

Enhancement of Tertiary Education Strategy Priority Frameworks

Full Report

UniServices Task number: 33254.001

Auckland UniServices Limited

A wholly owned company of

The University of Auckland

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4 September 2014

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Acknowledgements

We warmly acknowledge the students, families and the schools with whom we worked for their time and contribution to our interviews.

We want to thank advisors from the University of Auckland and those within targeted industries for their guidance and advice. We are also grateful to the Chief Executives and workforce managers for their time in sharing their comments and knowledge.

Other staff members at the Woolf Fisher Research Centre also contributed to the completion of this research project; Victoria Cockle and Tong Tzu.

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Executive Summary

The objectives of this three-phase project were to determine innovative ways of working with Pasifika learners, families and communities; and to promote increased interest and participation in high-growth, high-demand industries. The focus was Pasifika learners and optimal pathways and support (including support from families) through Years 11 to 13. It included developing a model for alignment between senior secondary school, university success and the profiles needed for employment in high-growth, high-demand industries.

A mixed-methods project employing elements of a design-based research approach was undertaken. The overall project included a literature review; a case study of extensive NCEA data to systematically plot typical pathways through NCEA by Pasifika students; interviews with a number of Chief Executives and workforce managers to determine what employee qualities are sought after in high-growth, high-demand industries; and interviews with students and their families to determine what understandings students currently have about their educational-vocational pathways.

The literature review:

1. Underlined the strong imperatives to focus policy and resources on improving the outcomes of Pasifika people. Economic imperatives suggest substantial growth in the future workforce is likely to emanate from the Pasifika youth sector.
2. Identified global trends towards a reformulation of comprehensive secondary curricula into a number of *upper* secondary tracks, with emerging vocationally oriented specialisations. These balance curriculum flexibility and adaptability to student needs with academic, social and labour market requirements. There are local initiatives which employ a model of synchronous study at both secondary and tertiary levels to develop more modulated transitions.
3. Highlighted the importance of literacy as a significant factor in academic achievement, as well as the basis for pathways to improved occupational and social outcomes. Achievement standards in science and mathematics (as well as English) often require students to have very well-developed subject-specific literacy knowledge and skills. Pasifika students are less likely to be enrolled in these standards, and are less likely to pass in these standards than other students.
4. Described the flexibility and complexity of the NCEA system as both an enabler and a constraint. Effective navigation requires detailed knowledge and informed decision-making by students, together with knowledgeable support from their families and schools as well as being informed by the requirements for high-growth, high-demand industries.
5. Reviewed evidence from a number of overseas and local studies which suggest the need for more systematic academic advice in schools through programmes which provide 'Academic Counselling'.
6. Identified enablers and constraints for Pasifika students to gain higher access to and achievement in NCEA pathways that increase the likelihood of tertiary study and employment in high-growth, high-demand areas. Enablers were:

- Support for increased knowledge and dispositions for student success. These include increased levels of understanding of NCEA and the wider qualifications systems and increased personal control (agency and goal setting) in decision-making
- Literateness and choice making for course selection to ensure educational and employment trajectory is mapped effectively and then supported
- Academic Counselling that is strategic and data driven allows the mediation of in-depth understanding of NCEA alongside effective course selection for improved student transitions in secondary school.

The analyses of the NCEA data from two databases involving 32,000 students from 2007 to 2013 in Auckland and Northland schools showed:

1. At Year 11, three-quarters of Pasifika students favour academic pathways (this reflects the requirements for Level 1 NCEA). This drops to below 50 percent in Years 12 and 13, and is particularly dramatic in science, where less than 20 percent of Pasifika students favour a science pathway across those years. By Year 13, 52 percent of Pasifika students favour non-academic pathways.
2. The pattern of smaller proportions of Pasifika students that favour academic pathways from Years 11 to 13 may have become more extreme during the period of 2011–2013.
3. At Year 13, most Pasifika students had a favoured pathway that gave them less than 30 percent odds of attaining University Entrance. Only 13 percent of Pasifika students at Year 13 had a favoured pathway that would give them greater than 60 percent odds of attaining University Entrance.
4. Even when taking a pathway that was highly likely to lead to University Entrance, smaller percentages of Pasifika students than would be expected gained University Entrance. A student is more likely to get University Entrance if they take STEM¹ subjects in Year 11 to Year 13.
5. The issue of subject choice and navigation through NCEA for Pasifika students is linked to knowledge of standards, tertiary pathway options and career pathways. Therefore, an early focus at four key levels (school, student, family and industry) might better address the ‘drop-off’ mentioned above and not only encourage, but strategically support the selection of more ‘academic pathways’ from secondary through to tertiary.

Interviews with CEs and workforce managers of high-growth, high-demand industries showed:

1. They require candidates to have a tertiary qualification in order to be employed as staff in the core area of their industry, but the degree/qualification was not always highly specified. For example, an engineering qualification required a Bachelor of Engineering (BEng). However, in finance (depending on the specific business area) there was scope for candidates to have degrees from a variety of domains.
2. Technical skills required for entry-level positions varied from company to company, however respondents were unanimous that candidates need excellent people skills and as

¹ Science, technology, engineering and mathematics.

such, be able to work well in teams, be trustworthy, and able to communicate with a variety of people at different levels. Time management skills were also highly regarded.

Interviews with Pasifika students and families showed:

1. There is variable and sometimes opportunistic (rather than systematic and planned) advice from the schools.
2. There is variability in how the pathways related to occupations and employment is represented in terms of student interest in these areas (especially in the high-growth, high-demand sectors).
3. The Health Science Academy model which offers a cohort style approach, involves the students and their families at the onset. Although science academies may be difficult to take to scale, elements of the model are able to be incorporated into schools and to be taken to scale. Examples include the evidence-based academic counselling and guidance in the Starpath project², and strategic planning of any future academy models leveraging prior interagency collaborations and approaches.
4. There are also significant roles of responsibility for Pasifika students themselves toward early career pathways and future planning.

We propose a Transition Focus model for planning to raise Pasifika students' access to and pathways for increased interest and participation in high-growth high-demand industries (refer to Section 6). Informed by reviewed literature and the combined findings from this study, the model designates:

1. Three key transitional focus stages, namely an early focus (Years 9 &10), transition focus 1 (NCEA Levels 1 & 2) and transition focus 2 (Year 13 and beyond);
2. The identification of two high status enablers exerting influence across all key transitional stages:
 - Knowledge of NCEA Standards-Tertiary Pathway-Career (S-TP-C)
 - Dispositional skills building (for example: agency; self-regulation)
3. Purposeful and considered incorporation (including raised awareness) of the other identified enablers (academic counselling and course\literateness\career selection) across key stages, commencing at Year 9 and 10;
4. The importance of school, student, family, industry and tertiary in interactive partnership towards generating specific stakeholder awareness and knowledge building (particularly in student profiling, career aspirations/mapping, course pathways, targeting, monitoring and goal setting/revising) with more active industry and tertiary involvement, from the early focus stage.

² www.education.auckland.ac.nz/en/about/research/starpath-home.html

1. Overview

This full report is the second milestone delivered to the Tertiary Education Commission. It incorporates the literature review, interview and achievement measures, and results of the analyses, which have been used to support the development of a scalable model for increasing the alignment for greater success for Pasifika learners for employment in high-demand, high-growth industries. This model has been developed specifically for tertiary education institutions like the University of Auckland but will be applicable to other tertiary providers, schools, families and policy-makers.

The objectives in this three-phase project are focused on determining innovative ways of working with Pasifika learners, families and communities to promote increased interest and participation in high-growth, high-demand industries. This project aims to answer questions about how to optimise connections between high-growth, high-demand industries and Pasifika learners and their communities so that effective transitions can be made through senior secondary school and through graduate programmes.

The project focuses on Pasifika learners and optimal pathways and support (including support from families) through Years 11 to 13. Specific target areas include literacy and numeracy requirements through NCEA Level 2 and University Entrance which enable smoother and effective transition into, and success with, STEM subjects, and subjects associated with employment in high-growth, high-demand industries at tertiary levels. The focus also includes examining and developing a model for alignment between senior secondary school, university success and the profiles needed for employment in high-growth, high-demand industries.

This is a mixed-methods project which employs elements of design-based research approaches, specifically profiling logic. The profiling involves an iterative process of examining current evidence and developing hypotheses about the problem to be solved using the various data sources. In the current case, it is the problem of the roles of secondary and tertiary providers in increasing the employment success for Pasifika students in high-growth, high-demand industries.

The research evidence to date describes Pasifika youth as especially vulnerable to a 'skills gap', with low secondary achievement rates and low tertiary completion. However, there is international, and some national, evidence for how more effective transitions through and from secondary schooling might be developed. The goal for this project is to develop a transitional model which could be generalised beyond the Auckland context, within which the University of Auckland functions.

2. Literature Review

2.1 Background

In *The Education-Jobs Gap: Unemployment or Economic Democracy*, Livingstone (2004) describes the underachievement of society's disadvantaged and marginalised as 'the talent gap'. If, as evidence indicates, low achieving students from minority ethnic groups and low socioeconomic communities have the same ability and talent potential as those from high achieving groups, then the under achievement of these groups represents a 'major wastage of talent' to our society (Lauder, 1992). Within the New Zealand context, Pasifika and indigenous Māori, who have long been statistically representative of lower achievement (by comparison with non-Pasifika and non-Māori), not only characterise the loss of potential surgeons, lawyers, engineers, teachers, trades people and business leaders, but of the rewarding, beneficial contributions such talents afford the economy and wider society. Pasifika peoples are over-represented in the lowest skilled job categories in New Zealand, coupled with low future demand (Tertiary Education Commission, 2012), in the number of students leaving compulsory education with low level qualifications and the numbers of 15-19 year old NEETs (not in education, employment or training – a term established by the International Labour Organisation in 2011). Young NEETs are especially vulnerable to the 'skills gap' (differential between the skills an economy needs, versus the population skills earned) of which Pasifika constitute 17.5 percent of New Zealand youth (Statistics New Zealand, 2012), the second highest category behind Māori.

In seeking to make such challenges a priority, the New Zealand government has nominated 'Boosting Skills and Employment' as one of its five Better Public Service Targets. A more specific goal is to increase the number of 18 year olds achieving Level 2 of the National Certificate of Educational Achievement (NCEA) from 75 percent to 85 percent by 2017 (New Zealand Government, 2012). Furthermore, in the pursuit of both compulsory and post-secondary educational systems equipping 'all our learners with skills that allows them to succeed in the 21st century' (p. 2), the Government's tertiary education funding agency, the Tertiary Education Commission (TEC) has developed Tertiary Education Strategy Priority Group Frameworks to optimise service pathways, not only towards increasing NCEA Level 2 qualifications, but the transitioning between secondary and tertiary interfaces into high-demand, high-growth employment industries. In particular, the TEC Pasifika Framework (Tertiary Education Commission, 2012), developed in consultation with the TEC Pasifika Working Group, identifies Pasifika as one such priority focus group towards ensuring learners 'progress to and achieve at higher levels of study' in mitigating low-paid, low-skilled employment outcome patterns (p.2). The TES (Tertiary Education Strategy) not only identifies Pasifika groups as having the lowest completion rates at tertiary level than other priority groups, but by 2026 the demographic profile for New Zealand's youth population is likely to show considerably higher growth for Māori and Pasifika – 59 percent and 25 percent respectively, compared to the 11 percent general rate. Therefore, whilst a strong moral imperative exists to focus policy and resource measures towards improving the outcomes of Pasifika people (traditionally underserved within education), the New Zealand economic imperatives suggest substantial growth in the future workforce is likely to emanate from the Pasifika youth sector.

In forming initial outputs from joint government agency projects on employment outcomes of tertiary education, Earle (2010) and Mahoney, Park and Smyth (2013) conclude there is clear evidence tertiary certificates and diplomas are associated with higher rates of employment and higher incomes (particularly when compared with no qualifications), and NZQF Level 4 qualifications with better income and employment compared to merely having a school qualification. Scott's (2009) analysis of New Zealand statistics data pertaining to annual three-year post-student earnings of domestic school leavers (last enrolled in 2003 tertiary education), included earnings that were 51 percent higher for those with a completed bachelor's degree (compared with a Level 1 to 3 or upper-secondary level equivalent), 30 percent higher with a bachelor's degree (compared with a diploma), and 16 percent for those with a degree (compared with a diploma). Students with masters and subsequent doctorate degrees reflected 16 percent and 45 percent higher incomes respectively. Increasingly, the pressures of a global economy are not only thought to render secondary school graduation insufficient to enable a family-sustaining wage (Hooker & Brand, 2009), but complete sectors and occupations have been observed to significantly shrink or disappear within a decade or shorter, such that people are more likely to return to further and higher education at some point in their lives. No longer is it the case that a majority will be holding the same occupation across their working life (Young, 2006).

Thematically and structurally, transitions from compulsory to tertiary education and employment are signalled as important improvement mechanisms and focusing imperatives of the TEC Pasifika Framework (and the Framework for Youth and Transitions more generally). Four critical areas of focus proposed to have the greatest impact on outcomes for Pasifika learners are:

1. Successful transitions (into tertiary education, higher levels and on to employment);
2. Continued and accelerated educational performance at all levels (towards completion of qualifications and transitions into improved future employment prospects);
3. Interagency collaboration (enhanced connections among education sector agencies including Government, PTEs, and ITOs to track, inform and improve Pasifika transitioning);
4. Research and evidence – in 'developing, commissioning and disseminating research relevant to Pasifika outcomes' (p. 2).

Whilst the TEC Pasifika Framework (2012) advances the need to ensure a skilled and qualified Pasifika workforce with the aim of increased participation in high-growth, high-demand industries, it is 'Focus Area Three' of the Framework for Youth and Transitions (Tertiary Education Commission, n.d.) that anticipates ways this may be achieved. Responding to the existence of knowledge gaps in the New Zealand economy, particularly in the area of sciences, technology, engineering and mathematics (STEM), the 'Vocational Pathways' are seen as delivering a context for increased uptake of Levels 1-3 STEM-related learning by way of industry and sector recognised unit and achievement standards that include Level 1 and 2 credits in 'applied' STEM subjects. The Pathways incorporate five industry sectors as illustrated in Figure 1: manufacturing and technology; construction and infrastructure; primary industries; services industries; social and community services.

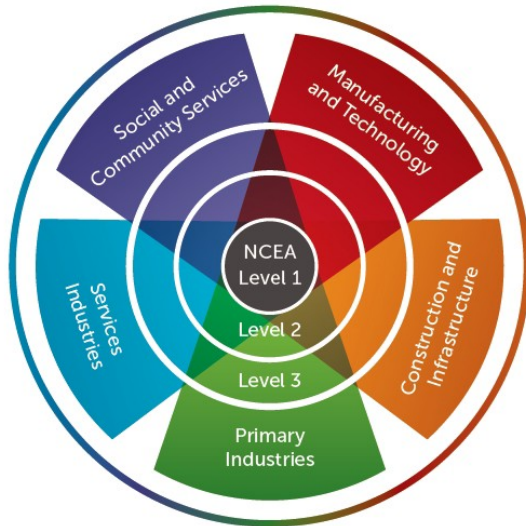


Figure 1. The five vocational pathway sectors

In a paper evaluating the implementation of the Vocational Pathways, Harrity (2013) explains:

‘The theory of change guiding the Pathways is that general education and vocational or career-focused education can be combined to enable students to develop the foundational skills that all employers are seeking. As such, they serve to address two key issues facing young people today, the disconnect students often feel between what they are studying and their future careers, and the challenges students often face in transition into further education and work.’ (p. 3). For example, where relatively uncomplicated transitions could once be made between traditional apprenticeship schemes and entering trades service, or university and professional employment, weakening links between education or training and workplace, the proliferation of tertiary level courses (following university deregulation), and labour market fragmentation, have undoubtedly aggravated transition negotiation and participation towards improved career prospects (Vaughan & Roberts, 2007).

2.2 Transitional models and trends

According to Higgins (2002), transitional reform aimed at optimising access to post-secondary education and employment continues to follow a ‘linear pathways’ metaphor (p. 53). Tracing assumptions informing transition, the post-war era (until the early 1970’s) can be seen to involve the privileging of an elite that would advance to university, whilst the remaining school leaving population (principally women and to some degree the ethnically marginalised) were filtered directly from school into employment or other socially mediated roles. In the full employment years, job opportunities were created for the unqualified young, and a gender-segregated apprenticeship system funnelled male school leavers, not destined for university, into skilled trades and on-the-job training positions (sequestered from more experienced or skilled, older workers). Whilst post-war systems can be said to have acted as potent mechanisms of social stratification, the neo-liberal, followed by neo-conservative governments of the 80’s and 90’s, sought to initiate a meritocratic, market-based system. This was designed to engender open, equitable and competitive access to education and employment via policies such as bulk funding, de-zoning and tertiary loans (the

latter intended to remove what were considered largely financial barriers to formal tertiary education).

Following the establishment of market-based educational policies, and what McKenzie, Lee and Lee (1990) refer to as the eventual demise of technical and vocational education (after the deregulation of universities and a burgeoning of the private training sector), a more general academic or comprehensive high school system materialised. In New Zealand, Middleton (2011) claims that as a result, young people were at secondary school for longer periods, facing far more sophisticated transitions which not only introduced a considerable level of complexity to choices concerning the future, but with increasingly less relevant and experiential connections between an academic curriculum and the world of work. Therefore, as the goal of universal secondary education was being realised, new dilemmas of disengagement (psychological or physical drop-out) and the consistent under-achievement of marginalised groups of young people (particularly ethnic minorities such as Pasifika, and the working class) became more obvious, having previously been disguised by earlier exits into apprenticeships, training or the labour market.

The 90s also saw an extended version of the linear 'age-and-stage' transition model with the introduction of the National Qualifications Framework (NQF) and young people following a system of extended periods of study, affected by restrictions around acquiring loans, allowances and other welfare measures (such as abolition of DPB for those under 18) and incentives for pursuing certain pathways from education to work whilst still residing at home – 'extended' because of student loan factors and long periods of study. It is only with the later introduction of 'Gateway' and 'STAR' (Secondary Tertiary Alignment Resource) programmes that policy-makers began a measured return to vocational provisions at the secondary level as an alternative pathway for those students who were unable to achieve success within a more comprehensive and academic educational regime.

Structurally, post-secondary transition models incorporating vocational pathways present viable, skilled alternatives to university or traditional academic pathways to tertiary certification. However, one of the predicaments is creating options without the stigma and parental perceptions of lower- status, alternative streaming programmes, which fail to deliver on prospects for real, higher-quality employment options and post-secondary educational opportunities (Levin, 2008). Pasifika students are particularly vulnerable to being assigned to such tracks based on their continued over-representation in statistics of underachievement (48.2 percent of Pasifika students achieved Level 2 certification in 2012). Even in the early years of NCEA, the *Learning Curves* investigation (Hipkins, Vaughan, Beals, & Gardiner, 2004) into senior secondary students' course selection revealed Pasifika students were over-represented in 'alternative' subjects which restricted subsequent study opportunities. Research into *Pasifika Achievement – Engagement and Choice* (Harkess, Murray, Parkin, & Dalgety, 2005) described how Pasifika students were more frequently assessed using Unit Standards (rather than Achievement Standards) which is often the staple assessment method of alternative programmes tailored to students deemed unlikely to find success in a more academic and literate course of study and in attempts to engender engagement and achievement success. But perhaps of more concern is the considerable evidence that Pasifika students are opting for or directed into subject pathways that do not correspond with their

aspirations or their potential for degree level study (Jensen, McKinley, & Madjar, 2010; Vaughan, 2008; Yuan, Turner, & Irving, 2010).

However, secondary school reform data suggests global trends towards a reformulation of comprehensive secondary curricula into a number of *upper* secondary tracks, with new vocationally oriented specialisations emerging – tracks that balance curriculum flexibility and adaptability to student needs with academic, social and labour market requirements (Benavot, 2004). Widening the dimensions of the curriculum are not only suggested as ways of responding to increasing student diversity at the secondary level, but in changing perceptions held by students, their families and employers of vocational education as a dead-end, second-class option for those who fail to achieve at ‘real’ school subjects.

In Canada, the Ontario solution to lower-status streaming programmes and the substantial decrease in secondary school drop-out rates has been the High Skills Major scheme, a component of the Student Success/Learning to 18 Strategy (SSL/18) (Levin, 2008). The SSL/18 is a province-wide strategy designed to ensure all students complete their secondary schooling and realise post-secondary goals of apprenticeship, college, university or employment. In 2003 the Ontario graduation rate of 68 percent was predicted to result in income assistance (at some point in their lifetime) to some 34 percent of high school dropouts, by comparison with 7 percent of graduates (Ontario Ministry of Education, 2011). Similar to New Zealand Pasifika, Aboriginal (Canadian Indian) featured strongly in statistics of underachievement and dropout statistics. A feature of the Ontario Specialist High Skills Major is that it allows schools and districts to collaborate with employers and other community stakeholders to create course packages leading to real employment in areas such as mining, manufacturing, tourism and agriculture. The programmes include components with links to colleges for postsecondary education, real workplace credentials such as safety and equipment training, and course bundles in specific high skills areas for industry approved accreditation and gainful employment. In 2009, following six years of Student Success/Learning to 18 Strategy, the ministry reported 81 percent of students graduating from high school, a 13 percent increase on 2003 (Ontario Ministry of Education, 2011).

The independent review of the SSL/18 strategy (Ungerleider, 2008) involving interviews, online surveys and focus groups recommends ‘equal respect’ be afforded post-secondary pathways (apprenticeship into skilled trades, immediate secondary employment and other forms of tertiary training), as is traditional preparation of students for university. Many respondents maintained, ‘the mandate of secondary schools has changed: all students are a priority, not simply those who are planning to go to university’ (p. 83).

Similarly, New Zealand’s first Tertiary High School (THS) established at Manakau Institute of Technology in Auckland, employs a model of synchronous study at both secondary and tertiary levels incorporating more modulated transitions towards this aim. In a series of working papers, Middleton (2011) maintains the goal of providing universal pathways to success is moving further away in New Zealand as the education system increasingly pursues a general academic curriculum. In focusing on mediating more successful outcomes for ‘priority learners’ disengaged from education, the notion of a ‘porous boundary’ is offered as a ‘softer zone of transition’ (p.11), occurring over a set of curriculum focus points, experiences and mixed level study that blurs entry and exit to stages and levels. In a longitudinal study to evaluate

determinants of THS student success (Young, 2011), integrated learning plans combining tertiary and secondary courses with academic rigour and personalised instruction, were found to make considerable difference to students' perspectives and attendance. Students rated the THS experience more interesting and relevant in comparison to previous secondary schooling experiences.

Linear 'age-and-stage' extended and market models of transition are in contrast with an extensive range of youth transitions research published in recent years in Australia, Europe, the United Kingdom, Scandinavia and North America (Higgins, 2002). Challenging the simple school-to-labour market model and tracking approaches in policy and research, Vaughan and Roberts (2007) offer a broader understanding of transitional pathways. In their longitudinal study (involving interview analyses of 114 young people's accounts and perspectives of transition experiences) the authors offer four clusters, framing the complex nature of young people's narratives of identity construction and pathway negotiation as Anxious Seekers, Confident Explorers, Hopeful Reactors and Passion Honers. Mapping two primary themes of security and exploration to frame young people's concerns and interests across the four clusters, reveals young people's pathway and career choices as 'identity investments' in which process and production have valued consideration – each cluster uniquely illustrates that pathway and career options are valued as much, and sometimes more, for 'what they can do for the person than what they are in terms of discipline or industry content' (p. 101). In underscoring the view that career is no longer a structure, but a process (involving factors such as exploration and security), problematises what it means to make 'successful' transitions in terms of policy objectives and careers guidance – for example, domination of transition-to-labour market or career-as-outcome could be seen to downplay and even restrict young people's dispositions towards exploration, say in favour of security, which in turn, limits long-term study pathways into optimised career development.

2.3 Optimal secondary pathways and support – enablers and constraints

For some time commentators have noted that little is known about the nature of transitions between post-compulsory education and the workplace in New Zealand (Higgins, 2002). Even less is understood about Pasifika perspectives and navigation of the increasingly complex secondary school to job-market terrain. However, aspects of transition that have been explored in more recent times, particularly research emanating from the Starpath Project, underscore aspects of Years 11 to 13 secondary progression, credentialing and support (including family support) as significant enabling or constraining factors in smoother and effective transitional outcomes. The empirical evidence discussed hereafter points increasingly to influencing factors (particularly on tertiary education and pathways associated with high-growth, high-demand industries) that include: understanding of the NCEA (and wider qualifications) system, literateness and course choices, academic counselling and dispositional skills.

2.4 Understanding the NCEA (and wider qualifications) system

Whilst the flexibility and complexity of the NCEA system caters to the needs of an increasingly diverse student population and supports greater success in a variety of subject combinations at varying levels, it is these very characteristics that can operate as obstacles to stakeholder aspirations and goals. Limited strategic, architectural and contextual knowledge have been identified as particular barriers. For example, in the Starpath Project study involving interviews of 87 students, 42 parents and 32 teachers from four low-mid decile schools, Madjar, McKinley, Jensen, and Van Der Merwe (2009) found that parents, and many students, lacked 'strategic' knowledge of the NCEA system in that parents tended to understand the basic characteristics, such as the three levels of certification and credit accumulation via internal and external assessment regimes, whilst students were generally more 'street smart' – they knew how to maximise credit gain for the least effort, how to avoid external examinations by gaining credits internally and when they had fulfilled the minimum requirements for qualification accreditation. However, even Māori and Pasifika students with a strong achievement record at NCEA Level 1 were less likely to have specific and clear educational goals, less likely to seek academic advice early and suspend decisions regarding university education until Year 13. It is these students, and their parents, who would potentially be less aware of the many particular (and often hidden) aspects of the NCEA system that can lock students out of academic pathways (or completion of prerequisite standards) required for more advanced study, leading to more viable future prospects. For example, while most students and parents are aware of the streaming arrangements within the NCEA system, they are unlikely to have knowledge concerning the provision of different versions of subjects in the different tracks, of 'applied' or 'practical' versions of core subjects, and that individual school departments often have their own quota of credits in order to advance to the next subject level.

Different versions of the same subject course, including the related terminology (often unsanctioned in official NCEA literature) add to the complexity undermining students' and parents' ability to not only make informed pathway choices, but in generating confidence that each choice is advancing higher educational and employment goals. For example, Hipkins et al. (2004) distinguish between the three types of courses that can be observed across curriculum areas as 'traditional-discipline' (full complement of achievement standards), 'locally-redesigned' (less traditional curriculum content with a mixture of unit and achievement standards), and 'contextually-focused' courses (offering a reduced number of credits, predominantly from internally assessed unit standards), with 'closer links to students' everyday life contexts of future work or leisure' (p. 17). Similarly, Wylie, Hodgen, Hipkins, and Vaughan (2008) maintain four main secondary school clusters (traditional arts; traditional science; contextual; and vocational) creating two divergent pathways in the 'academic' and alternative or 'practical'. Whilst the traditional arts and sciences clusters provide an endorsed pathway to university study, the practical clusters 'potentially limit students' opportunities for tertiary study, especially the vocational cluster' (p. 17). Pasifika parents are typically uninformed concerning this sort of architectural and in-school contextualised knowledge of NCEA, potentially requiring consideration as early as Year 10 when students are contemplating option subject selections, and highlighting that even minor decisions need to be strategically considered for all their possible academic repercussions in order that particular long-term

outcomes are secured (Madjar et al., 2009). However, parental input into both student study habits and subject choice has been found to be minimal (Faitala, 2013), despite parents and families understanding of how the NCEA system operates (and their involvement in subject or course decision-making) being reported to provide increased possibilities of Pasifika young people acquiring university entrance (Jensen et al., 2010; Yuan et al., 2010).

Pasifika students also tend to be less likely to articulate strategic aims beyond 'doing well' and Pasifika parents hold similar assumptions that their children would 'get there' if they 'attended school, did their homework, behaved in class, and stayed in school till the end of Year 13' (Madjar et al., 2009). The authors maintain that whilst such goals are well-intentioned, they are not strategically sufficient to translate into aspirational outcomes. Missing from their *Towards University* data was mention of any specific strategies offered by parents or students for navigating and leveraging educational pathways towards accessing and succeeding at post-secondary level (or in managing the risks of wrong turns and where progress is impeded along the way). Whilst Pasifika parents appear to emphasise the importance of a 'good education' and of their children needing to study hard and 'passing well', they did not appear to appreciate that:

'Accumulation of *credits* alone was not sufficient, and that students could be diligent and do well in their secondary education but not necessarily achieve either the minimum qualifications or the educational grounding needed to cope with the demands of degree level education.' (Madjar et al., 2009, p. 88)

Similarly, a more recent investigation by Faitala (2013) examining the factors contributing to numbers of Pasifika students who are not eligible to move to university, further supports the Starpath findings. General perceptions of the 120 students interviewed were that they would automatically have a pathway to higher education, regardless of their course programme – almost all participants believed they would be going on to university, which was unlikely given the large research sample, the number who had chosen non-approved subjects and had not achieved the prerequisite literacy credits. Pasifika perceptions of self-efficacy, coupled with positive attitudes to school, but low achievement, is a confounding trend given the tendency for high Pasifika aspirations. In an earlier study of *Progress at School* data, Nash (2002) references compelling conversations with Pasifika senior secondary students to illustrate that despite influential theories of education which claim working class students 'internalise the odds of their social group', and underachieving as a result of low aspirations (Bourdieu, 1999; Fowler, 1996), in New Zealand Pasifika students are a major exception to this pattern. It would appear the relationship between aspirations and achievement is far more complex. Interviews revealed many Pacific students faced extraordinary family pressures to achieve at credentialed academic levels, often positing goals entirely unrealistic given the students' academic records. Furthermore, where some schools had been encouraging students to develop their areas of competence and strength, parents were unwittingly impeding progress in insisting on academic routes that students were realistically unable to achieve. Nash (2002) maintains that Pacific families often lack specific forms of cultural capital to successfully leverage the school and its systems towards optimal outcomes and that much more needs to be done to assist Pasifika families' negotiation of futures for their young people outside and beyond compulsory education.

The intergenerational effects of parental education are also well-established in that students whose parents have a university qualification are considered about 4.5 times more likely to attend university themselves, in comparison to students whose parents do not have post-secondary education (OECD, 2010). Recommendations include targeted support or mentoring of students with parents of lower educational levels in furthering university or tertiary prospects, which Mose (2012) affirms as valuable in assisting students transition to university, particularly for those first in the family to study at a tertiary level.

2.5 Literateness and course choices

The importance of literacy as a significant factor in academic achievement, as well as providing pathways to improved occupational and social outcomes, is well documented. However, there is a growing evidence-base considering literateness in relation to school subject choice and course-taking playing a considerable role in shaping educational and employment trajectories (Faitala, 2013; Madjar et al., 2009; Shulruf, Keuskamp, & Timperley, 2006; Shulruf, Tolley, & Tumen, 2005).

Subject selection data in the Faitala (2013) study illustrates that Pasifika students were predominantly following what Wylie et al. (2008) identify as the 'contextual cluster' (practical or applied) and the 'vocationally' timetabled subjects such as food technology, physical education, information technology (or computers) and life skills. Very few surveyed students were found to have developed a culture of regular reading and writing in the home, whilst the research sample indicated a paucity of reading and writing both *at* and outside of school. The *Summary of Findings from the Evaluation of the Effective Literacy Strategies: Pasifika Focus Professional Development Project* (McDonald & Thornley, 2006) conducted in 20 secondary schools (with high numbers of students from Pasifika backgrounds) also reports limited opportunities for students to engage with challenging texts and provision of language and literacy opportunities that foster enhanced literacy achievement. Students in the focus group reported having little trouble with reading and writing at school, but further explained that they were generally asked to only read short excerpts of text that presented no challenge and were often unmotivated by what they were required to read. The less 'literacy rich' and more 'hands on' and non-approved programmes tend to be popular with many Pasifika students, but most of these courses comprise subjects not approved for University Entrance (Faitala, 2013). Therefore, research reinforces the need for students and their parents to be suitably informed concerning opportunities for improved literateness in relation to course choice, and the need for 'applied' and 'practical' programmes to deliver robust literacy practice, experiences and accreditation to equip students for further education of the kind that leads to skilled and professional employment, and the imperatives of a more literate self. Data recently reported by Wilson and McNaughton (in press) extend this observation. They note that achievement standards in science and mathematics often require students to have very well developed subject-specific literacy knowledge and skills. Their analysis of subject literacy achievement standards (e.g., in Level 2 biology: *9117 Demonstrate understanding of genetic variation and change*; or in Level 2 mathematics: *91267 Apply probability methods in solving problems*) shows that Pasifika students in a cluster of secondary schools were less likely to be enrolled in these standards than students nationally, and those who were entered were less likely to pass.

Prudent course planning and configuration of constituent assessment standards, particularly of achievement standards, not only offer opportunities for literacy enhancement, but the ability to attain University Entrance for Pasifika students with potential. In the first large quantitative study, drawing from a national data set of over 45,000 young people with NCEA Level 3 and University Entrance, Strathdee and Engler (2012) assessed the propensity of young people to progress to bachelor level study, while controlling for ethnic background, socioeconomic status (as measured by the decile of the last secondary school attended), gender and school achievement. Whilst prior school achievement was shown to be the strongest predictor of University Entrance progression, the results of students from higher decile schools (9 and 10) showed essentially little or no differences between ethnic groups when controlling for school decile – Pasifika students were just as likely to study at bachelor level than their Asian peers, and only slightly less than Europeans, for students with average or above average achievement. However, controlling for school decile (limited to high and low-decile schools) differences were found within ethnic groups. For example, the difference in the likelihood of European students progressing to bachelor-level study occurs for students that are achieving in the mid-range. On the other hand, for Pasifika the differences occur between deciles, and across a wide range of achievement levels. An associated study (Engler, 2010b) also reveals that although a higher likelihood of progressing to bachelor-level study is associated with higher school achievement, this was not the case for sole-Pasifika (students who continued to identify as Pasifika across the longitudinal study), and generally those from low-decile schools.

Underscoring the need to improve degree progression for high achieving students in low-decile schools, Turner, Irving, Li and Yuan (2010) investigated the effects of the number of available Level 3 Achievement Standards on student success, finding that when ethnicity is taken into consideration, increasing the number of achievement standards offered to students has an ‘intricate effect’ on their success rate. Refined analysis of the effect according to academic ‘ability range’ as well as ethnicity, revealed a positive effect in the ‘mid-to-hi’ range for both Māori and Pasifika students; the implications being that with more judicious attention to identifying Pasifika students with ‘reasonably high’ academic potential, the authors maintain there is a considerable window of opportunity for improved outcomes, should these students be steered into programmes where opportunities to attempt more achievement standards are made available. A crucial caveat to these findings involves associating a mere increase in achievement standards on offer without taking into account student potential. In this case, the power of the available standards in predicting success were largely dominated by the Pakeha group, and found to have no influence at all upon Pasifika, until subdivided according to the indicator of ability.

2.6 Academic counselling

A number of overseas studies suggest the need for more systematic academic advice in schools (Mau, 1995; Scheel & Gonzalez, 2007), whilst the New Zealand *Competent Children, Competent Learners* (Wylie & Hipkins, 2006) project reported that Māori and Pasifika students were particularly inclined to express a need for extra guidance when making subject choices. Investigating factors influencing students’ subject choices and career aspirations at Year 9, *Pacific Adolescent Career Pathways* (Ministry of Pacific Island Affairs, 2012), the largest and only longitudinal study of its kind to date has found that over half of the 918

Pasifika students surveyed across 27 Auckland secondary schools indicated that no-one helped them choose their current subjects. Although almost half reported teachers were encouraging and supportive in relation to learning and careers issues, they noted that career guidance counsellors were the least prominent form of help and more than a third expressed difficulties setting career goals or in relating their capabilities to a specific career plan.

Similarly, at more senior levels, Starpath Project research (Madjar et al., 2009) emphasises a limited appreciation by Pasifika parents and students of the significance of subject and standard choices (either by the student or school directed), and the particular combinations of subjects and credits needed to achieve the NCEA qualifications to adequately prepare for a particular field of study at university. Understandings of NCEA, effective course selection, developing positive approaches to raising literacy and other imperatives for improving effective student transitions have been found to be positively mediated through academic counselling. The Starpath Project *Targets and Talk: Evaluation of an evidence-based academic counselling programme* (McKinley et al., 2009) conducted a formative stakeholder evaluation of the Academic Counselling and Target Setting (ACTS) programme, investigating the experiences and outcomes of the intervention on a Year 11 student cohort, their parents/caregivers, school Deans, form and key subject teachers. ACTS is a systematic, whole school approach to increasing school-wide academic outcomes by establishing longitudinal academic profiles (or data sets) to inform decision-making and monitoring of academic aims set by students and their teachers. *'Targets and Talk'* found that establishing achievement standard targets with individual Pasifika students (for NCEA Level 1 English and mathematics) significantly contributed to positive effects on students outcomes by way of quantity, and quality, of performance in NCEA GPA (when compared with national benchmarks).

However, the ways in which academic counselling is implemented and supported may not necessarily engender higher levels of knowledge of NCEA, or of academic goals. In a study of six tutor teachers and their 95 students involved in an academic counselling initiative in a decile 1 school, Savage (2012) found Year 12 students had low knowledge of the previous year's NCEA Level 1 requirements and even lower knowledge of how to achieve a Level 2 certificate endorsed with Merit. Although discussions about approved subjects and University Entrance were expected to begin at Level 2 subject and tutor classes at the school, very few of the students were found to have any knowledge of University Entrance requirements. In fact 88 percent of the participating students reported no knowledge of University Entrance or approved subjects. Students tended to struggle to make sense of their NCEA Record of Learning without help, and felt they required more guidance in understanding its implications. Furthermore, over half of the students reported their teachers had not engaged them in discussions about option selections, linking their current achievement with future goals.

International and local socioeconomic research maintains an even broader role for in-school academic and careers counselling in recognising young people require preparation for life-long learning and career decisions in a global economy. In the Dutch setting, Borghans, de Grip and Heijke (1996) extend the notion of secondary school counselling and guidance to the provision of professional and vocational forecasting, recommending that labour market information be provided to students that includes projected future market conditions for

different vocational specialisations. Locally, Vaughan, Phillips, Dalziel and Higgins (2009) maintain the provision of expert advice at the secondary school level is insufficient and that young people need to be provided with strategic knowledge of how to access and utilise for themselves 'employer-led channels to obtain knowledge about employment opportunities and the value of different qualifications offered by different education and training choices' (p. 35).

2.7 Dispositional skills

Each of the above three enablers is related to the quality and extensiveness of the knowledge a student has for making choices, and the dispositions and attitudes a student has including those related to agency (control in decision making) and goal setting. These are identified in the most recent of the analyses from the *Competent Learners* longitudinal study, although the modelling is not specific to Pasifika (Wylie & Hogden, 2011). The study modelled factors related to success in UE literacy and numeracy where the best fit for either gaining or not gaining has four major factors. One is prior achievement levels in literacy and numeracy (cognitive competency). A second is a composite self-report measure of attitudinal competency comprising dispositions such as curiosity, perseverance, measures of agency such as independence and individual responsibility, as well as measures of prosocial skills and communication. The third measure was attendance and the fourth was the perceived importance of having goals.

While having high levels of cognitive competency is a major advantage for success, even with middle levels of cognitive competency having high levels of attitudinal competency, high attendance and highly valued goals could lift success to around a 60 percent probability. The significance of positive dispositions has been underlined by another study which modelled probability of success across NCEA levels. High probability of success was associated with two measures at Year 11 (including for Pasifika students), which tapped whether students self-reported they were 'Doing My Best' or whether they were 'Doing Just Enough' (Hodis, Meyer, McClure, Weir & Walkey, 2011).

2.8 First year degree level study and completion

Pasifika performance beyond compulsory education, particularly from low-decile schooling backgrounds, appears to reflect similar trends within the university context. Investigating first year bachelor's degree navigation, Engler (2010a) has shown that achievement of 'sole-Pasifika' students reflected lower levels of performance than other higher-achieving students (the sole-Pasifika category were those students who indicated a single ethnic identity as Pasifika whilst at school, and also in their tertiary studies). Furthermore, while most students who showed above-average academic success at school completed 75 percent or higher of their first year tertiary courses (regardless of gender, ethnicity, school attended, enrolled qualification enrolled or whether they took a gap year off), sole-Pasifika students who had attended low-decile schools were less likely to pass most of their first year courses compared to similar students from other schools. Sole-European students attending low-decile schools did not demonstrate this effect.

Similarly, logistic regression used by Scott and Smart (2005) to model the results of approximately 38, 000 students found that Māori and Pasifika had the lowest degree-

completion rates, even after adjusting for demographic and study-related factors, which is consistent with overseas literature, where indigenous or minority groups in general, have been shown to not perform as well as the majority ethnic group. The authors refer to features in literature such as belonging, cultural inclusiveness, curriculum adaptation and financial commitments as possible contributing factors. However, they do point out that the 'cultural minority barriers' hypothesised for the lower performance of Māori and Pasifika students do not seem to apply to the same degree as Asian students, generally found to do no worse than European students.

The literature review identifies changes to and possible directions for increasing Pasifika students' success at school in subject areas that can lead to employment in high-growth, high-demand industries. The next sections extend the literature review in three ways by: conducting more detailed analyses of typical pathways Pasifika students take through NCEA and the relationship between these and tertiary level study; interviews with CEs and workforce managers to determine what employee qualities are sought after in high-growth, high-demand industries; and interviews with students and their families to determine what understandings students currently have about their educational- vocational pathways in relationship to these industries.

3. Methods and Procedures

3.1 Data sources

We relied on three forms of data:

- NCEA data to form a case study
- Interviews with CEs and workforce managers to determine what employee qualities are sought after in high-growth, high-demand industries
- Interviews with students and their families to determine what understandings students currently have about their educational-vocational pathways.

3.1.1 National Certificate of Educational Achievement (NCEA) data

NCEA data have been collected from a variety of datasets already held by the Woolf Fisher Research Centre. Due to varying degrees of missingness and differences in variables collected across schools and over time between the different datasets, two separate databases have been collated.

The first database contains 11,691 students in Years 11 to 13 from nine schools in Auckland and Northland across 2007-2010, including: demographic information for students in each school; such as year level, gender and ethnicity; the total number of credits each student attained in each subject in each year; and the achievement levels (in terms of the certificates attained) in each year. This database was used to form the case study, to measure pathways that students favour, and to estimate the odds (using an odds ratio analysis) of achieving NCEA certificates given students' differing pathways.

The second database contains 20,475 students in Years 11 to 13 from 16 schools in Auckland and Northland across 2011-2013. Like the first database, this contains demographic information (year level, gender and ethnicity), and the total number of credits each student attained in each subject in each year. It does not include achievement information about the certificates each student attained. This database has therefore been used to check the validity and continued representativeness of the findings from the first database, as it enables us to determine whether the patterns of favoured pathways across year levels and ethnicities are consistent over time.

As already noted, missing data are an issue. Therefore not every student within each school, within each school year, in each year level, is included in these databases. However, due to the large sample sizes, and the large number of schools represented, we do not consider this to be a major issue.

3.1.2 Chief Executives and workforce manager interviews

We conducted interviews with 11 Chief Executives (CEs) to identify expectations about qualifications, skills and knowledge that CEs might have for prospective employees. We interviewed a total of 11 participants from five industries that had been identified by

Statistics New Zealand's 2021 Projections, and were listed by Ministry of Business Innovation and Employment (2014) as high-growth, high-demand industries. These included representatives from telecommunications (one), finance (one), health (two), information technology (two), engineering (four), and dairy/agriculture (one). We asked participants about what qualifications they look for, including secondary qualifications and their understandings about the secondary school educational achievement system (NCEA); the skills and knowledge they expect prospective employees to have; what areas within their own industries they believe will become high-growth, high-demand; and what, if any, incentives they offer for Pasifika candidates. The CE interview framework is provided in Appendix A. The interviews were semi-structured to allow participants to elaborate and provide personal opinions and perspectives where they wished to do so. Most interviews were conducted in person and audio recorded, to allow the interviewer to focus on the conversation rather than note-taking. Two participants were not able to be interviewed in person, they were therefore sent the interview in questionnaire form to complete. All recordings were then transcribed, and all data were qualitatively analysed.

3.1.3 Students and family interviews

Three schools were used as sites to identify and describe Pasifika students' and families' experiences of pathways through NCEA. The schools were purposively selected, keeping in mind that they were varied in decile and geographic location. This approach was considered to be particularly effective due to the short timeframe of the project itself. Purposive selection of the Health Science Academy was to capture the essence of this type of programme and to link with the significance of this type of pathway, as identified in the CE interviews.

School A is a decile 1 school, situated in South Auckland. It is involved in several initiatives including Starpath and has a Pasifika population which totals 52 percent. Samoans represent the largest group followed by Tongan, Cook Island, Niuean, Tokelauan and Other Pacific as the smallest Pasifika group.³

School B is a decile 1 school situated in South Auckland. It is also involved in several initiatives including Starpath and a Health Science Academy for its Year 11 to 13 students. The school's Pasifika population totals 83%. Samoans represent the largest group followed by Cook Island, Tongan, Niuean and Other Pacific as the smallest Pasifika group.

School C is a decile 7 school situated in Mt Albert. It is an integrated secondary school that caters for Years 7 to 13. The school's Pasifika population totals 15 percent. Samoans represent the largest group followed by Tongans.

Students were selected based on two criteria: they were of Pasifika descent; and were in Year 11. Eight student participants consented in total and were interviewed. Parents were selected based on two main criteria; they were the main parent/caregiver of the child interviewed and were of Pacific Nations decent. Five parent participants agreed in total to be interviewed.

³ <http://ero.govt.nz/index.php/School-Reports>

An interview format based on a Talanoa framework was designed to capture student and parent voice related to the aims and goals of the project. Copies of the student and parent interview frameworks are provided in Appendices B and C. Specifically, there were pre-designated themes that the interviewer wished to cover. Interviews were audio recorded and transcribed in order for the researcher to get to know the data more clearly to be able to identify and understand the key themes within the transcripts.

3.2 Analysis

Each of the data sources were analysed in separate formats. The two sets of NCEA data were each extracted as separate Excel files and collated into one large Excel database. This was then exported into R (statistical software), where new variables were created based on aggregations of the full dataset. Data visualisations were created in R or Excel. Due to the binary nature of the outcome variables (achievement of the certificate or non-achievement of the certificate), logistic regressions were used to test the odds of attaining each certificate for each year, given the proportion of credits attained via the academic pathway.

Interview data from CEs, parents and students were analysed in Microsoft Word, using an inductive coding framework.

4. Results

4.1 NCEA Case Study Analysis 2007–2010

4.1.1 Demographic information

The first database contains a total of 11,691 students from nine mid- to low-decile schools in the Auckland and Northland regions that sat NCEA during the period 2007-2010. Table 1 shows the breakdown of the number of students by year level, gender, and ethnicity. Note that this only includes students who were in Year 11, 12 or 13 and had achieved a minimum of 10 credits within a given year.

Table 1: Number of Students by Year Level, Gender and Ethnicity

Ethnicity	Gender	Year Levels			
		11	12	13	All
Māori	Female	482	250	116	848
	Male	525	259	108	892
	All	1007	509	224	1740
Pasifika	Female	668	511	263	1442
	Male	578	472	268	1318
	All	1246	983	531	2760
NZE	Female	830	468	339	1637
	Male	821	480	289	1590
	All	1651	948	628	3227
Asian	Female	344	251	209	804
	Male	371	279	190	840
	All	715	530	399	1644
Others	Female	43	33	24	100
	Male	50	33	29	112
	All	93	66	53	212
Unknown	Female	105	515	485	1105
	Male	117	452	434	1003
	All	222	967	919	2108
All		4934	4003	2754	11691

4.1.2 Academic versus non-academic pathways

Subjects offered under the NCEA framework were categorised into four different clusters: arts, science, contextual and vocational; based on previous research (Wylie et al., 2008). A complete list of the subjects and their associated pathways is given in Appendix D. Arts and science subjects were classed as traditional academic subjects, based on the work of Wylie

et al. (2008). While each student will have gained various numbers of credits from different subjects, for the purposes of these analyses, we have determined a student’s ‘favoured pathway’. This favoured pathway was identified by the subjects from which he or she achieved the most number of credits. For example, if a student had achieved 100 credits in total (regardless of the level they were achieved in), comprised of 20 credits in arts, 50 credits in science, 20 in contextual subjects, and 10 from vocational subjects, that student was considered to favour a science pathway. Figures 2-4 show the distributions of favoured pathways for students in Years 11, 12, and 13 respectively. The key findings are:

1. There are higher proportions of students who favour academic subjects, i.e. arts and science, in Year 11 compared to all other year levels;
2. More than 50 percent of Asian and New Zealand European students favour academic pathways across all year levels, while proportions of Māori and Pasifika students favouring academic pathway decreases steadily after Year 11;
3. At Year 11, three quarters of Pasifika students favour academic pathways (which reflects the requirements for Level 1 NCEA). This drops to below 50 percent in Year 12 and 13, and is particularly dramatic in science, where less than 20 percent of Pasifika students favour a science pathway across those years. This is a notably smaller proportion than Asian or New Zealand European students at the same schools.
4. By Year 13 more than 50 percent (51.8 percent) Pasifika students favoured non-academic pathways.

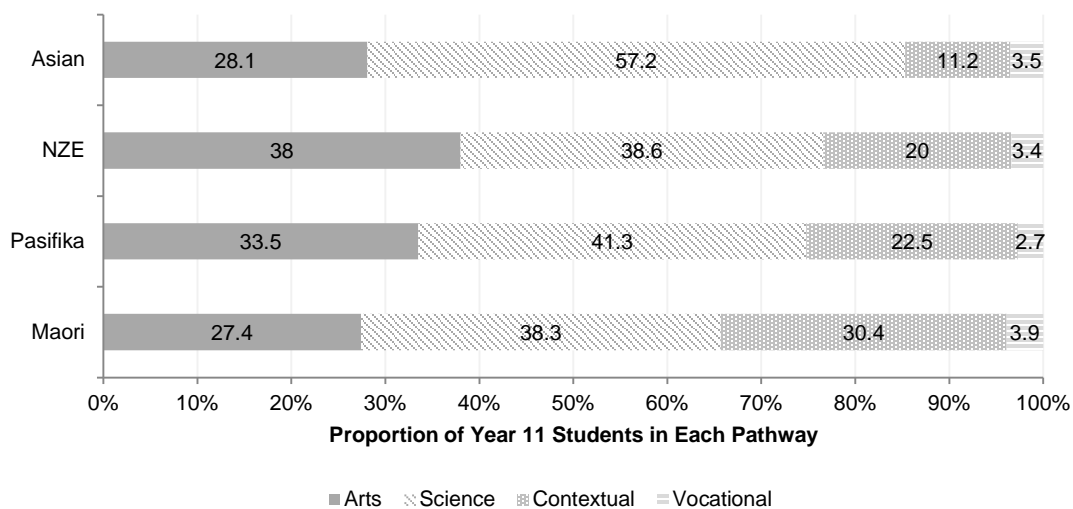


Figure 2. Distribution of favoured pathway of all Year 11 students by ethnicity

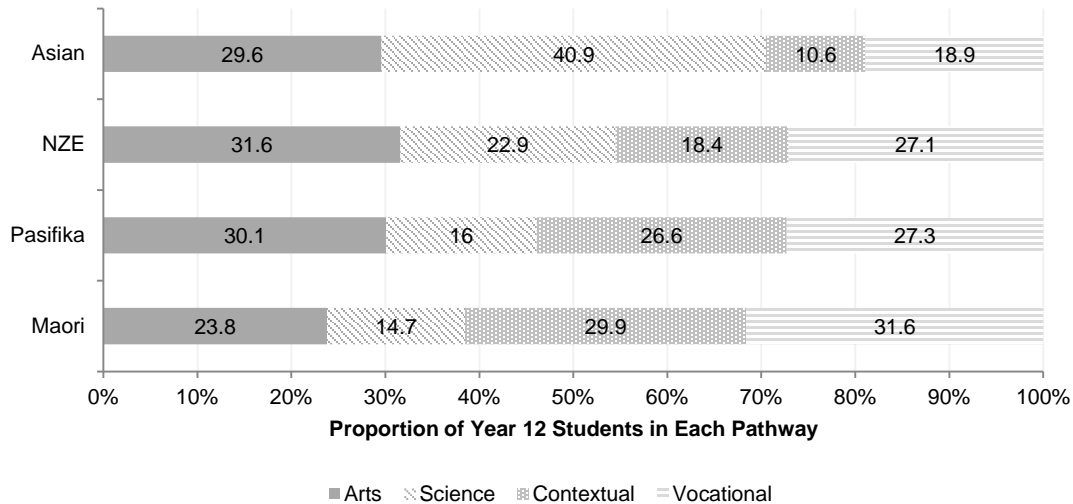


Figure 3. Distribution of favoured pathway of all Year 12 students by ethnicity

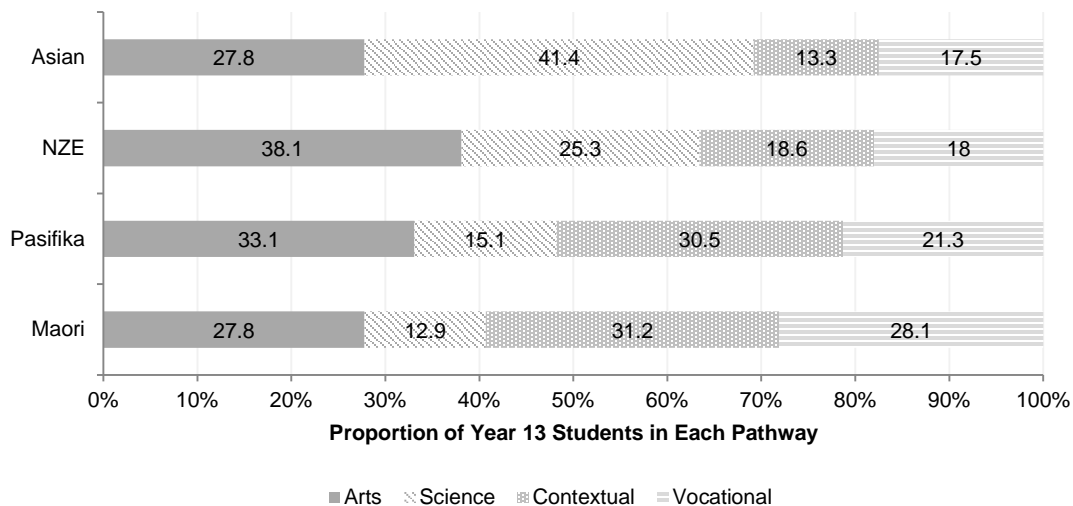


Figure 4. Distribution of favoured pathway of all Year 13 students by ethnicity

4.1.3 Logistic regression (Odds Ratio analyses)

The pathways described above were analysed in relation to NCEA certificate attainment. Students are expected to attain NCEA Level 1 at Year 11, Level 2 at Year 12, and Level 3 and University Entrance at Year 13. Therefore, relationships between attainment and proportions of credits of academic subjects achieved have been determined for students in each year with their associated certificate level. As the outcome variables are binary (achieved or not achieved), logistic regressions have been used to test the odds of attaining each level of certificate for each year level, given the proportion of credits obtained via the academic pathway. Figures 5 and 6 show the odds of attaining NCEA Level 2 and University Entrance respectively against proportions of credits obtained via an academic pathway (i.e., arts and science subjects). The key findings are:

1. Students in Year 12 are more likely to attain NCEA Level 2 if more than 37.5 percent of the total number of credits they achieved is made up of standards in arts and science (academic subjects);
2. Students in Year 13 are more likely to attain University Entrance if more than 74.6 percent of their total number of credits achieved is made up by standards in an academic pathway. This is because all academic subjects are approved for University Entrance, while only some subjects are approved under the non-academic regime.

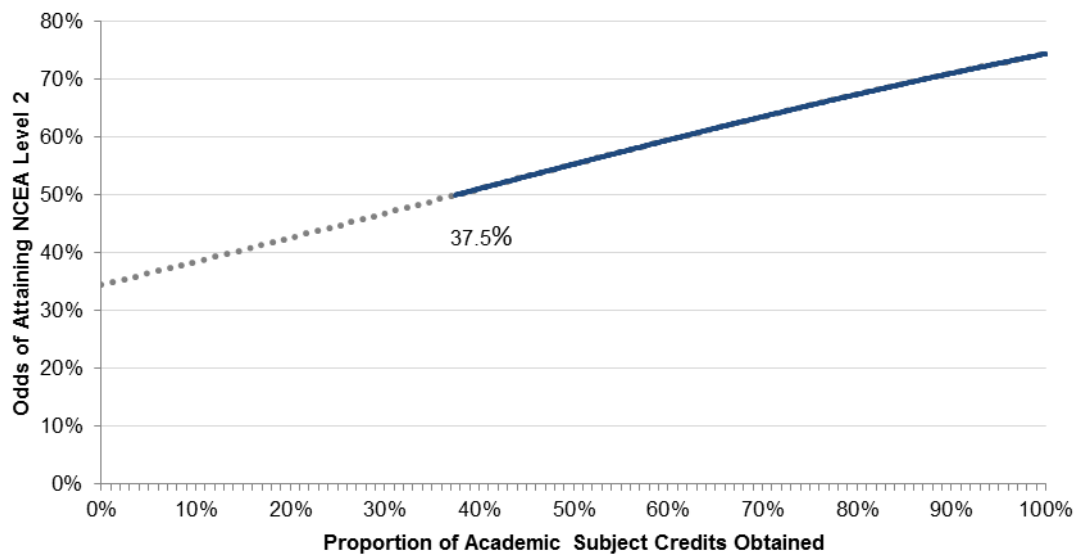


Figure 5. Odds of attaining NCEA Level 2 against proportions of credits of academic subjects achieved

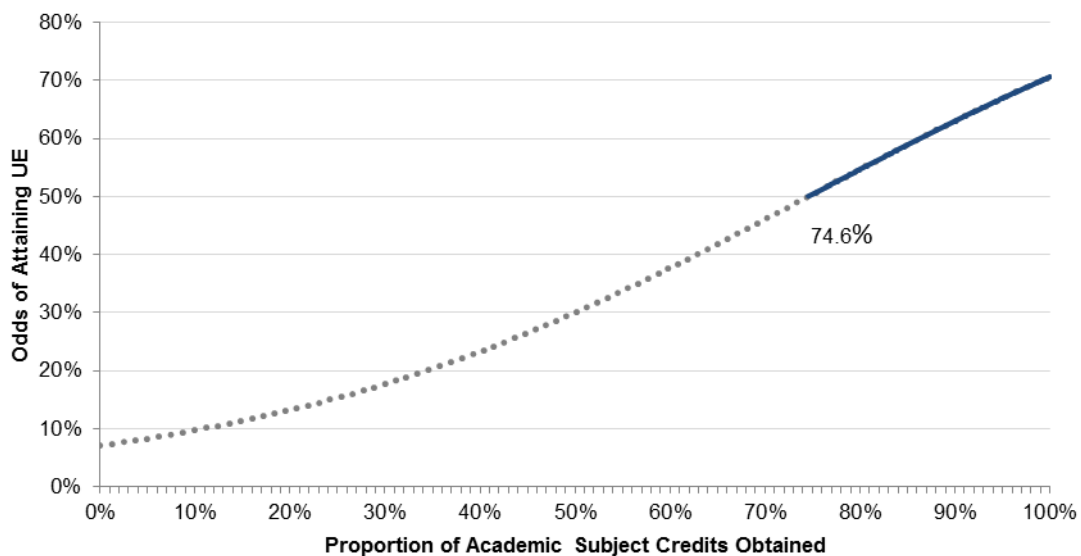


Figure 6. Odds of attaining University Entrance against proportions of credits of academic subjects achieved

Figure 7 shows the percentage of Year 13 students who attained University Entrance, by ethnicity. It is apparent from this figure that Pasifika students have the lowest percentage of University Entrance attainment.

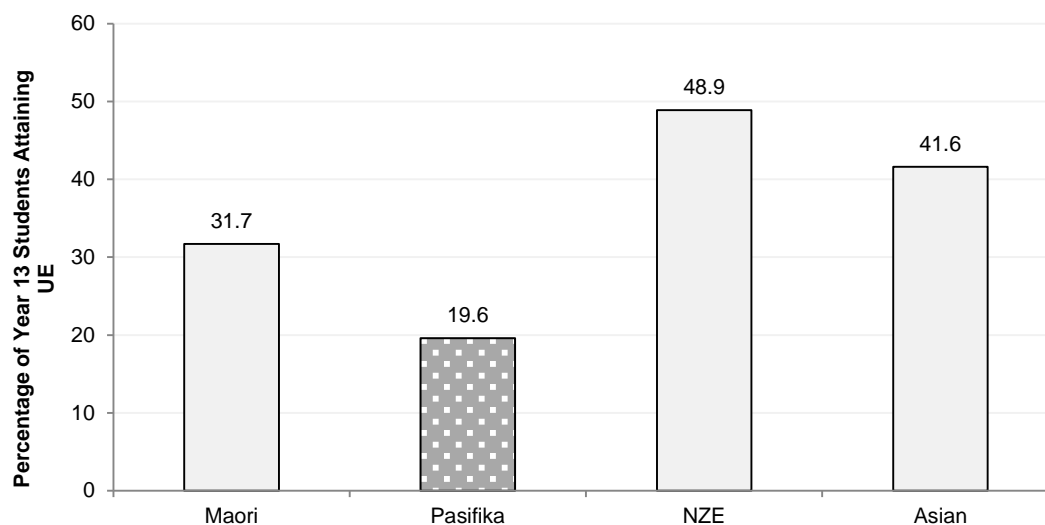


Figure 7. Percentage of Year 13 students who attained University Entrance by ethnicity

Following these analyses, each Year 13 student was assigned to one of five groups using the proportion of academic subject credits he or she achieved, with respect to odds of attaining University Entrance, as shown in Table 2.

Table 2. Student Groupings Based on Odds of University Entrance Attainment

Group	Description
Low	Students with up to 30% odds of attaining University Entrance, given the proportion of academic subject credits achieved
Mid-Low	Students with between 30% to 40% odds of attaining University Entrance, given the proportion of academic subject credits achieved
Medium	Students with between 40% to 50% odds of attaining University Entrance, given the proportion of academic subject credits achieved
Mid-High	Students with between 50% to 60% odds of attaining University Entrance, given the proportion of academic subject credits achieved
High	Students with more than 60% odds of attaining University Entrance, given the proportion of academic subject credits achieved

Figure 8 shows the proportions of Year 13 students in each of the five groups listed above by ethnicity. Both Māori and Pasifika students are over-represented in the low group.

The key findings are:

1. At Year 13, most Pasifika students had a favoured pathway that gave them less than 30 percent odds of attaining University Entrance;
2. Only 13 percent of Pasifika students had a favoured pathway that would give them greater than 60 percent odds of attaining University Entrance.

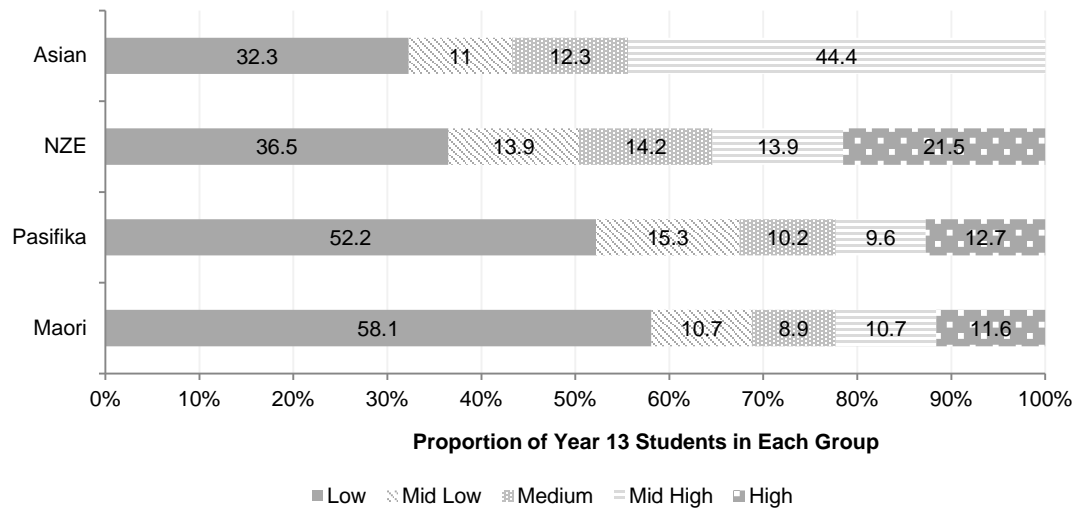


Figure 8. Proportion of Year 13 students in the five different groups by ethnicity

4.1.4 Expected and observed attainment in University Entrance

We have compared the expected University Entrance attainment (using the odds ratio analyses) for each student group, by ethnicity, with those students’ actual (observed) attainment of University Entrance, and the results are presented in Table 3. The key findings are:

1. The actual (observed) University Entrance attainment rates largely agree with the groupings that were based on the odds ratio (and shown in Figure 6) for all ethnic groups, except Pasifika. This means that even smaller percentages of Pasifika students in the low group attained University Entrance (6 percent), compared to the percentage expected from the analysis (30 percent).
2. Even in the high group (greater than 60 percent odds of attaining University Entrance), the percentage of Pasifika students that actually attained University Entrance were lower (only 47 percent) than students from other ethnicities.
3. The pattern of smaller proportions of Pasifika students attaining University Entrance than expected is consistent across all subgroups.

Table 3. Expected and Observed University Entrance Attainment Rates in the Five Different Groups by Ethnicity

Group	Ethnicity	Expected	Observed
Low	Māori	<30%	15%
	Pasifika		6%
	NZ European		24%
	Asian		19%
Mid-Low	Māori	30% - 40%	50%
	Pasifika		21%
	NZ European		59%
	Asian		48%

Group	Ethnicity	Expected	Observed
Medium	Māori	40% - 50%	35%
	Pasifika		33%
	NZ European		49%
	Asian		45%
Mid-High	Māori	50% - 60%	71%
	Pasifika		39%
	NZ European		76%
	Asian		56%
High	Māori	>60%	58%
	Pasifika		47%
	NZ European		67%
	Asian		–

4.2 NCEA Analysis of 2011–2013: Validity of Trends

As attainment data were not available for students across 2011-2013, the data for these years have been used as a validity check to determine whether the patterns of favoured pathways across year levels and ethnicities were consistent over time.

A total of 20,475 students from 16 mid- to low-decile schools in the Auckland and Northland regions sat NCEA during the period from 2011 to 2013. Figures 9, 10, and 11 show the distributions of favoured pathways (by ethnicity) of students in Year 11, 12, and 13 respectively.

The key findings are:

1. The pattern of smaller proportions of Pasifika students that favour academic pathways from Years 11 to 13 may have become more extreme during the period of 2011-2013. Compared to the distributions of students that sat NCEA during the period from 2007 to 2010 (see Figures 2, 3 and 4), there are slightly higher proportions of students in non-academic pathways for Māori and Pasifika students across all year levels.
2. By Year 13 only 42 percent of Pasifika students favoured academic pathways, with fewer than 12 percent favouring science;
3. The majority of Pasifika students (62 percent) were in the low group, meaning that based on their credits across the different subjects, they had less than 30% odds of attaining University Entrance;
4. Only 11 percent of Pasifika students were in favoured pathways that gave them more than 60 percent odds of attaining University Entrance.

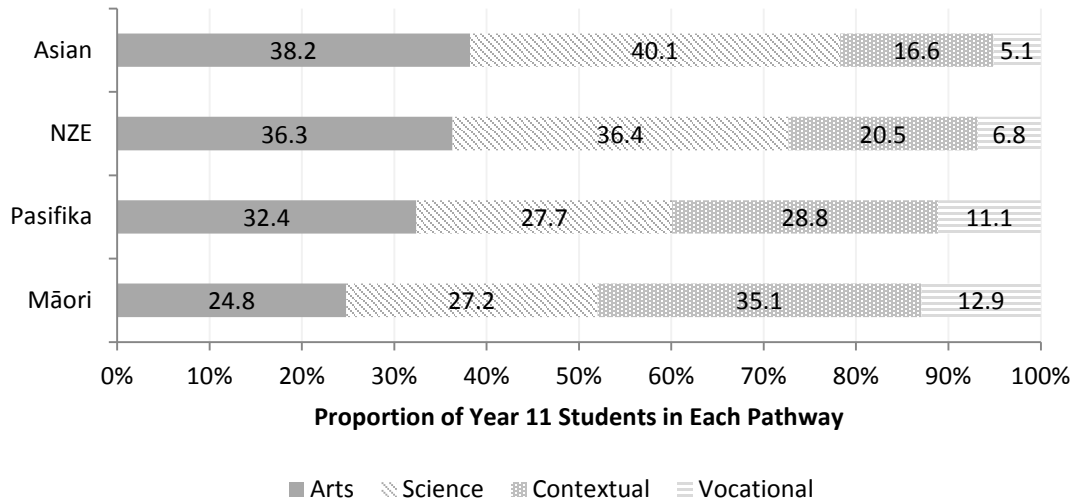


Figure 9. Distribution of favoured pathway of all Year 11 students by ethnicity: 2011–2013

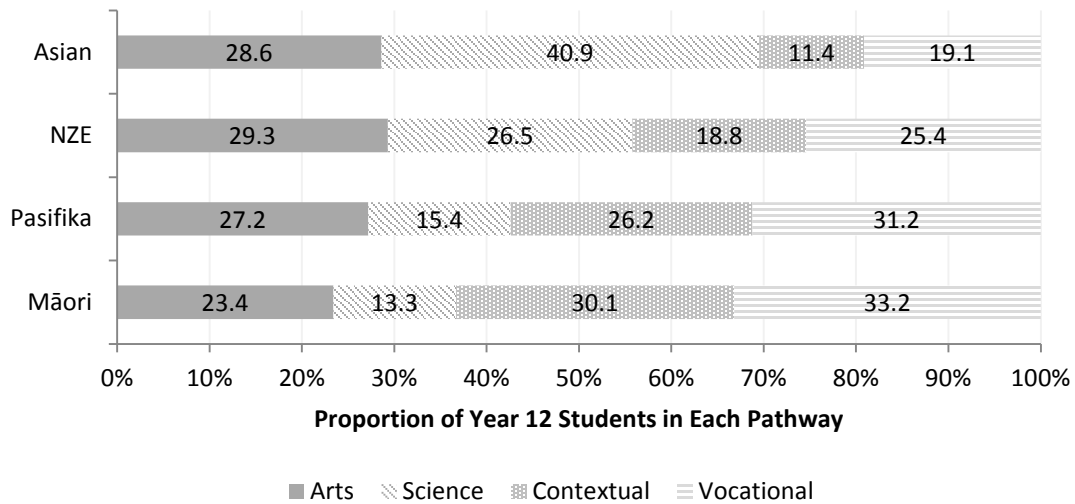


Figure 10. Distribution of favoured pathway of all Year 12 students by ethnicity: 2011–2013

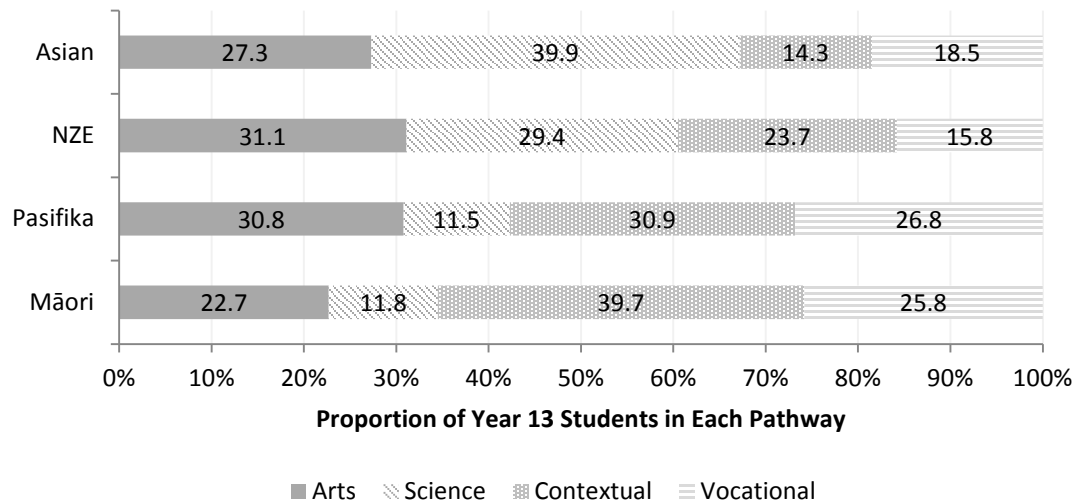


Figure 11. Distribution of favoured pathway of all Year 13 students by ethnicity: 2011–2013

4.3 Chief Executives and Workforce Manager Interviews

4.3.1 What qualifications (if any) are sought by high-demand, high-growth industries?

Interviews were held with CEOs and workforce managers of high-growth, high-demand industries to determine what employee qualities they sought. Overall, the participants reported that they require candidates to have a tertiary qualification in order to be employed as staff in the core area of their industry (for example, an engineer would require a Bachelor of Engineering (BEng) qualification). However, there was scope for candidates to have degrees in a variety of subjects; in finance, a diversity of business areas (consulting, assurance, tax, risk management) opened the scope for degreed qualification from a typical Bachelor of Commerce or Business Studies, through to Art History and Computer Science.

Two of the companies outsourced their technical entry-level positions and retained call centre/customer care positions within their firms. For example, a telecommunications service provider outsourced their tier one customer care to a third party for resolution of minor issues. If tier one support is unable to resolve the issue, escalation takes place to tier two in-house technical support who are in turn supported by tier three in-house architects. Industry experience and a good personality fit as opposed to formal academic qualifications were sought for these entry level positions. It is important to point out that both of these companies sought skills and maturity over qualifications, which are arguably more difficult pathways for students to access. Only one of these companies indicated that it would be possible for employees within their company to work their way up to higher paid/higher skilled positions; in the other company’s case the customer care role was a siloed one.

To cater to the need for formal qualifications, two industries provided support for obtaining the required qualifications, via an academy pathway or a cadetship. These approaches are discussed in more detail below, using specific examples of each that exist to provide pathways into the industry.

Health sciences academy pathway – Key points

The academy ethos is based on getting Māori and Pasifika students through the required subjects at a school level, to enable them to undertake tertiary level study and gainful employment working within their own communities in health related areas. The Health Sciences Academy programme has been running for two years and is funded from a variety of sources including Manukau District Health Board and Ministry of Health. In this case, the academy students in Year 11 would ordinarily take six subjects (English, mathematics, science, a half year of employments skills or future skills in health, plus two option subjects). However, the health sciences students are enrolled for a second academic science course in lieu of health employment, offering the opportunity for additional science NCEA achievement standards and focused health science career guidance and industry knowledge building. This is consistent with the funding reported in the literature review relating to the positive effects of taking more academically oriented achievement standards. A key component of the academy programme is the Academy Director, who was described as holding “them [academy students] together as a group, as a supported group and cohort” whilst also facilitating opportunities for industry exposure such as day visits to Middlemore Hospital, health science institutes and lectures by visiting health professionals. The director and core teachers arrange to meet with academy parents considerably more than would be expected in a standard school calendar year (up to four to five times) and extend industry exposure to include caregivers such as putting them “on buses into the university – for some parents it’s the first time they have been into the university”. Thus far 34 students from two schools have completed the academy, of these 21 are enrolled in health sciences degrees and five are undertaking other tertiary study. Currently, the academy is run in two South Auckland schools, and a further three schools (two in Central/West Auckland and one more in South Auckland) will come on board in the near future. There is an additional Health Academy School, funded separately (by the Pasifika Medical Association).

Students are offered placement within the academy on the basis of high grades, the ‘right’ attitude, and a passion for the Health Sciences. The DHB offers Academy students an assured ‘pipeline’ approach into future tertiary study and employment, whereby students are guaranteed employment within the DHB if they complete their tertiary study in health sciences. Because of this pipeline and guarantee, a current challenge for academy providers is tracking students through their tertiary studies, “so we’re doing the planning now around what that will look like, which year will each of them come out, which profession sort of thing, and kind of looking at how we hold positions vacant.” Due to the considerable demand for health workers and the DHB’s focus on building a Pasifika health care workforce reflective of its community, the spokesperson explained that all the academy students now enrolled in degree programmes such as midwifery, nursing, physiotherapy, speech language therapy and medicine, have all been guaranteed employment with the DHB upon degree completion. In illustrating how dire Pasifika representation is within New Zealand, the current academy graduate recently enrolled in a speech language degree programme will be only the second qualified in the region (and indeed within greater New Zealand).

Cadetship – key points

The company that offers the cadetship is a large, multinational corporation whose core business is providing services for leading infrastructure projects requiring engineers, designers, planners and advisors. This company recruits students at the end of their Year 13 from around

the country, offers paid employment within the company, and pays for their cadets to obtain their diploma in engineering. Cadetships are offered to students with strong physics and mathematics (particularly calculus), who have met the minimum requirement for entry into a Bachelor of Engineering, and display a good attitude to working with a team. Cadets are able to experience many different aspects of the industry hands-on, and are provided mentoring by more experienced staff while obtaining their diploma qualification, which typically takes between 3 and 5 years of part-time study. Once this is completed, cadets may also be offered the option to complete their Bachelor's degree, partially paid for by the company. The company spokespeople indicated they felt the real value of the cadetship for the participants was the industry experience:

“...the advantage [for cadets] is they get a variety of experience. They've tried out a lot of different things and so their knowledge is from the ground up. So some of the bachelors' people will come in and say 'I know everything!' – they do – and they actually don't, and so the cadets will know a lot more than them obviously when they're starting, because they've got a lot”.

Another participant from the same company offered:

“...we try to give them a broad base because further on down the line in the career having that experience in different aspects of engineering just makes you a more rounded engineer, more versatile in terms of actually the work you can do.”

4.3.2 What other skills and personal attributes are sought by high-growth, high-demand industries?

Naturally, the technical skills required for entry-level positions varied from company to company, however respondents were unanimous that candidates need excellent people skills and as such, be able to work well in teams, be trustworthy, and able to communicate with a variety of people at different levels. Time management skills were also highly regarded, and one participant emphasised the value of time-management that comes with maturity:

“A lot of Pacific nurses are going in as adult students. So they've juggled three children and a household and studying for three years. That's a huge struggle, eh, you think this person has got skills – time management skills – and other things.”

The expectation of hard work was also often mentioned:

“...students shouldn't underestimate how hard it is if they want to put the work in. It's not easy, but it's a great exciting career. Every day is different, and it's truly global”.

Personal initiative-taking to working and learning was another expectation, as one participant described:

“We almost expect entry-level people to have taught themselves how to use a wide range of software. A lot of it is free and tutorials are free online, so why wouldn't they have?”

4.3.3 What (if any) understandings do employers have about the NCEA standards pathways into their industries?

As a tertiary qualification was the minimum entry requirement into most of the industries, most interviewees were not knowledgeable about the specific standards-based pathways that lead into that degree-level study required by their industry. However, many were aware of the need for students to be planning strategically for their futures:

“...because they [students] were getting into seventh form and then going oh, I’d quite like to be a doctor, but they hadn’t taken chemistry or biology or whatever, maths. And that’s already happening [here].”

Another common theme was the understanding that students should ‘keep up with their science’ as it is useful in all of the identified high-growth, high-demand industries.

A few of the participants expressed their belief that so few Pasifika students choose to study mathematics and the sciences because it wasn’t the ‘done’ thing, for example one participant voiced:

“There was a tendency for some schools – including my own school – that if you were Māori or Pasifika there was a generalisation that you didn’t do the maths and science.”

Another participant from Engineering elaborated:

“You know, mathematics is a big area you need to do and a lot of the Pacific Island students I don’t think they are well wedded to learning that particular way. It’s a well-known fact that the Polynesian way of learning is done orally therefore it’s quite difficult for them to overcome.”

4.3.4 Which areas do industries believe will become high-growth, high-demand, and what evidence do they use to support that?

The responses about future high-growth, high-demand areas of business fell into two categories: half of the participants indicated newly forming specialised and technical areas within their industry that would become the new standard of operation (for example, interactive designers in the IT industry, geotechnical engineering); the other half indicated more finite ‘one-off’ areas of demand due to a current situation (for example, the Christchurch rebuild, laying fibre-optic cabling throughout the country). Most participants used the strategic planning of their businesses as an evidence base for their understandings about future demand. The participant from the agriculture industry (which currently has a huge gap – only 250 applicants for 1000 jobs) based their own evidence on the latest ITO report. This participant went on to mention that graduates in degrees relevant to the field were offered an average of four jobs per person before they have even completed their degree.

4.3.5 What do industries believe they need to do to cater for high-growth, high-demand in the future?

All but one of the interviewees specifically mentioned a need for greater awareness about their industry for students (while they are still at secondary school), particularly about

the breadth of disciplines within each industry, and the current and future growth and demand:

“Having people stand up and go there’s a job here for you, and here’s how much it pays, and we really need you.”

In fact, all but two of the companies interviewed, routinely visit schools to provide information about their programmes and/or industry, and one participant advocated beginning the information transfer even earlier:

“Back at the schools that’s where it is, it’s not at the universities in my opinion. It’s before the universities, you’ve got to go into schools, you go into primary schools...”

The one interviewee that did not mention industry awareness at a school level still mentioned the need for intervention at a school level, this time at a curriculum level , for example:

“The gap is for talented students. Removing ICT from the technology stream in the NZ Curriculum to give it greater prominence would help”.

Two of the participants also felt that perceptions needed to be changed at a family/community level:

“There is a trend that perhaps they don’t want to go into the technological side of things. They go for other particular industries like law, art, I have seen it, yes. I’ve participated in the industry and there’s not many Pacific Islanders I can tell you that now.”

One participant from the agriculture industry felt that there needed to be infrastructure in place to attract Pasifika and other graduates into the industry, such as support structures to assist the transition, as jobs are often available within a rural setting and are isolated from family supports. She also lamented the lack of awareness of the scope within the industry:

“They just think it’s only about milking cows.”

4.3.6 What do industries do to attract Pasifika peoples into their industry?

All but one of the companies expressed a need for their employees to represent the communities in which they work, and as such, felt that the representation of Pasifika peoples within their companies and industries was lower than it ought to be. Participants from the health industry seemed to be particularly aware of the need for staff to be representative of the community in which they work; as one participant noted:

“We have one Pasifika speech language therapist in New Zealand. Oh no – we’ve just got a second one employed here. I’m not joking. So obviously that person, she is in huge demand with everything.”

Another participant from the same industry also spoke about the issue:

“Pasifika nurses they reduce the language barriers. For example, take Miss X, she’s a Samoan nurse and she used to work in the A & E clinic ... and there was a language barrier if I went in and told them something, but for Miss X speaking in her own language, that made a difference. That’s why a lot of Pasifika nurses are needed.”

In contrast to this, other participants specifically did not want to be seen as promoting an affirmative action stance:

“... so it’s [employing staff of the basis of race] still discriminatory which didn’t sit right in terms of ethics in the way the business should operate and with individuals in the business.”

None of the companies incentivise entry into business for Pasifika people specifically, although most offered some form of scholarship programme for students in low-decile secondary schools (including the cadetship and academy pathway) which would include Pasifika students.

4.4 Student Interviews

Students were selected based on two criteria: That they were of Pasifika descent; and that they were in Year 11. Eight student participants consented and were interviewed.

4.4.1 How were the aspirations of the eight Year 11 Pasifika students mapped to their subject choices?

We asked students about their subject choices in Year 11 (their current year level) and about what subject choices they had made. The responses to both questions are summarised in Table 4.

Table 4. Student’s Reported Career Aspirations and Subject Choices in Year 11

Career Aspiration	Subject Choices
Doctor	Economics and Accounting
Doctor	Biology and Sport Studies
Nurse	Biology and Sport Studies
Physiotherapist / Law	Physical Education and History
Accountant	Physical Education and Accounting
Teacher / Actor	Physical Education and Business
Army / Police	Art and Drama
Unsure	Art and Drama

4.4.2 Did the subject options selected by the Year 11 Pasifika students match their aspirations?

Overall, most students selected courses at Year 11 that matched their aspirations, although there were some instances where a mismatch occurred. In particular, one Health Science

Academy student with an aspiration to be a doctor had selected economics and accounting as her option choices for Level 1. Two key factors influenced these choices: one was her family (more specifically her mother), and another was advice from a previous tutor teacher. When this student was in Year 10, she was supported by her tutor teacher to take up economics and accounting as her teacher had a:

“...record of learning where he talks to you one-to-one about subjects you need to improve on... I took economics last year too and he said that I was doing really well so I should take it again next year but he never really asked me what my goal was” (Student interview June 9, 2014).

The latter part of that statement accounts in part, for the mismatch in this student’s aspiration (which is in a high-growth, high-demand industry) and her subsequent subject selections for Year 11. This student felt she would be able to achieve economics with an excellence endorsement:

“So far in accounting yeah I’m like way ahead of everyone so I have to slow down so my teacher was saying and economics it’s really easy, yeah I passed a lot so yeah ” (Student interview June 9, 2014).

Another instance of disconnect between future aspirations and subject choices was evident with the student who wanted to be a teacher or an actor, but was taking optional physical education and business studies. He explains:

“They [parents] were saying you should take oh they told me to take it but I was kind of arguing with them on that because I didn’t want that’s the one thing I didn’t want to become and they were just telling me to take it because it’s good for me in the future like with the money rate right now they told me it would help us, help them a lot. Yeah when I heard drama wasn’t available for me I chose business” (Student interview June 10, 2014).

Another theme that arose from the questions about subject options was that students felt they were not prepared or informed, for whatever reason, of the reality of Year 11 itself:

“I think yeah maybe if we were like informed of it I guess earlier because we weren’t really prepared for like being so full on with all of our work” (Student interview June 10, 2014).

“And like we struggle in our year because I don’t think that anyone in our year really knew. It wasn’t expected like our year just wasn’t prepared and even now we find it hard to get out of the habit of like putting away our assignments and stuff and it’s like hard to fit in all of the things that we want to do” (Student interview June 10, 2014).

4.4.3 What support is offered to Pasifika students when making subject choices?

The enablers from the participants’ perspective for choice of subjects ranged from support they received from tutor teachers to siblings, parents and year level deans or directors of the academy to the Academic Mentor Teacher, curriculum or course teachers and their family (including parents and siblings along with their wider family such as aunts and cousins).

One participant praised the advice from his academic mentor who had interviewed this student in Year 10 and suggested he look at law as an option for his future. Other types of support offered to Pasifika students from the school were via school assemblies and through the parent interview system, where the school was able to involve the parents to some degree. Booklets in Year 10 that outlined course information were offered in two out of three schools. It was confirmed by one student and the parent of this student, that these booklets were used as a discussion basis, related to pathways through the education system and beyond.

Further family support for these Year 11 students was reported to be a real strength, and ranged from older siblings who were perceived as role models and parents who were professionals and knew what and how to support their child. Interestingly the siblings who were role models were not always at university, and often the struggles and sacrifices the siblings had endured, were driving these younger students to do the very best and be the very best they could be. For example, one student remarked:

“Oh no my oldest brother he had a university entrance but then my dad got sick... And he had to turn down his chance to go to university to work and put food on the table, so yeah” (Student interview June 9, 2014).

Five out of the eight students followed the advice, guidance and support of their mothers more while two followed the advice from their father. One student placed both parents as equally supportive and influential in their guidance at school.

From the students’ perspective, family support can be in the form of attending meetings and knowing about important dates:

“...So I know that they’re right there so they don’t miss a meeting”. Or ‘...I guess because then they can help me do like what’s coming up and that and you’ve got a test coming up so you need to go and study and that and you can’t watch TV...” (Student interview June 9, 2014).

4.4.4 What level of understanding do Pasifika students have about the architecture of their subjects in NCEA?

Five out of eight knew about endorsements with merit and excellence along with some knowledge about the credits required to pass NCEA Level 1. Interestingly all the Health Science Academy students knew of and had expectations of gaining endorsement:

“that’s 50 credits excellence” (Student interview June 2014).

Similarly five out of eight were also able to confidently report the number of credits they had at the time of the interview and they were equally confident that their parents knew about their current credits gained.

Knowledge of the role of internals and externals was limited. Some knew of the internals they had taken so far but were unsure of the internal and external standards’ structures for the remainder of the year. All knew of the advanced or streamed classes in their year level, for example:

“It’s 101,102,103, 101 is like the advance maths classes and 102 is the average and 103 is the ... you need support” (Student interview May 30, 2014).

However, students demonstrated little knowledge of what credits come with each subject and how these may affect outcomes at University Entrance and Year 13 and into tertiary education.

4.4.5 What innovations does the Health Science Academy School offer?

Overall the Health Science Academy students seemed to have a very clear picture of the architecture of their subjects even though as mentioned previously, there was some mismatch and confusion with personal goals and options.

All three participants agreed that this cohort approach offered them an additional layer of support as they went through the first year in NCEA:

“I reckon its [cohort] working for others too because like when we go we’ll all help each other” and “All of us are working towards the same thing” (Student interviews June 9, 2014).

Additionally, students mentioned a unified purpose:

“The best thing about Year 11 will probably have to be being in the Health Science Academy because like all of us are working towards one thing to specialise in health and it’s good to have like friends that are doing the same thing that you’re doing. So they support you and you support them”. (Student interview 9 June, 2011).

There also seemed to be a level of healthy debate within the academy itself:

“Like it’s no pressure everyone in the Health Science Academy like we all have that same kind of brain yeah and sometimes you don’t like expect someone else like when they answer the question when the teacher asks a question and then they answer and like you never thought of that answer and it was just good because everyone just shares their thoughts and that and sometimes you don’t know like someone will say something different and you’re like oh yeah. So it’s good like the Health Science Academy it really does help like everyone just thinks the same.” (Student interview 9 June, 2014)

Another student suggested her highlight so far was “*just getting into the health science academy*”. This was later described in the interview as a very thorough process for entry into the academy at Year 10. Considerations to gain entry into the academy were not only based on student academic ability but on the student’s attitude towards science in general.

4.4.6 What factors might affect Pasifika students’ decisions to continue through to tertiary study?

Several students made mention of factors that could impact on their decision to study at tertiary level such as finance or getting enough credits to get in, distractions and balancing a social life. However, apart from these, such was the determination for some of these students that they firmly maintained, “*I don’t think anything will*” (affect their decision to study through to tertiary level).

4.4.7 What did Pasifika students suggest is their responsibility in selecting pathways through to tertiary study?

As mentioned previously, there is evidence for a variety of supports within and outside of school for assisting Pasifika students in deciding subjects and pathways. However, evidence from the interviews suggests that students may need to take greater responsibility for their future careers themselves. This was evident in comments made by some students suggesting that they needed “[to] have a better attitude and to get prepare”, and “to make a choice and stick with it”, or to ensure decisions were made based on what would help them in the future, even if it differed from their peer group.

4.4.8 What are some innovative ideas the participants offered to best support Pasifika student pathways into tertiary study?

The major comment about new ways of providing support was focused on the role of early promotion of awareness and interest in possible future careers. There was support from all participants for opportunities to be provided at an earlier point in their secondary schooling i.e. in Year 10 or earlier to better prepare them for what they may decide to pursue.

4.4.9 How much understanding do Pasifika students have about job availability and job demand in the future?

The suggestions above could very well develop an understanding of job availability and career pathways as there seemed to be limited knowledge of this amongst all participants. The concern raised was that when asked about what job they saw themselves doing, students often defaulted to employment in areas of retail and/or tourism, that they perceived would be offering high levels of employment, and that they saw these as the:

“easy option... because normally if you finish school you’re just looking for money... and people lose what they want to do... and they don’t have the drive or the push to like go for something that they want to do because that’s what’s available.” (Student interview June 10, 2014)

4.5 Parent Interviews

Parents were selected based on two main criteria: they were the main parent/caregiver of the child interviewed and were of Pasifika descent. Five parents in total agreed to be interviewed.

4.5.1 Was there a match between what Pasifika parents wanted for their child and what their child wanted?

Although several parents were aware of what their child wanted to do in the future and they supported this, most of the comments made reflected a general desire for their children to be happy, have a good background in education so they could get a good job. They wanted them to come out:

“...with the basics and... to have confidence.” (Parent interview June 6, 2014)

4.5.2 In what ways did Pasifika parents feel they were supporting their children?

Undertaking early planning and raising awareness of future career prospects was an important consideration of one parent who made the decision to begin her child's long term pathway support in Year 7:

"I always make my girls because I've got a small little business so I've always made my girls do my admin and what they don't know is they don't know the meaning of it. So I just said sort my receipts out, enter this data, data entry all this for me and print that report for me." (Parent interview 6 June, 2014)

This parent further influenced her child's subject choices by suggesting she choose her optional subjects on the basis of the struggles of Pasifika people and their management of money, but also related to her own professional career as a small business owner. This allowed her child to be exposed to possible future career pathways at a very young age:

"I just wanted to do physical education to be like fit and I was going to do history but then mum asked if I wanted to do accounting and that's how I wanted to become an accountant from mum." (Student interview 30 May, 2014)

This parent also raised the point that now her child had chosen this pathway, there were opportunities to make connections and links to jobs that the mother had her do:

"She's like oh you know receipts I used to do receipt...so all the practise work I've done from the beginning and this is why I ask early before our kids before it even comes because we didn't get taught until the end of college..." (Parent interview 30 May, 2014)

Generally, parents talked about trust and communication as key factors of support. The parents reported making themselves available for all school related matters which included going to meetings and responding to any requests by the school. Parents mentioned their role was to encourage their child to "follow their dreams".

4.5.3 What ways did Pasifika parents feel the school offered them support to support their child?

Generally all parents were satisfied with the level of support offered to them within the school. They were pleased with initiatives such as mentor teachers, reviews and the regularity of parent interviews. They all felt comfortable and confident to approach the school if necessary about any aspects related to their child's education and generally felt the school communicated their requirements around subjects they are taking in an open manner. The Health Science Academy parents had only positive things to say about the support offered in this programme, where there is deliberate interest and effort to involve the parents of academy students. For example:

"We're here the other day they sent us a letter to come for the meeting for all the students have joined the Science Academy and then we come here, more parents and talk about it and the teacher explains to the parents and kid yeah." (Parent interview 9 June, 2014)

4.5.4 How confident were Pasifika parents about their understanding of NCEA?

Knowledge and understanding of NCEA varied from in-depth to a more surface level understanding. This was attributed to other children who have been through NCEA already, the relationship with the school, and attendance at NCEA parent evenings and meetings offered by the school. One participant, although she knew about the 80 credit requirement was still trying to:

“Suss out the internals and assessment and just knowing that if they didn’t pass the first time they get another chance” (Parent interview June 10, 2014).

Although the structure was not as clear to this parent, she knew (as did most others) exactly how many credits their child already had and that this was due to both the relationship and again the importance of communication between parent and child.

4.5.5 What factors did Pasifika parents think would affect the students’ decision to continue through to tertiary study?

Because of the belief and trust levels being so high amongst all participants there were not many barriers presented in the data around factors that could affect their child’s pathway through to tertiary. The few factors that were mentioned were around handling the pressures of tertiary level study, or if their child had enough credits, but this was followed with:

“Yeah but if she misses out well then we’ll try whatever we can to get her there.”(Parent interview June 10, 2014)

4.5.6 How much understanding did Pasifika parents have about job availability and job demand in the future?

One parent’s response was encouraging in that she felt there was “always going to be a need for trade, and accounting is an old trade.” Other parent participants made links to their own careers and study options but generally there was not a clear, accurate or exact picture of what jobs would be available in future.

5. Summary of results and discussion

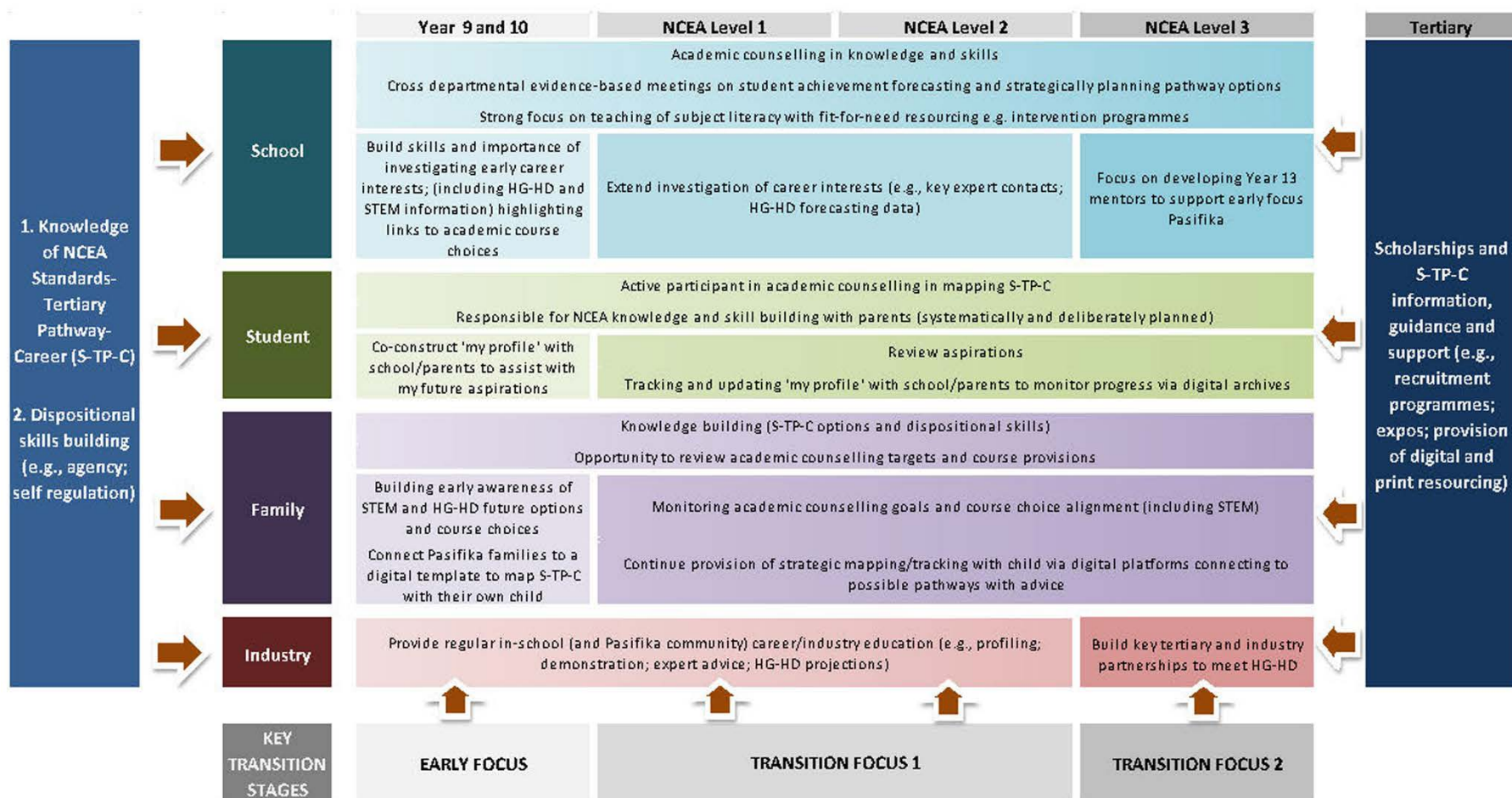
The design-based approach to solving urgent problems of educational practice assumes that there is a need to first get a very good understanding of the nature of the ‘problem’ through profiling, and use the evidence from multiple sources to design interventions or targeted programmes. We have used a variety of methods in this report to clarify the nature of the challenge for increasing Pasifika students’ access to and success in pathways that might lead to employment in high-growth, high-demand industries. The evidence suggests that:

1. At the most general level the challenge is well-known. It is to increase Pasifika students’ enrolment in ‘academic’ subjects (and especially STEM subjects) taking an increased range of achievement standards. More specifically, the problem has several components.
2. Variable availability of systematic academic counselling guidance systems in schools which enable students to be tracked into subjects and standards providing pathways to access degree qualifications (or degree entry via diploma).
3. Effective literacy teaching in the core subjects (including the STEM subjects) to enable high pass rates with endorsements.
4. Variable student and parental knowledge of pathway delineations (between academic, contextual, vocational) and related pitfalls (contextual and vocational)
5. Variable knowledge and means of support from significant members of students’ aiga.
6. Limited exposure to actual businesses and organisations that demystify career titles, the scope of employment positions, their remuneration, and how they might create opportunities to contribute back to their communities.
7. Limited student agency in choosing and accessing pathways into desired vocational/professional goals (such as strategic decision-making and planning around prerequisites).

6. Transition Focus Model

The *Transition Focus* model (Figure 12) for planning to raise students' access to and pathways into high-growth, high-demand industries, outlines a scalable model that could be utilised across five key stakeholders: school, Pasifika students, Pasifika families, industry and tertiary. The model provides an expanded view of each of the interactions and contributions across three key transitional stages.

Figure 12. Pasifika Transition Focus Model for planning to raise students' access and pathways into high-growth, high-demand industries



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Appendix A: CE Interview Framework

Date: _____

Interviewer: _____

Company: _____

Position: _____

What qualifications do you look for in your entry-level positions?

Do you have any particular standards/courses that you look for?

What kind of understandings do you have about NCEA standards that align with your industry?

What skills do you look for in your entry-level positions?

What personal attributes do you look for in your entry-level positions?

What occupations within your own industry do you think will become high-growth, high-demand within the next few years?

What evidence do you have to support that?

What do you think can/should be done to meet that need?

Does your industry offer to incentivise entry to Pasifika peoples?

If so, how?

Appendix B: Student Interview Framework

Date: _____

Interviewer: _____

School: _____

Name of Student: _____

What do you want to do when you leave school? (i.e. University, Technical College, Apprenticeship, Work, Other?)

What job do you see yourself doing?

How do your course choices support those goals (ask about subjects and standards)?

What help did you get in making your course choices?

From family?

From school?

What help did your family get in helping you make those choices?

How do your course choices allow you to do degree level study?

What kind of help did you get in making your choice about a job?

From family?

From school?

Have you thought about job availability or demand in that career pathway?

What other things affected your decision to become? (i.e. family/money/enjoyment)

Appendix C: Parent Interview Framework

Date: _____

Interviewer: _____

School: _____

Name of Student: _____

What do you want your daughter/son to do when they leave school? (i.e. University, Technical College, Apprenticeship, Work, Other?)

What job do you see your daughter/son doing?

How do your daughter/son's course choices support those goals (ask about subjects and standards)?

What help did your son/daughter get in making their course choices?

From family?

From school?

What help did the family get in helping make those choices?

How do your daughter/son's course choices allow them to do degree level study?

What kind of help did your daughter/son get in making their choice about a job?

From family?

From school?

Have you as a parent/caregiver thought about job availability or demand in that career pathway?

What other things affected your daughter/son's decision to become? (i.e. family/money/enjoyment)

How confident are you in your understandings of NCEA and the pathways to further study/employment?

Appendix D: NCEA List of Subjects

Category	Subjects
Traditional Arts	Art History, Chinese, Classical Studies, Economics, English, French, Geography, Languages, Spanish, Visual Arts
Traditional Science	Biology, Chemistry, Electrical Engineering, Mathematics, Mechanical Engineering, Physics, Science
Contextual	Dance, Drama, Accounting, Business Administration, Early Childhood Education And Care, Film and Television, General Education Māori, Graphics And Design, Health, Information Management, Māori Performing Arts, Media Studies, Music, Physical Education, Reo Māori, Social Science Studies, Social Studies, Sport, Technology
Vocational	Agriculture Horticulture Science, Animal Care and Handling, Aviation, Beauty Services, Boating Industries, Computing, Construction Trades, Core Generic, Diving, Furniture, Home And Life Sciences, Hospitality, Human Services, Manufacturing Skills, Motor Industry, Nga Mahi A Te Whare Pora, Occupational Health and Safety, Outdoor Recreation, Religious Studies, Retail And Wholesale, Service Sector Skills