

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^a

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

^a 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.

^b 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.⁴ 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.

⁴ 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 ^a
<i>Doing My Best</i>	<ul style="list-style-type: none"> • I will strive for Merit or Excellence even when I don't need this to achieve my goals. • I aim at getting a good education, not just completing tasks to get credits in NCEA.
<i>Doing Just Enough</i>	<ul style="list-style-type: none"> • I will work for the number of credits I need at each level, no more. • 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.
Teacher Affiliation	<ul style="list-style-type: none"> • I'll learn more in a subject when the teacher cares how well I do. • In general, my teachers are not really interested in me.
Peer Affiliation	<ul style="list-style-type: none"> • I do best in classes where students can work together. • In class, I would rather work by myself than work with other students.

^a 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.