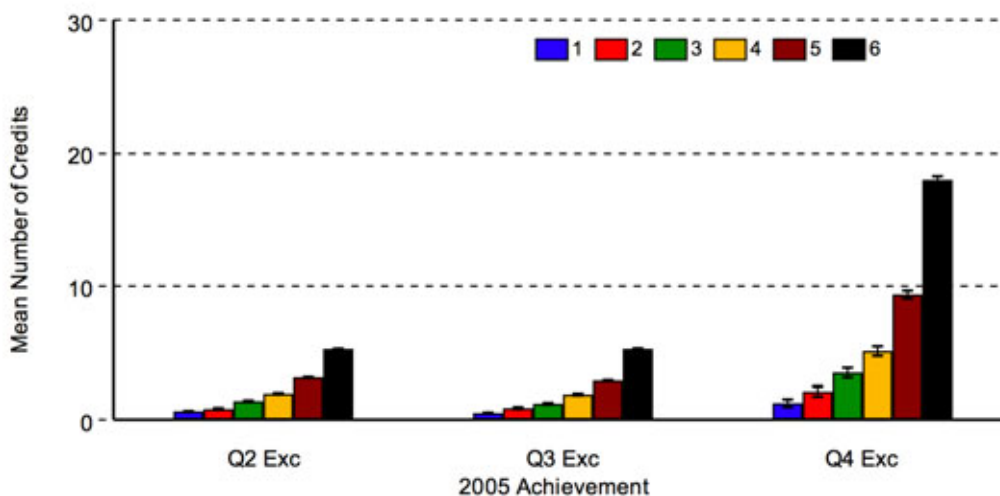
### **Achievement trends by term or quarter year**

We examined the trend of 2005 achievement across terms for students from different motivation categories, focusing on Merit and Excellence credits.<sup>8</sup> Results for Merit credits showed that there was a significant effect for Quarter 2,  $F(5, 3563) = 56.82, p < .001$ , partial  $\eta^2 = .07$ , Quarter 3,  $F(5, 3563) = 48.44, p < .001$ , partial  $\eta^2 = .06$ , and Quarter 4,  $F(5, 3563) = 353.17, p < .001$ , partial  $\eta^2 = .33$ . Notably, the largest effect was seen during the final quarter of the year. Post hoc tests showed that during Quarter 4, students from motivation categories 5 and 6 achieved significantly more Merit credits than those from the other groups. Students from motivation category 6 also scored significantly more credits than students from category 5 (see Figure 8).



**Figure 8: Merit credits attained by quarter by motivation category**

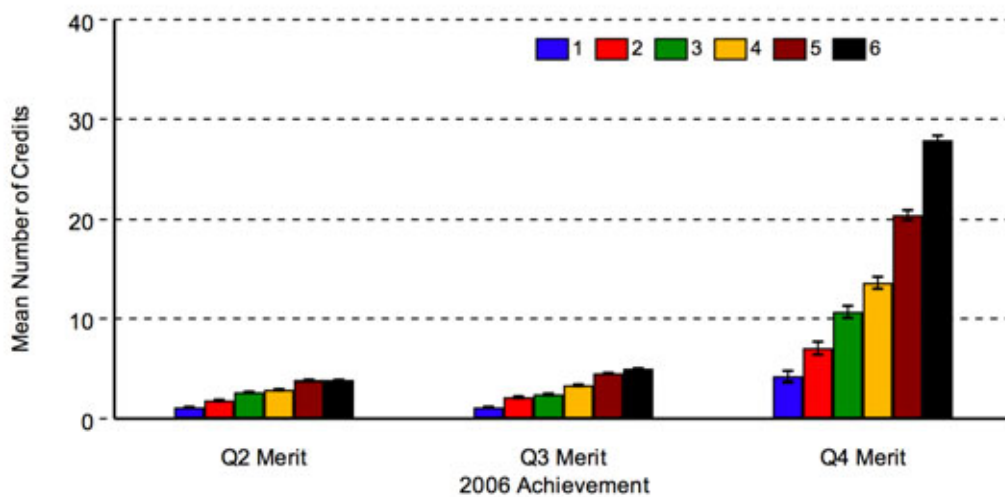
Regarding Excellence credits, there was a significant effect for Quarter 2,  $F(5, 3563) = 166.31, p < .001$ , partial  $\eta^2 = .09$ , Quarter 3,  $F(5, 3563) = 150.59, p < .001$ , partial  $\eta^2 = .17$ , and Quarter 4,  $F(5, 3563) = 252.55, p < .001$ , partial  $\eta^2 = .26$ . The size of these effects was larger for Excellence credits than Merit credits. Post hoc tests showed that during each quarter students from motivation categories 5 and 6 achieved significantly more Excellence credits than those from all other groups. Students from motivation category 6 also scored significantly more credits than students from category 5 (see Figure 9).



**Figure 9: Excellence credits attained by quarter by motivation category**

<sup>8</sup> Please note that external credits for Merit and Excellence were only available for 2007.

Further, we explored the trend of 2006 achievement across terms for students from different motivation categories, with a focus on Merit and Excellence credits.<sup>9</sup> We used Multiple Analysis of Variance (MANOVA) which examines whether there is a difference between two or more groups (e.g., between the 6 categories) on two or more outcome variables (e.g., credits attained each quarter). We did not use repeated measures MANOVAs because a substantial number of students did not have information about credit attainment in every quarter (i.e., we were unable to track individual students across the year). The MANOVA was performed to explore the pattern of achievement for each motivation category (measured during 2005) for Merit credits across each quarter of 2006.<sup>10</sup> There was a significant effect for Quarter 2,  $F(5, 2527) = 34.52, p < .001, \text{partial } \eta^2 = .06$ , Quarter 3,  $F(5, 2527) = 58.64, p < .001, \text{partial } \eta^2 = .10$ , and Quarter 4,  $F(5, 2527) = 182.53, p < .001, \text{partial } \eta^2 = .27$ . Notably, the largest effect was seen during the final quarter of the year. Post hoc tests showed that during Quarter 4 students from motivation categories 5 and 6 scored significantly more Merit credits than those from the all other motivation categories. Students from motivation category 6 also achieved significantly more Merit credits than students from category 5 (see Figure 10).



**Figure 10: Merit credits attained by quarter one year later by students in different motivation categories**

A MANOVA was also performed to explore the pattern of achievement for each motivation category for Excellence credits across each quarter of 2006.<sup>11</sup> There was a significant effect for Quarter 2,  $F(5, 2527) = 83.44, p < .001, \text{partial } \eta^2 = .14$ , Quarter 3,  $F(5, 2527) = 91.64, p < .001, \text{partial } \eta^2 = .15$ , and Quarter 4,  $F(5, 2527) = 114.09, p < .001, \text{partial } \eta^2 = .18$ . Post hoc tests showed that during each quarter, students from motivation categories 5 and 6 achieved significantly more Excellence credits than those from each other motivation category. Students from motivation category 6 also achieved significantly more Excellence credits than students from category 5 (see Figure 11).

<sup>9</sup> Note that external credits for Merit and Excellence were only available for 2007.

<sup>10</sup> Quarter 1 was not included due to the small number of credits reported by schools.

<sup>11</sup> Quarter 1 was not included due to small numbers of credits reported by schools.

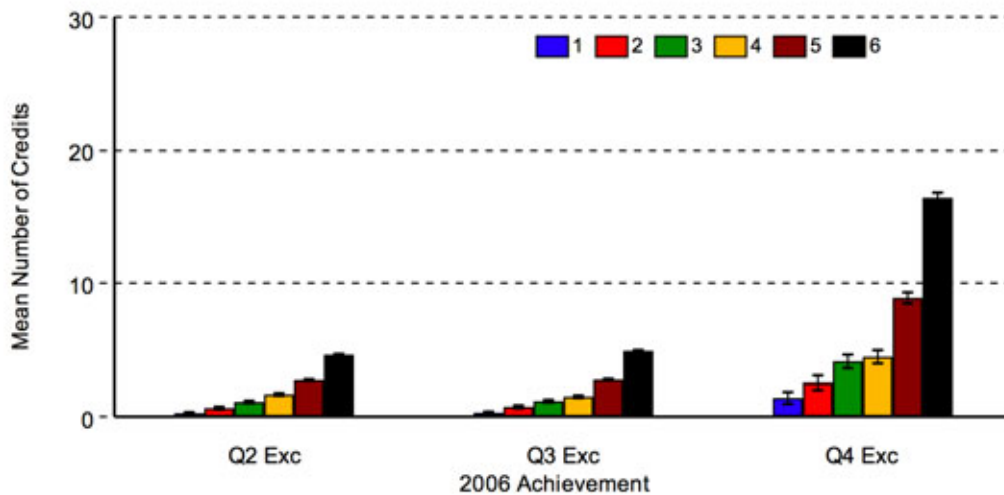


Figure 11: Excellence credits attained by quarter one year later by students in different motivation categories

We also explored the trend of 2007 achievement across terms for students from different motivation categories, focusing on Merit and Excellence credits. First, a MANOVA was performed to explore the pattern of achievement for each motivation category for Merit credits across each quarter. There was a significant effect for Quarter 2,  $F(5, 1225) = 11.03, p < .001, \text{partial } \eta^2 = .04$ , Quarter 3,  $F(5, 1225) = 15.34, p < .001, \text{partial } \eta^2 = .06$ , Quarter 4,  $F(5, 1225) = 76.31, p < .001, \text{partial } \eta^2 = .24$ , and externally achieved Merit credits,  $F(5, 1225) = 67.64, p < .001, \text{partial } \eta^2 = .22$  (Figure 12). Notably, the largest effect was seen towards the end of the year for Quarter 4 and external credit. Post hoc tests showed that during Quarter 4 and external exams, students who were in the two highest motivation categories achieved significantly more Merit credits than all other categories. In addition those who were in motivation category 6 scored significantly more Merit credits than those in category 5.

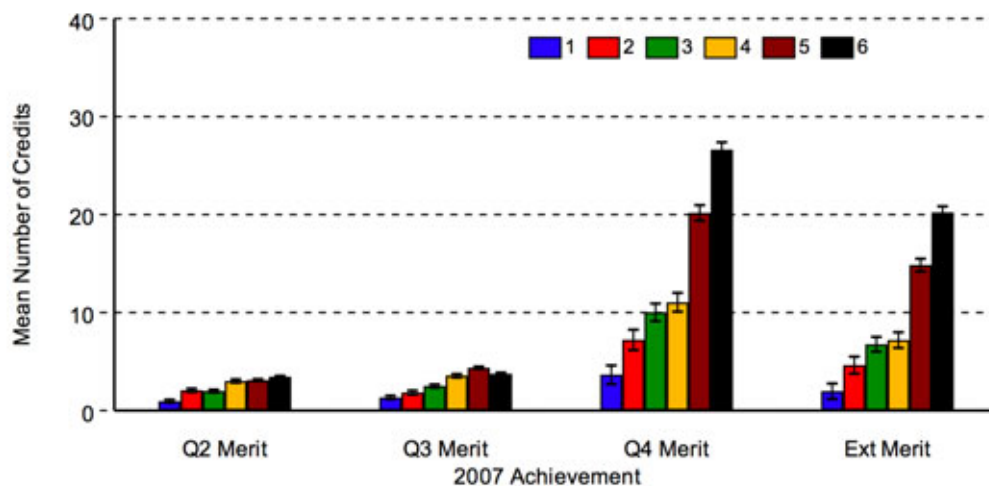


Figure 12: External Merit credits attained across quarters two years later by students in different motivation categories

Regarding the pattern of achievement for Excellence credits, there was a significant effect for Quarter 2,  $F(5, 1225) = 26.96, p < .001, \text{partial } \eta^2 = .10$ , Quarter 3,  $F(5, 1225) = 32.91, p < .001, \text{partial } \eta^2 = .12$ , Quarter 4,  $F(5, 1225) = 36.21, p < .001, \text{partial } \eta^2 = .13$ , and externally achieved Excellence credits,  $F(5, 1225) = 25.99, p < .001, \text{partial } \eta^2 = .13$ .

.001, partial  $\eta^2 = .10$  (Figure 13). Post hoc tests showed that students who were in the highest two motivation categories achieved significantly more external Excellence credits than all other categories. Those in the highest category also scored significantly more external Excellence credits than those from category 5.

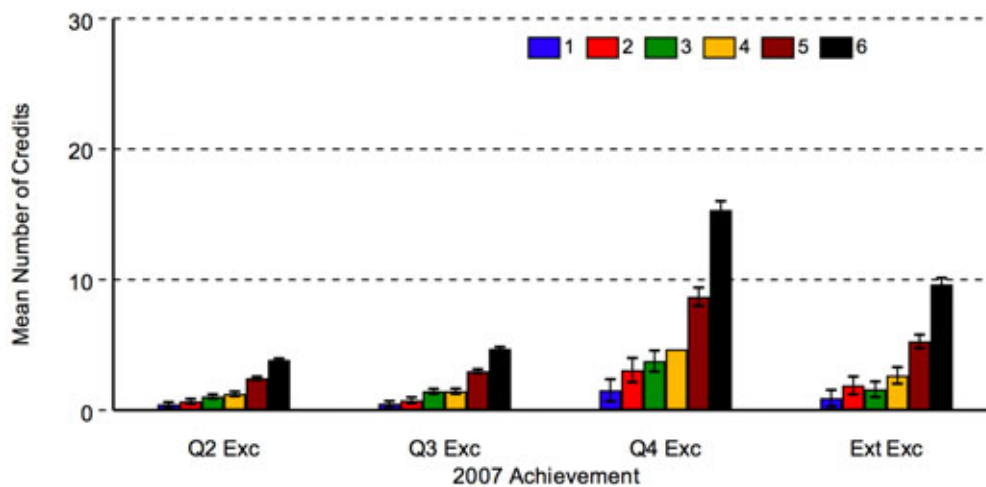


Figure 13: External Excellence credits attained across quarters two years later by students in different motivation categories

## Motivation and Achievement Patterns for Junior Students

### *Survey responses Year 10 and 11 students 2007*

In addition to following forward students who completed the motivation orientation survey during 2005 and 2006, the motivation orientation measure was also administered to Year 10 and 11 students during 2007. Items from the longer survey that related most strongly to achievement formed the core of a shorter motivation screening instrument (see also Meyer et al., 2007). Hence, we are able to continue assessing the relationship between student motivation and achievement using a new cohort of students, and these data are summarised in the next chapter. Here we summarise the results of added items to assess the influences of teachers, parents, and peers as well as other activities (part-time work, sport, child care, etc) on motivation and achievement.

### *Student sample collected in 2007*

Student surveys were administered to the same 20 schools used in our previous work. Data were returned by all but one school. In total, 3,934 student surveys were collected (1,878 were Year 10 students, 2,017 were Year 11 students, and 39 students did not provide information on their year at school). Of this group there were 2,025 males, 1,886 females and 23 students who did not provide information on their gender.

Seventy-eight of these students (2%) completed less than 95% of the survey and thus were deleted from the sample, leaving 3,856 students in the final sample. This final sample consisted of 1,994 males and 1,849 females—13 students did not provide information on their gender. Of these, 1,846 were Year 10 students, 1,983 were Year 11 students and 27 students did not provide information on their year at school. Roughly half of our sample was in middle decile schools (52%),

15% in low decile schools and 33% in high decile schools. Ethnicity data were obtained from NZQA for 1,754 of these students who were predominantly in Year 11 or in Year 10 (enrolled early) in NCEA Level 1. Of the ethnicity information available, 62% were European, 13.5% were Asian, 11% were Māori, 9.5% were Pacific, and 4% classified their ethnicity as Other.

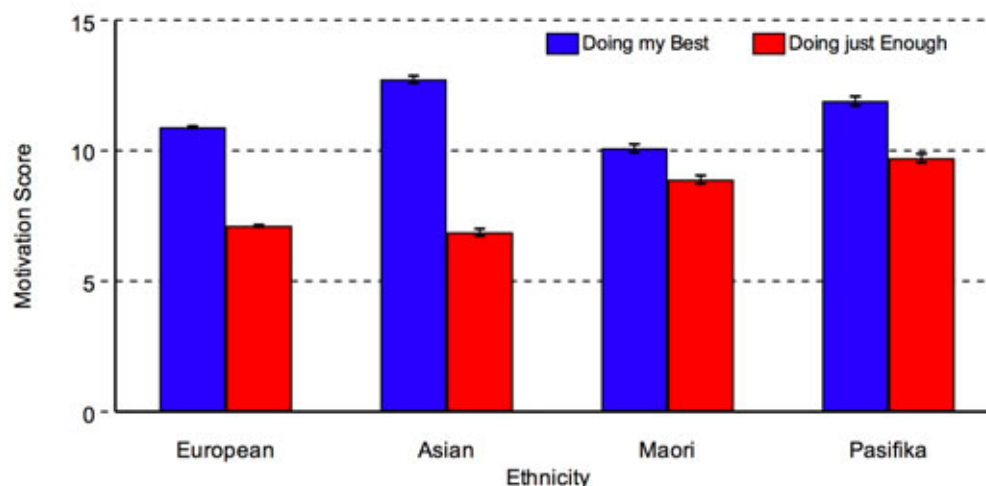
### **Student sample collected in 2008**

Student surveys were administered to the same 20 schools and surveys were returned by all but 1 school. In total, 5,430 student surveys were collected (2,926 were Year 10 students, 2,461 were year 11 students, and 43 did not provide information about their year at school). Of this group there were 2,633 males, 2,781 females, and 16 who did not provide information on their gender.

Sixty-one of these students (1%) completed less than 95% of the survey and thus were deleted from the sample, leaving 5,369 students in the final sample. This final sample consisted of 2,600 males and 2,757 females—12 students did not provide information on their gender. Of these, 2,903 were Year 10 students, 2,429 were Year 11 students and 37 students did not provide information on their year at school. Half of our sample was in middle decile schools, 8% in low decile schools and 42% in high decile schools. Ethnicity data were obtained from NZQA for 2,617 of these students who were predominantly in Year 11 or in Year 10 (enrolled early) in NCEA Level 1. Of the ethnicity information available, 57% were European, 19% were Asian, 11% were Māori, 7% were Pacific, and 6% gave their ethnicity as Other.

### **Are there patterns of motivation orientation by ethnicity?**

A MANOVA was conducted to explore whether the *Doing My Best* and *Doing Just Enough* motives varied across students of different ethnicity. In this case, the MANOVA measures whether or not there are significant differences between students in each ethnic group on the two outcome variables of *Doing My Best* and *Doing Just Enough*. There was a significant difference between subjects effect of ethnicity on *Doing My Best*,  $F(3, 1678) = 38.22, p < .001$ , partial  $\eta^2 = .06$ , and *Doing Just Enough*,  $F(3, 1678) = 40.78, p < .001$ , partial  $\eta^2 = .07$ . Figure 14 displays the levels of *Doing Just Enough* and *Doing My Best* across ethnicities. Post hoc tests showed that all differences were significant ( $p < .05$ ), with one exception: the difference between Māori and Pacific students on *Doing Just Enough* was not significant.



**Figure 14: Ethnic patterns in motivation orientations**



### **Are there gender differences in Doing My Best and Doing Just Enough?**

A MANOVA was conducted to explore whether *Doing My Best* and *Doing Just Enough* varied across students of different gender. Females reported the *Doing My Best* motivation ( $M = 11.80$ ,  $S.D. = 2.86$ ) significantly more than males, ( $M = 11.24$ ,  $S.D. = 2.93$ ;  $F(1, 3841) = 36.71$ ,  $p < .001$ , partial  $\eta^2 = .01$ ). Males reported the *Doing Just Enough* motivation ( $M = 8.49$ ,  $S.D. = 2.96$ ) significantly more than females, ( $M = 7.83$ ,  $S.D. = 2.76$ ;  $F(1, 3841) = 50.63$ ,  $p < .001$ , partial  $\eta^2 = .01$ ). It should be stressed here that this level of statistical significance may reflect the large sample size.

### **What is the relationship between student motivation and achievement?**

The correlation between student motivation and measures of student achievement was examined first. Table 9 shows that for Year 11 students, *Doing My Best* was most strongly associated with higher levels of internal credits achieved with Excellence, and with external credits achieved with Merit and Excellence. *Doing Just Enough* was most strongly associated with fewer internal credits achieved with Merit and Excellence, and external credits achieved with Merit. Thus similar to our findings in previous years, *Doing My Best* is associated with higher achievement and *Doing Just Enough* is associated with lower achievement.

**Table 9: The correlations between motivation in 2007 and achievement in 2007**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>
Total Credits	.28*	-.41*
Total US Credits	-.20*	.27*
Internal – ACH	-.22*	.05*
Internal – MER	.25*	-.38*
Internal – EXC	.42*	-.37*
External – NA	-.25*	.21*
External – ACH	.14*	-.30*
External – MER	.43*	-.42*
External – EXC	.42*	-.26*

Note: \* =  $p < .001$ . Sample sizes differ across achievement measures.

Table 10 shows that *Doing My Best* in 2007 was most strongly associated with more total credits, internal excellence credits, and external merit and excellence credits in 2008. *Doing Just Enough* in 2007 was most strongly associated with fewer total credits and internal excellence credits, and more unit standard credits.

**Table 10: The relationships between motivation in 2007 and achievement in 2008**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>
Total credits	.42*	-.44*
Total unit standard credits	-.23*	.32*
Internal – NA	-.21*	.23
Internal – ACH	-.22*	.19*
Internal – MER	.15*	-.20
Internal – EXC	.39*	-.35*
External – NA	-.13	.16
External – ACH	.01	-.14*
External – MER	.42*	-.23*
External – EXC	.44*	-.26*

Note: \* =  $p < .001$ . Sample sizes differ across achievement measures.

## Summary of Findings Relating Motivation to Achievement

By following the students participating in our research from 2005-2006 and 2006-2007, we have rich longitudinal data on how motivation orientations relate to subsequent academic achievement. We now have evidence across two years demonstrating that what students say about their motivation orientation earlier in their secondary school careers is predictive of how they will achieve on different NCEA outcomes, over and above what could be predicted based solely on previous achievement data.

These longitudinal data allowed us to identify different student cluster groups whose composite *Doing My Best* and *Doing Just Enough* scores were strongly related to actual achievement. We are interested in the characteristics and achievement of these different sub-groups; for example, groups still relatively high on *Doing My Best* but also high on the (negative) orientation *Doing Just Enough* may well be “underachievers” regardless of whether they are indeed attaining at a passing level. They may not even be aware of simultaneous and oppositional motivation orientations that may be having a negative impact on their opportunities and outcomes. Effective strategies focused on shifting to more positive motivation orientations and, particularly, to reduce the *Doing Just Enough* orientation could also be related to better achievement outcomes for students who show the most negative patterns. This exploratory work could lead to the development of a practical measure for teacher use in efforts to enhance student motivation, thereby promoting higher achievement for students at different levels.

We are following different motivation groups across years, and we have been able to identify sub-groups of students whose motivation shifts across time—some of whom dropped or increased as many as three motivation categories. Information about and from these young people might point to strategies that are being used and could be further developed for use in future research towards more positive motivation strategies and to prevent drops in motivation and achievement. This is a particularly promising area for future research based on our work to date.



## **Development of a Motivation Screening Measure**

One goal of this longitudinal research is to develop and validate a motivation orientation screening measure that is predictive of future achievement independently of predictions possible solely through prior achievement measures. Such a tool could have considerable utility in identifying students who show motivation patterns that are likely to result in underachievement and even early school departure with minimal or no qualifications. Our previous work and the findings reported in the previous chapter have established a strong relationship between selected aspects of motivation and attributions and student achievement on the NCEA (Meyer et al., 2006, 2007). Further intervention research might then investigate the effectiveness of promising strategies that teachers and schools could implement at classroom and individual student level to foster more positive motivations and, ultimately, achievement outcomes. Thus, we extended our student sample to include additional Year 10 and Year 11 student cohorts from 2007 in order to develop further this screening measure.

This chapter reports on several aspects of the measure. Firstly, those motivation items most strongly predictive of current and future achievement outcomes were revised based on findings from previous years. Secondly, we incorporated several items based on related research on social and interpersonal affiliations as possible influences on motivation and achievement (Bishop & Berryman, 2006; Boekaerts, de Koning, & Vedder, 2006; Urdan & Maehr, 1995). Items were developed based on possible influences of others—particularly the teacher, peers, and the family/whānau—on school performance. We also modified the attributions section of the screening measure to include student attributions for their positive and negative results across subjects and to tap students' attributions to interpersonal influences including, again, teachers, family/whānau, and friends.

The screening measure requested additional information from students to assess their awareness of a key NCEA design change in 2007 and to investigate further the relationships between motivation, achievement, and engaging in activities out of school including part-time work, sport, child care for the family, paid tutorials, and other extracurricular activities.

### **2007 Student Sample**

The 20 schools in our longitudinal sample were asked to administer the revised Motivation Survey to Year 10 and Year 11 students in October 2007, early in Term 4. All but one school returned surveys completed by nearly 4,000 students of which there were 3,856 with sufficient responses (95% or more) to be included in the analyses. As reported in the previous chapter, the sample includes 1,994 males, 1,849 females, and 13 who did not report gender. There were 1,846 Year 10 students and 1,983 Year 11 students plus 27 who did not indicate their year in school. School decile level for the student sample comprised 15% low (deciles 1-2), 33% high (deciles 9-10) and 52% middle (deciles 3-8). NZQA ethnicity data for over 2,000 of the Year 11 students and those Year 10 students enrolled early in NCEA level 1 indicated that 62% were European, 13.5% Asian, 11% Māori, 9.5% Pacific, and 4% Other.

Similarly, these same 19 (of the original 20) schools administered the revised screening measure to Year 10 and Year 11 students in October 2008, early in Term 4 (see pp. 34-35 for a summary of the 2008 sample demographics).

## Research Questions

Some findings were already reported in the previous chapter; specifically, we presented evidence of relationships between the screening tool measure of motivation orientations and student achievement in the Year 11 group. In the next sections, we present results for the following additional issues:

- What is the relationship between knowing about the certificate endorsements for Merit and Excellence and student motivation and achievement?
- What is the impact of activities outside school on student motivation and achievement?
- How are the various motivation sub-scales (*Doing My Best*, *Doing Just Enough*, Teacher Affiliation, Peer Affiliation) related to one another, and how are they related to achievement for the Year 11 students?
- How do students attribute their best and worst assessment marks in any subject, including the influences of ability, effort, difficulty, luck (good or bad), family/whānau, teachers and friends?

## The Relationship of Reported Knowledge of Certificate Endorsements on Motivation and Achievement

### *Did students report knowing about the certificate endorsements?*

Of the students sampled in 2007, only 53% of students were aware that their 2007 certificates could be endorsed with Merit or Excellence. Roughly similar numbers of males and females were aware of the endorsements (51% of males compared with 56% of females). Of the Year 11 students 64% knew certificates could be endorsed, and of the Year 10 students 40% knew their certificates could be endorsed. Regarding school decile, only 36% of students from low decile schools knew about the certificate endorsements, whereas 55% and 58% of students from middle and high decile schools respectively were aware of the endorsements. At the 19 schools, awareness ranged between 11% to 73% for Year 10s and 40% to 80% for Year 11 students; these percentages reflect Year 11 student awareness late in the year when students are completing NCEA Level 1, at a time several months after the endorsement change was announced in July earlier that year.

**Table 11: Percentage of students aware that their certificates could be endorsed with Merit or Excellence, by gender and in both 2007 and 2008**

Year	Total	Males	Females	Yr 10	Yr 11
2007	53%	51%	56%	40%	64%
2008	55%	55%	55%	42%	71%

By the following year 2008, roughly half of all students surveyed again reported that they were aware certificates could be endorsed with Merit or Excellence (similar numbers were reported for males and females). Students in Year 11

tended to be more aware of the availability of endorsements than Year 10 students. Table 11 shows these percentages for the two years by gender, and Table 12 shows percentages by school decile.

**Table 12: Percentage of students aware that their certificates could be endorsed with Merit or Excellence across school decile**

Year	Low decile	Middle decile	High decile
2007	36%	55%	58%
2008	44%	52%	61%

***Do certificate endorsements matter to students?***

Students were asked whether the certificate endorsements mattered to them, and overwhelmingly students reported that they do. Of those who knew about the endorsements, only 6.5% of students said that the endorsements did not matter to them, 25% reported that they mattered to them sometimes, 33% that they mostly mattered to them and 35% reported that they definitely mattered to them. How much endorsements mattered to students differed across school deciles. There was a disproportionately high percentage of students at high decile schools who reported higher ratings for how much the endorsements mattered compared to those at middle and low decile schools (see Figure 15). Interestingly however, the number of students who reported the certificate endorsements did not matter to them was consistent, roughly 6% across schools regardless of the school decile. These students may be the most difficult to motivate, and they appear to be evenly distributed across school decile zones in our sample. Figures 15 and 16 also show that a higher proportion of students in low decile schools reported that the endorsements mattered (definitely me or mostly me) in 2008 compared to 2007.

**Table 13: Percentage of students who reported that the certificate endorsements matter to them**

Year	Did not matter	Sometimes	Mostly mattered	Definitely mattered
2007	6.5%	25%	33%	35%
2008	6%	23%	34%	37%

Whether or not the endorsements mattered to students also remained relatively stable across the 2007-2008 school years (see Table 13; note that these percentages are calculated based on those students who said they knew about the endorsements).

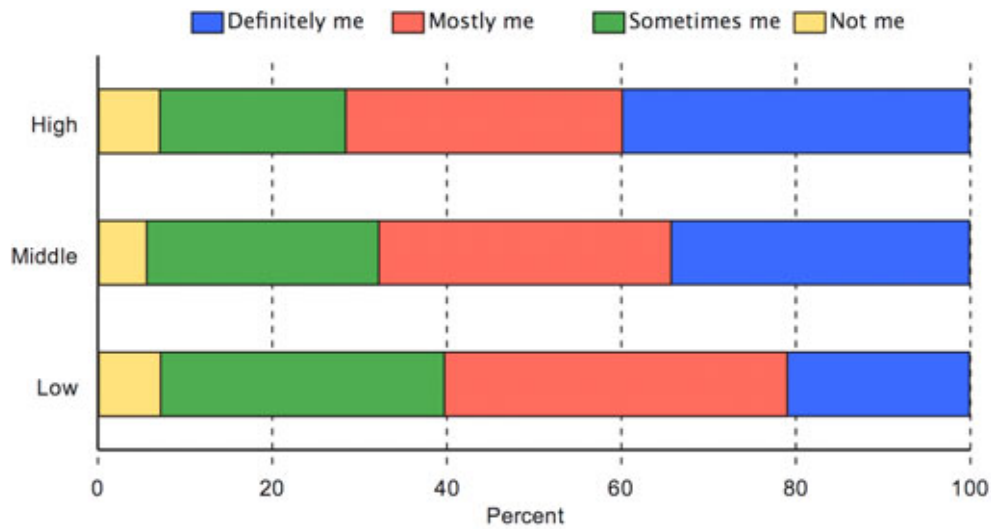


Figure 15: 2007 Student responses on whether endorsements mattered, by school decile.

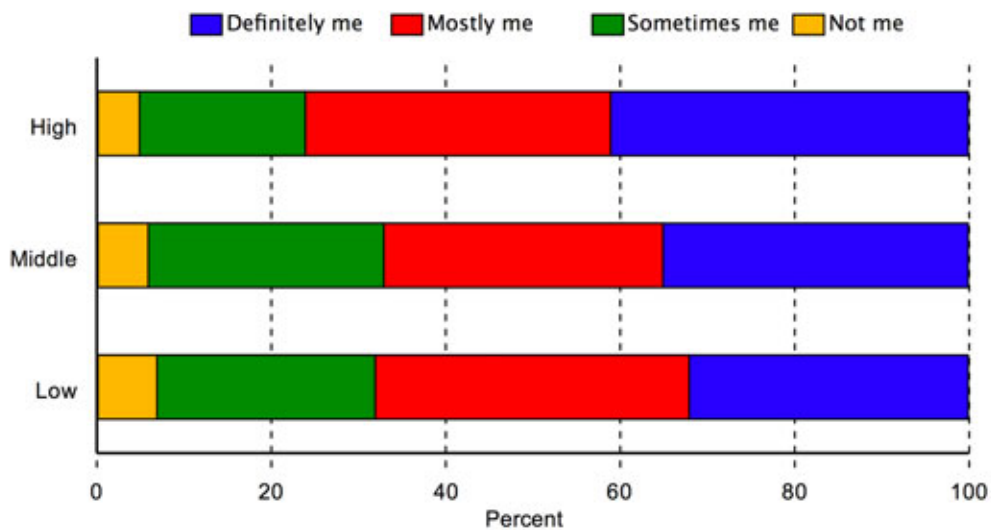


Figure 16: 2008 Student responses on whether endorsements mattered, by school decile.

***How was knowledge of the certificate endorsements related to changes in student motivation over time?***

The effect of certificate endorsements on student motivation was measured in three ways. First, to examine whether certificate endorsements were related to student motivation, we explored whether student motivation increased or decreased from both 2006 to 2007 and 2007 to 2008 depending on how much students reported the endorsements mattered to them.<sup>12</sup> A 2 (Time: 2006, 2007) x 4 (“matters to me”: not me, sometimes, mostly, definitely) repeated measures MANOVA, with *Doing My Best* and *Doing Just Enough* as the dependent variables was performed. Here the analysis examined whether individual students from each group (the level at which they said the endorsements mattered to them) reported changes in their level of motivation for each outcome variable (*Doing My Best*, *Doing Just Enough*) across time (increased or decreased from 2006 to 2007). This analysis tells us three things: (a) whether or not there is a change in motivation

<sup>12</sup> This analyses was performed only for those who reported they were aware of endorsements and for whom we had motivational data both across 2006 and 2007 (N = 567), and 2007 and 2008 (N = 598).

across time regardless of how much students said the endorsements mattered; (b) whether there are group differences regardless of time; and (c) whether or not changes in time are dependent upon group membership (the interaction). In the series of analyses below, we investigate the interaction. In particular, do improvements in motivation across time depend on which group students belong to? We predict that students who report that the endorsements mattered to them would show improvements in motivation across time, whereas those who reported that the endorsements did not matter to them would not improve their motivation across time.

For *Doing My Best*, there were significant main effects for time,  $F_s(1,563; 594) = 111.32$  to  $177.50$ ,  $p_s < .001$ , partial  $\eta^2_s = .17$  to  $.23$ , significant time by “matters to me” interactions,  $F_s(3,563; 584) = 58.05$  to  $132.50$ ,  $p_s < .001$ , partial  $\eta^2_s = .24$  to  $.40$ , and significant between subjects effects for “matters to me”,  $F_s(3,563; 594) = 180.10$  to  $340.17$ ,  $p_s < .001$ , partial  $\eta^2_s = .49$  to  $.63$ . All four groups across both cohorts scored significantly differently to each other ( $p < .001$ ).

As can be seen in Figures 17 and 18, student motivation decreased across time for students in the 2006-2007 cohort who said they were not motivated by the endorsements whereas for those who said they were motivated by the endorsements (*Mostly me, Definitely me*), motivation remained relatively stable. Students in the 2007-2008 cohort reported an increase in *Doing my Best* if they were motivated by the endorsements whereas students who were not motivated by the endorsements showed a decrease in *Doing My Best* across time. The increase from 2007 to 2008 was particularly pronounced in comparison to a year earlier for those to whom it mattered most.

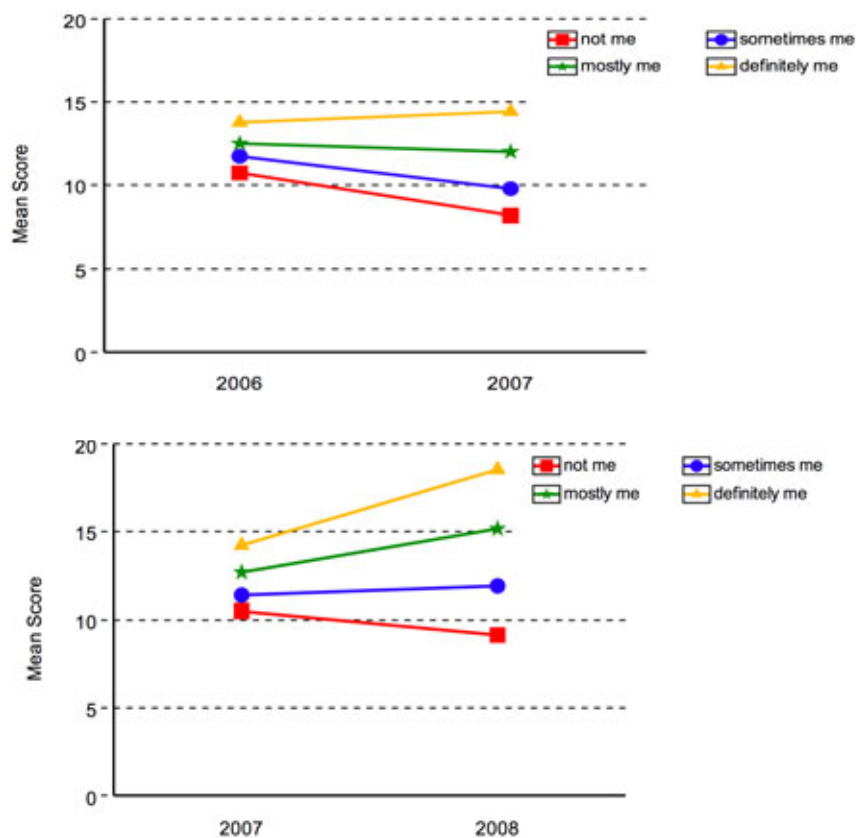


Figure 17: Motivation mean scores on *Doing My Best* over time by how much endorsements matter to students 2006-2007 and 2007-2008

For *Doing Just Enough*, there was a significant main effect of time in the 2006-2007 cohort,  $F(1,563) = 89.44, p < .001$ , partial  $\eta^2 = .14$  and a significant between subjects effect for “matters to me”,  $F(3,563) = 35.45, p < .001$ , partial  $\eta^2 = .16$ . All four groups scored significantly differently to each other except for those who said endorsements did not matter or sometimes mattered, who scored similarly (see Figure 17). The time by “matters to me” interaction was not significant,  $F(3,563) = 1.98, p = .12$ , partial  $\eta^2 < .01$ . For *Doing Just Enough*, there was also a significant between subjects effect for “matters to me”,  $F(3,564) = 67.08, p < .001$ , partial  $\eta^2 = .25$ . All four groups scored significantly differently to each other except for those who said endorsements did not matter or sometimes mattered, who scored similarly (see Figure 18). The time by “matters to me” interaction was significant,  $F(3,564) = 6.46, p < .001$ , partial  $\eta^2 = .03$ .

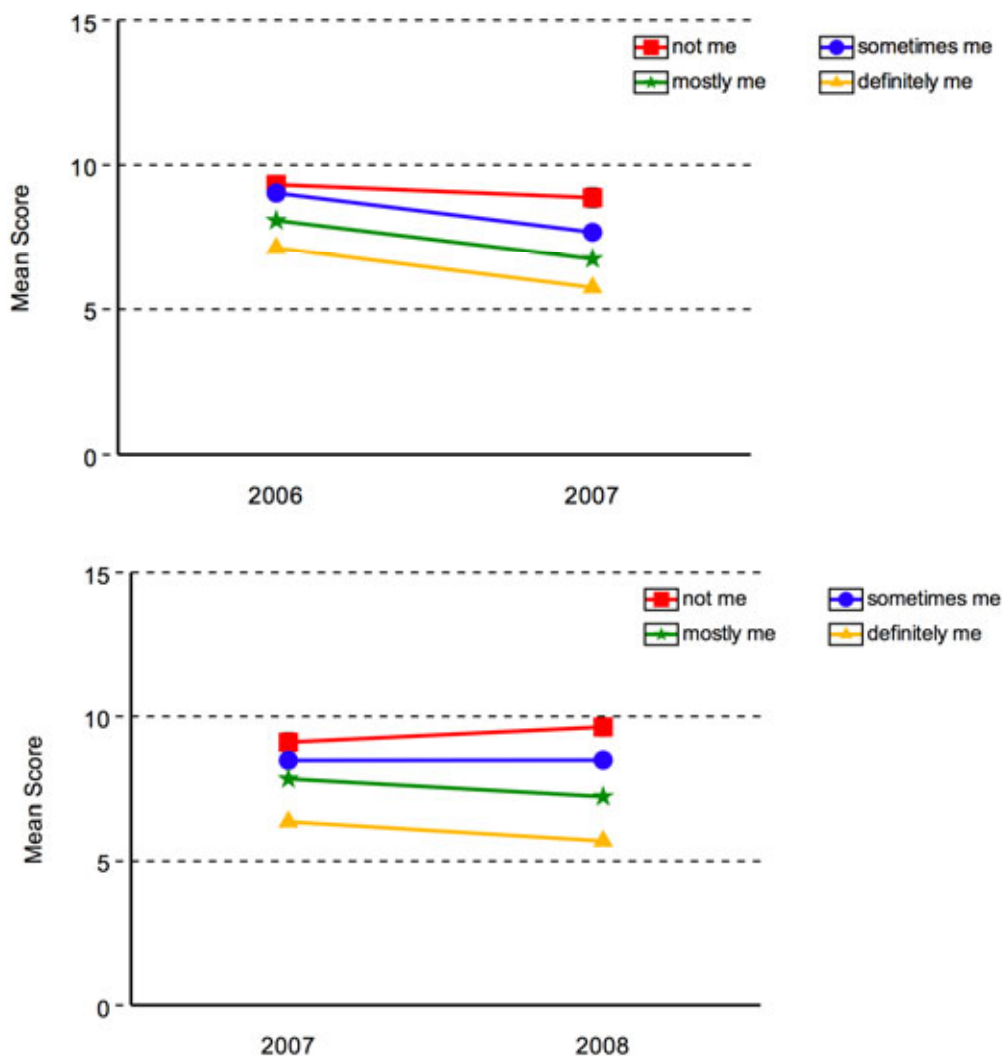


Figure 18: Motivation mean scores on *Doing Just Enough* over time by how much endorsements matter to students, 2006-2007 and 2007-2008

Second, to further explore the effect of certificate endorsements, we compared the change in motivation across both the 2006-2007 and 2007-2008 student cohorts who were aware of certificate endorsements with students across 2005-2006. This latter group could not have been influenced by certificate endorsements as both motivation measures were conducted prior to the introduction of endorsements.

Specifically, three repeated measures MANOVAs were conducted first for the 2005-2006 cohort, and then for the 2006-2007 and 2007-2008 cohorts.

Results showed a significant main effect of time, for both *Doing My Best*,  $F(1,747) = 92.91, p < .001$ , partial  $\eta^2 = .11$ , and *Doing Just Enough*,  $F(1,747) = 72.06, p < .001$ , partial  $\eta^2 = .09$  for the 2005-2006 group. Regarding the 2006-2007 cohort, there was also a significant main effect of time, for both *Doing My Best*,  $F(1,810) = 122.36, p < .001$ , partial  $\eta^2 = .13$ , and *Doing Just Enough*,  $F(1,810) = 107.19, p < .001$ , partial  $\eta^2 = .12$ . Regarding the 2007-2008 cohort, there was also a significant main effect of time, for both *Doing My Best*,  $F(1,829) = 414.83, p < .001$ , partial  $\eta^2 = .33$ , and *Doing Just Enough*,  $F(1,829) = 11.84, p = .001$ , partial  $\eta^2 = .01$ . Figures 19 and 20 below show the patterns of motivation across time for the two cohorts. The rise in the *Doing My Best* motivation across 2007 to 2008 would suggest that something different was having a positive impact on this motivation to do well: One hypothesis is that growing awareness of the availability and valuing of certificate endorsements could be a major factor in this improvement over the course of one year.

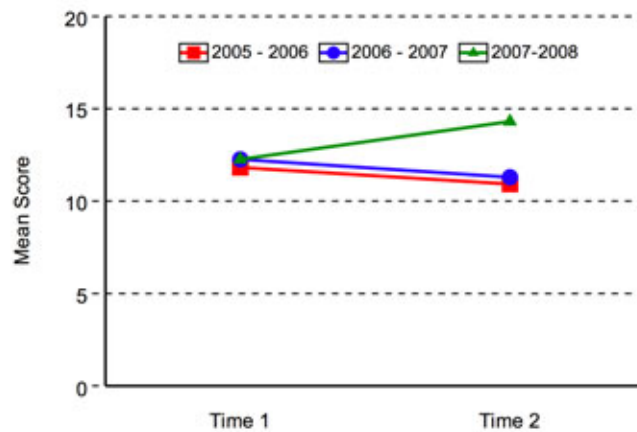


Figure 19: *Doing My Best* scores for three cohorts across three years

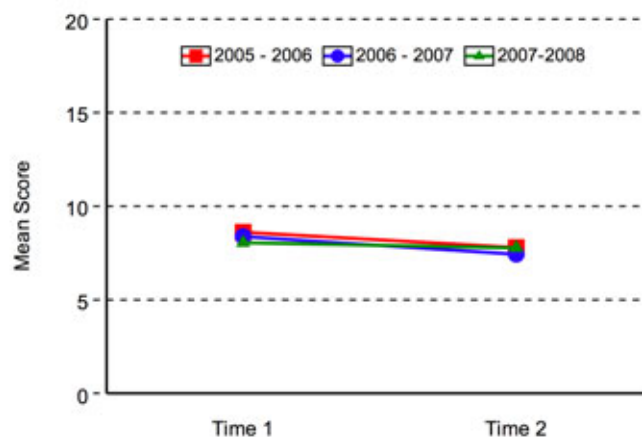


Figure 20: *Doing Just Enough* scores for three cohorts across three years

Third, we compared those who knew about the endorsements with those who said they did not know in the 2006-2007 and the 2007-2008 cohorts to explore the impact of certificate endorsements on motivation. We conducted two repeated

measures MANOVAs with time as the within subjects variable and whether or not students knew about the endorsements as the between subjects factor. We were particularly interested in the time by knowing about endorsements interaction. The interactions were significant for both *Doing My Best*,  $F_s(1,804; 820) = 35.12$  to  $28.99$ ,  $ps < .001$ , partial  $\eta^2 = .03$  to  $.04$ , and *Doing Just Enough*,  $F_s(1,804; 820) = 4.12$  to  $35.47$ ,  $ps < .05$ , partial  $\eta^2 = .01$  to  $.04$ .

For *Doing My Best*, the reduction in motivation for the 2006-2007 cohort was larger across time for those who said they did not know about the endorsements than those who said they knew about the endorsements whereas students in the 2007-2008 cohort increased their motivation if they knew about the endorsements (see Figures 21 and 22). For *Doing Just Enough*, the students who knew about the endorsements showed a slight decrease in this motivation across time whereas those who did not know about the endorsements showed similar patterns of *Doing Just Enough* across time (see Figures 22 and 23).

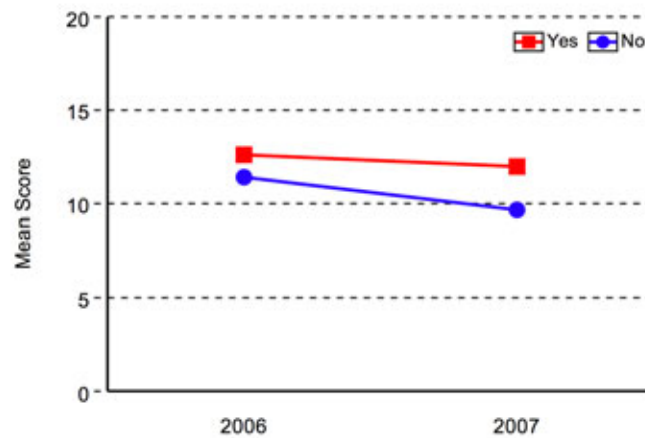


Figure 21: *Doing My Best* motivation from 2006 to 2007 for those who reported they did or did not know about the certificate endorsements

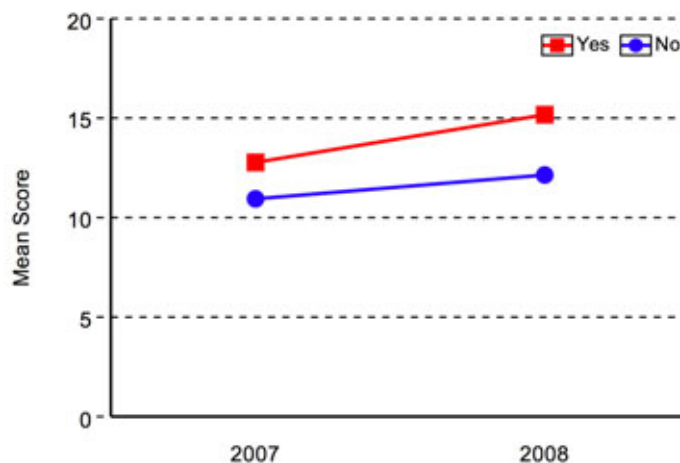
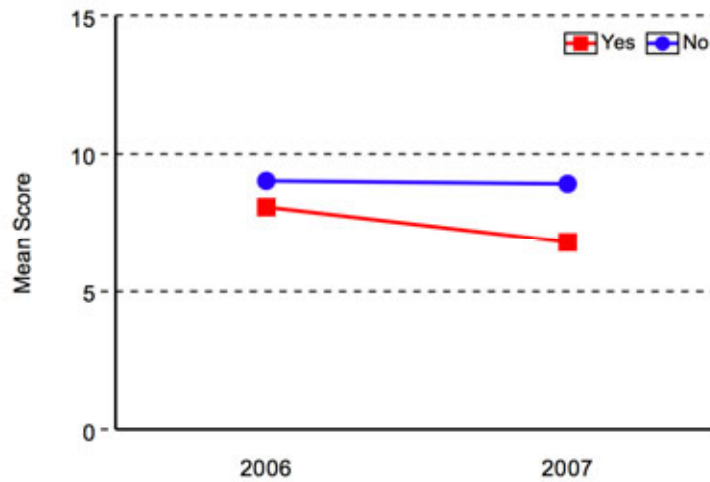
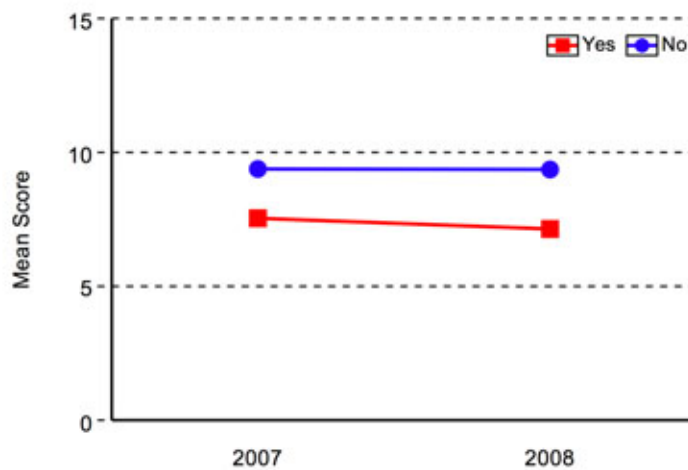


Figure 22: *Doing My Best* motivation from 2007 to 2008 for those who reported they did or did not know about the certificate endorsements



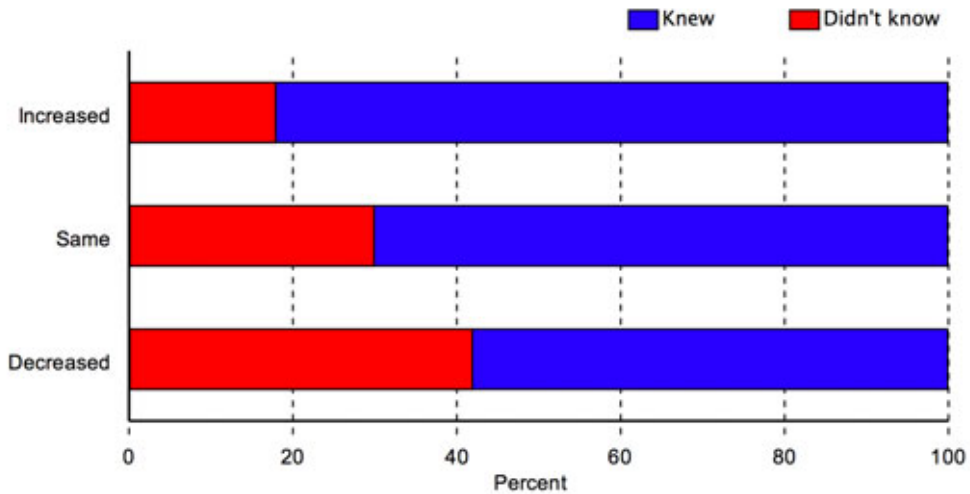


**Figure 23: *Doing Just enough* motivation from 2006 to 2007 for those who reported they did or did not know about the certificate endorsements.**



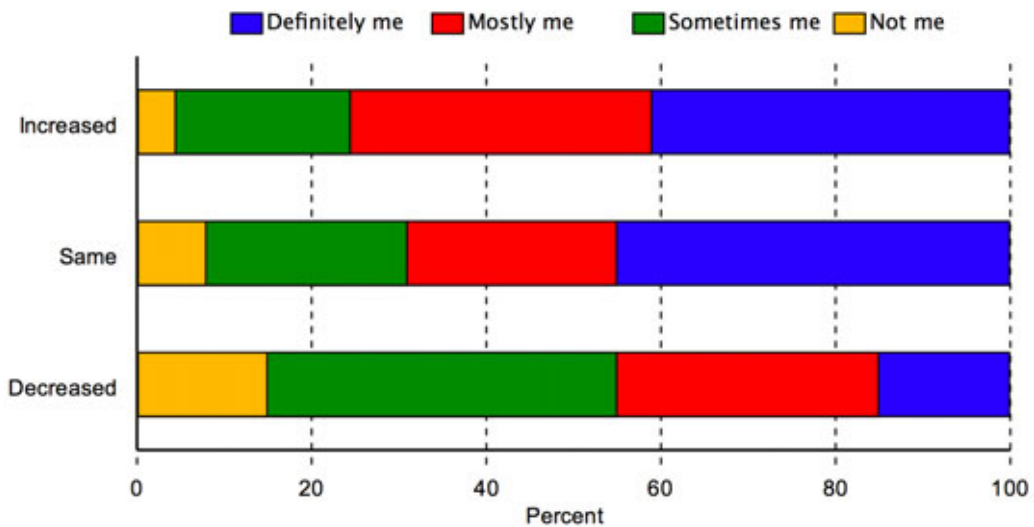
**Figure 24: *Doing Just Enough* motivation from 2007 to 2008 for those who reported they did or did not know about the certificate endorsements**

To examine whether increases or decreases in motivation were related to whether students said that endorsements mattered, we first explored whether those who increased, decreased, or did not change their motivation on the combined motivation scale said they knew about the endorsements. Figure 25 below shows that a disproportionate number of students who knew about the endorsements increased their motivation compared to those who decreased their motivation.



**Figure 25: Motivation shifts by awareness of the endorsements**

Of those who said that they knew about the endorsements, we explored how much the endorsements mattered to them across the three groups: increased motivation, decreased motivation, and motivation stayed the same on the combined motivation scale. Figure 26 shows that those who either held their motivation constant or increased their motivation reported that the endorsements mattered more to them.



**Figure 26: Motivation shifts by how much the endorsements mattered**

## ***How was knowledge of the certificate endorsements related to student achievement?***

### *Achieving Level 1 NCEA*

We tested whether students who gained their level 1 certificate or not differentially knew about the endorsements<sup>13</sup>. 2007 results showed that 69% of those who said they knew about the endorsements attained Level 1, whereas only 49% of those who said they did not know attained Level 1.

Considering only those who knew about the endorsements and also passed NCEA level 1 (N = 880)<sup>14</sup>, 8% said the endorsements did not matter to them, 26% said the endorsements sometimes mattered to them, 30% said the endorsements mostly mattered to them, and 36% said the endorsements definitely mattered to them. Thus, 66% of students who achieved level 1 reported that the endorsements mattered to them either mostly or definitely.

### *Achieving a certificate endorsement*

Considering only those who knew about the endorsements, we explored the rate at which students achieved certificate endorsements with Merit or Excellence<sup>15</sup>. For those who knew about the endorsements 34% achieved an endorsement (7% with Excellence and 27% with Merit). For those that did not know about the endorsements, only 7% achieved an endorsement (<1% with Excellence).

Of those who received a certificate endorsed with Merit (N = 338)<sup>16</sup>, 4% said the endorsements did not matter to them, 16% said the endorsements sometimes mattered to them, 35% said the endorsements mattered to them mostly, and 45% said the endorsements definitely mattered to them. Thus, 80% of students who achieved a certificate endorsed with Merit said that the endorsements mattered to them either mostly or definitely. Of those that received a certificate endorsed with Excellence (N = 92)<sup>17</sup>, an overwhelming 98% reported that the endorsements mattered to them either mostly or definitely.

### *Number of credits*

To further explore the influence of endorsements on achievement a 4 (endorsements: don't matter to me, sometimes matter, mostly matter, definitely matter) by 4 (assessment) MANOVA was conducted<sup>18</sup>. The dependent variables were the total number of credits, total number of Unit Standards, external assessment (N, A, M, E) and Internal credits (A, M, E). Results showed that the

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<sup>13</sup> This analysis was restricted to year 11 students in our sample. There were 8 year 10 students who achieved NCEA level 1 in 2007, of which 5 knew about the certificate endorsements.

<sup>14</sup> This analysis was restricted to year 11 students in our sample. Of the 5 year 10 students who achieved NCEA level 1 in 2007 and knew about the endorsements, 3 said the endorsements definitely mattered to them, 1 said it mostly mattered to them, and the remaining student said it mattered to them sometimes.

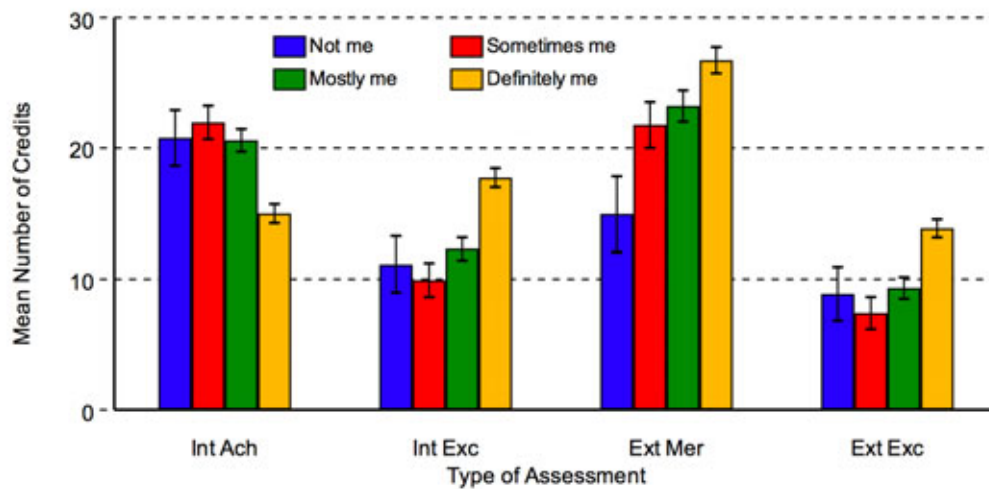
<sup>15</sup> This analysis was restricted to year 11 students.

<sup>16</sup> This analysis was restricted to year 11 students who knew about the endorsements. There were two year 10 students who knew about the endorsements and achieved NCEA level 1 endorsed with Merit. One of these students said that the endorsements definitely mattered to them and the other student said the endorsements mostly mattered to them.

<sup>17</sup> This analysis was restricted to year 11 students. There were no year 10 students who knew about the endorsements and achieved NCEA level 1 endorsed with Excellence.

<sup>18</sup> This analysis was restricted to students who knew about the endorsements.

largest effects were on Internal Excellence credits,  $F(3, 272) = 10.98, p < .001$ , partial  $\eta^2 = .11$ , external excellent credits,  $F(3, 272) = 7.98, p < .001$ , partial  $\eta^2 = .08$ , external Merit credits,  $F(3, 272) = 5.67, p < .001$ , partial  $\eta^2 = .06$  and internal credits with achieved,  $F(3, 272) = 9.88, p < .001$ , partial  $\eta^2 = .10$ . The ratings across these types of assessment are displayed in Figure 27.



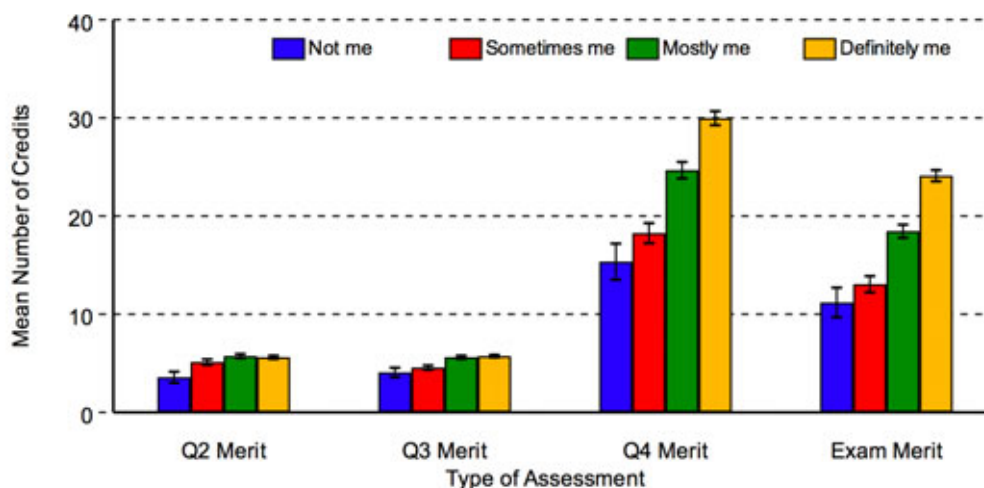
**Figure 27: Assessment credits by how much endorsements mattered**

Post hoc tests show that those who reported that the endorsements definitely mattered to them scored significantly more internal Excellence credits than all other groups. Those who reported the endorsements definitely mattered to them achieved significantly more external Excellence credits than those who reported endorsements mattered to them sometimes and mostly. Those who reported endorsements definitely mattered to them achieved significantly more external credits with Merit than those who reported endorsements did not matter. A reverse pattern occurred for internal achievement credits—those who reported the endorsements definitely mattered to them achieved significantly fewer credits than those who reported endorsements mattered sometimes or mostly. Of course, this pattern is consistent with these students who were attaining more of their credits with Merit or Excellence rather than as Achieved.

***How was knowledge of the endorsements related to student credit accumulation across the year?***

We also wanted to explore how students were performing across the year, depending on how much the endorsements mattered to them. We focused on the attainment of Merit and Excellence credits across the year to test the influence of the endorsements on student credit accumulation. In order to do this, we calculated the credits achieved across each quarter of the year: January – March; April – June; July – September; October – December.

A 4 (endorsements: don't matter to me, sometimes matter, mostly matter, definitely matter) by 4 (assessment time: Q2, Q3, Q4, Final Exam) MANOVA was conducted on the number of credits achieved with Merit.<sup>19</sup> Results showed that there was a significant effect for Quarter 2,  $F(3, 866) = 2.79, p < .05, \text{partial } \eta^2 = .01$ , for Quarter 3,  $F(3, 866) = 3.89, p < .01, \text{partial } \eta^2 = .01$ , for Quarter 4,  $F(3, 866) = 30.51, p < .001, \text{partial } \eta^2 = .10$ , and for external exams,  $F(3, 866) = 37.48, p < .001, \text{partial } \eta^2 = .12$ . Figure 28 shows that the largest impact of endorsements was seen during the fourth quarter and during the exam period. Post hoc tests showed that for both the fourth quarter and the exam period those that said endorsements definitely mattered to them achieved significantly more credits with Merit than all other groups.



**Figure 28: Credits with Merit by how much endorsements mattered**

A 4 (endorsements: don't matter to me, sometimes matter, mostly matter, definitely matter) by 4 (assessment time: Q2, Q3, Q4, Exam) MANOVA was also conducted on the number of credits achieved with Excellence for each quarter and during external exams.<sup>20</sup> Results showed that there was a significant effect for Quarter 2,  $F(3, 498) = 13.70, p < .001, \text{partial } \eta^2 = .08$ , for Quarter 3,  $F(3, 497) = 12.55, p < .001, \text{partial } \eta^2 = .07$ , for Quarter 4,  $F(3, 497) = 27.26, p < .001, \text{partial } \eta^2 = .14$ , and for external exams,  $F(3, 497) = 24.19, p < .001, \text{partial } \eta^2 = .13$ . Figure 29 shows that the largest impact of endorsements was again evident during the fourth quarter and during the exam period. Post hoc tests showed that for each quarter and during the exam period those that said endorsements definitely mattered to them achieved significantly more credits with Excellence than all other groups.

<sup>19</sup> This analysis was restricted to students who knew about the endorsements. Data about the first quarter have been omitted because very few credits were achieved with Merit during the first quarter. Note also that Quarters 2 and 3 may not fully reflect actual credit accumulation by students but instead are the dates by which schools report achievement data to NZQA.

<sup>20</sup> This analysis was restricted to students who knew about the endorsements. Data about the first quarter has been omitted because very few credits were achieved with Excellence during the first quarter.

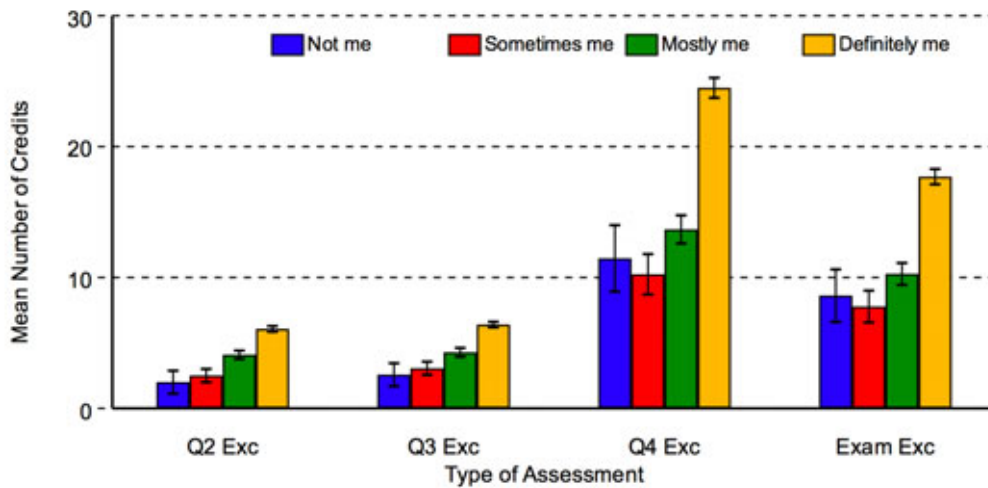


Figure 29: Credits with Excellence by how much endorsements mattered

**How was knowledge of the endorsements related to motivation over time for low, medium, and high achievers?**

We were interested in whether the endorsements would have differential effects for students achieving at different levels. We created three achievement groups—low, medium and high—based on the lowest, middle, and highest thirds for total credits achieved. The lowest third were those who achieved 79 credits or less, the middle third were those who achieved between 80 and 115 credits, and the highest third were those who achieved more than 115 credits.

Based on the 2007 data, we examined the effect of endorsements across the three different achievement groups, 2 (knew about endorsements: did not know about endorsements) by 2 (time: 2006, 2007) repeated measures MANOVAs were performed on *Doing My Best* and *Doing Just Enough* across 2006 and 2007, one for each achievement group. Primarily, we were interested in the time by knowing about endorsement interaction. Thus, we were interested in whether or not student motivation varied across time depending on whether or not students knew about the endorsements. For the low achievement group, the interaction was not significant for *Doing My Best*,  $F(1,94) = .37, p = .55, \text{partial } \eta^2 < .01$ , but was significant for *Doing Just Enough*,  $F(1,94) = 6.65, p < .01, \text{partial } \eta^2 < .07$  (see Figures 30 and 31).

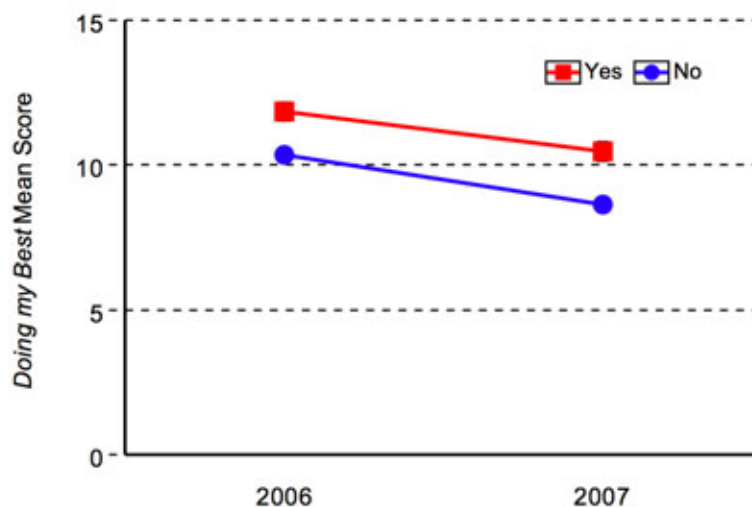


Figure 30: *Doing My Best* across 2006-2007 by awareness of the endorsements for low-achieving group

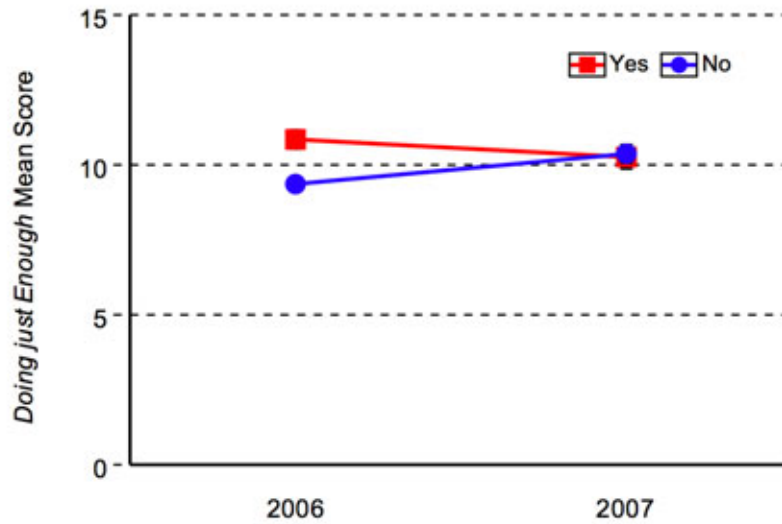


Figure 31: *Doing Just Enough* across 2006-2007 by awareness of the endorsements for low-achieving group

For the middle achievement group, the interaction was not significant for *Doing My Best*,  $F(1,222) = 1.27$ ,  $p = .26$ , partial  $\eta^2 < .01$ , and was marginally significant for *Doing Just Enough*,  $F(1,222) = 2.95$ ,  $p = .08$ , partial  $\eta^2 = .01$  (see Figures 32 and 33).

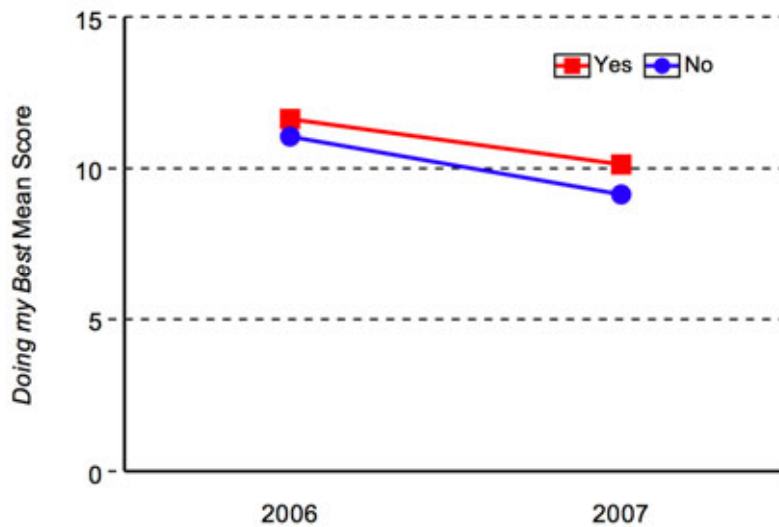


Figure 32: *Doing My Best* across 2006-2007 by awareness of the endorsements for middle-achieving group

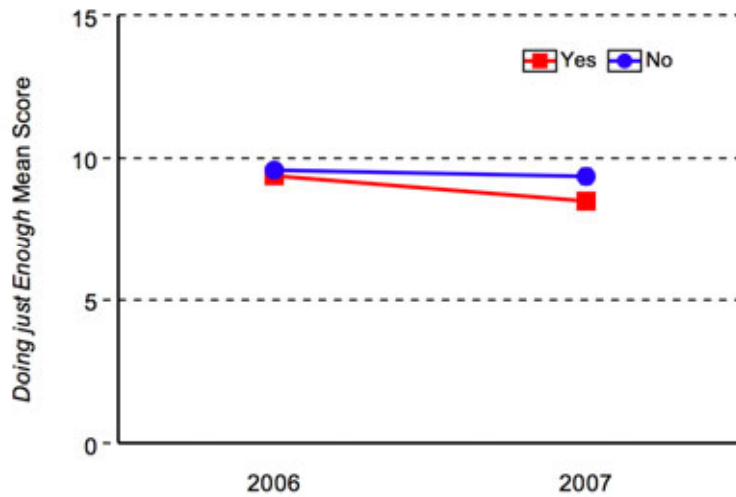


Figure 33: *Doing Just Enough* across 2006-2007 by awareness of the endorsements for middle-achieving group

For the high achievement group, the interaction was significant for *Doing My Best*,  $F(1,484) = 28.01$ ,  $p < .001$ , partial  $\eta^2 = .06$ , and also significant for *Doing Just Enough*,  $F(1,484) = 8.73$ ,  $p < .01$ , partial  $\eta^2 = .02$  (see Figures 34 and 35).

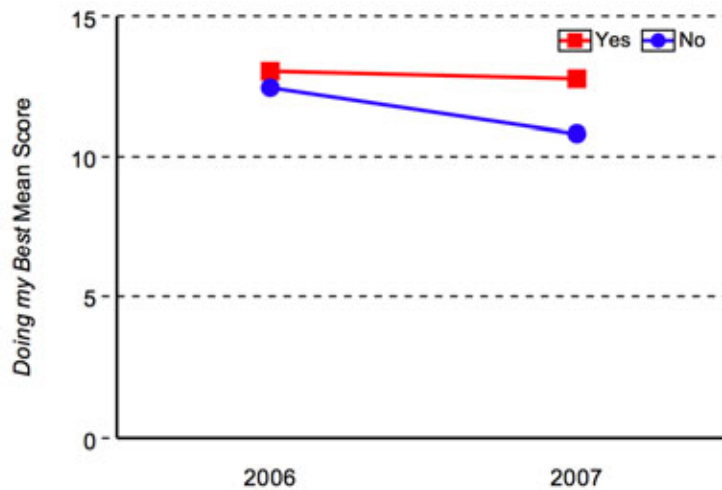
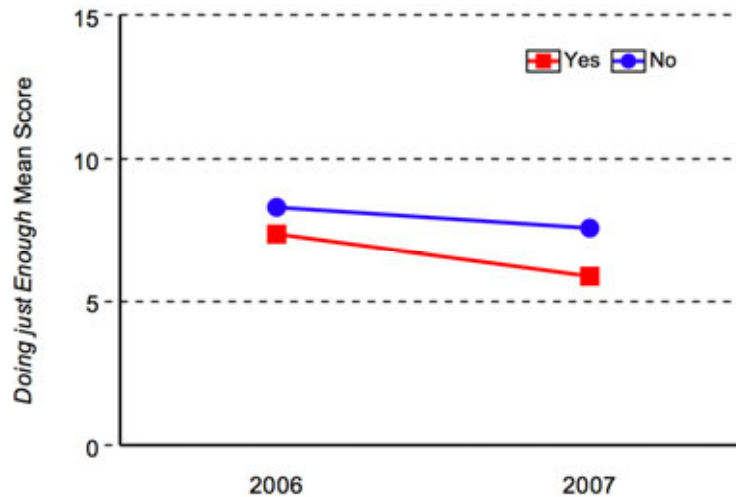


Figure 34: *Doing My Best* across 2006-2007 by awareness of the endorsements for high-achieving group





**Figure 35: *Doing Just Enough* across years by awareness of the endorsements for high-achieving group**

Mid-way through 2007, NZQA introduced certificate endorsements of Merit or Excellence for each of the three levels of NCEA certificates to recognise further high levels of student achievement.<sup>21</sup> Recognition was intended to increase student motivation for those who had reported they were not challenged by the current 80 credit level—an experience reported by students in our earlier reports (Meyer et al., 2006; 2007). Thus, surveys in 2007 and 2008 also incorporated items to assess the impact of the endorsements.

To summarise, knowledge of the endorsements was generally associated with more positive motivation orientations across the two years, before the endorsements (2006) and after announcement of the endorsements (2007 and again in 2008), for all students. Clearly, students who attained the highest number of total credits showed the most positive motivation across the two years. However, students in the lowest group in terms of total credits also benefited, with their motivation orientations *Doing My Best* staying higher and *Doing Just Enough* actually becoming less negative for students reporting that they knew about the endorsements.

### **Impact of activities outside school on student motivation and achievement**

In all, between 3,500 and 3,642 of the total sample 2007 of 3,856 students answered the five questions regarding time spent in activities outside of school. From the total 2008 sample of 5,369 students, between 4,881 and 5,099 answered each of the five questions regarding time spent outside of school. As we reported in 2007, nearly half of students reported working part time, and we found high percentages of students engaged in sport and child care as well (see table 14). Notably, the percentages of students participating in activities outside of school are very similar across 2007 and 2008.

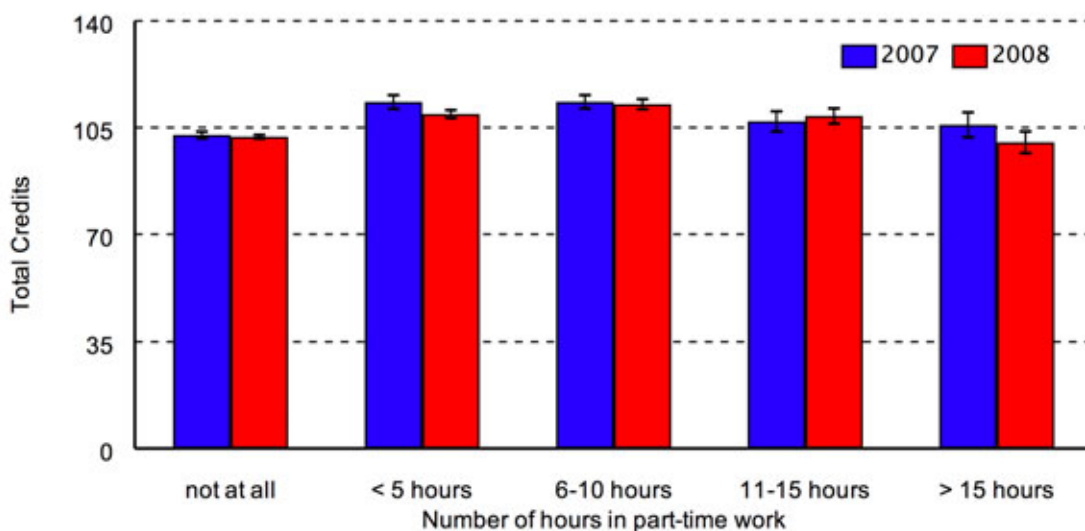
<sup>21</sup> Certificates are awarded with Excellence for students who achieve fifty credits or more Excellence credits and certificates are awarded with Merit for students who achieve fifty or more credits with Merit (or a combination of Merit and Excellence).

**Table 14: Percentages of students participating in activities outside school<sup>a</sup>**

Activity	Not at all	5 or less	6-10 hours	11-15 hours	15+ hours
Part-time work 07	53	20	16	6	5
Part-time work 08	60	20	12	5	3
Sport 07	27	38	20	7.5	7.5
Sport 08	27	39	20	8	6
Child care 07	52	33	8	2.5	4.5
Child care 08	53	32	8	3	4
Tutorials 07	74	22	2.5	.5	1
Tutorial 08	73	23	3	.5	.5
Other 07	51	34	9	3	3
Other 08	51	33	10	3	3

<sup>a</sup> Percentages are calculated based on those who answered these questions

A series of ANOVAs were conducted to explore whether for each activity there was a significant effect of hours worked on achievement at school for both 2007 and 2008 samples. There was a significant effect of part-time work on total credits attained in both 2007 and 2008 (Table 15, see also Figure 36). Thus, we were interested in whether or not student motivation varied for students who worked different hours depending on their age, ethnicity, or school decile zone. Post hoc tests showed that those in 2007 who did not work achieved significantly fewer total credits than those who worked between 5-10 hours. None of the other groups scored significantly differently to each other. Analyses of the 2008 student data revealed that those who reported they did not work at all achieved fewer credits than those who worked between 5-10 hours. Those who worked more than 15 hours achieved fewer credits than those who worked between 6-10 hours. There were no other significant differences between students.



**Figure 36: Time spent in part-time work 2007-2008 and total credits attained**

**Table 15: Results of ANOVA for each activity outside of school**

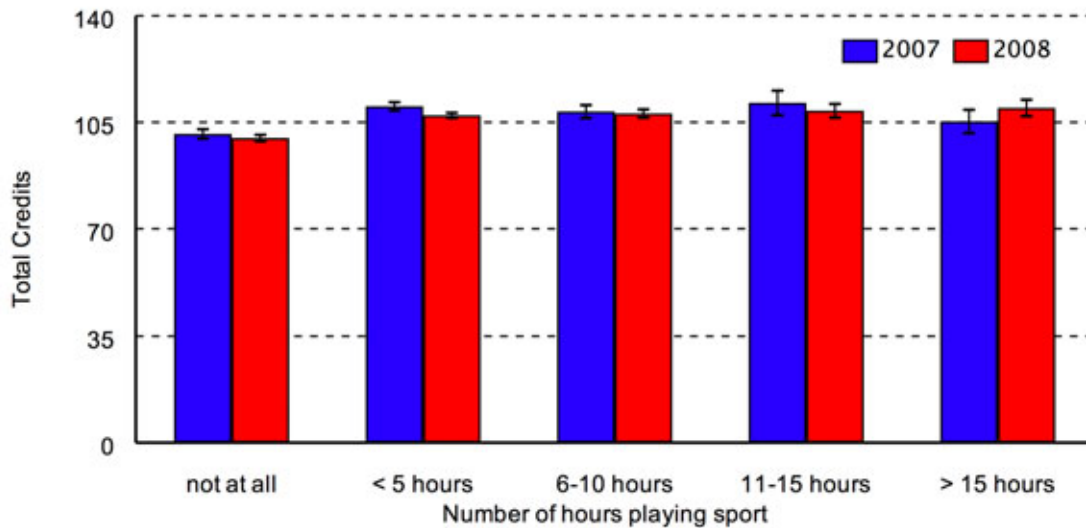
Activity	Df	F	P	Partial $\eta^2$
Part-time work 07	4, 1615	4.71	.001	.01
Part-time work 08	4,2336	7.24	<.001	.01
Sport 07	4, 1629	3.20	.013	.01
Sport 08	4,2384	5.10	<.001	.01
Child care 07	4, 1602	6.89	.001	.02
Child care 08	4,2295	2.06	.08	<.01
Tutorials 07	4, 1569	1.19	.312	.01
Tutorials 08	4,2290	2.56	.04	<.01
Other 07	4, 1608	2.28	.058	.01
Other 08	4,2317	6.53	<.001	.01

To investigate whether hours worked interacted with gender, ethnicity, or decile to impact upon how motivated they were, we conducted a series of ANOVAs where the screening tool (*Doing My Best* and *Doing Just Enough*, linearly combined) was used as the dependent variable. Our particular focus was on the interaction terms, thus those are reported here. The interactions between student ethnicity and hours worked in a part-time job,  $F(12, 1539) = .92, p = .53$ , partial  $\eta^2 < .01$ , between school decile and hours worked in a part-time job,  $F(8, 3561) = 1.16, p = .32$ , partial  $\eta^2 < .01$ , for 2007 did not reach significance. The interaction between gender and hours worked in a part-time job,  $F(4, 3561) = 2.67, p \leq .05$ , partial  $\eta^2 < .01$  was significant. There was a trend whereby males were less motivated than females in each group, except those that worked between 11-15 hours; however, the size of this interaction is very small.

For analyses of the student data reported in 2008, the interactions between student ethnicity and hours worked in a part-time job,  $F(16, 2375) = .88, p = .59$ , partial  $\eta^2 < .01$ , between school decile and hours worked in a part-time job,  $F(8, 4843) = .69, p = .71$ , partial  $\eta^2 < .01$ , for 2007, and between gender and hours worked in a part-time job,  $F(4, 4841) = .66, p = .62$ , partial  $\eta^2 < .01$  did not reach significance.

We also explored whether hours worked interacted with gender, ethnicity, or school decile to impact achievement as measured by total credits. Our particular focus was on the interaction terms, thus those are reported here. The interactions between student ethnicity and hours worked in a part-time job,  $F(12, 1534) = 1.27, p = .23$ , partial  $\eta^2 = .01$ , between school decile and hours worked in a part-time job,  $F(8, 1605) = 1.64, p = .11$ , partial  $\eta^2 < .01$ , and gender and hours worked in a part-time job,  $F(4, 1609) = 2.07, p = .08$ , partial  $\eta^2 < .01$ , did not reach significance. Similarly, for the 2008 data, interactions between student ethnicity and hours worked in a part-time job,  $F(16, 2310) = .53, p = .94$ , partial  $\eta^2 < .01$ , between school decile and hours worked in a part-time job,  $F(8, 2321) = 1.25, p = .26$ , partial  $\eta^2 < .01$ , and gender and hours worked in a part-time job,  $F(4, 2322) = 1.02, p = .39$ , partial  $\eta^2 < .01$ , did not reach significance.

There was a significant effect of sport played on achievement during both 2007 and 2008 (Figure 37). Post hoc tests showed that those who did not play sport in 2007 achieved significantly fewer total credits than those who played up to five hours of sport ( $p < .05$ ). None of the other groups scored significantly differently to each other. Regarding the 2008 findings, those who reported that they did not play sport at all achieved fewer credits than those who played sport for up to 15 hours ( $p < .05$ ). There were no other significant differences.



**Figure 37: Time spent in sport 2007-2008 and total credits attained**

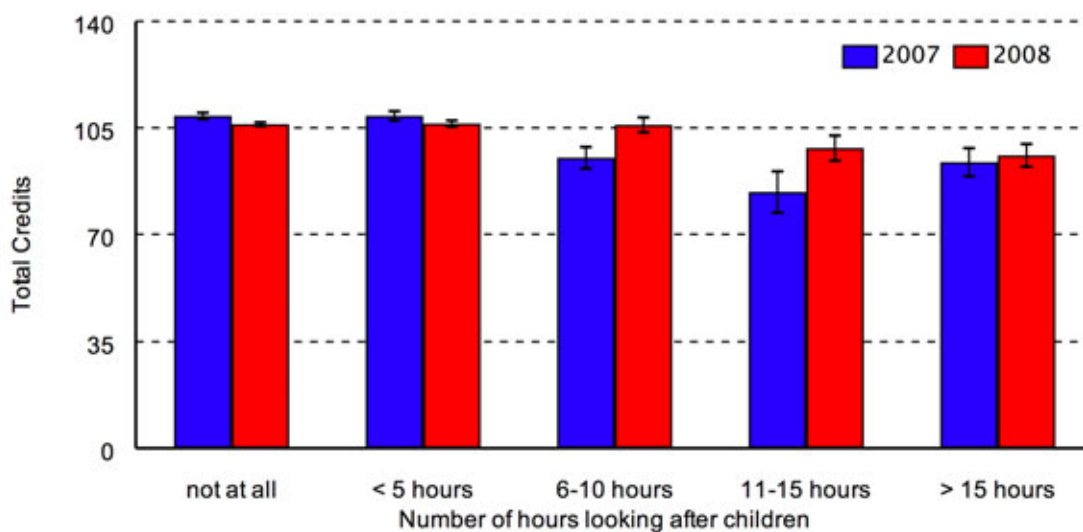
We explored whether hours spent playing sport interacted with gender, ethnicity, or school decile to impact upon how motivated they were, we conducted a series of ANOVAs where the screening tool (*Doing My Best* and *Doing Just Enough* linearly combined)<sup>22</sup> was used as the dependent variable. The interactions between student ethnicity and playing sport,  $F(12, 1551) = 1.10, p = .36$ , partial  $\eta^2 < .01$ , between school decile and hours playing sport,  $F(8, 3626) = .31, p = .96$ , partial  $\eta^2 < .01$ , and gender and hours playing sport,  $F(4, 3626) = 1.81, p = .13$ , partial  $\eta^2 < .01$  did not reach significance. Similarly, during 2008, the interactions between student ethnicity and playing sport,  $F(16, 2424) = 1.43, p = .12$ , partial  $\eta^2 < .01$ , between school decile and hours playing sport,  $F(8, 5011) = 1.74, p = .09$ , partial  $\eta^2 < .01$ , and gender and hours playing sport,  $F(4, 5009) = 1.75, p = .14$ , partial  $\eta^2 < .01$  did not reach significance.

We explored whether the hours students played sport interacted with gender, ethnicity, or school decile to impact achievement at school, as measured by total credits. The interactions between student ethnicity and playing sport,  $F(12, 1546) = 1.11, p = .34$ , partial  $\eta^2 < .01$ , between school decile and playing sport,  $F(8, 1619) = .46, p = .89$ , partial  $\eta^2 < .01$ , and gender and playing sport,  $F(4, 1623) = 1.29, p = .27$ , partial  $\eta^2 < .01$ , did not reach significance. Similarly, for 2008, the interactions between student ethnicity and playing sport,  $F(16, 2359) = .98, p = .48$ , partial  $\eta^2 < .01$ , between school decile and playing sport,  $F(8, 2370) = .72, p = .68$ , partial  $\eta^2 < .01$ , and gender and playing sport,  $F(4, 2371) = 1.09, p = .36$ , partial  $\eta^2 < .01$ , did not reach significance.

There was a significant effect of looking after children on achievement during 2007 but not 2008 (Figure 38). Post hoc tests showed that those who did not care for other children during 2007 achieved significantly more total credits than those who spent more than 5 hours caring for other children ( $p < .05$ ). Those who spent less than 5 hours caring for children during 2007 achieved significantly more credits

<sup>22</sup> This refers to the combined motivation scale, where *Doing My Best* and *Doing Just Enough* scores are summed after *Doing Just Enough* scores are reversed scored. A higher score represents a more adaptive motivation orientation.

than those who spent between 6-15 hours ( $p < .05^{23}$ ). None of the other differences reached statistical significance.



**Figure 38: Time spent looking after children 2007-2008 and total credits attained**

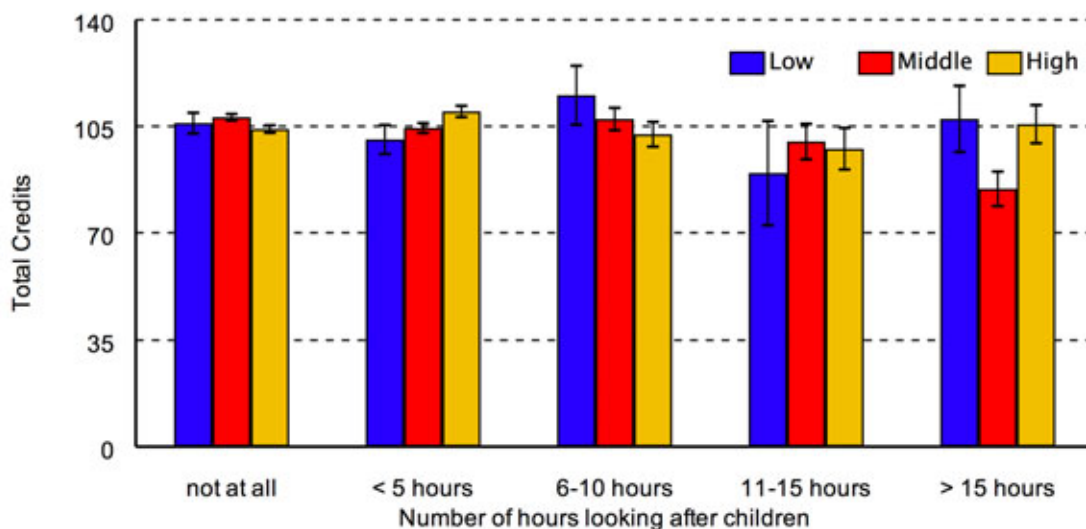
Post hoc tests based on the 2007 data revealed major differences in which students were spending six or more hours caring for children in the family during. Based on Year 11 students reports in 2007 only, we found:

- a higher proportion from low decile schools reporting they were engaged in childcare (23% in comparison to being 16% of the total sample)
- a lower proportion from high decile schools reporting they were engaged in childcare (13.5% in comparison to being 27% of the total sample)
- a lower proportion of European students compared to other groups (9% in comparison to being 63% of the total sample)
- a higher proportion of Māori (22%) and Pacific (44.5%) compared to other groups of students (in comparison to each being approximately 10% of the total Year 11 sample).

We explored whether the hours students spent looking after children interacted with gender, ethnicity, or decile to impact upon how motivated they were, we conducted a series of ANOVAs where the screening tool (*Doing My Best* and *Doing Just Enough* linearly combined) was used as the dependent variable. The interactions between student ethnicity and looking after children,  $F(12, 1527) = .43$ ,  $p = .95$ , partial  $\eta^2 < .01$ , between school decile and hours looking after children,  $F(8, 3555) = .93$ ,  $p = .49$ , partial  $\eta^2 < .01$ , and gender and hours looking after children,  $F(4, 3555) = .58$ ,  $p = .68$ , partial  $\eta^2 < .01$  did not reach significance using the 2007 data. Regarding the 2008 data The interactions between student ethnicity and looking after children,  $F(16, 2338) = .29$ ,  $p = .99$ , partial  $\eta^2 < .01$ , between school decile and hours looking after children,  $F(8, 4797) = .86$ ,  $p = .55$ , partial  $\eta^2 < .01$ , and gender and hours looking after children,  $F(4, 4794) = .67$ ,  $p = .61$ , partial  $\eta^2 < .01$  did not reach significance.

<sup>23</sup> Note the significance level for more than 15 hours or as marginal,  $p = .057$ .

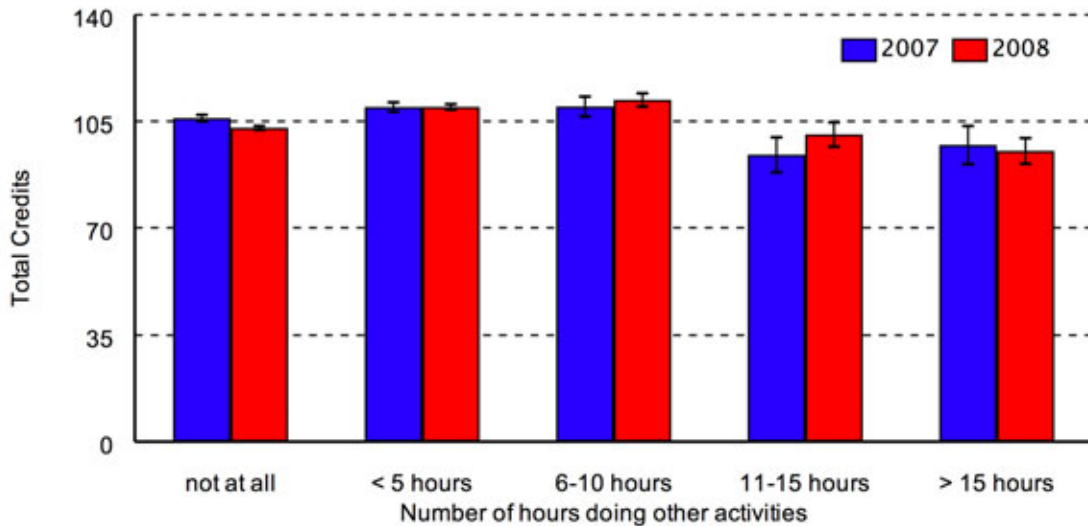
We explored whether the hours students spent looking after children interacted with gender, ethnicity, or decile to impact achievement at school, as measured by total credits. The interactions between student ethnicity and looking after children,  $F(12, 1522) = .76, p = .69, \text{partial } \eta^2 < .01$ , school decile and looking after children,  $F(8, 1592) = .82, p = .58, \text{partial } \eta^2 < .01$ , and between gender and looking after children,  $F(4, 1596) = 2.06, p = .08, \text{partial } \eta^2 < .01$ , did not reach significance with the 2007 data. Regarding the 2008 data, the interactions between student ethnicity and looking after children,  $F(16, 2274) = .71, p = .78, \text{partial } \eta^2 < .01$ , and between gender and looking after children,  $F(4, 2286) = .81, p = .52, \text{partial } \eta^2 < .01$ , did not reach significance. The interaction between school decile and looking after children, was marginal  $F(8, 2285) = 1.94, p = .05, \text{partial } \eta^2 = .01$ . A trend emerged whereby from students who reported childcare for more than 15 hours, middle decile students achieved fewer credits than both low and high decile students.



**Figure 39: Time spent looking after children 2007-2008 and total credits attained by school decile**

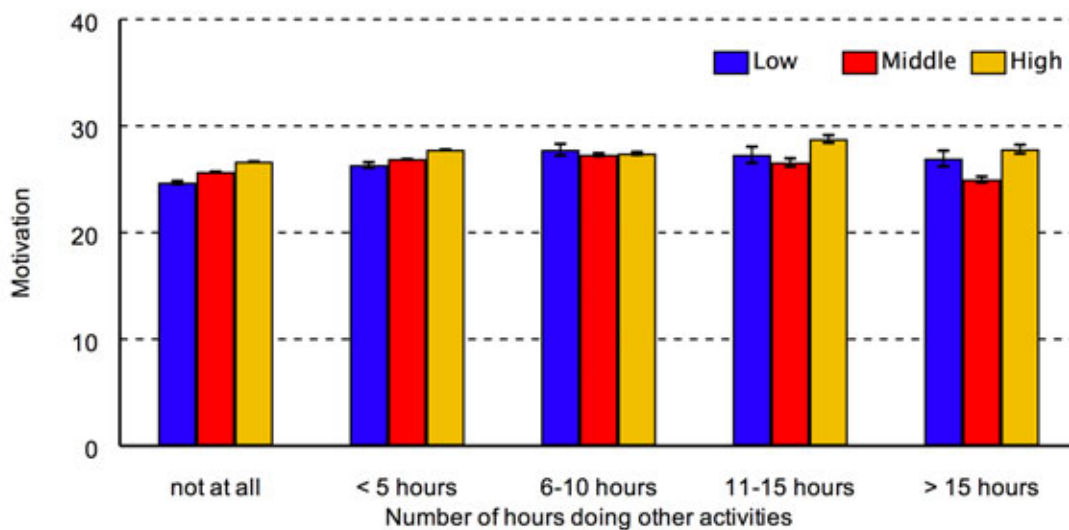
The effect of “Other” activities on achievement did not reach statistical significance (Figure 40) during 2007. There was a significant effect of ‘other’ activities on achievement during 2008. Those who reported no involvement in “other activities” achieved fewer credits than those who engaged in other activities between 5-10 hours. There was also a significant difference between students who engaged in other activities during 2008 for more than 15 hours and those that engaged between 5-10 hours. Students who reported they engaged in other activities between 5-10 hours achieved more credits.





**Figure 40: Time spent in other activities 2007-2008 and total credits attained**

Figures 41 and 42 highlight results regarding the interactions of hours students spent in other activities by gender and school decile in relationship to their motivation scores. We conducted a series of ANOVAs where the screening tool (*Doing My Best* and *Doing Just Enough* linearly combined) was used as the dependent variable. The interactions between student ethnicity and other activities,  $F(12, 1532) = 1.12, p = .34, \text{partial } \eta^2 < .01$ , between school decile and other activities,  $F(8, 3547) = 1.13, p = .34, \text{partial } \eta^2 < .01$ , and gender and hours spent in other activities,  $F(4, 3547) = 1.38, p = .24, \text{partial } \eta^2 < .01$  did not reach significance using the 2007 data. Regarding the 2008 data, the interaction between student ethnicity and other activities,  $F(16, 2361) = 1.18, p = .28, \text{partial } \eta^2 < .01$ , did not reach significance. The interactions between school decile and other activities,  $F(8, 4841) = 3.19, p = .001, \text{partial } \eta^2 = .01$ , and gender and hours spent in other activities,  $F(4, 4838) = 3.52, p = .01, \text{partial } \eta^2 < .01$  were significant. A trend emerged whereby students from middle decile schools were less motivated than low and high decile students if they participated in other activities for more than 15 hours. In addition, a trend emerged whereby as participation in “other activities” increased for males, the less motivated they were compared to females.



**Figure 41: Time spent in other activities 2007-2008 and motivation by school decile**

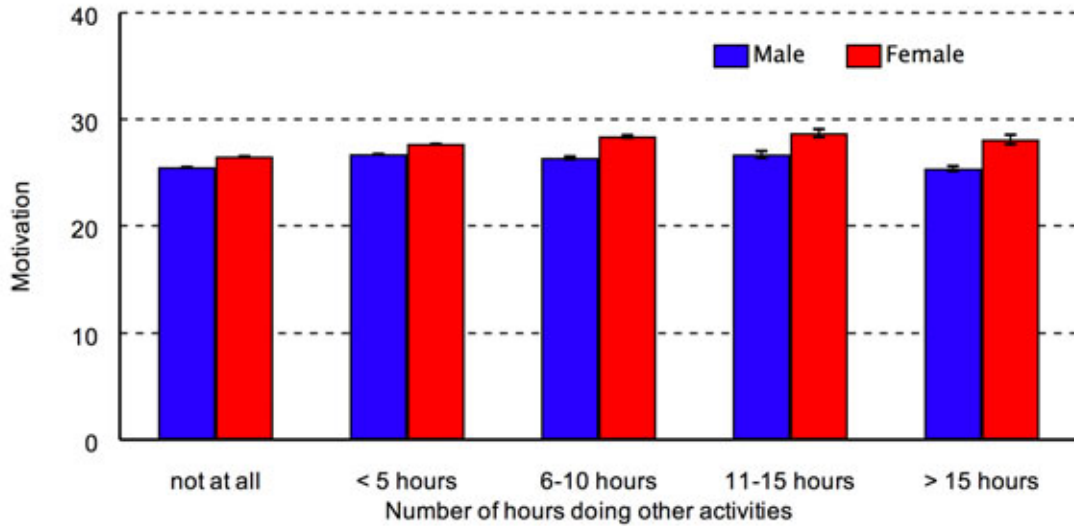


Figure 42: Time spent in other activities 2007-2008 and motivation by gender

We explored whether the hours students spent in other activities interacted with gender, ethnicity, or decile to impact achievement at school, as measured by total credits (see Figure 43). The interactions between student ethnicity and other activities,  $F(12, 1527) = 1.10, p = .36, \text{partial } \eta^2 < .01$ , between school decile and other activities,  $F(8, 1598) = .13, p = .99, \text{partial } \eta^2 < .01$ , and between gender and other activities,  $F(4, 1602) = 2.04, p = .09, \text{partial } \eta^2 < .01$ , did not reach significance. Regarding the 2008 data, the interactions between student ethnicity and other activities,  $F(16, 2296) = 1.28, p = .20, \text{partial } \eta^2 < .01$ , between school decile and other activities,  $F(8, 2307) = .75, p = .65, \text{partial } \eta^2 < .01$ , and between gender and other activities,  $F(4, 2308) = .48, p = .75, \text{partial } \eta^2 < .01$ , did not reach significance. There was no effect of reported participation in paid tutorials on achievement during 2007. The effect was significant during 2008. The one significant difference in 2008 was that students who reported no involvement in paid tutorials achieved fewer credits than those involved for up to 5 hours weekly.

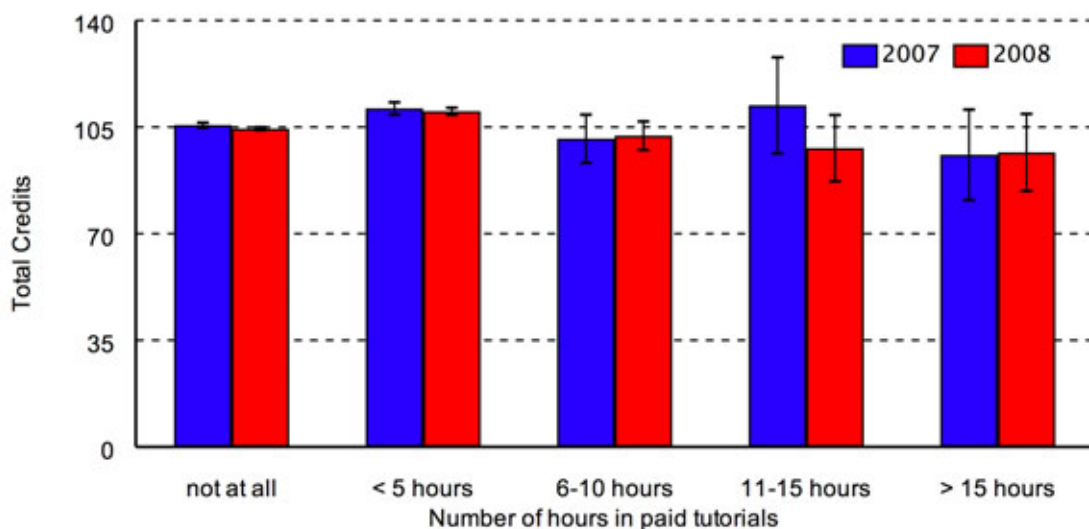


Figure 43: Time spent in tutorials 2007-2008 and total credits attained



To explore whether the hours students spent in paid tutorials interacted with gender, ethnicity, or decile to impact upon how motivated they were, we conducted a series of ANOVAs where the screening tool (*Doing My Best* and *Doing Just Enough* linearly combined) was used as the dependent variable. The interactions between student ethnicity and paid tutorials,  $F(11, 1496) = .90, p = .54$ , partial  $\eta^2 < .01$ , between school decile and paid tutorials,  $F(7, 3485) = .79, p = .60$ , partial  $\eta^2 < .01$ , and gender and hours in paid tutorials,  $F(4, 3484) = .21, p = .93$ , partial  $\eta^2 < .01$ , did not reach significance. Regarding the 2008 data, the interactions between student ethnicity and paid tutorials,  $F(14, 2332) = 1.31, p = .20$ , partial  $\eta^2 < .01$ , and between school decile and paid tutorials,  $F(8, 4798) = .54, p = .83$ , partial  $\eta^2 < .01$  were not significant.

The interaction between gender and hours in paid tutorials,  $F(4, 4796) = 2.80, p = .03$ , partial  $\eta^2 < .01$ , reached significance. A trend emerged whereby as the number of hours spent in paid tutorials for males increased, their motivation was lower than was the case for females (see Figure 44).

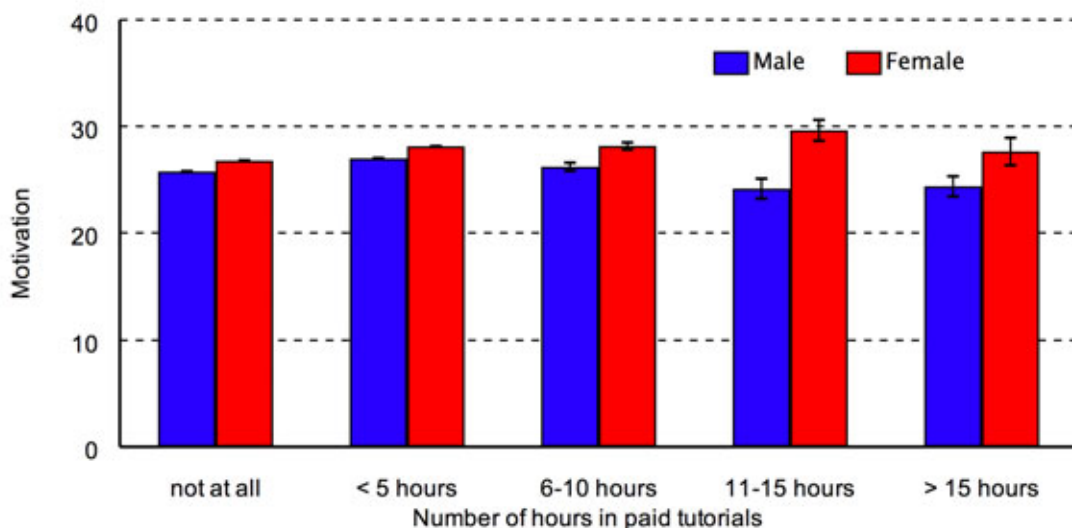


Figure 44: Time spent in tutorials 2007-2008 and motivation by gender

We explored whether the hours students spent in paid tutorials interacted with gender, ethnicity, or decile to impact achievement at school, as measured by total credits attained. The interactions between student ethnicity and paid tutorials,  $F(14, 2271) = .86, p = .61$ , partial  $\eta^2 < .01$ , and gender and paid tutorials,  $F(4, 2281) = 1.44, p = .22$ , partial  $\eta^2 < .01$ , did not reach significance. The interaction between school decile and participation in paid tutorials could not be tested as there were no students from low decile schools who reported being involved in paid tutorials between 11-15 hours weekly.

### Motivation orientation subscales

As noted in our previous report, the motivation orientation subscales for *Doing My Best* and *Doing Just Enough* were significantly associated with achievement for students overall but not as strongly related for some subgroups of students. Hence, our revised surveys in 2007-2008 incorporated four items each to test influences of teacher affiliation and peer affiliation subscales that might be strongly related to student motivation and achievement on the NCEA as well. Based on

the 2007 results in relationship to achievement outcomes, we then incorporated the strongest performing items for each of the affiliation subscales into the final screening measure used in 2008.

Student responses to the full set of 16 motivation-related items in the 2007 and 2008 versions of the motivational orientation survey were subjected to exploratory factor analysis. This factor analysis was done to ascertain the degree to which the new teacher and peer affiliation items would load on factors that were psychometrically discriminable from the two established factors and from each other. The analysis revealed that some of the new items were more closely related to the two previously established motivational factors, so two further analyses were undertaken to reveal the relationships between the items of the new subscales, separately. The first (unrotated) principal component for each subscale indicated that there were two central items loading best on each of the factors. The other two items were therefore removed from each subscale and the remaining 12 items (four *Doing My Best* items, four *Doing Just Enough* items, two items on teacher affiliation as part of the learning process, and two items on peer affiliation as part of the learning process) were subjected to a four-factor analysis, which revealed a clear four-factor structure.

The alpha reliabilities of the two four-item subscales were acceptable, (*Doing My Best* = .82, *Doing Just Enough* = .72), that of the two-item Teacher Affiliation scale was marginal, (.66) but that of the two-item Peer Affiliation was inadequate, (.49). The results of the subsequent analyses employing the new subscales with revised items were used to make final revisions to the 2008 measure.

In 2008, survey results for the total sample of 5,369 students were analysed using Confirmatory Factor Analyses with confirmation of the four factors—*Doing My Best*, *Doing Just Enough*, *Teacher Affiliation* and *Peer Affiliation*. These factors and items loading on the four factors performed well statistically (more details are available from the authors regarding these tests). The factor analyses also revealed no relationship between the factor *Doing Just Enough* and *Peer Affiliation*; a positive correlation between the factors *Doing My Best* and *Teacher Affiliation* and a negative correlation between the factors *Doing my Best* and *Doing Just Enough* and between *Doing Just Enough* and *Teacher Affiliation*. Relationships between the factors *Teacher Affiliation* and *Peer Affiliation* and between the factors *Doing My Best* and *Peer Affiliation* were significant but not as high. None of these correlations was sufficiently high to suggest that the two factors being correlated were actually one dimension.

### **Gender differences on teacher and student affiliation subscales**

Results from a 2 way MANOVA illustrate that there are only small differences between males and females on the subscales assessing affiliation with teachers and peers. A significant effect was evident for teachers, whereby males ( $M = 5.74$ ,  $S.D. = 1.52$ ) reported less affiliation with their teachers than females ( $M = 6.02$ ,  $S.D. = 1.46$ ;  $F(1, 3841) = 34.28$ ,  $p < .001$ , partial  $\eta^2 < .01$ ). Results for peer affiliation were slightly lower for males ( $M = 5.30$ ,  $S.D. = 1.33$ ) than females ( $M = 5.42$ ,  $S.D. = 1.28$ ;  $F(1, 3841) = 8.20$ ,  $p < .01$ , partial  $\eta^2 < .01$ ). The size of these effects was small.

## Ethnic differences on teacher and peer affiliation subscales

We also explored the effect of ethnicity on ratings of teacher and peer affiliation (see Figure 45). Students of different ethnic groups did not report different levels of teacher affiliation,  $F(3, 1678) = 1.59, p = .19, \text{partial } \eta^2 < .01$ , but there was a significant effect of ethnicity on the peer affiliation measure,  $F(3, 1678) = 22.85, p < .001, \text{partial } \eta^2 = .04$ .

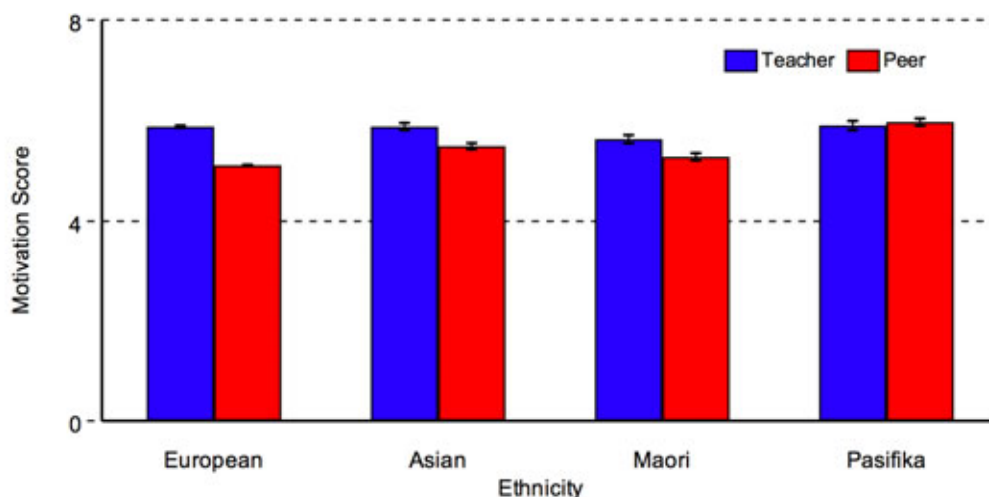


Figure 45: Ratings on the Peer and Teacher Affiliation subscales by ethnicity

### Relationships among motivation orientations

Using the 2008 revised subscales for relationships with teachers and peers, we found a moderate relationship whereby students who reported higher *Doing My Best* orientations were more likely to report that their teachers were interested in them and cared about how well they did in school; this was less so on the peer affiliation subscale. Students who were more inclined towards *Doing Just Enough* were more likely to report that their teachers were not interested in them and their learning. The concurrent relationship between *Doing My Best* and *Doing Just Enough* remained consistent with previous data (see Table 16).

Table 16: Relationships among motivational measures 2008

	<i>Doing My Best</i>	<i>Doing Just Enough</i>	Teacher Affiliation
<i>Doing Just Enough</i>	-.45*		
Teacher Affiliation	.48*	-.24*	
Peer Affiliation	.18*	.04	.29***

\* $p < .001$

Again using the 2008 revised scale items, a slightly stronger relationship was found between whether students believed their teachers were interested in their learning and their actual NCEA achievement. Although many of these results were significant, the correlations are not high. Table 17 shows that there was no relationship between student peer affiliation (such as whether they preferred working in groups or by themselves) and their achievement.

**Table 17: The relationships between motivation in 2008 and achievement in 2008**

	<i>Teachers</i>	<i>Peers</i>
Total credits	.18*	-.03
Total unit standard credits	.09	-.04
Internal – NA	-.19*	-.03
Internal – ACH	-.06	.10*
Internal – MER	.12*	.04
Internal – EXC	.20*	-.08
External – NA	-.11*	.05
External – ACH	.06	-.02
External – MER	.15*	-.08
External – EXC	.12*	-.07

Note: \* =  $p < .001$ . .Sample sizes differ across achievement measures.

Regression analyses were also performed to examine whether all four motivation orientations when included together in a model were related to achievement for students in different ethnic groups. The number of total credits was used as the dependent variable (see Table 18).

**Table 18: Effects of subscales by ethnicity on total credits**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>	<i>Peer Affiliation</i>	<i>Teacher Affiliation</i>	$R^2$
European 07	.15***	-.31***	-.07*	.01	.17
Asian 07	-.02	-.39***	-.06	-.03	.15
Māori 07	.14**	-.31***	-.06	.18*	.23
Pacific 07	.25**	-.33***	.06	.02	.17
European 08	.09**	-.22***	-.07**	.11***	.12
Asian 08	.07	-.18***	-.13***	.10~	.07
Māori 08	-.02	-.32***	.02	.05	.10
Pacific 08	.14	-.29***	.05	.25***	.23

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

For all ethnic groups, the motivation *Doing Just Enough* shows the strongest relationship with the number of total credits.

As in our previous reports, *Doing My Best* and *Doing Just Enough* show the strongest relationship with achievement, and these relationships are evident for different ethnic groups. The Peer Affiliation and Teacher Affiliation item subscales do not show a relationship to total credits attained with one notable exception: Affiliation with the teacher was correlated with total credits for Māori students. The Peer Affiliation subscale is negatively correlated for European students, but the size of this effect is very small.

### ***Do these motivation orientations predict achievement differently for males and females?***

An analysis by gender revealed that the *Doing Just Enough* motivation was most strongly negatively related to credits attained for both boys and girls across both 2007 and 2008. The relationship between the *Doing My Best* motivation and achievement was also significant during 2007, though the effect sizes were

smaller. For girls only, there were significant relationships between both the Peer Affiliation (negative) and Teacher Affiliation (positive) subscales during 2007; however, these effects were small (see Table 19). During 2008 there was a small, but significant relationship between teacher affiliation and achievement.

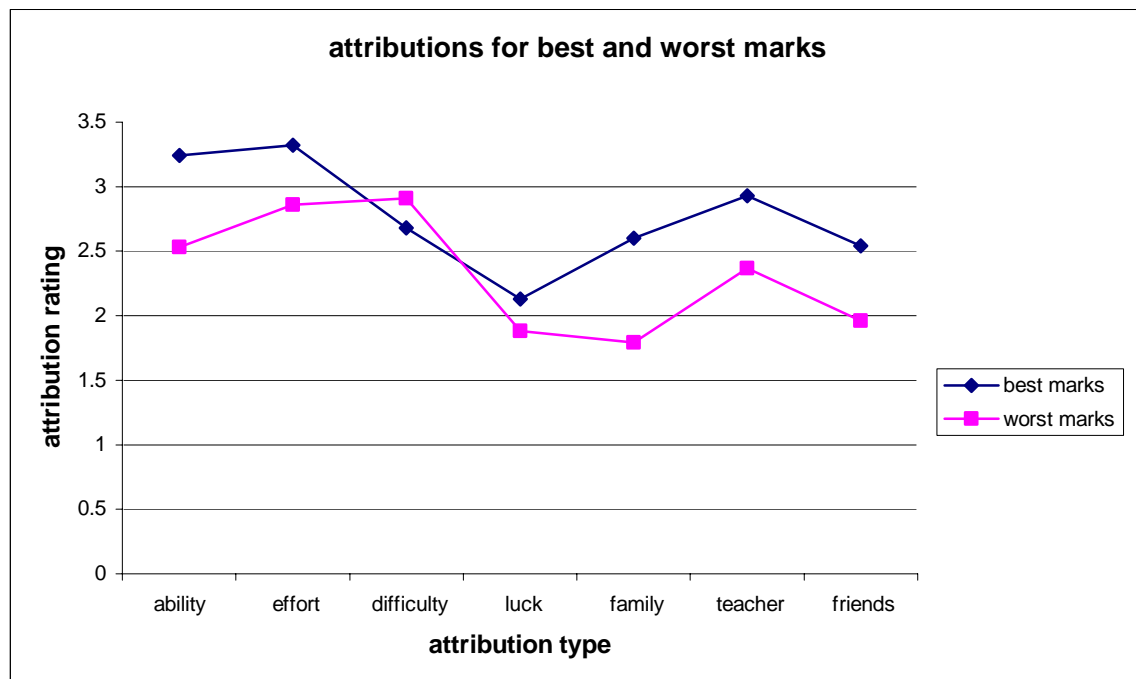
**Table 19: Effects of subscales by gender on total credits**

	<i>Doing My Best</i>	<i>Doing Just Enough</i>	Peer Affiliation	Teacher Affiliation	<i>R</i> <sup>2</sup>
Males 07	.09*	-.32***	-.06	.01	.14
Females 07	.12***	-.39***	-.07*	.09**	.23
Males 08	.07~	-.22***	-.07*	.12***	.11
Females 08	.06	-.24***	-.05	.07*	.09

\*  $p < .05$       \*\*  $p < .01$       \*\*\*  $p < .001$

### Students' attributions for assessment results

In the final section of the survey, students rated the extent to which seven different causal attributions influenced their best marks and their lowest marks in any subject. The seven factors were: ability, effort, task difficulty, luck, family/whānau, teachers and their friends. The 2008 mean ratings of each attribution of students in Years 10-11 are shown in Figure 46. Averaged across the best and worst marks, the four most highly ranked attributions were effort, ability, assessment difficulty and the teacher, respectively.



**Figure 46: Students' attributions for their own best and worst marks in 2008 (range 1-4)**

### **Attributions for best and worst marks in 2008**

The attributions were analysed with a repeated measures 2 (Outcome: best mark, worst mark) by 7 (attribution: ability, effort, difficulty, luck, family/whanau, teachers, friends) analysis of variance. Overall, these causes were rated higher for their best marks than their worst marks,  $F(1, 5234) = 2898.61, p < .001, \eta^2 = .36$ , but the results show an outcome by attribution interaction,  $F(6, 5233) = 612.77, p < .001, \eta^2 = .10$ . This interaction occurred because although students rated most causes, such as ability, effort and teacher, higher as explanations for their best marks than their worst marks, they rated one external cause, difficulty, higher for their worst marks than their best marks. As with the 2008 sample, and consistent with previous research with a similar sample (Meyer et al., 2007), students rated the role of luck higher for their best performance than for their worst performance.

Gender was also found to have a significant influence on student attributions for their best and worst marks. Attributions classified by gender are shown in Table 20 (see also Figure 45).

**Table 20: Male and female students' attribution ratings for their best and worst marks in 2008 (Range 1-4)**

		<b>Male Ratings</b>	<b>Female Ratings</b>
Best mark	Ability	3.23	3.24
	My effort	<b>3.22</b>	<b>3.41*</b>
	Difficulty of assessment	2.69	2.67
	Luck (good or bad)	2.17	2.09
	My family/whānau	2.56	2.64
	The teacher	<b>2.88</b>	<b>2.97*</b>
	My friends	2.45	2.63*
Worst mark	Ability	<b>2.41</b>	<b>2.64*</b>
	My effort	2.83	2.88
	Difficulty of assessment	<b>2.82</b>	<b>3.00*</b>
	Luck (good or bad)	<b>1.93</b>	<b>1.83*</b>
	My family/whānau	1.78	1.81
	The teacher	<b>2.31</b>	<b>2.42*</b>
	My friends	1.98	1.95

\* Indicates significant differences at  $p < .001$  level of significance

The impact of gender on attributions for best and worst marks was tested with a mixed design 2 (gender) by 2 (Outcome: best mark, worst mark) by 7 (attribution: ability, effort, difficulty, luck, family/whanau, teachers, friends) analysis of variance. In addition to the outcome by attribution interaction seen in the previous analysis, the results show an attribution by gender interaction,  $F(6, 5223) = 17.09, p < .001, \eta^2 = .003$ , and an outcome by attribution and gender interaction,  $F(5, 5223) = 50.66, p < .001, \eta^2 = .01$ . Consistent with previous findings on gender and attributions, female students attributed their best marks more to effort (an 'unstable' or changeable cause) than did male students, whereas they attributed their worst marks more to their lack of ability and assessment difficulty (relatively stable or unchangeable causes) than did male students. Female students also

attributed both their best and worst marks more to the teacher (a relatively unchangeable cause) than did male students, whereas males attributed their worst mark more to bad luck than did female students.

### **Attributions by ethnicity**

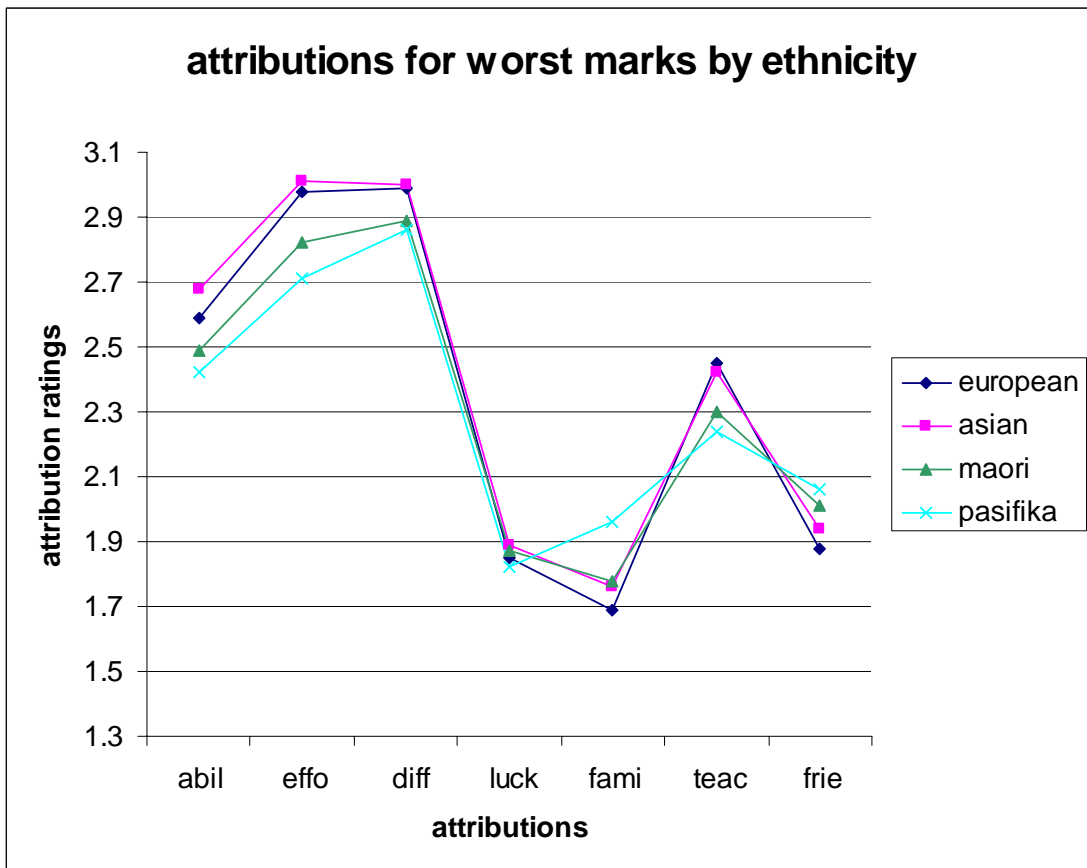
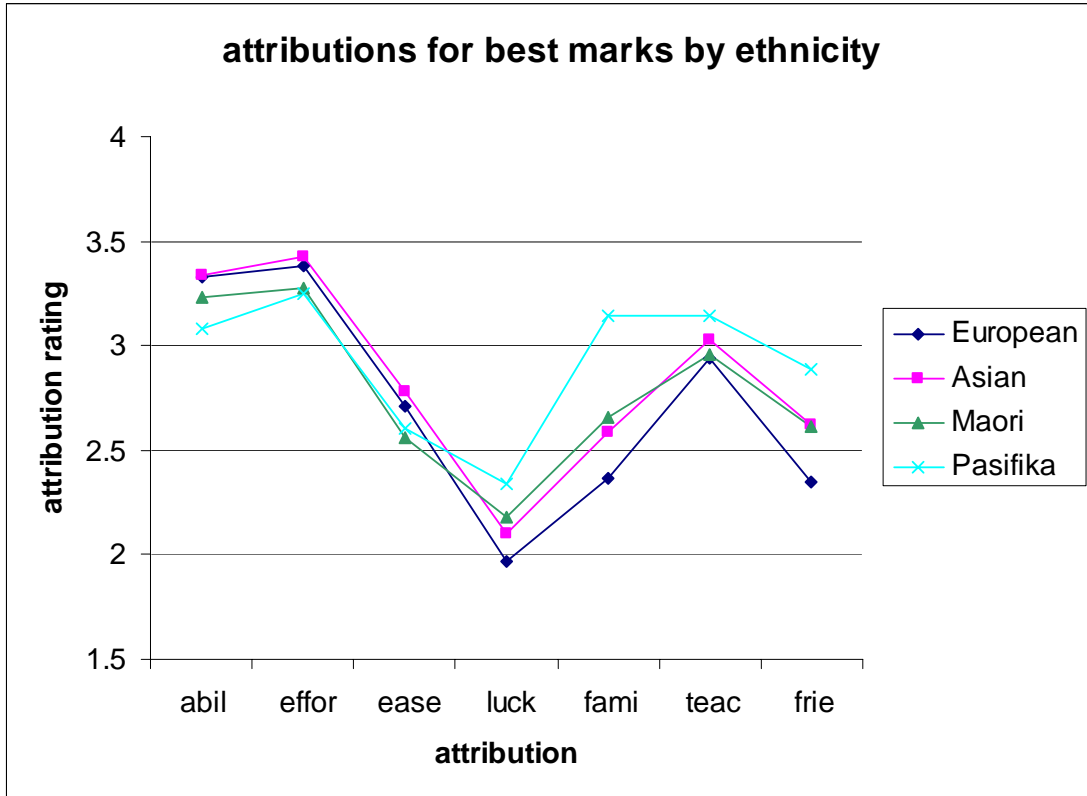
The attributions for different ethnic groups in 2008 are shown in Table 21 and Figures 47 and 48. The impact of ethnicity was tested with a mixed design 4 (ethnicity) by 2 (Outcome: best mark, worst mark) by 7 (attribution: ability, effort, difficulty, luck, family/whānau, teachers, friends) analysis of variance. In addition to the outcome by attribution interaction seen in the previous analyses, the results show an attribution by ethnicity interaction,  $F(36, 31,368) = 15.52, p < .001, \eta^2 = .02$ , and an attribution by outcome by ethnicity interaction  $F(30, 5205) = 2.64, p < .001, \eta^2 = .003$ .

The main differences are that Pacific students rated their family, teacher, luck and friends as more important factors in their best marks than did the other three ethnicities. Pacific and Māori students also attributed their best and worst marks less to ability and effort (both internal causes) and difficulty of assessment than did European and Asian students. The largest differences across ethnic groups were in terms of attributing their best marks to family (e.g., Pacific 3.14, European 2.37) and friends.

**Table 21: Attributions for Best and Worst Marks by Ethnicity in 2008 (Range 1-4)**

		<b>European</b>	<b>Asian</b>	<b>Māori</b>	<b>Pacific</b>
Best mark	Ability*	3.33	3.34	3.23	3.08
	My effort*	3.38	3.43	3.28	3.25
	Difficulty of assessment *	2.71	2.78	2.56	2.60
	Luck (good/bad)*	1.97	2.10	2.18	2.34
	Family/whānau*	2.37	2.59	2.66	3.14
	The teacher*	2.94	3.03	2.96	3.14
	My friends*	2.35	2.62	2.61	2.89
Worst mark	Ability*	2.59	2.68	2.49	2.42
	My effort*	2.98	3.01	2.82	2.71
	Difficulty of assessment*	2.99	3.00	2.89	2.86
	Luck (good/bad)	1.85	1.89	1.87	1.82
	Family/whānau*	1.69	1.76	1.78	1.96
	The teacher	2.45	2.42	2.30	2.24
	My friends	1.88	1.94	2.01	2.06

\* Indicates significant differences at  $p < .001$  level of significance



Figures 47-48: Attributions for Best and Worst Marks by Ethnicity, respectively.



### ***Relationship of attributions to motivation orientations***

Students who attributed their best marks to ability, effort, family/whānau and the teacher were more likely to exhibit a higher *Doing My Best* orientation and less likely to exhibit a *Doing Just Enough* orientation. Students who attributed their best marks to luck and their friends were less likely to exhibit a *Doing My Best* orientation, and more likely to exhibit a *Doing Just Enough* orientation (see Table 22).

**Table 22: Attributions for best marks by motivation and affiliations**

	<b>Ability</b>	<b>Effort</b>	<b>Easy</b>	<b>Luck</b>	<b>Family</b>	<b>Teacher</b>	<b>Friends</b>
Doing My Best	.36***	.36***	.00	-.12***	.14***	.25***	.04**
Doing Just Enough	-.23***	-.20***	.09***	.27***	.04**	-.13***	.13***
Teacher affiliation	.28***	.34***	.02	-.10***	.16***	.39***	.07***
Peer affiliation	.12***	.18***	.05**	.04**	.16***	.17***	.22***

\*\* p < .01, \*\*\* p < .001

Students' attributions for their worst marks bore weaker relations to their achievement orientations than their attributions for their best marks. However, doing just enough was related to their attributing their worst mark to bad luck, their family/whānau, and to their friends, all of which are relatively external causes (see Table 23).

**Table 23: Attributions for worst marks by motivation and affiliation.**

	<b>Ability</b>	<b>Effort</b>	<b>Hard</b>	<b>Luck</b>	<b>Family</b>	<b>Teacher</b>	<b>Friends</b>
Doing best	.00	.07***	.05**	-.08***	-.09***	.07***	-.06***
Just enough	-.01	-.11***	-.02	.13***	.17***	-.02	.13***
Teacher affiliation	.03*	.05***	.08***	-.09***	-.08***	.04**	-.03*
Peer affiliation	.08***	.01	.09***	.01	.01	.03*	.05**

\* p < .05, \*\* p < .01, \*\*\* p < .001

### ***Relationship of attributions to achievement outcomes***

Attributing one's best marks to the internal factors of ability and effort was associated with attaining more total achievement credits, more achievement credits with Merit and Excellence, and fewer total unit standard credits. Attributing one's best marks to good luck, family/whānau, and friends was associated with gaining more unit standard credits and fewer achievement standard credits, and fewer achievement standard credits with Merit and Excellence. Attributions to the task being easy and to the teacher were unrelated to achievement (see Table 24).

**Table 24: Relationship of attributions for best marks with NCEA achievement results.**

	<b>Ability</b>	<b>Effort</b>	<b>Easy</b>	<b>Luck</b>	<b>Family</b>	<b>Teacher</b>	<b>Friends</b>
Unit Standard Credits	-.16***	-.10***	.01	.17***	.07***	-.00	.07***
Total Credits	.13***	.18***	-.02	-.14**	-.09***	.08***	-.15***
Credits Merit	.13***	.15***	.02	-.15***	-.04	.02	-.11***
Credits Excellence	.16***	.20***	-.02	-.03	-.04	.06*	-.07*

**Table 25: Relationship of attributions for worst marks with NCEA achievement results.**

	<b>Ability</b>	<b>Effort</b>	<b>Hard</b>	<b>Luck</b>	<b>Family</b>	<b>Teacher</b>	<b>Friends</b>
Unit Standard Credits	-.05**	-.13***	-.07***	.06**	.09***	-.12***	.06**
Total Credits	.06**	.11***	.08***	-.06**	-.13***	.06**	-.10***
Credits Merit	.03	.09***	.05	-.06**	-.09***	.08**	-.11***
Credits Excellence	-.03	-.02	.01	.06*	-.05	.08**	-.08*

Attributing one's worst marks to bad luck, family/whānau, and friends was associated with gaining more unit standard credits and fewer achievement standard credits with Merit and Excellence. Attributing one's worst marks to ability, effort, the difficulty of the assessment and the teacher was associated with attaining more achievement credits and fewer unit standard credits.

Regressions were performed where the four motivation orientations and the students' attributions for their best and worst marks were entered as predictors of grades. The results showed that *Doing My Best* orientation (related positively) and the *Doing Just Enough* (related negatively) were the strongest predictors of attaining standards with Merit and Excellence, whereas *Doing Just Enough* (related negatively) and the relationship with the teacher (related positively) were strong predictors of total credits.

Student's attributions for their marks were also significant predictors of grades, particularly students' attributions of their best marks to their effort, which was a stronger predictor of total credits than the *Doing My Best* orientation. Students' attributions of their best marks to effort was also a significant predictor of Merit and Excellence grades, although not as strong as a predictor as the *Doing My Best* (related positively) and *Doing Just Enough* (related negatively) motivation orientations.

### **Summary of Findings from the Motivation Screening Measure**

Our research provides strong evidence of the predictive validity of a student motivation screening measure that adds significantly to the information available from prior achievement alone. In addition to the motivation orientations *Doing My Best* and *Doing Just Enough* that emerged from the longer survey, the motivation measure subscale for Teacher Affiliation is promising. Teacher Affiliation was significantly positively related to *Doing My Best* and significantly negatively related to *Doing Just Enough*. In other words, students who reported being strongly motivated by the orientation *Doing My Best* also reported that their teachers cared about them and their achievement. Students who reported high *Doing Just Enough* motivations also reported that their teachers were not interested in them or their achievement. These findings affirm the critical importance of the student-teacher relationship contributing to positive student motivation and achievement, and they also suggest that students who say they don't care about doing more than the minimum also think their teachers don't care about them. The further refinements made to both the Teacher Affiliation and Peer Affiliation subscales have improved the measure so that we are now confident it provides reliable self-report information reflecting what students think.

The attributions section of the survey measure provides further evidence of the importance of teacher, family/whānau and peer influences on how well students do in school. A measure of students' attributions for their best and worst marks in any subject provided evidence of different perspectives across gender and culture in particular when rating the role of ability, effort, task difficulty, and luck as well as the influences of the teacher, family/whānau and friends.

Another interesting finding from these data both in 2007 and in 2008 was the strong positive relationships between reports of knowing about the certificate endorsements and actual achievement in Year 11 on the NCEA Level 1; how much the students said the endorsements mattered to them was also related positively to their achievement outcomes. The results were most positive for the highest achieving third of students in terms of total credits attained, but the motivation and achievement patterns for the lowest third also showed a strong positive relationship with knowledge of the endorsements.

Relatively high percentages of students in both Years 10 and 11 reported that they were working part-time, participating in sport and other extracurricular activities, and were caring for younger children in the family. We found evidence of a "threshold" in the relationship of time spent in these activities with achievement, with the most positive achievement outcomes associated with students spending no more than 10 hours each week in such activities in comparison to students who spent either no time or more than 10 hours each week.

## **Attitudes towards Motivation, Achievement, and the NCEA**

Our survey and focus group interview data from the 2005-2006 and 2006-2007 research suggested patterns of relationships between aspects of school policy and practice on the one hand and student study behaviour and achievement on the other. This research also revealed that some student “groups” behaved in contrasting ways. To explore these issues further, focus groups were convened during the first half of the 2008 school year to raise issues probing particular patterns of stakeholder perspectives with policy and practice implications for schools, particularly with regard to choices and opportunities and the values of different cultural groups. A particular issue of interest was student perceptions of NCEA design changes and other issues such as the review of Unit Standards and what students think about multiple opportunities on internal assessments.

### **Sample**

Parents and students were invited to participate in focus groups identified at ten different schools; five of these schools were selected from our national sample of 20 schools, and five additional schools were identified and agreed to participate as well.

The ten participating schools included co-educational state and integrated schools as well as single sex schools across the country and across the range of decile levels. They included 4 in Auckland, 2 in Christchurch, 2 in Wellington, and one each in two large town centres (one North and one South Island). The decile levels of these schools range from 3 low decile schools (1-2), 5 middle decile schools (5-7) and 2 high decile schools (8-10). Two of the schools enrol a high percentage of Māori and Pacific students, one including a bilingual programme and another including a *wharekura* (Māori immersion). Thus, our sample for these data is broadly representative of the national data base.

At two schools (one of which was the *wharekura*), two parent focus groups plus individual parent interviews were also conducted in order to address specifically Māori and Pacific parent perspectives. These focus groups and interviews were conducted by Māori and Pacific researchers, both of whom were bilingual.

### ***General description of student focus groups***

Schools were requested to provide a range of students for each focus group to include one group comprising Year 10 students and one group of mixed achievement level students across Years 12 and 13. We involved the Year 10 students to find out their perceptions prior to starting NCEA, but did not interview Year 11 students who would generally have had only a few weeks’ participation in NCEA level 1. Three schools also organised one group each of high achieving Year 12/13 students: At one of these schools, there had been considerable discussion over the past 2-3 years about the relative merits of NCEA and the Cambridge International Examination (CIE), so we were interested in what the students might have to say in this context. One school organised focus groups according to students’ ethnic identities including one Year 10 Māori and one Year 10 Pacific group and a mixed Year 12/13 Māori and a mixed Year 12/13 Pacific group. In all, 220 students participated in 23 student focus groups. Focus groups

were conducted at the 10 schools over a ten week period from beginning of April to mid June 2008 (excluding the two week term break from mid-April to early May during which time no groups were scheduled).

Year 10 students who were not yet registered in NCEA comprised 11 of the 23 focus groups from 10 schools involving 110 students (56 males and 54 females). Most of these students reported they had commenced studying and gaining a limited number of credits. We were interested in the Year 10 groups to investigate their knowledge and perceptions of NCEA generally and of particular aspects including the endorsements and the standards offered.

There were also five Year 12 focus groups from 5 different schools, involving 46 students (22 male and 24 female); 5 combined Year 12 and Year 13 focus groups from 4 different schools involved 45 students (22 male and 23 female) and two Year 13 focus groups from 2 schools involved 19 students (10 males and 9 females). Table 26 summarises the composition of focus groups; of the total 220 students interviewed, exactly half were male and female.

**Table 26: Focus group composition by gender**

Focus Group	No. conducted	Male	Female	Total
Yr 10	11	56	54	<b>110</b>
yr 12	5	22	24	<b>46</b>
yr 13	2	10	9	<b>19</b>
combined Year 12/13	5	22	23	<b>45</b>
<b>Total</b>	<b>23</b>	<b>110</b>	<b>110</b>	<b>220</b>

### ***Descriptive data for selected student focus groups***

A total of 124 students participating in fourteen focus groups, eight Year 10 groups and six Year 12 or Year 12 and Year 13 combined groups, had the opportunity to answer the question: *What is the highest level of NCEA you aim to achieve prior to completing your secondary education?* All but nine students responded (see Table 28). The majority of Year 10 students 53 (79%) indicated they aimed to achieve Level 3, with 12 (18%) students indicated they are aiming for Level 2 and 3 (4%) students aim to achieve Level 1 prior to completing their secondary education (see Table 27).

Of the fifty-two students in the Year 12 and Year 12 Year 13 combined focus groups, 38 (73%) indicated they aim to achieve Level 3 and 9 (17%) students aim to achieve Level 2, and 5 students did not respond to this question.

**Table 27: The highest level of NCEA students aimed to achieve prior to completing secondary education**

Focus Group	Level 1	Level 2	Level 3	No response	Total
Year 10	3 (4%)	12 (18%)	53 (79%)	4 (6%)	<b>67</b>
Year 12		7 (28%)	16 (64%)	2 (8%)	<b>25</b>
Combined Year 12/13		2 (7%)	22 (81%)	3 (11%)	<b>27</b>
<b>Total</b>	<b>3 (2%)</b>	<b>21 (17%)</b>	<b>91 (73%)</b>	<b>9 (7%)</b>	<b>124</b>

The 67 students participating in 7 of the focus groups (4 Year 10 groups, 2 Year 12 groups, and 1 Year 12/13 combined group) organised at the final 4 of the 10 participating schools were also asked several descriptive questions. These questions were: (1) whether the student knew the NCEA certificate could be endorsed with Merit or Excellence; (2) age; (3) gender; (4) highest level of NCEA the student intended to achieve prior to completing your secondary education; and (4) what the student planned to do after completing secondary school. Tick boxes were available for the first three questions, and the last question was open-ended.

Table 28 indicates the age distribution across the range of focus groups for these students. Of the students involved in Year 10 focus groups, 35 indicated their age as 14 years old and 5 were 15 years. The remaining 27 students who participated in Year 12 or combined Year 12/13 focus groups, one student was 15 years, 15 students were 16 years, 8 were 17 years and 3 indicated their age as 18 (see Table 28).

**Table 28: Focus group composition by age for seven focus groups**

Focus Group	14	15	16	17	18	total
Year 10	35	5	0	0	0	40
Year 12	0	1	12	4	0	17
Combined Year 12/13	0	0	3	4	3	10
<b>Total</b>	<b>35</b>	<b>6</b>	<b>15</b>	<b>8</b>	<b>3</b>	<b>67</b>

Table 29 summarises student responses to the question, *Did you know you can get the NCEA Certificate as Achieved but also with Merit or Excellence?* Fifty-eight students representing 87% of the total number of responses indicated they were aware that the Certificate could now be endorsed. Nine (13%) of students indicated they were unaware of this change, and eight of the nine students who were unaware of this change were in Year 10.

**Table 29: Knowledge of NCEA certificate with endorsement**

Focus Group	Yes	No	Total
Year 10	32	8	40
Year 12	16	1	17
Year 13			0
Combined Year 12/13	10	0	10
<b>Total</b>	<b>58</b>	<b>9</b>	<b>67</b>

Table 30 summarises student responses to the question *What do you plan to do after completing your secondary education?* As can be seen from the table, 51 of the 74 students (69%) who responded to this question indicated they intended to further their education either at university, college, polytechnic or technical college. Two of this group indicated they hope to study abroad. Fifteen students (20%) indicated they did not know what they would do. The remaining eight students (11%) indicated they plan to work following completion of their secondary education in various fields including, music, photography, fashion, TV or radio, mechanic, author and a pilot (these students may plan a tertiary education as well, but did not indicate this).

**Table 30: Summary of plans following completion of secondary education**

<b>Activity</b>	<b>No</b>
University (course not specified)	12
University (course specified)	24
Polytechnic	7
Teachers college	3
University—abroad	2
Broadcasting school in radio	1
Toi Whakaari NZ drama school	1
Floristry course	1
<b>Total indicating further education</b>	<b>51</b>
Musician	1
Tennis coach	1
Photography	1
Fashion design	1
Pilot	1
Mechanic employment	1
Author	1
TV or radio presenter	1
<b>Total indicating work</b>	<b>8</b>
<b>Don't know</b>	<b>15</b>
<b>Total</b>	<b>74</b>

## Data Collection and Analysis

Each focus group was led by two researchers, with one researcher serving as facilitator to introduce the questions to the students and the other researcher recording responses in writing. The note-taker read out the recorded responses to the group following each question to allow for additions and edits and to check for accuracy. In total, seven researchers either led or acted as note-taker for the different focus groups. Different facilitators led each group based on their experience and demographic characteristics. For the student and parent interviews with Māori and Pacific, the facilitators for the focus groups were themselves Māori and Pacific. These facilitators were fluent in the respective languages and were experienced researchers but not otherwise involved in this project. Thus, a training session was conducted to familiarise them with project procedures for the focus group interviews.

## Student Focus Groups Research Questions

The focus group questions for the students were modified from those used in our earlier reports to incorporate the recent design change issues as well as overall perspectives on the NCEA. For the Year 10 group, we were interested in the students' knowledge about the NCEA generally, what their parents, siblings and friends think about it, what they know about changes to the NCEA and their views on those changes, and where they heard about both the system and the changes. For the seniors, we were interested in the influences of recent changes on how they approached their work, if there were any other changes they would like, and what

they wanted to stay the same. We were also interested in their thoughts about Unit Standards and Achievement Standards. For both groups of students we were interested in how their school work is influenced by their friends, parents, family, teachers and/or any other factors. (See also Appendix B for a full list of the questions for each group together with the general procedures for each focus group.)

The data were analysed qualitatively using well-established procedures to identify themes (Bogdan & Biklen, 1998; Charmaz, 2006; Strauss & Corbin, 1998). Once defined, themes were then cross-referenced to previous themes that had emerged from the 2006 and 2007 studies. Table 31 also indicates the main themes and the sub-themes that emerged together with the number of references made to each across the focus group interviews with Year 10 and Year 12/13 students.

**Table 31: Focus group themes**

<b>Themes</b>	<b>Sub themes</b>	<b>No of References</b>	<b>Total references by theme</b>
Intrinsic Motivation	Impact on self esteem	8	<b>81</b>
	<i>Doing My Best</i>	73	
Extrinsic Motivation	UE and scholarship needs	14	<b>321</b>
	Employment needs	8	
	Family Influence	56	
	Friends' Influence and others in class	51	
	Teacher and school influence	60	
	Pressure	48	
	Other external Influences	74	
Negative Motivation	<i>Doing Just Enough</i>	19	<b>28</b>
	Learn for Assessment	9	
Qualification Design	Exams, externals	58	<b>344</b>
	Internals	44	
	Time management issues	16	
	Unit and Achievement Standards	57	
	Inconsistencies across schools/subjects	14	
	Grading system	92	
	Record access	12	
	Levels	10	
	System improvement	19	
	Qualification recognition	9	
Knowledge of Endorsements and NCEA Knowledge		46	<b>46</b>
Irrelevant to motivation			<b>10</b>
<b>Total References</b>			<b>820</b>



In total there were 820 references that were coded under five main themes. The remainder of this chapter describes these themes and sub-themes and provides sample quotes for each.

### ***Intrinsic motivation***

These comments were concerned with positive aspects of motivation from the individual's perspective that were seen as resulting from NCEA changes. We reported previously that some students indicated they had no incentive to continue study once they had achieved their 80 credits. Now that students can receive recognition for higher achievement through the award of the NCEA certificate at each level endorsed with Merit or Excellence, the following comments illustrate student responses to these endorsements. Eighty-one comments were categorised under the two sub-themes of Impact on Self Esteem and *Doing My Best*, some indicating a positive impact on their motivation and others a negative impact.

#### *Impact on Self Esteem*

*Makes you feel good socially and that makes you do well educationally*

*Some people think it's cool to not do well, but for others it can give social status to do well*

*Gives us a sense of pride, know you've worked hard, proud of achievement*

*Some people are really upset if they don't get Excellence*

*Makes you feel better if you get Merit and Excellence*

*Some teachers treat us as a friend—can praise us and that's good*

#### *Doing My Best*

*Some friends say "this year I want to get Merit or Excellence," last year, "just pass"*

*If [the NCEA is] harder, students will work harder*

*I strive to get more Excellences, knowing it will get recognised now; before it wouldn't, just get Achieved*

*It makes me try harder to the best of my ability*

*Having Merit and Excellence not just Achieve—you have a higher platform to strive for*

*If knew about it [endorsements] earlier may have worked harder*

*Want to get best results you can*

*Influenced by stats—Māori [are a] lower group, [this] makes you want to achieve more & be successful to prove them wrong.*

Some students indicated, however, that their behaviour had not changed, though there were fewer of the following kinds of comments:

*Hasn't changed my effort*

*I've always achieved Merit, doesn't bother me*

*No change, am focusing same as I would*

### **Extrinsic motivation**

This category encompasses all comments made about external influences on student motivation, organised further into the sub-themes in Table 32. There were a total of 321 comments coded under this main theme, and sample quotes are provided below:

#### *UE and scholarship needs*

*Some universities offer scholarship to those with Excellence*

*Hasn't changed what I'm getting, I returned to school to get University Entrance and it doesn't make a difference. If needed Merit or Excellence to get UE would strive harder*

*Still get UE with Achieved, so why bother?*

*Have to have qualification, for University Entrance and jobs*

*There are some stupid subjects—"bum subjects"—that are really easy to pass, e.g. tourism and computing. People who aren't as motivated to do well take a lot of these—they are like free credits—not because they want to do that kind of work but because they are easy, and can get UE on them.*

It was interesting that some students were well aware of the fact that universities were using the endorsements for selection into programmes (e.g., those with restricted entry) and scholarship awards, while others did not know this.

#### *Employment needs*

Students felt that the endorsements would be of interest to employers as well:

*Distinguishes people, if you have different levels, shows where you're at, like for job interviews*

*Merit and Excellence are better credentials for an employer*

*Its good because when you go for a job you've got more of a chance if you can show that you worked harder*

*[The endorsement] looks good on your CV to get jobs*

#### *Family influence*

Many comments spoke about how one's family could best support achievement:

*If parents encourage you to do work it helps—you do better; if they don't, you don't do your best*

*Parents' expectations influence you—if they expect you to do well, talk to you about your work, take an interest in your schoolwork—you do better, try to please them. But if they go over the top, focus too much on school, too much pressure—you switch off, rebel*

*Parents' expectations affect what you do, especially if they are supportive and understanding, you can talk to them*

*[Parents] won't let you go to friends until I show them I did my homework*

*The environment at home has a big impact—if the family promotes learning, gives you space to do it, if they motivate you, you can also want to be more like them and be something.*

Many students commented about the achievements (or lack of achievements) of their siblings as having an influence on them:

*Older brother not into the education thing, mainly influences in school, racism towards Māori so he thought he might as well drop out*

*Older brothers, oldest passed, have to live up to that, other brother autistic, passed level 1*

*My brother failed school, regrets it, so he's telling me to take opportunities*

*Very important—family a big thing. Sister dropped out and really struggled without education, parents really want me to do well in 6th form*

*Makes you want to strive more if older sibling has dropped out, hard to get a good job (older brother)*

But there were also comments about possible negative family and sibling influences:

*If you have fights, you don't think about what you have to do, don't do school work*

*If someone is sick you don't do work but worry about them instead*

*They [parents] make you do chores, etc, so you don't have time for homework*

*Sometimes they [parents] can be helpful—explain, sit down and help you. But I don't like them to tell me what to do*

*Looking after younger siblings—takes time away from doing homework, and then afterwards you don't feel like doing it either—energy*

*Friends' influence and others in class*

Friends and classmates also have an impact on study and achievement:

*When I'm in class with the easily distracted kids I find it hard to work, so if I do Cambridge, the kids in that class will be more motivated*

*Friends can be distracting from work, but some can be boring if all they do is study*

*My friends are supportive, will help me out, parents don't have time*

*A friend can be like a conscience. A friend who can keep you honest, knows you will be studying*

*Friends are important too, smart person might offer to help, but you might not be comfortable to take help from them*

*You muck around more, pay more attention to your friends, socialise, not do school work. But when you're doing work or tests you're not paying attention to your friends*

*Friends can teach you, tutor you—show you how to do something*

*Friends that do well, you'll also want to do well*

Students mentioned competing amongst friends as having a positive influence overall:

*Friendly competition can make you do better*

*Can demoralise people if you just get an achieved and your friend gets Excellence but in some cases it can motivate you to try harder*

*We're involved with friends, our friends push each other to reach for Excellence and Merit. Friends-wise Merit and Excellence is the standard*

Friends can also help students keep a balance:

*Friends keep you loose, so you don't stress out*

*Studying with friends is good, makes it fun*

*I'd do homework with friends—more social and fun*

*I work with friends and that motivates me*

*On weekends you put friends first rather than doing homework*

Finally, students commented about the influences of classmates:

*Work harder to do better than classmates who muck around*

*Surrounded by under achievers which reduces motivation*

*If they aren't motivated it lowers your motivation, others who are good students raise your motivation to do well*

*Motivated people around you motivates you—e.g. how much you study*

*Teacher and school influence*

There were a large number of comments about how teachers at the school affect motivation and achievement. Some students thought their teachers made all the difference:

*Teachers are the single biggest impact on learning. Teachers with a good personality—makes learning fun, uses variety, humour. Dull ones make the subject boring*

*Good teachers like the subject they teach, treat you like an adult, know a lot, are up with current knowledge, use both oral and written (notes)*

*They're [teachers] here to help us. Supportive like a parent, push us to do well & really want us to pass. Good to know they are there for us—they are really caring about us totally as people, all aspects of our life*

*Teacher makes the subject, if interesting tend to enjoy, remember, pay attention*

*If teacher can't explain subject, really lost if teacher can't tell you how to do something, means you won't strive for Merit or Excellence*

*Teachers influence you, if they believe in you and say you can do it, are positive*

*Good ones [teachers] make you want to go to class, everyone participates, listens, has fun, teacher sticks to the topic, makes sure everyone understands*

*Greatly—you're able to learn a lot better with a teacher who understands you, has fun with learning. But teachers who don't help you learn limit you*

Not all teachers were viewed positively, and students mentioned negative teachers and teacher behaviours as well:

*Teachers get angry—makes you not want to work or do what they say*

*Some [teachers] swear, some are sexist, some pick on you and some teachers are hard to understand*

*[teacher] Can pick on one person they don't like, have favourites—single them out; It makes it harder to learn if you're being picked on—you can't ask for help from the teacher*

*If you get along with a teacher it's easier to ask for help, but if you don't get along they get angry at you for asking 'dumb' questions*

*[teacher] Can control you too much—tell you how to do it, look over your shoulder—don't like that*

*Sometimes they [teacher] don't really teach; if they don't control the class, you don't listen*

Students also commented on strategies teachers used to teach different students:

*Some students like to learn from notes written on the board, some from discussion—teacher needs to tailor the class to their students, do different things, not the same all the time*

*[Teachers] have a lot of impact. Some help us catch up and provide extra tutoring if necessary*

*The teachers decide where the class is at in terms of choosing which standards (unit vs ach). It's a disadvantage on you because it depends on what the teacher thinks you can do and what the kids in your class can do*

*I still don't get it, the teachers need to pass on all the information*

*Some teachers prepare us for lecture style that we will experience at university*

*It's unfair [that] they teach Merit or Excellence questions only in higher streamed classes*

### *Pressure*

There were quite a few comments about the pressures associated with external examinations, both positive and negative:

*End of year exam hard, too much pressure*

*It should be optional to do exams—they are added stress; it's intimidating being in a big hall with people watching you, etc*

*Don't like how the external exams are timetabled because you only know in the last few weeks and that's not enough notice we want to know earlier so we can balance things*

*The pressure for exams is hard; I reckon the only external exams should be those that are the required subjects for tertiary.*

Students commented that internal assessment reduced stress for them:

*Having internals eases pressure*

*Can pass the year without sitting externals—takes the pressure off*

*When you have 80 credits you can try to finish off the year as best you can—it takes the stress off to pass*

On the other hand, a few students acknowledged that pressure was sometimes unavoidable and even a good thing:

*But you still need external pressure like you will get out in the work force*

*Pressure can be good—a life skill—but also backfire and make you do worse on the exam*

*Need stress to prepare for workforce and real world situations*

*There was pressure on my brother to study. But he got 140 credits in both Year 11 and 12. It was easier than he expected. He learnt a lot. He is now at CPIT and they asked him a lot about his NCEA results when he applied there.*

### *Other external influences*

A smaller number of students made comments about the impact of other, non-school activities:

*Youth leaders in community/church groups—encourage us to work hard in school & see the good things available to us.*

*People at church, grandparents, police encourage us to do schoolwork & get a good education; distracted, put down, put shame on you if you don't pass.*

*Depends what you think you're good at, i.e. if sports, stick to that rather than exams.*

### **Negative motivation**

Comments coded under this theme fell outside the themes of Intrinsic Motivation and Extrinsic Motivation. They were coded under the sub-themes of *Doing Just Enough*, and *Learn for Assessment*.

#### *Doing Just Enough*

Some students' comments mirrored the motivation orientation of doing only what was needed to get by:

*I take it the same way, not striving for Merit or Excellence, just want to get Achieved*

*If doesn't make much difference, if you pass it's good enough*

*There are students who just settle at an achieved though, they just get there.*

*It's still down to the student—if they don't care, are lazy, this system won't change them*

*If you have all the credits you need you don't have to worry so much on the exams.*

#### *Learn for assessment*

Teaching-to-the-test and learning for assessment were also mentioned by a few students:

*There is focus on NCEA system rather than looking if the students are receiving better learning*

*We learn how to pass exams and there is no encouragement to remember beyond the exams*

*We are expected to learn for the assessment to get the credit but we don't learn the background. We learn different parts but not the whole thing, for example we learn only what we need to learn for the credits we want to learn [not] the whole thing*

### **Qualifications design**

This theme encompassed the largest number of comments (344), discussed by sub-themes below with sample comments for each:

#### *Exams, externals*

*Exams are not real life, never going to have to write an essay in 20 minutes*

*The exams are too long*

*Not relying on exams so much—working throughout the year so not leaving it to the end of year*

*NCEA questions difficult to understand—language they use—not sure what to do, what they are asking for*

*External can be good for last minute opportunity to achieve the credits needed*

*If externals were scrapped would increase teacher leniency which would be a problem*

### *Internals*

Nearly as many comments were made about internal assessments. The pros and cons of being able to re-submit assignments and resit classroom assessments were mentioned often:

*Like that you can re-sit, can fix and try for higher*

*In some way a re-sit is good, but in the real world some there are some things you cannot re-sit, if you fail you fail*

*Doesn't make sense to be able to re take internals over and over again, shouldn't be able to have everyone pass for reputation at school*

*We like the internal assessments as they are not too much, you can be reassessed on them if we don't do well*

*Like internals and externals, during year, not just at end of year*

*If you have all the credits you need you don't have to worry so much on the exams.*

*I like the internals options—they can be more enjoyable as can put work to use*

*NCEA has improved because of the internals (compared to bursary/school C system).*

*Internal/External split benefit learning.*

*Internals spread throughout the year and organised so that you don't have everything due at once.*

A few remaining comments concerned feedback:

*Take too long to receive results—reduce time*

*Think it's good to see what you got right or wrong—get feedback, so you know what to improve on*

*Should be getting constant feedback to know how to improve*

### *Time management issues*

Students mentioned aspects of time management and how they made various decisions to meet commitments:

*I stopped sport so I could work (school work)*

*A lot of problem concerns time management*

*Time management is an issue—all assessment is due at the same time*

*Extra curricular activities encourages time management*



*Going on exchange in August and need to pass all internal subjects for UE prior to my departure*

*Stage challenge—didn't do it this year because I knew it would be too much with school work as well*

*Sports team but had to pull out, too busy, couldn't manage everything.*

*Over-committing yourself can impact on schoolwork, ie through work and sport*

*Playing sports, sometimes you are too tired after sports to take the test the next day, you cant think straight*

*[Going] to national cultural competitions [makes it] hard to catch up on school work*

*[I] do lots of extra curricular activities: house competitions, theatre sports, school productions and work... it screwed up my school work to start with but then it made me get organised so its good and bad*

*Work, sport, committees—these all can damage your opportunities if you do them too much; you have to do them to make your CV look better, but they can lower your achievement in school—less time for school work, sleep*

#### *Unit and Achievement Standards*

Students were asked to comment about unit and Achievement Standards, an important issue given the ongoing review of Unit Standards. While they did not mention the review, they had different opinions about having two types. Positive comments included:

*[It's] good, to give students struggling to just get achieved or not achieved*

*Unit standards for lower level*

*US [are] good for people who just want to leave school and not go to uni*

*It's good to have both—gives you choice: Unit Standards for people who just want to pass, Achievement Standards for people who want to do Merit or Excellence*

*Having both is good. Unit standards don't mean anything at tertiary study.*

Many more comments, however, favoured having a single system of achievement standard rather than Unit Standards:

*Having both is confusing—why not have just one?*

*It's kind of unfair if you only do Unit Standards and not Achievement Standards, because then you can't go on to uni if you want to further your learning*

*Unit Standards don't mean anything. People will always pick the person with Achievement Standards (e.g. tertiary/job)*

*Art and photography are Unit Standards. They are more complex and [students] can only get achieved. They should both be made Achievement Standards*

*We are given Unit Standards throughout the year and get Achievement Standards at the end of year (in externals) and it's a disadvantage, we want to aim for Achievement Standards.*

*Because it means more we want to do the Achievement Standards, would prefer that*

*All should be Achievement Standards.*

*Interested in psychology but the subject is Unit Standards and people see it as a joke*

*Stupid—for some students who do Unit Standards can't aim for Excellence in Unit Standards and sometimes if its your best subject it can be disheartening*

*There's no advantage to studying harder for Unit Standards.*

### *Inconsistencies across schools and subjects*

Students were also concerned about inconsistencies and discrepancies in effort and recognition for their work. Typical comments were:

*Change the amount of credits, for some credits you have to do lots of work and for others you don't, it should be balanced*

*The categorisation of marks in internals is stupid: if I fail 1 question I can fail the whole exam. They assign you the lowest mark. E.g. if you get 2 questions at Excellence and 1 at Achieve, they give you an Achieve overall. But this is inconsistent between subjects—in some they do give you the best 2 out of 3.*

*For practical subjects you get more credits, theory is too hard, not sure how it works. English and woodwork offer more credits but I'm not sure if the credits mean anything. We work hard but feel like credits aren't equivalent to the amount of work*

*Some credits aren't right amount for the amount of work you do—easy subjects like tourism in comparison to English—unfair*

*Another inconsistency is how much credits are worth—the amount of work varies so much between subjects, you can do a lot of hard work in PE for 2 credits, and do a 15 minute easy lab in chemistry for 3 credits.*

There were several comments about inconsistencies across schools and the three levels of NCEA:

*Rules are different from school to school—another inconsistency*

*There's a huge step between Level 1 and level 2, especially English and maths; e.g. doing Merit level work in Level 1 is now barely Achieved in Level 2—not prepared enough for this, and not really taught how to study*

*Depends on subjects, harder Level 2 than Level 1*

*Level 1 and 2 are easy, Level 3 is hard.*

## *Grading system*

As in previous years, students had much to say about the grading system. By far, they continued to advocate for finer grade bands:

*I would like more information, not just Merit*

*Percentage better because it provides more information*

*[I] like both, a percentage and a grade (80%=Excellence), only the amount you get right should matter*

*Want to distinguish more, annoying to get same, want more grades*

*Offer more grades, for example, E, E-, E+ etc*

*It would be good to see the % who failed/did not achieve, so you can further tell how you did—it would motivate you*

*[It's] frustrating to get A when [you are] higher than someone lower who didn't even try but got the same mark.*

Some students suggested getting more credit for higher marks:

*Get more credits for higher marks—would make you strive harder*

*Achieve, Merit and Excellence still equals the same number of credits. Change this so we could gain more credits for achieving with Merit or Excellence*

*Give recognition for extra effort, ie higher grades means more credits*

*Not awarded anything extra. There is no extra credits for achieving Excellence [in subjects].*

Other students favoured subject endorsements as a recognition strategy:

*Subject endorsements would be a help*

*Change endorsement to per subject rather than overall. This would give more recognition for stronger subjects*

## *Record access*

Students were largely appreciative of their access to the record of learning:

*You can check your credits to see where you are, what you have to do, how close you are to passing*

*Good to be able to access ROL*

*Record of learning is good, can see the levels and progress you are making and can use the information on your CV*

*Can go on internet to see percentage of people getting Merit, Excellence, so you can feel good about what you got if few others did*

### *System improvement*

There were fewer comments this year about the need for other improvements to the system. Most of these were noting approval of the endorsements:

*We didn't know [about the endorsements] but we think this is a good idea. This new system helps to move education forward*

*Heard about Merit and Excellence and Achieved. [It's a] good system when you understand the meaning*

### *Qualifications recognition*

Finally, there were a few concerns about how the NCEA was regarded compared to other systems:

*Cambridge International Examinations introduced worldwide, NCEA just here*

*NCEA is not as recognised as the GCSE system*

*The qualification isn't recognised*

*Overseas people don't understand the system*

*[My] parents think it's a waste of time, not recognised everywhere like Cambridge*

*Easier than Cambridge, I should do it, Dad wants me to do Cambridge, Mum wants me to do NCEA because there's less pressure*

### **Knowledge of endorsements and NCEA**

There were 46 comments referring to teacher, parent and student knowledge of NCEA and specific design features. Generally, most students wanted to know more and only a few of the focus groups seemed well informed about the NCEA. At one school, even the Year 10 group knew a great deal, but at other schools students said little information had been provided at their school:

*Don't know anything about changes*

*If you don't know about the benefits then don't strive*

*Haven't heard about it.*

*School said that NCEA was coming up but didn't give us much information about it*

*One English teacher tells us a lot about it*

*School pretty much told us nothing, there was a Year 9 speech at assembly*

*[We] did know about Excellence and Merit, think its good*

*Didn't know there were changes*

*School/ teachers haven't told us much/ anything about it*

*[Māori girl]: Teachers told me, we discussed what is achievable.*

## **Parent Interviews and Focus Groups**

For this component of the research, we were seeking Māori and Pacific parent perspectives specifically, rather than a generalised parent perspective or perspectives from other parent groups. These parents were of particular interest given the limited information available to date on how they see their children's aspirations and motivations with reference to the NCEA.

Two parent focus groups, involving eight parents in each group, and two individual interviews were completed. Focus groups and interviews were carried out at two schools located in a large city, both early in April at a time coinciding with parent/teacher interviews in order to facilitate parent participation. These two schools enrol a high percentage of Māori and Pacific students, one of which has a *wharekura* (Māori immersion) programme, and their principals organised the meetings with parents as well as several student focus groups. Both of the individual interviewees were Pacific mothers, and these interviews were done individually at their request in preference to being part of a focus group; a Pacific interviewer did the interviews. This same Pacific interviewer and a Māori interviewer together conducted the parent focus groups; both have experience in interviewing, data collection, and working with teachers, parents, and students.

Parents were asked questions about how well they thought the NCEA was working for their child; what they knew about the endorsements; strategies they used to influence their child's study behaviour and achievement; whether they thought their child was influenced by friends and classmates; and, finally, what one thing they would change about the NCEA if they could and what one thing they thought should stay the same (see Appendix B for the full set of questions).

### ***Results***

Responses were recorded verbatim, read back to participants to check for accuracy and invite further responses and elaborations, and then entered into Word documents for qualitative analysis using the categories that emerged. The themes emerging from parent responses paralleled those from the student focus groups, including comments falling into the categories of Intrinsic Motivation, Extrinsic Motivation, Qualifications Design, Negative Motivation and NCEA Knowledge. These are discussed below with selected quotes from the parents illustrating each theme.

#### *Intrinsic motivation*

Virtually all comments made by parents falling into this category could be described as referring to the sub-theme of "supporting different learners." Parent comments referred to the need to support students across the range of academic performance, both high and low achievers. They were positive about their understanding that the NCEA offered individual students opportunity to demonstrate their own strengths rather than being marked in comparison to other students. They thought the system enhanced self-esteem and liked the fact that there were different assessments (internal and external), particularly the fact that internal assessment allowed them opportunity to monitor their children's progress for those students who would otherwise not stay on task. Typical comments were:

*[The NCEA] took away bell curve & offers potential for schools to improve & design curriculum to suit needs.*

*Good for strugglers, improves self esteem.*

*This is a good way to encourage children to be learning all the year round and not just rely on examination time, because some kids have that attitude to just roam around the whole year so the internal exams area good way of keeping an eye on your child's progress.*

*Child is in Yr 10 but according to my nieces NCEA is very good. Child will try to achieve... it's dependant on child's effort & achievement. It helps the children to compete, encourages children to keep focused, have a goal.*

*Works well for granddaughter—the old system failed half of the students & wasn't fair.... As an ESOL [student, it was] was difficult in beginning but good for her now. School C would have been difficult.*

### *Extrinsic motivation*

Parents made many comments about motivators that would be described as “extrinsic.” These included comments regarding marks received from the assessments themselves, the accumulation of credits towards attaining a subsequent goal (e.g., getting the certificate, UE and/or employment), and various rewards or withholding of reinforcements by parents in order to motivate their children to achieve.

### Qualifications design issues

Typical comments about the value of the qualification included:

*[It's] working well for my son who took external for two subjects. Was good for him & he got his pass mark. I'll be happy when he does literacy and numeracy credits.*

*NCEA meant my brother achieved a qualification which he wouldn't have under previous ways.*

*Learner becomes engaged, and progress can track achievement—know what their accumulation of credits looks like—life skills—more engaged to progress.*

*[My] daughter [was a] bit wayward until Yr 13 and knew what was needed and eventually achieved her goals through [teacher] support—holistic support. She passed with good Excellence & achieved UE.*

*Good system for Māori, who can achieve while learning—can see it working throughout year. Can understand what student is doing.*

Parents mentioned the value of getting recognition for one's work:

*Son likes to be able to get Excellence. Some kids are really smart.*

*New grading for Excellence and Merit should be a real motivation. Maybe next year [my child will try harder].*

There were also comments about students comparing themselves with others and concerns about whether there was sufficient challenge particularly for boys:

*Competitive element exists at school level. Boys only perform under pressure—need crisis of exam to do best. For extending bright kids in quantity and quality almost drip feeding final exam tests certain skills.*

*Final exam in old days tested ability to present information and was a skill. Boys respond to that pressure.*

*Girls performing well but boys not so well. Some perform under pressure & other fall to pieces—good if there was something there to assist boys' style of learning.*

### Parent motivation strategies

Parents made many comments about how they encouraged their sons and daughters and communicated high expectations to them. This included working with them at home on assignments if help was needed:

*[We] have expectations*

*School matters as this is last year for him and he's working to pass. [We] can't afford for him to repeat.*

*We help him with homework. Try to be his teachers at home too. We don't send him to school and then sit home and do nothing, but when he's at home we make home another classroom.*

*What matters most is schooling, education and his talent of piano playing and singing. We know because this is what he spends his time doing by observation.*

*[We] don't force [our] daughter but encourage her to do good work—if try to force, she received poor report.*

Parents also mentioned specific approaches to goal setting and time management:

*[We] developed a plan for son about what he wants to do and focus on goal—support—take him to sporting, library books, etc., computer.*

*Reduce TV [watching] to the weekend and encourage learning—TV has bad influence on results.*

*Family expectation that children [will do well], encourage through communication and focus on future goals.*

*Parents' involvement, interest and talking about what they are doing— [being] there and offering support is most important.*

Parents commented about being the first in the family to have a university degree, and that learning “created a passion, a reward in itself.” One parent recalled that despite being the only Māori in the top class, s/he was not “pushed” at school and could have done better. Others stated that they had high aspirations for their

children and the family communicated future goals quite clearly, including possibilities for those who did not aim for high achievement in school:

*[UE] is minimum requirement in our family... Both parents achieved university qualifications and [our] children encouraged [to do the same].*

*Children have seen difficulty of working long hours packing Woolworths' shelves.*

*[I want my child] to see what it's like to participate, go to uni—opens eyes and broadens horizon.*

There was also considerable variety in the kinds of rewards and withdrawal of reinforcing activities that parents said they used or would use to ensure their children worked hard in school:

*[We use] incentives: licence, car*

*Celebrate by going to dinner*

*If fail—I take something out of room for 3 months*

*We always reward them, we buy things. We promised at the beginning of the year to pay their fare to NZ if they do good. We always do these kinds of things to encourage them. This lets our children know what kind of parents we are, we support their education not because we want to reward them but because we want them to have better futures.*

*If she does something bad I don't talk to her. I don't punish; don't talk.*

*No kapahaka if don't do homework.*

*[We] have given money and family trips overseas as encouragement.*

#### *Negative influences on motivation*

Some parents felt that the NCEA was not sufficiently motivating such that even though they believed it was easy for students, students would still not achieve:

*I understand it—easy for kids to get certificate through NCEA—now have 14 exams and still finding so many kids not passing it.*

*[It seems] easy—don't understand why there aren't more passing.*

*[I] think it's too easy to get NCEA, prefer School C.*

*Makes kids lazy if they only just achieved and don't get recognised for extra effort.*

*Once [students] have credits [they] don't have to pass external exam, so no incentive.*

#### *The influences of friends*

Not surprisingly, parents had mixed opinions about whether their children's friends had a positive or negative impact on motivation and achievement. There were examples of decisions made based on advice from friends rather than the family:



*Daughter won top in computing but changed to Art because friend wanted her to do art. So [I] came in and changed back to computing. [We] don't agree that friends should influence subject choice.*

However, most parents spoke more generally about “good” versus “bad” influences rather than giving more specific examples:

*In spite of [her] friends, granddaughter focuses and sets herself apart and gets on with it.*

*[Friends have both a] good and bad influence.*

*[My child is part of a] small group of friends and they push each other; if one lapses they encourage and support each other.*

*Competition—[friends] compare records, which motivates.*

### *The influences of teachers*

Parents had both positive and negative things to say about the influence of teachers on their children's motivation and achievement. They also made comments about wanting specific information about their child from the teachers and from school:

*[The teachers have a] good influence on child's performance—wonderful teachers.*

*Teachers don't tell us honest truth—[they would] rather say [my child's] doing good without detail.*

*I like to find out the truth about what child is doing, [like] truancy and missing classes.*

### *Qualifications Design Issues*

Parents had varied information about the NCEA generally and the changes that had been made in 2007, including the addition of endorsements for Merit and Excellence. There were, for example, mixed opinions about examinations, grades, and marks:

*Why [do we] still have externals? School C was a problem, many failed. Different for those who fell apart under exam conditions—internals [are] good.*

*A lot of parents complained that “not achieved” didn't appear on the record.*

*[My child's] teacher thinks ‘satisfactory’ is appropriate and believes student will strive for Excellence [without endorsements].*

*[I] heard about Merit, Excellence, and Achieved. [It's a] good system when you understand the meaning.*

*[They] need a certain number of credits to achieve more.*

*Endorsement with Excellence or Merit will be considered for UE.*

*Tertiary will need [to use] Merit and Excellence to indicate who should be admitted.*

Parents also commented on issues regarding consistency across schools:

*External assessment is essential component to get consistency of schools.*

*[There needs to be] more formal training for teachers—consistency in marking*

### **Parent knowledge and understanding of the NCEA**

The final challenge is, of course, whether parents have the necessary understanding of the NCEA to underpin their approach to supporting their children in school. The NCEA represents a dramatic departure from the system to which these parents were themselves exposed when they were in school. Typical comments included:

*[We] don't have a full understanding of what it is—School C and NCEA is recognised nationally to me. It sounds big for a simple thing. Lack of info—[there should be] simple language to encourage [Pasifika families] to understand.*

*[There is] not enough info—am confused about what it is. There's internal & external; found out when there was 'A' results but found out it means Achieved.*

*[It was] difficult to understand—now understand and happy for it to stay as is. Youngest child is doing well.*

*Sons explained it to me—was confused before about how credits are accumulated.*

*Children given info but some may not have passed on to parents.*

## **Summary of Findings from the Focus Groups and Interviews**

Across the focus groups with students and parents, there are common threads that support findings from our survey and achievement analyses and related research in the international literature. Students and parents alike expressed a broad range of approaches to motivating students to perform well in school, and the large number of comments made about “extrinsic” motivators in particular reveals widespread acceptance of adding reinforcements and withdrawing privileges to emphasise the importance of doing one's schoolwork.

Students talked about the positive influences of their friends (often competing with them to see who would do the best), family/whānau (talking about high expectations as well as tangible consequences), teachers (wanting enthusiastic teachers who cared about them, knew their subject, and made the topic interesting) and siblings (being inspired by an older brother or sister). Students also talked about the negative influences of peers and classmates who didn't care about school, and some commented on how they had been influenced to do better in comparison to an older sibling who had no career or was locked in a dead-end job.

Both students and parents were overwhelmingly supportive of the introduction of the certificate endorsements for Merit and Excellence. With the exception of some of the Year 10 students in some schools, students and parents knew about the endorsements and felt they contributed to motivating students to continuing trying

hard on their NCEA assessments beyond the 80-credit minimum requirement at each of the three levels. Students continued, however, to advocate for more recognition for doing well, such as finer grade bands and having subject endorsements as well as certificate endorsements. They were concerned that recognition for higher level work was not equally available across subjects (e.g., those assessed with unit standards). As reported previously, they remain positive about internal assessment, the balance of internal-external assessment, and the benefits of each.

Surprisingly, students seemed to have less awareness of most of the design changes (announced several months earlier) than we had anticipated. This was especially so for Year 10 students, which one might expect. However, there were students in the Year 12 and Year 13 focus groups who also seemed unaware of various changes. Students consistently emphasised that they needed more information from their schools about the NCEA, and parents also indicated they wanted this. Interestingly, students from the bilingual programme at one school and from the *wharekura* were extremely well-informed about the NCEA and recent changes, including the Year 10 groups. They talked about how their whānau, teachers and they themselves had high expectations for their achievement and how they were motivated to gain endorsements and UE to study at university.

## Summary of Key Findings

In this section, we present our key findings for influences of aspects of the NCEA on student motivation and achievement. We also provide a summary of areas of major agreement regarding perceptions about changes to design features of the NCEA, including how these were seen to relate to study behaviour and achievement outcomes for students. The section ends with a summary of the key findings organised by the four studies described in more detail in previous sections of the report.

### Relationship of Motivation Orientations and School Achievement

- The motivation orientation scores for *Doing My Best* and *Doing Just Enough* both showed strong relationships between self-reported motivation in 2005 and achievement two-three years later in 2007-2008 in total credits attained, the number of internal credits with Excellence, and the number of external credits with Achieved, with Merit and with Excellence. High scores on the *Doing Just Enough* orientation in 2005 also significantly predicted higher numbers of Unit Standards attained in 2007 and 2008.
- The motivation orientations *Doing My Best* and *Doing Just Enough* were relatively stable across years (2006 to 2008), however there were differences for sub-groups of students. In 2007, more than one-third (35%) of students for whom we had survey data from both Year 10 and Year 11 did not show any change in their motivation pattern. Another third moved up or down one category (see below), 20% moved two categories and 8% moved up or down 3 or more categories.
- However, there were changes in motivation over time for sub-groups of students. We identified 6 motivation student categories ranging from low to high motivation constructed from the subscales *Doing My Best* and *Doing Just Enough*, and we found significant differences in achievement patterns across time for these categories.
- There were significant differences in achievement related to whether students had increased, decreased or stayed the same in self-reported motivation orientation from 2006 to 2007. Those who maintained their motivation level or increased in motivation achieved more total credits in 2007.

### Relationship of Attributions to Achievement

- Students' most highly ranked attributions for their best and worst marks were their own effort, their ability, the difficulty of the assessment task, and teacher influences. They gave lower ratings to luck and the influences of family/whānau and friends.
- The attribution literature generally shows that luck is rated higher as a cause for failure (bad luck), whereas students in Years 10-11 in our sample rated the role of luck significantly higher as an explanation for their best performance than for their worst performance.

- Gender was significantly related to attributions for best and worst marks, with girls more likely than boys to attribute their best marks to effort and their worst marks more to their lack of ability and the difficulty of the assessment task. Girls attributed both their best and worst marks to teacher factors more than boys, who attributed their worst marks more to bad luck than did girls.
- Pacific students rated both family/whānau and friend influences as more important to both their best and worst marks than did European, Māori, and Asian students. Māori and Pacific students attributed their best marks less to ability, effort and the difficulty of assessment than did European and Asian students.
- Regressions showed that *Doing My Best* and *Doing Just Enough* motivations were strong predictors of grades, and that students' attributing their best marks to their effort was also a strong predictor of grades, particularly the total number of credits.

### **Influences of Part-Time Work, Sport, Child Care and Other Activities**

- In 2007 and 2008, approximately 50-40% respectively of Year 10 and Year 11 students who answered these questions reported that they engaged in part-time work. Those who worked up to 10 hours weekly generally attained more credits than those who did not work at all or who worked more.
- A higher percentage of students reported participation in sport, over 60% in both 2007 and 2008. Students who reported playing sport attained more credits than students who did not report participation in sport in both years.
- Again in both years, nearly half of students reported they spent time weekly caring for siblings and other children in the family. Students from low decile schools did proportionately more childcare and students from high decile schools reported less childcare. European students were likely to be less involved in childcare than others and Māori and particularly Pacific reported more childcare than others. Asian and Māori student participation in childcare decreased from Year 10 to Year 11, whereas Pacific students increased childcare across these two years. Caring for other children was negatively related to achievement in 2007 but showed no significant relationship in the 2008 data.
- Participation in part-time work, child-care, and sport were related to academic achievement and motivation orientation patterns, whereas participation in paid tutorials was marginally related. Other activities were not related to achievement motivation.

### **Relationship of Certificate Endorsements with Motivation and Achievement**

- Late in 2007 and again in 2008, approximately half of Year 10-11 students reported not knowing that NCEA Certificates could be endorsed with Merit or Excellence. More Year 11 students reported this awareness than Year 10 students, but the fact that many students report not knowing about the endorsements is concerning given that these students had spent the year working on credits to attain NCEA Level 1.

- Students reported overwhelmingly that the endorsements mattered to them. Of those who said they knew about the endorsements, the vast majority said this mattered to them mostly/definitely, and only about 1 student in 15 said endorsements didn't matter at all.
- There was a significant relationship between whether endorsements mattered to students and their motivation orientation (*Doing My Best* and *Doing Just Enough*) over time, with positive motivation decreasing across time for students who said they were not motivated by endorsements and who did not know about them. Motivation remained relatively stable for students who were motivated by the endorsements. Students who knew about the endorsements were more likely to increase their motivation whereas those who said they did not know were more likely to decrease their motivation across two years.
- Knowledge of the endorsements was related to gaining NCEA Level 1 that year for Year 11 students and was also related to gaining either Merit or Excellence on Level 1.
- The vast majority of the students who attained NCEA Level 1 with Merit said that the endorsements mattered to them either mostly or definitely, and virtually all students of those who attained Excellence said the endorsements mattered to them either mostly or definitely.
- The total number of credits attained on NCEA Level 1 was also related to knowledge of and how much endorsements mattered to students. Those who reported that endorsements definitely mattered to them achieved significantly more external credits with Excellence than other groups. Across the year, the greatest impact of the endorsements occurred during the fourth Term and the examinations period, in which those who said the endorsements definitely mattered achieved significantly more credits than all other groups.
- Knowing and caring about the endorsements showed a positive relationship to achievement regardless of student achievement level. All groups (low, middle, high achieving in terms of total credits attained during the year) showed more positive achievement patterns if they had reported knowing about the endorsements.

### **Predictive Validity of a Screening Tool for Motivation and Achievement**

- A brief screening measure of *Doing My Best* and *Doing Just Enough* motivation orientations administered in Year 10 has been shown to have utility, acceptable reliability, and high predictive validity strongly related to future motivation orientations and achievement. This motivation measure predicts future achievement over and above the predictions possible based only on prior achievement. A simple self-report of motivation orientation such as this that can predict future achievement for students who are not otherwise being assessed could be used to plan and focus interventions towards more positive motivation and achievement patterns.
- Motivation orientations reported in 2005 or 2006 by Year 11 students were predictive of achievement two years later in 2007 or 2008 when they were in Year

13. The orientation *Doing My Best* predicted higher achievement at follow-up, whereas *Doing Just Enough* predicted lower achievement two years later.

- Whereas achievement in Year 11 in 2005 was a significant predictor of achievement in Year 13 in 2007 as one would expect, positive motivation orientations on the screening survey added further value to the prediction of future achievement. Motivation orientation scores were better predictors of the number of credits achieved two years later in comparison to predictions made based solely on credits attained in the same year as the survey was completed.

### **Parent and Student Attitudes about Aspects of the NCEA**

- A large number of students (220) participating in 23 Focus Groups from 10 secondary schools across the country affirmed the positive impact of the certificate endorsements for Merit and Excellence on motivation, study behaviour and achievement. They stressed that whereas previously there was less incentive to continue working past the 80 credits needed for each level, the endorsements motivated them to continue trying for credits towards an endorsement.
- 
- Students referred to intrinsic motivators such as being proud of one's achievements, knowing one has worked hard, wanting to do the best you can, and having high personal expectations as well as extrinsic motivators including working for a Merit or Excellence endorsement, competing with friends, pleasing one's family, earning reinforcers (e.g., rewards promised by one's parents for high achievement), gaining UE and getting a scholarship.
- Students felt that employers had an understanding of the NCEA and also valued the endorsements, so that having an endorsement for Merit or Excellence would enhance one's employment credentials as well and may even make the difference between getting or not getting a particular job.
- Parents and older siblings generally were viewed as having a positive influence on achievement and motivation. Many students reported that their parents rewarded them with privileges and monetary rewards for high marks, but students also emphasised the importance of parents having high expectations. Older siblings had a positive impact whether they had done well (thus wanting to also do well) or had not done so (e.g., wanting to do better than an older sister or brother who had dropped out of school early and/or was unemployed).
- Friends were seen as having a positive impact in wanting to impress one's peer group but also helping one to keep a balance between academic study and not "stressing out" by participating in other, social activities. Students also referred to wanting to work harder than classmates who "muck around." There were frequent references to competing among one's peer group as part of the process of doing well academically and being recognised with Merit and Excellence. Friends were seen as supporting and encouraging one another to do well, and students did not want to be surrounded by "underachievers which reduces motivation."

- Many students agreed that it was the teacher who had the single biggest impact on learning. They liked teachers who made learning fun, caught their interest in the subject or topic, and used humour in their teaching. They wanted teachers who set boundaries and had high expectations.
- Students also valued teachers who showed a personal interest in them and their achievement. They commented on the negative influences of teachers' who showed favouritism, communicated low expectations, and/or showed impatience or even anger for asking 'dumb' questions. Students wanted teachers who "believe in you and say you can do it."
- Students also wanted teachers to provide more information about how their subject area and topics within subjects related to life and future study goals. They emphasised that these linkages helped motivate them, particularly when an activity might otherwise seem boring or irrelevant to the real world.
- As in our previous reports, most students continued to express positive attitudes about the mix of internal and external assessments in the NCEA, feeling that the internal assessments in particular allowed them to spread their workload across the year and use feedback to improve future academic performance.
- At one school where there had been considerable discussion regarding the possible adoption of the CIE in addition to the NCEA, a focus group comprising high achieving Year 10 students engaged in articulate and thoughtful discussion of the advantages and disadvantages of the two systems. Clearly, there had been a high level of deliberation and information-sharing about this decision at the school, and, interestingly, the majority opinion in the student group favoured the NCEA rather than the end of the year, norm-referenced examinations of CIE.
- At a *whārekura*, focus groups were extremely well informed regarding the endorsements and how the NCEA worked generally. They reported being highly motivated to do well, that their teachers care about them and encouraged them to do their best, and that they anticipated attaining Merit and Excellence. This level of awareness contrasted sharply with how much other students across the sample seemed to know about the new endorsements, for example, and differed from the lower level of endorsement awareness characteristic of other low decile level schools.
- Students continued to express concern about the possibility of failing standards at a particular level because of missing one question (e.g., not getting Merit because of missing an "achieved" answer) and lack of consistency across schools, particularly regarding being allowed to resubmit assignments and resit assessments.
- Many students also continued to argue that they wanted finer grade bands than the present system providing only four "grades".
- Students supported the development of subject endorsements, feeling that this would be highly motivating to both those who otherwise would not get the overall Certificate with an endorsement as well as those who could strive for Excellence in gaining subject endorsements as well as the Certificate endorsement.



- Both junior and senior secondary students overwhelmingly indicated that they needed more information from their schools and particularly from their teachers about NCEA. They indicated that while a few teachers seemed very well informed and gave them lots of information, most teachers did not and seemed to leave this responsibility to the school overall.
- Focus groups and interviews conducted in April 2008 with Māori and Pacific parents of students in both junior and senior years revealed positive attitudes about the impact of the NCEA on motivation and achievement.
- Parents expressed that the NCEA allowed their children to demonstrate achievement better than “previous ways” and was a “good system for Māori.”
- Parents supported the endorsements for Merit and Excellence and felt this new grading would motivate students.
- Parents described a broad range of strategies at home to enhance children’s motivation and achievement, including use of the car, going out to dinner, buying things, money, family trips, and through praise, high expectations, help with homework, focus on future goals (such as UE), encouragement, reduced TV watching, ongoing communication, and not allowing friends around after school to make time for homework.
- Parents were generally positive about teacher influences on their children but lacked specifics about ways in which teachers had provided support for high achievement.
- Parents expressed varied knowledge and understandings about the NCEA and the 2007 design changes; most were aware of, and supported, the endorsements; and there was some confusion about what the different grades meant.

## Future Research and Development Issues

Our earlier research and the findings reported here offer strong support for the validity of student self-ratings of motivation orientations in predicting achievement two years into the future. These predictions add information independent of what schools, teachers and even parents might know about their children based on previous achievement results. A simple, short screening measure such as the one developed here could be used in the development and validation of positive interventions designed to enhance student motivation orientations and their achievement. An approach to intervention that highlighted intrapersonal motivation orientations could add significant value to the more traditional approach of academic remediation only; Martin's work in Australia provides an excellent example of this (Martin, 2008). Such meta-cognitive strategies could, of course, add value to any future endeavour undertaken by secondary students. Student self-awareness about how *Doing My Best* actually applies to particular tasks and recognising how to avoid *Doing Just Enough* could give students strategies useful in a variety of contexts with multiple challenges.

The results from the Teacher and Peer Affiliation subscales provide strong support for initiatives directed to improving the relationships of students with their teachers and also for enhancing opportunities for students to support one another's achievement (Bishop et al., 2007). By adding a measure of these interpersonal influences such as access to positive support from teachers and others, the motivation screening measure may reflect better the values of more collectivist cultures as opposed to individualistic perspectives typically of traditional motivation measures. The highly significant relationship we found between perceptions of teacher caring and positive motivation orientations to learning and the NCEA is an important finding, indicating that interpersonal factors also play an important role in student achievement. Our findings support the need for further intervention research focused on the teacher's role and how teachers can communicate to young people that they are interested in their achievement.

Our research has also highlighted how attributions are related to student achievement outcomes. In addition to rating the four most commonly cited attributions of ability, effort, task difficulty, and luck, we asked students to rate the influences of the teacher, family/whanau and friends on their best and worst marks in any subject. We found strong relationships between various attributions and achievement outcomes, and there were interesting gender and ethnic patterns as well. The inclusion of social relationship attribution items is a promising strategy for assessing interpersonal influences.

We discussed earlier in this report how the design and development of the NCEA has been guided by the potential for an assessment system that could encourage student motivation, autonomy and personal responsibility as well as academic achievement. Along these lines, Ecclestone and Pryor (2003) argue that different assessment systems will have an important impact on "learning identities and dispositions as children become young adults" (p. 472), hence affecting their lifelong career as learners. What this means is that an assessment system—whether this be the NCEA or any other—has a powerful influence on the socialisation of our youth. The NCEA through its various components and elements enables young people to shape their own futures—to some extent. At

the same time, however, the NCEA is itself an instrument that shapes how students think about their learning and what they do as learners. Clearly, it is crucial that we base the design of qualifications and assessments on evidence of the impact of these systems on student learning and study behaviour. Our research has been guided by this principle.

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# Appendices



**Appendix A: Survey of NCEA goals: Year 10 and Year 11 students**

Your name: .....

Your student number (NSN) : .....



**Survey of NCEA Goals  
Year 10 & Year 11 Students**

**2008**

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and Lynanne McKenzie

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Te Whānau o Ako Pai ki Te Whare Wānanga o te Ūpoko o te Ika a Maui

## Section 1: Descriptive Information

1. Name of School \_\_\_\_\_
2. Your student number (NSN) \_\_\_\_\_
3. Gender (*Please tick one*)                      Male                       Female
4. Student status (*Please tick one*)                      Domestic NZ/permanent resident                       International
5. Culture/ethnicity (*Please tick one*)
- |  |   |   |  |
|--|---|---|--|
| Māori <input type="checkbox"/>           | NZ European/Pākehā <input type="checkbox"/> | NZ Asian/Asian <input type="checkbox"/> |  |
| Pacific Peoples <input type="checkbox"/> | Other European <input type="checkbox"/>     | Other <input type="checkbox"/>          |  |
6. Year in school (*Please tick one*)
- |                                  |                                  |
|----------------------------------|----------------------------------|
| Year 10 <input type="checkbox"/> | Year 11 <input type="checkbox"/> |
|----------------------------------|----------------------------------|
7. What is the highest level of NCEA you expect to complete before you leave school? (*Please tick one*)
- |                               |                                  |                                  |                                  |
|-------------------------------|----------------------------------|----------------------------------|----------------------------------|
| None <input type="checkbox"/> | Level 1 <input type="checkbox"/> | Level 2 <input type="checkbox"/> | Level 3 <input type="checkbox"/> |
|-------------------------------|----------------------------------|----------------------------------|----------------------------------|
8. Activities outside school: (*Please tick the boxes below to indicate an estimate of the number of hours weekly that you participate in the following outside school*)
- |  | Not at all               | 5 hours or less          | 6-10 hours               | 11-15 hours              | More than 15 hours       |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Part-time work                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sport  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Caring for younger children in my family/whānau    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other activity (eg music, scouts, volunteer work)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Attending paid lessons or tutorials outside school | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Section 2: We are interested in how students think about their school learning**

*Please rate each sentence listed below using this scale, and circle the number closest to your opinion:*

*1 = this is not at all like me;*

*2 = this is sometimes like me and sometimes not like me*

*3 = this is mostly like me*

*4 = this is definitely like me*

	Not me	Sometimes me	Mostly me	Definitely me
9. I expect to get Excellence or at least Merit when I do NCEA	1	2	3	4
10. I do best in classes where students can work together	1	2	3	4
11. If I get just NCEA Level 1 or possibly NCEA Level 2 before I leave school, I'll be satisfied and have no plans to finish Level 3	1	2	3	4
12. In general, I get along well with my teachers	1	2	3	4
13. I will strive for Merit or Excellence even when I don't need this to achieve my goals	1	2	3	4
14. I will work for the number of credits I need at each level, no more	1	2	3	4
15. I get involved when we do group work in class	1	2	3	4
16. I prefer credits for life skills and vocational job-related skills rather than credits related to further academic study	1	2	3	4
17. In general, my teachers are not really interested in me	1	2	3	4
18. I want to take credits that allow me to try for Merit or Excellence, rather than just Achieved	1	2	3	4

	Not me	Sometimes me	Mostly me	Definitely me
19. My learning benefits when students are encouraged to help one another in a subject	1	2	3	4
20. Once I have my 80 credits, I'll be satisfied	1	2	3	4
21. I'll learn more in a subject when the teacher cares how well I do	1	2	3	4
22. I'll do best on NCEA when I know I can count on the teacher for help when I need it	1	2	3	4
23. I aim at getting a good education, not just completing tasks to get credits in NCEA	1	2	3	4
24. In class, I would rather work by myself than work with other students	1	2	3	4
25. It matters to me that I can work for the NCEA Certificate endorsed for Merit or Excellence	1	2	3	4
26. Did you know that 2008 NCEA Certificates can be endorsed for Merit or Excellence?	Yes <input type="checkbox"/>		No <input type="checkbox"/>	

Please turn page for next section

**Section 3: What has influenced how well you do in school?**

*Please rate each sentence listed below using this scale, and circle the number closest to your opinion:*

*1 = no influence; 2 = little influence; 3 = some influence; 4 = big influence*

27. Think back to times when you got your best marks on assessments in any subject. Now rate the following possible influences on those marks:

	No influence	Little influence	Some influence	Big influence
My ability	1	2	3	4
My effort	1	2	3	4
The assessment was easy	1	2	3	4
Good luck	1	2	3	4
My family/whānau	1	2	3	4
The teacher	1	2	3	4
My friends	1	2	3	4

28. Now think back to times when you got your worst marks on assessments in any subject. Now rate the following possible influences on those marks:

	No influence	Little influence	Some influence	Big influence
My low ability	1	2	3	4
My lack of effort	1	2	3	4
The assessment was hard	1	2	3	4
Bad luck	1	2	3	4
My family/whānau	1	2	3	4
The teacher	1	2	3	4
My friends	1	2	3	4

***Thank you for completing this survey***

## Appendix B: General Procedures for the Focus Groups—Students and Parents

All Focus Group interviews will be one-hour in duration, with no more than six primary questions/topics to be covered in the interview. Six-ten participants will be included in each group interviewed, and at least two of the research team will be present with one person serving as Facilitator and the second as Notetaker for the Focus Group; anyone who has not previously served as Notetaker will observe at least one Focus Group session with an experienced Notetaker before serving in this role. The Focus Groups will proceed as follows:

1. Welcome participants, give each person a copy of the information sheet and separate consent form for signature, and provide a brief, five-minute initial period for participants to have a snack, etc.
2. Once everyone is present, the Facilitator will introduce the team and ask participants to introduce themselves. The Facilitator will give a brief verbal summary of our project as an investigation of the impact of NCEA on student motivation and study; she/he will thank the group for willingness to be part of the research, and ask for signatures on the consent forms distributed on arrival. The Facilitator will note that the VUW Human Ethics Committee has reviewed and approved the research and will emphasise that anyone can withdraw at this time from participation if he/she wishes.
3. The Facilitator will then describe the process for the Focus Group, including reading out the list of four questions. Guidelines for the group will be for participants to brainstorm in contributing their ideas and reactions, rather than engaging in a group discussion for evaluating other's contributions. Indicate that we'll take one question at a time, and the Notetaker will read out the total list of ideas and reactions to enable members of the group to indicate any needed changes, corrections or additions before moving on to the next question.
4. Proceed to the first question, to be read out again by the Facilitator. Participant contributions will be recorded as close to verbatim as possible by the Notetaker (no audiotaping will occur). After 10 minutes or at which time it appears that the group is "recycling" similar comments, the Notetaker intervenes and reads out the list of comments, providing opportunity for corrections or additions to the list. The same process is repeated for each question until all four questions have been addressed and summarised.
5. Once all questions are completed and no later than one hour after the start of the Focus Group meeting, the Facilitator thanks the group and asks if there are any final issues we missed. The Facilitator reaffirms the importance of this input into the research and indicates that an executive summary of the study findings will be available to participants at the conclusion of the research through their school or directly from the project. Our email addresses and phone contact number/s will be provided to participants should they have questions later.
6. As the participants have had opportunity to hear all recorded comments and to correct that information etc. there is no further need to check with participants later as to accuracy. The notes from the Focus Group will be recorded verbatim into a Word file, which can then be analysed using QSR N6 utilised by the project for qualitative analyses.

### Initial Year 10 Students Focus Group Questions

1. What do you know about the recent changes to NCEA? Who told you or how did you learn about these changes? What do you think about endorsement for Merit and Excellence?
2. If there is one more thing you could change about the NCEA, what is it?
3. If there is one thing you think should stay the same about the NCEA, what is it?
4. What do you think about having both Unit Standards and Achievement Standards on the NCEA? Why?
5. Tell us about how your schoolwork is affected by your friends or classmates? Your teachers? Your whānau/parents?
6. Are there any other factors that affect your schoolwork? If so, what are they and how do they affect your work?

### Later Year 10 Student Focus Group Questions

1. What do you know about NCEA? What have you heard from school?
2. What do your parents think about the NCEA? What do your friends think? How about your brothers/sisters?
3. What do you know about new changes to the NCEA? Did you know you can get the NCEA certificates with Merit and Excellence? Are there any other factors that affect your schoolwork? If so, what are they and how do they affect your work? Who told you? What do you think about that?
4. Are there any other changes you think would be a good idea? What
5. What do you like about NCEA that you've hear about?
6. How is your school work influenced by your friends? Teachers? Parents and family?

### For Senior Students (Year 12-13)

1. Now that you can get NCEA with Merit and Excellence, has this changed what you do? What your friends do? How?
2. If there is one thing you could change about the NCEA, what is it?
3. If there is one thing you think should stay the same about the NCEA, what is it?
4. What do you think about having both Unit Standards and Achievement Standards on the NCEA? Why?
5. Tell us about how your schoolwork is affected by your friends and classmates? Your teachers? Your whānau/parents?
6. Are there any other factors that affect your schoolwork? If so, what are they and how do they affect your work?

### Whānau/Parents

1. How well do you think the NCEA is working for your child? What makes you think this?
2. Do you know about the new endorsements for Merit and Excellence? What do you think about this? What do your children think?
3. How do you try to influence your child to do his/her best rather than doing just enough to get by? Do you buy anything special or give him/her rewards based on passing or certain grades? Anything else? What seems to matter to him/her? How do you know this?
4. Tell us about how your child's performance on the NCEA is influenced by his/her friends/classmates? By his/her teachers?
5. If there is one thing you could change about the NCEA, what is it?
6. If there is one thing you think should stay the same about the NCEA, what is it?