Table of Contents

List of Figures

List of Tables

Abbreviations

L1, L2, L3	NCEA Level 1, NCEA Level 2, NCEA Level 3
HEC/s	High-equity country/countries
HPC/s	High-performing country/countries
HPS/s	High-performing school/s
ISCED	International Standard Classification of Education
LEC/s	Low-equity country/countries
LPC/s	Low-performing country/countries
LPS/s	Low-performing school/s
NCEA	National Certificate of Educational Achievement
NZQA	New Zealand Qualifications Authority
NZQF	New Zealand Qualifications Framework
OECD	Organisation for Economic Co-operation and Development
PISA	Program for International Student Assessment
STAR	Secondary Tertiary Alignment Resource
UE	University Entrance
UNESCO	United Nations Educational, Scientific and Cultural Organization
Y9, Y10, Y11, etc.	Year 9, Year 10, Year 11, etc.

Key Terms (New Zealand Context)

Academic Subject	*Academic* and *general* are used interchangeably to refer to non-vocational subjects, which have traditionally provided pathways to degree-level tertiary study. In New Zealand, these are derived from *The New Zealand Curriculum* (Ministry of Education, 2007) and are assessed predominantly using achievement standards. They are on the Approved Subject List for University Entrance or provide a direct pathway to these from lower NCEA levels.
Achievement Standard	Assessment standard used to assess *New Zealand Curriculum*-derived academic or general learning; externally or internally assessed.
Approved Subject	NCEA Level 3 *New Zealand Curriculum*-derived subject; a University Entrance requirement is 14 credits in three approved subjects.
Assessment Standard	Each subject comprises a number of assessment standards which may be any combination of externally or internally assessed, *New Zealand Curriculum*-derived achievement standards, or vocationally-derived unit standards. Each standard has a defined credit value.
Course	School-named and defined programme of study within a broader subject area. For example, Mathematics, Functional Mathematics, and Numeracy for Employment are courses within the subject of mathematics.
Externally Assessed	Assessment developed, and often marked, by bodies outside of schools or workplaces; typically, examination based.
General Subject	See Academic Subject.
Internally Assessed	Assessment by a school or workplace that counts towards students' final qualifications.
Monitor	See Track.

Stream (noun)	Group by ability.
Track (verb)	The words *track* and *monitor* are used interchangeably to mean "Observe and check the progress or quality of (something) over a period of time; keep under systematic review" ("Monitor," n.d.). This is distinct from *track* used to denote streaming or grouping by ability.
Partnerships with other institutions and organisations	Formalised in a Memorandum of Understanding with schools; enable the provision of Year 13 academic or vocational pathways that they might not otherwise be able to offer due to staffing or other resourcing constraints, or because they do not have the requisite Consent to Assess from the NZQA to offer these. Schools can extend the scope of their Consent to Assess by meeting additional requirements specified by the NZQA and the relevant Industry Training Organisation or Standards Setting Body (New Zealand Qualifications Authority, 2016a).
Secondary Tertiary Alignment Resource (STAR)	Additional funding provided to schools to support vocational pathways programmes, typically through partnerships with tertiary education providers and employers.
Unit Standard	Assessment standard used to assess vocational learning; internally assessed.
Vocational subject	Assessed predominantly or fully using unit standards that are developed by industry training organisations and by two New Zealand Qualifications Authority units: National Qualifications Services and Māori Qualifications Services (New Zealand Qualifications Authority, 2016c).
Youth Guarantee Vocational Pathways	Progressively launched from 2013; align Level 2 assessment standards to six broad industry sectors. Trades-related standards are delivered through Secondary–Tertiary Programmes such as

those offered by trades academies, which were established primarily for this purpose. Trades academies are based on partnerships between schools, tertiary and industry organisations, and offer NCEA Level 2 unit standard credits that also contribute to a Youth Guarantee Vocational Pathway endorsement.

Chapter 1: Introduction and Background

There is evidence that educational failure negatively affects economic growth and social well-being, and that qualifications pathways and associated assessment structures can play a critical role in contributing to more equitable outcomes for all students (Field, Kuczera, & Pont, 2007; Organisation for Economic Co-operation and Development [OECD], 2012b). This evidence, along with new understandings of the importance of fair and equitable assessment practices and access to qualifications pathways, has led to an international focus on removing qualification *dead ends* and providing more meaningful pathways leading to qualifications *doorways* (OECD, 2012b).

Qualification dead ends do not provide direct access to further, post-school learning and qualifications opportunities. They are often associated with vocational education, as distinct from academic (henceforth called *general*) education. Some scholars, who draw on theories of class reproduction (e.g., Bowles & Gintis, 1976), argue that the traditional binary division between general and vocational qualification pathways has provided an expedient means of replicating existing social inequities, in the interests of groups who have been traditionally advantaged by this status quo. Other writers, who view vocational education through the lens of human capital theory (e.g., Becker, 1975) argue that vocational education teaches skills that enhance employability and earnings capabilities. Regardless of the theoretical lens used, general/vocational partitioning has typically seen students from lower socio-economic and less well-educated backgrounds, including historically excluded, marginalised, indigenous, immigrant, and other minority learners clustered in vocational pathways. Such pathways are often associated with attendant problems of less academic choice, a reduced likelihood of progressing to tertiary education, qualification dead ends, non-completion, lower achievement levels, and poorer employment prospects (Field et al., 2007; OECD, 2012b; Sweet, 2013).

There is an urgent need to ensure that all students are accommodated equitably in upper secondary school exit qualifications pathways and assessment structures, which can, in turn, play a critical role in contributing to more equitable outcomes (Field et al., 2007; OECD, 2012b). However, governments and schools can, wittingly or unwittingly, create

(doorways) or limit (dead ends) opportunities for students to achieve qualifications success, through their policies and provisions. The purpose of this thesis is to investigate ways in which qualifications pathways can create or limit opportunities for upper secondary school students to achieve success, through an examination of system- and school-level policy and provisions in selected OECD countries. It will also identify policies, procedures and practices that might enhance qualifications pathways and enable equitable access to qualifications. This research will contribute to the field of fair and equitable qualifications pathway policy and provisions for diverse learners in large-scale qualifications systems.

Background to the Research

By the 1980s, nations were increasingly conceived in more devolved, marketised terms that were shaped by international economic globalisation trends (Cuadra & Moreno, 2005). Education policy assumed prominence as governments saw education as the key to economic competitiveness in the global marketplace (Vidovich, 2007); this resulted in a period of rapid reform of education systems in many countries, including the reform of national qualifications structures and associated systems.

Economic globalisation has raised issues of cross-border portability and recognition of skills and qualifications. As national economies become more connected and products and services become more mobile, increasing numbers of people are migrating across borders for employment and study (Kaden, Tota, Robitschko, & Batanoiu, 2013; Wang, 2012). According to the United Nations Department of Economic and Social Affairs, Population Division (2016), the number of international migrants increased from 172.7 million in 2000 to 243.7 million in 2015, an increase of 71 million or 41%. A concomitant mobility trend has seen rapidly growing numbers of students pursuing education abroad. The United Nations Educational, Scientific and Cultural Organization - Institute for Statistics (UNESCO-UIS, 2017) reported that there were over 5 million internationally mobile tertiary students in 2015, more than double the 2.1 million recorded in 2000. In Europe, migrations of people from other countries, including former colonies, has resulted in sizable groups of ethnic and religious minorities in most urban centres, creating a

similar pattern of diversity in schools (Bishop, 2010). In the United States, the population of first- and second-generation immigrant children increased by 51% from 1995 to 2014, from 12.2 million to 18.7 million, or approximately 25% of all American children (Child Trends Databank, 2014).

The transparency of national qualifications to foreign interests can play an important role in aiding such mobility (Bjørnåvold & Coles, 2010). Qualifications frameworks are increasingly being viewed as vehicles for providing this transparency, by enabling skills and qualifications to be compared (and in some cases linked) across countries (Kaden et al., 2013; Keevy, Chakroun, & Deij, 2011). To these ends, national qualifications frameworks have become increasingly popular policy tools, providing focus for the management of reform programmes and a coordinating function with new reforms (Bjørnåvold & Coles, 2010; Young, 2007). They are pertinent to this research as upper secondary qualifications in many countries are part of a national qualifications framework.

The increased diversity of student populations presents a concomitant and urgent need to integrate these students more equitably into upper secondary school education and qualifications systems, through the provision of qualifications pathways leading to equivalent—as distinct from identical—outcomes.

> The principle of equivalence aims to reconcile equality and diversity: equal levels of education should in principle have equal value and impact on people's opportunities (for example, in terms of access to labour market positions or further and tertiary education). The aim is that all children complete the equivalent of upper secondary school and that all have the opportunity to pursue tertiary studies if they so desire. (Nicaise, Esping-Andersen, Pont, & Tunstall, 2005, p. 14)

New Zealand is of particular interest in this thesis, specifically concerning ways in which system-level policies and provisions might constrain or maximise the qualifications potential of diverse learners, and how these policies and provisions compare with those of selected OECD countries. New Zealand has a highly devolved schooling system, with central control of policy but devolved responsibility for its implementation (Ministry of Education, 2010; Nusche, Laveault, MacBeath, & Santiago, 2012). All national qualifications are part of the comprehensive, modular, standards-based New Zealand

Qualifications Framework, which provides multiple pathways, flexible options and, in upper secondary qualifications, the potential to combine general and vocational learning (Hipkins, Johnston, & Sheehan, 2016; Philips, 2003).

Importance of this research.

The design of qualifications pathways can exacerbate initial educational inequities (OECD, 2012b) or lead to equivalent outcomes for every student (Nicaise et al., 2005). Qualifications pathway provisions and attainment are thus visible indicators of a country's education equity provisions. This research tests this assertion by investigating ways in which qualifications pathways in selected OECD countries, including New Zealand, can create or limit opportunities for upper secondary school students to achieve qualifications success. It also examines how qualifications structures might be enhanced through the provision of national, local and school-based policies, procedures and practices that enable equitable access to qualifications for all students.

The research is situated in the broader context of fair qualifications pathway policy and provisions for diverse learners. It will also contribute to the growing sphere of culturally responsive assessment, where there are not yet large bodies of scholarship (Center for Culturally Responsive Evaluation and Assessment, 2016; Philpott, Nesbit, Cahill, & Jeffery, 2004), and the nascent field of culturally responsive assessment for high-stakes qualifications.

Researcher's background.

The author's interest in the equity of qualifications pathways and outcomes was fostered during extensive experience over 32 years as a secondary school teacher, including 11 years as a deputy/assistant principal with responsibility for assessment, qualifications, and school timetabling (which, in New Zealand, is the arena where qualifications pathways are ultimately given effect in individual schools). Much of this work was in large, urban South Auckland secondary schools comprising predominantly Māori and Pasifika students from low-socio-economic communities, who were not achieving to the same levels as their non-Polynesian peers and those from higher socio-economic communities. Concern about

these inequitable outcomes led to the author's decision to undertake PhD research in this field.

As the area of research interest was upper secondary qualifications attainment, the research topic was developed in consultation with the New Zealand Qualifications Authority and its Stakeholder Reference Group. Research into how New Zealand's upper secondary National Certificate of Educational Achievement (NCEA) qualification's structure might best provide meaningful pathways leading to post-school opportunities such as vocational training and tertiary study was identified as being of long-term importance and value to the New Zealand Qualifications Authority and its stakeholders (New Zealand Qualifications Authority, 2012b). Also of importance was research situating New Zealand's pathway provisions in a transnational context. The New Zealand Qualifications Authority's interest mirrors an increasing international focus on the provision of equitable, open-ended school qualifications pathways rather than qualification dead ends (Kaden et al., 2013; OECD, 2012b).

Thesis structure.

The research was undertaken in two related but distinct studies that have an overarching focus on attainment and equity in upper secondary school exit qualifications pathways. These broad themes of attainment and equity unite both studies and are central to the overarching research question they address:

> In what ways do qualifications pathways create or limit opportunities for upper secondary school students to achieve qualifications success?

Study 1 examines these themes at an OECD level, and locates New Zealand's NCEA Level 3 exit qualification and University Entrance provisions within this international context, to address three supporting research questions.

(1) What is the nature of upper secondary school exit qualifications pathways in OECD countries whose PISA results show the strength of the relationship between performance (attainment) and socio-economic background (equity) to be statistically different to the OECD average impact?

(2) What are the similarities and differences between qualifications pathways in the four groups of OECD countries with low/high attainment and low/high equity in PISA assessments?

(3) How are qualifications pathways in New Zealand's NCEA Level 3 similar to and different from qualifications pathways in the OECD countries investigated?

Study 2 examines attainment and equity in greater depth in New Zealand's NCEA Level 3 and University Entrance provisions to address one supporting research question.

(4) What are the similarities and differences in opportunities provided through qualifications pathways between selected New Zealand schools whose student attainment rates in NCEA Level 3 and University Entrance are significantly different from schools with similar socio-economic profiles?

The OECD (2012b) identifies six predictors that can collectively help to identify students who are in danger of dropping out of the school system: labour-market conditions, educational system-level policies, school factors, student's background, student's behaviour, and educational performance. The OECD uses the metaphor of an iceberg (see Figure 1) to show that the predictor of educational performance or attainment (a focus of this research) at the tip of the iceberg is observable, whereas those that are submerged are harder to observe. This thesis seeks to make visible the harder-to-observe predictors at the base of the iceberg, principally educational system-level policies and school factors. Of interest is the impact these two predictors may have on "observable" educational performance at the tip of the iceberg, specifically on the role they might have in constraining or maximising the qualifications pathways and outcomes of diverse students. The predictor of educational system-level policies is a focus of Study 1, while that of school factors is a focus of Study 2, particularly school-based policies, procedures and practices pertaining to New Zealand's NCEA Level 3 and University Entrance credentialling.

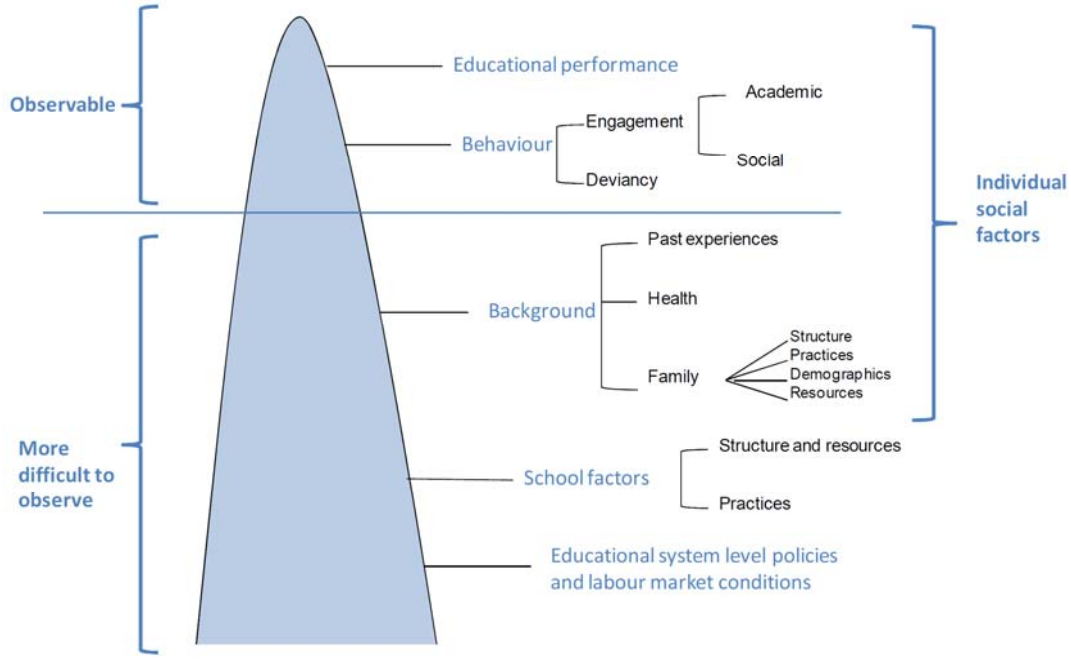

Figure 1. The iceberg of low performance and school failure. From *Equity and Quality in Education: Supporting Disadvantaged Students and Schools* (p. 21), by OECD, 2012, doi:10.1787/9789264130852-en. Copyright 2013 by the OECD.

Each study is presented semi-discretely, with separate literature review, methodology and findings chapters relevant to its context. The literature review chapters each examine two broad groups of literature: the first broad group, concerning fairness, is common to both literature reviews, with some similar headings used to provide continuity. The second broad group of literature examined in the Study 1 Literature Review relates to qualifications frameworks, while the corresponding group in the Study 2 Literature Review concerns fair assessment for high-stakes qualifications. The two studies are drawn together in the final Discussion and Conclusions chapter to address the overarching research question.

Chapter 2: Study 1 Literature Review

This literature review situates the Study 1 research in the context of fair and equitable qualifications pathways for diverse learners in upper secondary school education, including the role qualifications frameworks can play in these provisions. Equity of, and equitable access to, qualifications pathways are a central theme of this study. The first section of this review explores the interlinked concepts of fairness, equity, diversity, and social justice. Understandings of fair assessment are then investigated, including fair assessment of diverse learners. The second section provides context through an examination of literature on the purpose and scope of qualifications frameworks, arguments for qualifications frameworks as social constructs, and the role of learning outcomes and pathways within qualifications frameworks. The section concludes with an examination of qualifications pathways in relation to national equity indicators such as streaming and socio-economic background. The final section investigates approaches taken by some countries regarding qualifications pathway equivalence and the implications of these for attainment and equity. System-level policies are identified that can improve the design of upper secondary qualifications pathways and open doorways to further education and training for students. Literature is explored that identifies the link between qualifications pathways, attainment and equity, and the role that key transition points play in limiting pathways choices for students. The section concludes with the identification of system-level policies that can lead to more equitable qualifications opportunities and outcomes (doorways) for students.

Fairness

Figure 2. Calvin and Hobbes. From "[Cartoon of fairness]," by B. Watterson, in *Calvin and Hobbes*, 1986, Kansas City, MO: Andrews McMeel Syndication. Copyright 1986 by Andrews McMeel Syndication.

In this first section of the Study 1 Literature Review, literature on fairness relating to the concepts of equity, diversity and social justice and their application to education are examined. Literature linking fairness and assessment are then investigated, including assessment of diverse learners, fair assessment systems and fairness in attainment.

Fairness and equity.

The concept of fairness is a "holy grail" of education generally. Fairness is defined as being "marked by impartiality and honesty**:** free from self-interest, prejudice, or favouritism" (Merriam-Webster), and "without unjust advantage" (Oxford). The terms *fairness* and *equity* are often used interchangeably (Gipps & Stobart, 2009; Tierney, 2013), with this overlap evident in the Oxford Dictionary's definition of equity as "the quality of being fair and impartial" and in Merriam-Webster's as "freedom from bias or favouritism."

Although the two terms are closely related, they are not synonymous. Something equitable is proportionately equal or just and distributed according to differentiated need (Tierney, 2016). Stobart (2005) describes equitable as "a qualitative concern for what is just" (p. 276). In contrast, fairness is determined by degree and interpreted according to different societal norms and contexts (Tierney, 2016). In education, fairness is thus a socio-cultural issue (Stobart, 2005) whereby students' personal circumstances and differences are not obstacles to educational success (Field et al., 2007; Tierney, 2013).

Equitable educational resourcing, for example, is proportionately equal and distributed according to differing learning needs, whereas fair education resourcing is determined by the degree of need, as interpreted according to the differing societal norms and contexts of both recipients and givers. In Watterson's (1986) cartoon, shown in Figure 2, Calvin's context for interpreting fairness is different to his father's. He regards his personal circumstances (a child) as an unfair obstacle to achieving an equal outcome to that of his parents (a later bedtime), irrespective of how equitable his parents might consider his existing bedtime to be.

Equity is distinct from the related term *equality*, which is interpreted in different ways, all of which are rooted in the concept of fairness. For example, some define equality as equal uniformity or sameness (Tierney, 2016). For others, it means having different but equal or equivalent worth (Thompson, 2016; Witcher, 2013), while Stobart (2005) describes it as "essentially a quantitative approach to differences between groups" (p. 276). Gipps and Stobart (2009) sum up the difference as: "Equity represents the judgment about whether equality, be it in the form of opportunity and/or of outcomes, achieves just ('fair') results" (p. 106).

Fairness and diversity.

Diversity is "the condition of having or being composed of differing elements" (Merriam-Webster). Fairness relating to diversity involves valuing and engaging with these differences rather than viewing them as problems to be solved (Kandola & Fullerton, 1998) or "an ailment that needs to be cured" (Nieto, 2005, p. 156), and thus has an implicit dimension of inclusion. Corson (1993) summarises the link between diversity and fairness with the assertion that "Working with minority children is often more than a skill; it is an act of cultural fairness" (p. 179).

Understandings of diversity in education have evolved over the past century. Before the 1960s assimilation models prevailed (Banks, 1976) and diversity, which was mainly viewed through linguistic and racial or ethnic lenses, was typically problematised as something to be eliminated in favour of the dominant (typically Eurocentric) culture's values, behaviour and language (Banks, 2006). From the 1960s diversity in education was associated with emerging multiculturalism, which grew out of the protest, emancipation

and social change movements of 1960s America (Sleeter, 1991). *Multicultural* became the accepted nomenclature to describe diversity at this time, initially concerning educational equity for students from diverse racial and ethnic backgrounds, and subsequently expanding, by the 1980s, to include different social class, gender and disability groupings (Sleeter & Grant, 1987). Although the ongoing advancement of multiculturalism as an educational reform movement per se is peripheral to this review, it has strong parallels with evolving understandings of the overarching sphere of diversity, including its variety of typologies, disciplines and practices relating to educational equity.

In recent decades definitions of diversity have broadened to include other historically marginalised groups. Current understandings encompass an augmented spectrum of visible and non-visible dimensions including ethnic, socio-cultural, socio-economic, class, language, gender, age, religion, disability and giftedness (Bell, 2016; Kandola & Fullerton, 1998; Thompson, 2016; Wlodkowski & Ginsberg, 1995). The diversity spectrum is further enriched by students at intersections between these dimensions (Alton-Lee, 2003; Banks, 2016; Montenegro & Jankowski, 2017). The resulting diversity milieu is characterised by variety and difference, unified by a common desire for educational equity (Banks, 1993) and fairness.

Student populations ranging from micro-level, individual classroom groupings to macro-level, country-wide student populations are intrinsically diverse, and becoming increasingly more so (Alton-Lee, 2003; Cuadra & Moreno, 2005; Field et al., 2007; OECD, 2012b). Although the semantics of diversity in education have changed over time, the core concept of difference has remained invariable. For example, over a century ago, Ballard (1915) used the synonym *heterogeneity* when describing the inconstancy of student diversity:

> Another factor unfavourable to progress is the non-recognition of the essential heterogeneity of a collection of children, however carefully chosen. Any seeming homogeneity in a class is both superficial and temporary … If they appear like one another today, they will appear unlike one another tomorrow. (p. 16)

Writing nearly 100 years after Ballard, Alton-Lee (2003) returned to Ballard's synonym when describing the continually evolving composition of diverse groups of students:

"heterogeneity of class groupings is not a fixed characteristic. Rather, differences between students are fluid and changing and have different ramifications for each new teaching situation accordingly" (p. 5).

To accommodate diverse students fairly, Wlodkowski and Ginsberg (1995) argue that:

> Diversity conveys a need to respect similarities and differences among human beings and to go beyond "sensitivity" to active and effective responsiveness. This requires constructive action to change ideas and attitudes that perpetuate the exclusion of underrepresented groups of students and that dampen their motivation to learn. (pp. 8–9)

Policymakers, educators and examiners thus have a moral imperative to actively and effectively accommodate diverse learners.

Fairness and social justice.

The notion of *social justice* is concerned with a broad range of social inequalities, oppression and discrimination (Thompson, 2016) and is intrinsically bound in norms of fairness (Witcher, 2013). Furthermore, Thompson and Thompson (2008) contend that:

> The term *social justice* is used rather than simply justice to show that it is more than a matter of individual fairness … rather, it is a matter of understanding how social processes and institutions systematically combine to produce unfair outcomes. Social justice is therefore a *socio-political* matter. (p. 214)

Although Thompson and Thompson's work is in the social work field, it equally applies to the ethical practice of education, to which fairness is fundamental (Tierney, 2016). The sociopolitical context of education takes into account larger societal and political forces and their impact on student learning (Nieto, 2005). These forces include structures that frame and guide society, such as legislation, policies, practices, traditions and ideologies (Nieto & Bode, 2012). Furthermore, "A sociopolitical context considers issues of *power* and includes discussions of structural inequality based on stratification due to race, social class, gender, ethnicity, and other differences" (Nieto, 2005, p. 142; emphasis in original), showing that education is not a politically neutral process.

> Bell (2016) conceptualises social justice more broadly as both a goal and a process: The *goal* of social justice is full and equitable participation of people from all social identity groups [diversity] in a society that is mutually shaped to meet their needs [equity]. The *process* for attaining the goal of social justice should also be democratic and participatory, respectful of human diversity and group differences, and inclusive and affirming of human agency and capacity for working collaboratively with others [fairness] to create change. (p. 3)

Bell's description of social justice encompasses equity, diversity and social justice, with the processes for attaining these based on fairness. Fairness thus not only underpins these three dimensions but is at their intersection. Using Thompson's (2016) model of "equality, diversity and social justice" (p. 17) as a starting point, Figure 3 visualises these intersecting dimensions, with equity replacing Thompson's equality circle and the addition of fairness at the intersection of the three dimensions.

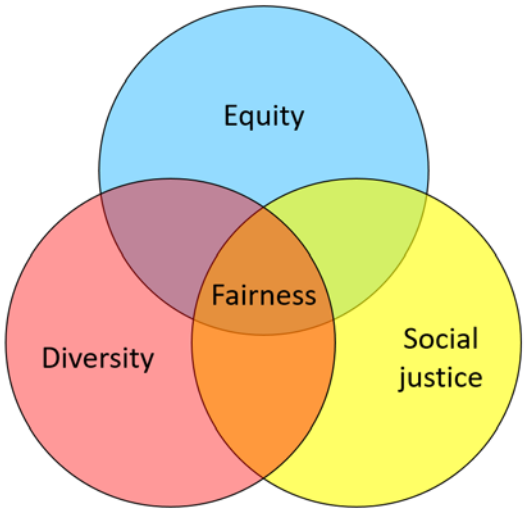

Figure 3. Equity, diversity, social justice and fairness.

Fairness and assessment.

Wlodkowski and Ginsberg's (1995) previously cited argument for "active and effective responsiveness" to diversity (pp. 8–9) is a central tenet of fairness in educational assessment, and the means to achieve this have evolved over the past century. Throughout the 1900s assessment became increasingly linked to selection and certification (Gipps & Stobart, 2009), with a concomitant sorting and labelling function. Fairness in assessment

was defined in terms of written tests and formal examinations that were considered to be objective and which would produce valid and reliable results under standardised conditions (Giordano, 2005). The dominance of standardised testing reflected the prevailing view that this was a fair and objective substitution for individual teachers' "unscientific" marking practices, with their perceived inconsistencies and biases (Finkelstein, 1913), and would broaden opportunities for a wider cross-section of students (Giordano, 2005; Tierney, 2016). Consequently, there was a rapid proliferation of large-scale standardised testing during this time. However, rather than removing bias and inconsistency, the focus for these issues merely shifted from individual teachers to test and examination developers and markers (Giordano, 2005).

New directions in the quest for fair assessment were established from the 1960s (N. S. Cole & Zieky, 2001). Changing political and societal expectations of assessment, and evolving understandings of the nature of teaching, learning and assessment, revealed the limitations of standardised tests (Tierney, 2013), and it became apparent that these were not the culture- and value-free instruments that they were hitherto considered to be. Included in these evolving understandings were: an increasing awareness of the social, political and value-laden nature of assessment (Gipps & Stobart, 2009; Stobart, 2005); the need to accommodate diverse learners more fairly in assessment practices (N. S. Cole & Zieky, 2001); and the importance of "more emphasis on teaching and learning and less emphasis on sorting and selecting" (Canady & Hotchkiss, 1989, p. 71).

Since the end of the 20th-century, assessment has undergone a period of intense reform as countries strive to implement fair assessment practices. This reform has seen a trend away from large-scale standardised testing and an increasing focus on different facets of fair and equitable assessment (Stobart, 2005; Tierney, 2013). Integral to this focus is the understanding that assessment is a socio-cultural and political activity, and that future directions in the quest for fair assessment are necessarily responsive to these dimensions. Gipps and Stobart (2009) argue that "21st-century assessment will need to take ever more account of the social contexts of assessment and to continue the movement away from seeing fairness simply as a technical concern with test construction" (p. 105). N. S. Cole and Zieky (2001) similarly contend that:

> The proposed new faces of fairness encourage policy makers and measurement professionals to shape decisions that will … reduce group differences in scores, provide all students with the opportunity to demonstrate what they know and can do, deter the misuse of tests, and provide an increased accommodation of individual differences in how each person's skill and ability are best demonstrated. (p. 369)

Fairness and assessment of diverse learners.

One of the evolving understandings of fair assessment (and by extrapolation, of qualification outcomes resulting from fair assessment) to emerge in recent years is the urgent need to accommodate diverse learners more fairly in the assessment process (Gipps, 1999). The urgency of this need is fuelled in part by recent significant increases in immigrant populations (described previously, in Chapter 1*)* and changing demographics of school-age populations (refer to "Fairness and diversity" above). For example, data sourced from the United States Department of Education National Centre for Education Statistics (2015) shows that the number of white students enrolled in American public elementary and secondary schools in 2017 was, for the first time, projected to be fewer than the combined minority groups of Black, Hispanic, Asian/Pacific Islander, and American/Alaskan Indigenous peoples. In New Zealand, the percentage of European-descended school students decreased from 58% in 2006 to 51% in 2016. Hopkins and Levin (2000) describe demographic changes as "powerful shapers of our systems of schooling" (p. 16) and conclude that "institutions designed to put everyone through the same mould of necessity have to learn how to treat people differently and fairly" (p. 17).

The need to more fairly accommodate diverse learners in the assessment process is also driven by an increasing awareness that some marginalised student cohorts, particularly those from low-income, indigenous, immigrant and other minority groups, are not succeeding in schools at comparable rates to their peers (OECD, 2007b, 2010a, 2010b, 2012b). Students from low-socio-economic backgrounds are typically placed in lower streams[1] (Shavit & Müller, 2000) and are twice as likely to be low academic performers (OECD, 2012b). Across OECD countries, students' socio-economic status

[1] The common New Zealand usage of the term *streaming*, meaning grouping by ability, is used throughout. This is known as *tracking* in some countries.

explains 13% of the variation in student performance in Programme for International Student Assessment (PISA) science assessment, and socio-economically disadvantaged students are almost three times more likely than more advantaged students not to attain the baseline level of proficiency in PISA science (OECD, 2016c). Students from indigenous minority groups are less likely to achieve at the higher levels of dominant cultural cohorts (Bishop, Berryman, Wearmouth, & Peter, 2012; Castagno & Brayboy, 2008; Gray & Beresford, 2008; Luciak, 2006), and immigrant students, many of whom come from less advantaged socio-economic backgrounds and lack proficiency in the language of educational instruction, generally have lower educational outcomes than local students (Luciak, 2006; OECD, 2010a, 2010b, 2012a, 2016c). Many students are at the intersection of more than one of these groups, compounding their disadvantage.

Large score differences between minority and majority students are not a recent phenomenon. The landmark Coleman Report, *Equality of Educational Opportunity* (Coleman et al., 1966), which was commissioned in response to the Civil Rights Act 1964, revealed that the average test scores of most minority pupil cohorts in United States schools were lower at every level than the average scores for the majority white pupil cohort, by about one standard deviation. Since then, large score differences between minority and majority students have continued to be noted. For example, in 1994, García and Pearson reported that "African-American, Latino, and Native American students, as well as students for whom English is a second language, do not, as a group, perform as well as Anglos on formal tests" (p. 340). Villegas and Lucas (2002) similarly identified that, in the United States, "historically, members of economically poor and minority groups have not succeeded in schools at rates comparable to those of their white, middle-class, standard English-speaking peers" (p. xi). According to Luciak (2006), migrant students in old Member States of the European Union, particularly Roma, Travellers, and students of African-Caribbean, Bangladeshi or Pakistani origin, "show lower school achievement than the native population, a difference that increases as students advance through the years" (p. 76). In New Zealand, indigenous Māori students and those of Pasifika origin continue to lag significantly behind their European peers (Ministry of Education, 2012). Indigenous students in Australia have a markedly lower secondary school completion rate

than non-indigenous students, with a gap of over 40 percentage points (Lamb, Jackson, Walstab, & Huo, 2015). In summary, indigenous or immigrant status, low proficiency with the mainstream language, low-socio-economic background, and cultural marginalisation are potential recipes for poor academic achievement. Teachers frequently lack appropriate diversity training to effectively teach and fairly assess such students, who present with multicultural, multilingual and diverse learning needs that a "one-size-fits-all" approach does not adequately address.

Diverse learners are, by definition, not part of the culturally dominant group and, as such, are at risk of being on the receiving end of inadvertently unfair assessment practices. Bourdieu (1986) refers to *cultural capital* as the symbolic elements a person acquires through being part of a particular social class, and their *habitus* as the physical manifestation of their cultural capital, enabling them to navigate social environments such as school classrooms. Teachers and developers of assessment tools are often part of the culturally dominant group, meaning the cultural capital of students who are not part of this dominant group may not be recognised in formal educational and assessment situations, making it less likely they will succeed (Stobart, 2005). Using Bourdieu's definitions, assessment can be viewed as a form of social control which rewards those with the cultural capital of the dominant group and replicates and legitimises cultural reproduction and social stratification (Gipps, 1999; Gipps & Stobart, 2009). Although few would disagree that assessment must be fair for all groups, this principle can be compromised by its witting or unwitting use as a political tool.

> Assessments tell people how they should value themselves and others. They open doors for some and close them for others. … The political dilemma is a problem for all students, but it is particularly acute for students from diverse cultural, linguistic, and economic backgrounds whose cultures, languages, and identities have been at best ignored and at worst betrayed in the assessment process. (García & Pearson, 1994, p. 381)

Stobart (2005) poses the question "Whose fairness is it?" and goes on to say that "assessment is a socially embedded activity which can only be understood by taking account of the cultural, economic and political contexts within which it operates" (p. 277).

Diverse students have different backgrounds, experiences and contexts and view assessment through different lenses, meaning that "there is no cultural neutrality in assessment or in the selection of what is to be assessed" (Gipps & Stobart, 2009, p. 111). In a higher education context, Montenegro and Jankowski (2017) assert that "assessment, if not done with equity in mind, privileges and validates certain types of learning and evidence of learning over others" (p. 5). Moreover, "continuing to assess students as if there are no differences will only work to preserve key aspects of inequality and widen the achievement gap" (p. 16). Fairness in assessment therefore requires consideration of students' contexts; in addition to socio-cultural contexts, these include institutional practices, beliefs and knowledge associated with assessment, which P. Johnston (2010) argues are often not contested as being biased in favour of dominant groups.

Fairness and assessment systems.

Diverse students often do not have equitable opportunities to demonstrate their learning in large-scale assessment systems such as for high-stakes qualifications, as assessment systems typically do not accommodate diverse approaches. Historically, assessment that served a sorting and ranking function (see "Fairness and assessment"), such as for University Entrance, typically comprised externally set, summative examinations. Montenegro and Jankowski (2017) argue that,

> There is an assumption at play within the field of assessment that while there are multiple ways for students to learn, students need to demonstrate learning in specific ways for it to count … Of note is the fallacy referred to as the three musketeers, which is the idea that in order to make a measure equally valid for everyone, everyone completes the same measure—all for one and one for all—as a means to ensure fairness instead of using different measures for different groups. (p. 6)

Fair assessment systems have structures that enable equitable outcomes for diverse students. Rather than prescribing a single form of assessment (which may have the unintended consequence of overriding the knowledge to be assessed), fair assessment systems enable diverse students to demonstrate their learning in a variety of ways. For example, offering a variety of assessment strategies, routes, tools, tasks and opportunities

allows for multiple indicators of learning (Alberta Education, 2005; N. S. Cole & Zieky, 2001; Mahuika & Bishop, n.d.; New Zealand Qualifications Authority, 2015a; Philpott et al., 2004; Villegas & Lucas, 2002), enabling students who might be disadvantaged in one type of assessment to better demonstrate their learning in another type (Gipps, 1999; Gipps & Stobart, 2009; Klenowski, 2016; Stobart, 2005). In large-scale assessment systems, such as those of upper secondary school qualifications, this approach is more likely to be found where the locus of decision making for assessment is at an individual school level, allowing responsiveness to local circumstances, and where assessment is standards based, enabling a variety of assessment approaches. In their report for the World Bank, Cuadra and Moreno (2005) note that:

> Further reinforcing the trend from norm-referenced to criterion-referenced assessment, there are now strong and visible signs of movement away from reliance on one-shot, time-limited tests toward the incorporation of such nonexamination practices as portfolios, profiles, and school records in the final evaluation of secondary school leavers. These trends in secondary education reform deserve praise, as they symbolize the way forward in building a new culture of educational evaluation and assessment that is both technically sophisticated and socially inclusive. (p. 102)

Fairness and attainment.

The OECD (2017) defines educational attainment as "the highest grade completed within the most advanced level attended in the educational system of the country where the education was received" (para. 1). In this research, the focus of educational attainment is the final, exit-level qualifications of upper secondary school.

Higher levels of educational attainment correlate with positive individual social outcomes such as greater social engagement, better health and a lower mortality risk (Cuadra & Moreno, 2005; Hummer & Lariscy, 2011; G. Johnston, 2004; Kirkcaldy, Furnham, & Siefen, 2013). Higher educational attainment is also correlated with positive individual economic outcomes, including higher employment rates, higher relative earnings and higher income mobility (OECD, 2012b). Educational attainment is often used as a proxy measure of human capital available to the labour force (OECD, 2016b),

and is one of the principal components of socio-economic status (Hummer & Lariscy, 2011). As such, it is the main vehicle for both intergenerational socio-economic reproduction and socio-economic mobility (Causa & Chapuis, 2010; Hout & DiPrete, 2006; OECD, 2012b). Because higher educational attainment is usually commensurate with higher incomes, the potential for income mobility is greater (OECD, 2012b). One indicator of fair educational attainment is, therefore, that students can improve their socio-economic situation through merit, irrespective of their circumstances (Causa & Chapuis, 2010; Field et al., 2007; OECD, 2012b). This indicator infers that "consideration of [fairness and] equity in education must address issues related to outcomes, as well as to access" (Cuadra & Moreno, 2005, p. 19).

Qualifications Frameworks

In order to examine qualifications frameworks, it is first necessary to define a qualification. The European Union's (2008) definition of a qualification is "a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards" (Annex 1a). The OECD (2007b) includes the additional caveat that "a qualification confers official recognition of value in the labour market and in further education and training" (p. 23). Kaden et al. (2013) describe the desired outcome of a qualification process as a qualified person, rather than a qualification certificate per se.

At their simplest, qualifications frameworks are classification systems for qualifications, based on a hierarchy of levels indicating increasing degrees of complexity and showing vertical and horizontal relationships between these (Bjørnåvold & Coles, 2010). They enable different qualifications, issued by different bodies, to be more easily compared and linked, both horizontally and vertically, within and across countries.

National qualifications frameworks (NQFs) are a recent phenomenon, with only a few established before the mid-1990s (Tuck, 2007). With the exception of New Zealand's unified framework, these "first-generation" NQFs, as they subsequently came to be known, tended to comprise a basic taxonomy of qualifications. A second generation of frameworks emerged in the late 1990s to early 2000s, drawing from first-generation

frameworks. However, it is in recent years that the most dramatic increase in the number of countries developing or implementing NQFs has occurred. As well as linking qualifications within countries, most of these third-generation NQFs also aim to link qualifications across countries, through transnational qualifications frameworks (Kaden et al., 2013; Keevy et al., 2011; Raffe, 2011). Overall, there are considerable differences between NQFs, which vary in purpose, architecture, scope and governance and reflect individual countries' unique circumstances, and when they were implemented (Burke, Keating, Vickers, Fearnside, & Bateman, 2009; Coles, 2006; European Centre for the Development of Vocational Training [Cedefop], 2013; Kaden et al., 2013; Tuck, 2007).

Although different typologies of qualifications frameworks have been proposed, such as those by Bjørnåvold and Coles (2010), Leney, Gordon, and Adam (2009) and Raffe (2009), most authors regard NQFs as more than merely a basic taxonomy of classification and comparison. According to Young and Allais (2009), an important goal identified in most government statements about qualifications frameworks concerns their role in supporting skill development and economic competitiveness. To these ends, reasons countries give for introducing NQFs include:

- unifying education systems;
- clarifying learning pathways and progression;
- improving communication between different learning pathways and qualifications, within and across countries;
- promoting access, transfer and progression into, within and across sectors and programmes of learning;
- enabling credit transfer between qualifications;
- improving alignment between education, training and the labour market;
- providing a platform for co-operation and dialogue between stakeholders; and
- facilitating learner progression and lifelong learning (Allais, 2010; Bjørnåvold & Coles, 2010; Coles, 2006; Raffe, 2011; Tuck, 2007).

To support these intents, many NQFs have further functions such as procedural, legislative, economic, regulatory, quality assurance and credentialling (Bjørnåvold & Coles, 2010; OECD, 2007b; Raffe, 2013). Indeed, Raffe (2011) argues that NQFs can be

described as "classifications with prescription" (p. 88) as they also serve regulatory and compliance roles for qualifications' learning, assessment and validation.

Qualifications frameworks as social constructs.

In addition to supporting skill development and economic competitiveness (refer to the previous section), Young and Allais (2009) identified a second, very different type of goal in most government statements about qualifications frameworks: their role in promoting equity, social justice, and social inclusion. These two different types of goals of NQFs are reflected in the European Union's (2008) definition of an NQF:

> "national qualifications framework" means an instrument for the classification of qualifications according to a set of criteria for specified levels of learning achieved, which aims to integrate and coordinate national qualifications subsystems and improve the transparency, access, progression and quality of qualifications in relation to the labour market and civil society. (Annex 1c)

Bjørnåvold and Coles (2010) encapsulate these wider purposes in their description of NQFs as:

> "Instruments with a vision" questioning current education and training practises [*sic*] and challenging existing professional and sectoral interests. Designing an NQF is thus something more than agreeing on a set of technical features (a hierarchy of levels of learning) [*sic*] it is about creating a platform for (cross-institutional and cross-sectoral) dialogue and – eventually – mutual trust. (p. 7)

Thus, as well as their classificatory, skill-development and economic roles, NQFs also typically serve wider political and social purposes (Bjørnåvold & Coles, 2010; Keevy et al., 2011; Raffe, 2009, 2011; Young & Allais, 2009). In other words, as "instruments with a vision" they can be vehicles for change.

An example of how a qualifications framework can act as a vehicle for change is seen in the shift from traditional custom and practice, which was often based on factors such as how and where learnings were acquired and over what period (inputs), to what students know and can do (output; Allais, 2010; Kaden et al., 2013; Young & Allais, 2009). The shift potentially removes barriers between formal and non-formal education, placing them on the same footing and supporting the argument for frameworks as a "force for

social equity" (Cedefop, 2015, p. 6). This argument is strengthened by the alignment and bridging of general and vocational education subsystems (which are perceived to have higher and lower status respectively [Field et al., 2007; Raffe, 2003; Sahlberg, 2007; Sweet, 2013]), which is made possible through qualifications frameworks, thereby indicating equivalence between them and democratising qualifications pathway choices.

Qualifications frameworks are therefore increasingly being viewed as social constructs. Raffe (2011) asserts that "qualifications, and consequently NQFs, are social and political constructs as much, if not more than, they are technical constructs" (p. 100). Keevy et al. (2011) describe qualifications frameworks as "social constructs that need to be developed in consultation with stakeholders, engaging with resistance and contestation, and most importantly through building mutual trust" (p. 74). Similarly, Isaacs (2001) argues that:

> The essential nature of the [qualifications framework] is that of a social construct, in that we as social actors in society not only theorise about, construct and implement it, but we also enable, actively change or work against it. (p. 124)

Current understandings of qualifications frameworks as frameworks for communication, discussion, debate, coordination, and collaboration, within and across education, training, and employment sectors that may traditionally not have engaged in such dialogue, underscore their political and social character. This dispels any notion that they are simply technical tools of classification (Bjørnåvold & Coles, 2010; Keevy et al., 2011; Parker & Walters, 2008).

> NQF developments are indeed political processes which in some cases trigger conflicting points of view. Frameworks provide a new platform for dialogue – across traditional borderlines of subsystems, sectors and institutions – facilitating discussion on how to improve current practices and how to remove barriers to education, training and learning. It is important to keep in mind this political character of the new national frameworks; to understand them as neutral, technical instruments seems inappropriate. (Cedefop, 2009a, p. 2)

Although much of the literature focusses on the positive role NQFs have in education, training and qualifications reform, some writers caution that, as a policy

instrument, an NQF can only play a modest role. For example, according to Allais (2010), "expectations that qualifications frameworks can achieve the ambitious policy objectives claimed for them in relatively limited time periods seem to be ill-founded" (p. 2). Tuck (2007) notes that "a National Qualifications Framework is only a framework. It can play a vital role in supporting reforms but if it is not part of a wider strategy, it may achieve very little" (p. 5). Young (2007) asserts that an NQF is at best an enabling instrument and concludes that its role as a driver of reform, particularly in developing countries with weak institutional and curricular capacities, is overstated. Raffe (2013) similarly argues that an NQF provides tools for change rather than acting as an agent of change, and is most effective if the change is long-term, incremental, iterative, has stakeholder engagement, and is complemented by other change agents such as policies that drive the change.

Qualifications frameworks and learning outcomes.

Levels of qualifications comprising most NQFs are based on learning outcomes, which are themselves based on standards against which a learner is assessed. Although NQFs do not have to be outcomes based (Raffe, 2013; Young, 2007), the European Union's definition of an NQF (previously outlined in the "Qualifications Frameworks" introduction) refers to "specified levels of learning achieved" as the criteria for classifying qualifications (2008, Annex 1c). Cedefop (2014) similarly defines a NQF in relation to learning outcomes, as an "instrument for development and classification of qualifications (at national or sectoral levels) according to a set of criteria (using descriptors) applicable to specified levels of learning outcomes" (p. 207). Despite considerable variation in the definition[2] and application of learning outcomes in different national contexts (Cedefop, 2014), they are the foundation on which most NQFs are based and are fundamental to NQF-based qualifications reform.

Regardless of whether or not assessment contributes to an NQF-aligned qualification, learning outcomes can be described as "a tool that provides a guiding focus" (Cedefop, 2009b, p. 9). As such, they are "statements of what a learner knows,

[2] The terms *standards based*, *proficiency based*, *learning-outcomes based*, *competency based* and *criterion based* are used interchangeably in the literature. In this research the terms *learning-outcomes based* or *outcomes based* are used.

understands, and is able to do, on completion of a learning process, which are defined in terms of knowledge, skills and competence" (European Union, 2008, Annex 1f). Implicit in this definition is the understanding that learning outcomes fulfil a wider purpose than simply serving as statements of a learner's knowledge, understanding, and skills; they also "provide a key role in organising systemic aims, curriculum, pedagogy, assessment and quality assurance" (Cedefop, 2014, p. 10). Hutchings (2016) describes this organising function of learning outcomes as "alignment," which "refers to the linking of intended student learning outcomes with the processes and practices needed to foster those outcomes" (p. 5). Furthermore, Hutchings argues that alignment has:

> become more *important* as today's students swirl through multiple institutions, stop out and return, and take advantage of the growing set of providers offering courses, badges, and certificates. Seen from this perspective, alignment is a much-needed counter to fragmentation and incoherence. (p. 5; emphasis in original)

NQFs, through learning outcomes, therefore influence assessment approaches irrespective of how students acquire their learning. This has important implications for the provision of lifelong learning strategies: there is an increasing expectation that NQFs will provide a structure for recognising lifelong learning by creating bridges between previously discrete and disparate education and training sectors, thereby enabling horizontal and vertical transfer between qualifications pathways at any stage in life. It is further expected that qualifications frameworks should recognise qualifications from outside the formal system and provide mechanisms for the assessment of non-formal and informal learning (Cedefop, 2014; Kaden et al., 2013; Keevy et al., 2011), creating parity between the different types of learning. This enables students to access qualifications via different routes, and includes adults and disengaged school leavers who may lack formal qualifications but have equivalent learning.

Learning outcomes represent a significant disjuncture from much previous custom and practice, which was typically based on inputs to learning such as the institution or programme. In many countries, qualifications have traditionally been defined by national education and training providers; by extension, qualification levels are defined by, and synonymous with, specific qualifications of these awarding institutions and bodies. In

contrast, because learning outcomes define curriculum, assessment and qualifications in terms of what a learner is expected to understand, know or do, outcomes-based level descriptors are independent of qualifications at that level, and indeed may accommodate multiple types of qualification. Learning outcomes, therefore, shift the focus from providers to users of education (Bjørnåvold & Coles, 2010; Cedefop, 2014). Thus, different types of qualifications can occupy the same level (for example, tertiary and vocational qualifications), making links between them more transparent (and thereby strengthening accountability), defining progression routes more clearly, and facilitating communication between hitherto siloed education and training sectors (Bjørnåvold & Coles, 2010; Cedefop, 2014). "Progression in learning becomes more than a predetermined path defined and restricted by education and training sectors and institutions" (Bjørnåvold & Coles, 2010, p. 11).

However, it is noted that upper secondary general education has remained input-driven in some countries with NQFs (European Commission, 2011; Leney et al., 2009). The European Commission attributes this to the selective function of traditional general qualifications for university admission, and their reliance on final written examinations that mostly assess the academic knowledge and skills aspects of learning outcomes.

Qualifications pathways.

The concept of a *pathway* suggests a route or way of access. Raffe (2003) describes pathways as a metaphor for travel and movement, reflecting a policy-making perspective, and the complementary metaphor of *navigations* reflecting the perspective of individuals who use a pathway. Historically, the concept of a qualifications pathway was used in a narrow and economistic context relating to linear transitions from school into the labour market (Raffe, 2003). A broader understanding is now generally applied, encompassing all non-formal, informal and formal learning within a flexible and interconnected system, providing opportunities for horizontal transfer as well as vertical progression (Bjørnåvold & Coles, 2010; Kaden et al., 2013). Hence, rather than being viewed as parallel lines of youth transition, the notion of pathways is now akin to the more complex, non-hierarchical, interlinked nature of a web, with multiple possible points of transition, entry, and egress, at any time. The concept of a pathway can thus be conceptualised as an

organising framework for understanding transitions (OECD, 2000; Raffe, 2003; Sweet, 2013) or, more specifically, "as the connection between an educational programme and its destinations, mediated by a set of institutional arrangements that include qualification systems, curriculum content, labour market arrangements and information and advice systems" (Sweet, 2013, p. 53). Sweet's definition also aligns with current education policy developments in many countries promoting lifelong learning, which typically involve flexible, non-linear transitions (Kaden et al., 2013; OECD, 2007b; Raffe, 2003).

The notion of a pathway being part of a more extensive, flexible, interconnected system is given effect through qualifications frameworks, which make explicit the relationship between qualifications, and how these might be combined to build pathways within education systems (Allais, 2010; Burke et al., 2009; European Commission, 2008; OECD, 2007b; Tuck, 2007). An important outcome of this flexibility is the facility to disassemble the divide between previously dichotomous general and vocational qualifications pathways, where vocational learning was considered second-best (Polesel, 2008; Raffe, 2003; Sweet, 2013; UNESCO-UIS, 2006) and give equivalence to them. The two types of learning can be bridged at multiple transition points in an individual's lifelong learning journey or combined into a single qualifications pathway. Both scenarios provide a wide range of choices and opportunities to change direction and transfer accrued credit, rather than irrevocably locking the learner into one pathway or the other (Kaden et al., 2013; Raffe, 2003).

The flexibility and transparency of an NQF makes it easier to identify and eliminate qualification dead ends, which lock people out of further learning and qualifications opportunities (OECD, 2007b). According to the OECD (2012b) report on *Equity and Quality in Education*:

> Some programmes may not allow students to transfer from one track to another, or may be terminal and not allow students to re-enter the education system. This can result in dead ends for students who may have made wrong choices earlier on or changed interests. (p. 84)

The availability of good quality qualifications pathways without dead ends is one of the keys to overcoming school failure, encouraging more students to stay in the education

system for longer, and improving labour-market outcomes of graduates (OECD, 2012b). Eliminating dead ends in qualifications pathways is a priority for most qualifications frameworks in today's globalised education and labour environments, where the facility for lifelong learning is becoming an increasingly important expectation of qualifications pathway provisioning (Allais, 2010; Coles, 2006; Raffe, 2013).

Qualifications pathways and equity.

Equity in student attainment is defined in relation to equality of opportunity (Causa & Chapuis, 2010; OECD, 2016c)—although, as the OECD (2007b) notes, equality of opportunity does not guarantee equity regarding who takes advantage of that opportunity. Equality of opportunity in this thesis is predicated on equitable access to upper secondary qualifications pathways without dead ends. In their World Bank report, Cuadra and Moreno (2005) state that:

> Secondary education is the highway between primary schooling, tertiary education, and the labor market. Its ability to connect the different destinations and to take young people where they want to go in life is crucial. Secondary education can act as a bottleneck, constricting the expansion of educational attainment and opportunity—or it can open up pathways for students' advancement. (p. xii)

Differences in countries' qualifications pathways are directly related to national differences in equity structures, as seen in the extent to which 15-year-olds are segregated into different schools by achievement level and socio-economic status (Sweet, 2013). Sweet asserts that countries with large to medium apprenticeship pathways are more likely to have school systems characterised by segregation that is high streamed by both achievement level and socio-economic status. In contrast, countries with medium-sized apprenticeship pathways characteristically have low streaming by both achievement and socio-economic status.

In another analysis, Sweet (2013) identified a group of countries with low equity (including Germany, Switzerland and the Netherlands), where students' socio-economic backgrounds had a high impact on their attainment. Sweet observed that these countries tended to have early specialisation into qualifications pathways, and large vocational pathways. In contrast, he identified another group of countries that also had large

vocational pathways (for example, Finland, Norway and Italy), but higher equity, where the impact of socio-economic background on attainment was much less. These countries tended to have later specialisation into qualifications pathways, typically at age 16. Sweet's conclusions are consistent with other research findings, where countries with more differentiated pathways have greater inequality of performance between students; furthermore, the earlier the pathway specialisation, the greater the achievement difference between students with different socio-economic backgrounds (Causa & Chapuis, 2010; Hanushek & Woessmann, 2010; OECD, 2007). New Zealand, which does not stream by school or have early specialisation into qualifications pathways, presents an interesting contradiction, with high average performance levels but low equity (OECD, 2010b, 2013b).

Qualifications Pathways, Attainment and Equity

In an ideal world, individual students determine their qualifications pathways. However, although an NQF can provide equitable access to qualifications, including for historically marginalised groups of students (Coles, 2006), the reality can be somewhat different. Student choice is opened up or constrained to a greater or lesser extent by national and local policy instruments (such as streaming mechanisms and inequalities in opportunities to learn) and circumstances (such as limitations on choice resulting from resourcing constraints; OECD, 2016c; Sweet, 2013), and the influence of guidance given to students when selecting pathways (OECD, 2000, 2004a; Sweet, 2013). Positioning general and vocational learning at the same levels on an NQF will thus not provide equivalent status unless the social composition of students in each, their outcomes, and future learning and economic pathways (such as entry to the same types of university programmes) are comparable (Raffe, 2013).

Dead ends and doorways: Key transition points.

Although traditional structures are becoming ever more flexible as NQFs are implemented, qualifications pathways at key transition points may still be predetermined *for* students, rather than *by* students, in some national contexts. This can occur where there are eligibility requirements at transition points that limit choice, such as the type of

institution previously attended, the nature of the prior course of study, and qualifying examination outcomes. Transition points are also times when at-risk students are more likely to drop out of schooling (Field et al., 2007; Lyche, 2010; OECD, 2000). Examples of transition points are listed below.

- The transition from primary to post-primary: are all students able to access the type of secondary institution of their choice (e.g., gymnasium [European secondary school that prepares students for university] or vocational college)?
- The transition from compulsory/lower secondary to post-compulsory/upper secondary: are all students able to access post-compulsory/upper secondary programmes and pathways of their choice (e.g., general or vocational pathways or a combination of these)?
- The transition from upper secondary to post-secondary: are all students able to access qualifications pathways that do not limit post-school opportunities (e.g., doorways leading to tertiary programmes), or are their post-school opportunities limited by the nature of their qualifications pathways and associated qualifications (e.g., dead ends that do not provide access to relevant labour-market qualifications or tertiary programmes)?

While the third transition is a focus of this research, it cannot be viewed in isolation from the earlier two transition points, particularly where the die may have been cast at these prior stages. For example, assessment outcomes at the end of primary education in countries such as Germany, the Netherlands and Singapore can contribute to decisions about the type of lower secondary schooling students can transition to, while assessment outcomes at the end of lower secondary or compulsory education in countries such as Japan, Korea and Poland are used as a tool for sorting students into different upper secondary pathways (Education Audiovisual and Culture Executive Agency, 2009; OECD, 2012b).

System-level policies that contribute to equitable qualifications opportunities and outcomes.

Equity discourses are central to the development of policies that impact on secondary education. Cuadra and Moreno (2005) contend that:

> Equity can be understood as the policy area at the intersection of access and quality, and this area has the greatest implications for secondary education. It is at the secondary level that students begin to be tracked or streamed into different programs and groups and have to face high-stakes examinations that condition the terms of certification and transition to the labor market or to further education. (p. 210)

Five system-level policies relevant to this research have been identified in the literature; these can improve the quality and design of upper secondary qualifications pathways, thereby reducing inequity and opening doorways for students. Collectively, they contribute to enabling the provision of fair qualifications pathways and equitable access to qualifications by all students. These five policies are summarised below.

1. **Limit early streaming and academic selection and delay pathway specialisation until upper secondary.**

   The literature shows that schooling differentiation and early streaming increase socio-economic inequality in learning opportunities (Causa & Chapuis, 2010) and the inequality of student achievement (Hanushek & Woessmann, 2006), and can reinforce the effects of parents' educational achievement (Brunello & Checchi, 2007; Field et al., 2007). Streaming is especially harmful to minority students and those from low-socio-economic backgrounds because these students are more likely to end up in low streams (Hattie, 2009; Oakes, 2005). However, students from low-socio-economic backgrounds in countries without early streaming perform better (Causa & Chapuis, 2010; Field et al., 2007; Hanushek & Woessmann, 2006, 2010). According to Causa and Chapuis (2010), "One robust and common finding is that early differentiation of students' curricula tends to be associated with larger socio-economic inequalities, with no corresponding gains in average performance" (p. 28). Put simply, "the more differentiation that gets built into a school system, the more differentiation comes out" (Hout & DiPrete, 2006, p. 10).

2. **Design an inclusive, flexible, permeable system enabling seamless transitions between general and vocational subsystems.**

   An inclusive, flexible secondary education system has seamless transitions between general and vocational pathways. Such flexibility enables responsiveness to students' changing preferences and evolving labour-market needs, leading to increased participation and progression in formal education, particularly by disadvantaged students (Cuadra & Moreno, 2005; Field et al., 2007; Kaden et al., 2013). Students are less likely to drop out of education when transitions between general and vocational pathways are seamless (OECD, 2012b).

3. **Design equivalent general and vocational pathways by improving the quality of vocational education and training and increasing its status.**

   Disadvantaged students are over-represented in vocational pathways (Causa & Chapuis, 2010; Field et al., 2007; Luciak, 2006; Madjar, McKinley, Jensen, & Van der Merwe, 2009; Polesel, 2008). By increasing its status, secondary vocational education is less likely to be seen as the preserve of disadvantaged students, and less likely to lead to poor-quality jobs (Sahlberg, 2007). Improving the quality of vocational education includes ensuring that all pathways are of equal value and lead to equivalent qualifications that provide access to tertiary education (Nicaise et al., 2005).

   Students are more likely to remain in education when general and vocational pathways have equivalent status (OECD, 2012b). Approaches to pathway equivalence vary between countries, but typically involve improving the quality of vocational education so that outcomes are equally valued. For example, recent steps to bridge general and vocational pathways have seen:

   - an increase in the number of general subjects in vocational provisioning;
   - an increase in vocational elements in traditional academic/general curricula;
   - the merging of school-based and work-based vocational training;

- an increase in work-based components in existing school-based vocational pathways;
- greater emphasis on general school-based learning, and delaying general and vocational specialisation in countries where secondary vocational education has been mostly the preserve of workplaces; and
- the development of new programmes to create direct pathways from upper secondary vocational education to tertiary-level vocational education (Cuadra & Moreno, 2005; OECD, 2007b; Sahlberg, 2007; UNESCO-UIS, 2006).

Pathway equivalence requires impartial career guidance and counselling for all students, to ensure they are aware of future options and implications of their pathway choices (Field et al., 2007; OECD, 2012b; Sahlberg, 2007). Career guidance "is one of the institutional factors that can help to determine the character, quality and effectiveness of post-compulsory pathways" (Sweet, 2013, p. 59), and there has been increasing interest in how it relates to policy objectives concerning lifelong learning, the labour market and equity (OECD, 2000, 2004a; Sweet, 2013). Of particular pertinence to this research is the role of career guidance in constraining or opening up opportunities for disadvantaged students at transitional stages of their education.

4. **Provide a range of pathways to qualifications, and through recognition of formal, informal and non-formal learning.**

   The nature of qualifications pathways offered in the senior secondary school is an important motivator for students to remain in education (Lyche, 2010; OECD, 2012b) and as such is a key component of equitable and inclusive qualifications provisions for all students (Hanushek & Woessmann, 2010). Providing a range of pathways enables students to attain qualifications via traditional and non-traditional routes, such as combinations of study, work and training, and stronger links to the world of work (Field et al., 2007; Lyche, 2010). Credentialling learning gained via non-traditional routes, and from different starting points, also allows informal and non-formal learning to be recognised, a

policy option that is becoming increasingly prevalent (Kaden et al., 2013; OECD, 2007b; Sahlberg, 2007).

5. **Eliminate qualification dead ends.**

   The availability of good quality qualifications pathways without dead ends is a key policy for overcoming school failure. Good quality qualifications pathways encourage more students to stay in the education system for longer, provide meaningful pathways to the world of work, improve labour-market outcomes of graduates and provide opportunities for lifelong learning (Lyche, 2010; OECD, 2007b, 2012b). Field et al.'s (2007) concurring policy recommendation is that "*Upper secondary education* needs to be attractive not just to an academically inclined elite, offering good quality pathways without dead ends and effective links to the world of work" (p. 79; emphasis in original).

The importance of these five system-level policies for reducing inequity in qualifications pathways is overwhelmingly supported in the literature. Poorly designed qualifications pathways, including those leading to qualification dead ends, can exacerbate existing inequalities, reduce student motivation and engagement, contribute to reduced attainment outcomes, failure and dropout, and limit post-school opportunities. Conversely, well-designed qualifications pathways leading to doorways to further learning and qualifications can contribute to more equitable opportunities and outcomes for all students. Herein lies the argument for democratising upper secondary qualifications pathways.

Implications for Dead Ends and Doorways

Equity of, and equitable access to, qualifications pathways are central themes of this thesis. The literature reviewed in this chapter situates Study 1 in the context of fair and equitable qualifications pathways for diverse learners in upper secondary education, and the role that qualifications frameworks and policies can play in creating pathways to qualification dead ends or doorways. Previous studies about upper secondary qualifications structures, pathways and attainment have typically investigated these in relation to socio-economic or socio-cultural factors such as equality of learning opportunities (Causa & Chapuis, 2010;

Hanushek & Woessmann, 2006; Polesel, 2008) and outcomes (Field et al., 2007; OECD, 2012b), or ethnicity (Luciak, 2006; OECD, 2010a, 2012b). However, Study 1 takes a contrasting approach by examining differences in qualifications structures and pathways in relation to OECD low- and high-attainment and low- and high-equity country classifications, and in situating New Zealand in this international context. This approach moves the focus from socio-economic and socio-cultural factors as possible influencers of student attainment to the role that countries may play in constraining or enabling qualifications success, through their qualifications policies, structures and pathways.

Chapter 3: Methodology: Overview and Study 1

This research was undertaken in two related but independent parts, Study 1 and Study 2. Study 1 focussed on secondary school exit qualifications pathways in selected OECD countries, while Study 2 examined these pathways in greater depth in the New Zealand context. This chapter describes the overarching research design for the two studies and then provides an overview of Study 1, before moving into a more detailed explanation of Study 1 methodology.

Overarching Research Design

This section opens with a discussion of pragmatism and why it was the philosophical approach selected as the conceptual framework to underpin the research. A "methodologically eclectic" mixed methods research design, which was developed for the two studies, is then presented, along with a justification of why this was an appropriate design to address the research questions.

Conceptual framework: Pragmatism.

All research is underpinned by a conceptual or philosophical framework or worldview, comprising a set of beliefs or assumptions, which provides a general orientation to research and guides research methodologies (Creswell & Plano Clark, 2011). Pragmatism, which underpins this thesis, is the approach most commonly used by mixed methods researchers (Biesta, 2010; Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 2003). A pragmatic framework invites a problem-centred approach, to understand the phenomena being studied. Pragmatism encompasses a set of ideas which includes utilising diverse approaches and multiple methods of data collection, valuing both objective and subjective knowledge, accommodating differing worldviews, and employing "what works" through both qualitative and quantitative methods to address the research problem. It is, therefore, pluralistic and real-world practice oriented (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004).

Hanson, Creswell, Plano Clark, Petska, and Creswell (2005) argue that "the best paradigm is determined by the researcher and the research problem—not by the method"

(p. 226). In this thesis, the research problem of attainment and equity in secondary school qualifications pathways was the starting point, and this determined the methods used and the pragmatic framework (Greene & Caracelli, 2003; Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2011). Thus, the primacy of the research problem, the pluralistic approaches designed to address it, and its real-world practice orientation in the context of secondary school qualifications pathways meant that pragmatism was the most appropriate conceptual framework to underpin this mixed methods study.

Mixed methodology.

Different writers have proposed a variety of mixed methods typologies (e.g., Boeije, 2010; Creswell & Plano Clark, 2011; Creswell, Plano Clark, Gutmann, & Hanson, 2003; Greene, Caracelli, & Graham, 1989; Johnson & Onwuegbuzie, 2004; Morse, 1991; Teddlie & Tashakkori, 2009). These typologies differ according to characteristics such as the relative weighting of quantitative and qualitative data types and analysis approaches, the order in which different stages of the research occur, and the junctures where data are analysed, integrated and interpreted.

Although typologies can provide a simplistic and reductive picture of mixed methods research designs, their diversity nonetheless conveys the richness available to mixed methods researchers. This diversity affords researchers considerable latitude in developing variants specific to the needs of their particular study (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004; Punch, 2009). Variants are achieved by mixing quantitative and qualitative methods and approaches within and across the stages of research to utilise their "complementary strengths and non-overlapping weaknesses" (Johnson & Turner, 2003, p. 299). Teddlie and Tashakkori (2011) describe this mixing as *methodological eclecticism* and assert that "methodological eclecticism not only means that we are free to combine methods, but that we do so by choosing what we believe to be the best tools for answering our questions" (p. 287).

Methodological eclecticism was a feature of the research design used in this thesis, as shown in Figure 4. Study 1 examined attainment and equity in secondary school exit qualifications pathways in selected OECD countries, using data gathered from databases and documents. The research design for Study 1 was a single, mixed methods strand

comprising both quantitative and qualitative components, which were integrated across all stages. Quantitative and qualitative data were gathered concurrently during one data-collection stage, analysed concurrently using quantitative and qualitative methods, and interpreted concurrently. In contrast, Study 2 focussed more specifically on attainment and equity in New Zealand's qualifications pathways and had a more complex research design. The design comprised two strands involving different data sources (national databases, school documents and interviews), and quantitative and qualitative data and analysis types.

The term *strand* is used to identify the different components of this research design. *Merriam-Webster's Online Dictionary* defines strand as "one of the elements interwoven in a complex whole" ("Strand," 2015). This definition better describes the interlinked nature of the design than the definitions of the more commonly used mixed methods terms of *phase* or *stage*, which have independent and sequential connotations. The term has precedent in Teddlie and Tashakkori's methods-strands matrix (2006).

The two studies were drawn together in the final stage of overall interpretation and inference-drawing, to answer the overarching research question:

> In what ways do qualifications pathways create or limit opportunities for upper secondary school students to achieve qualifications success?

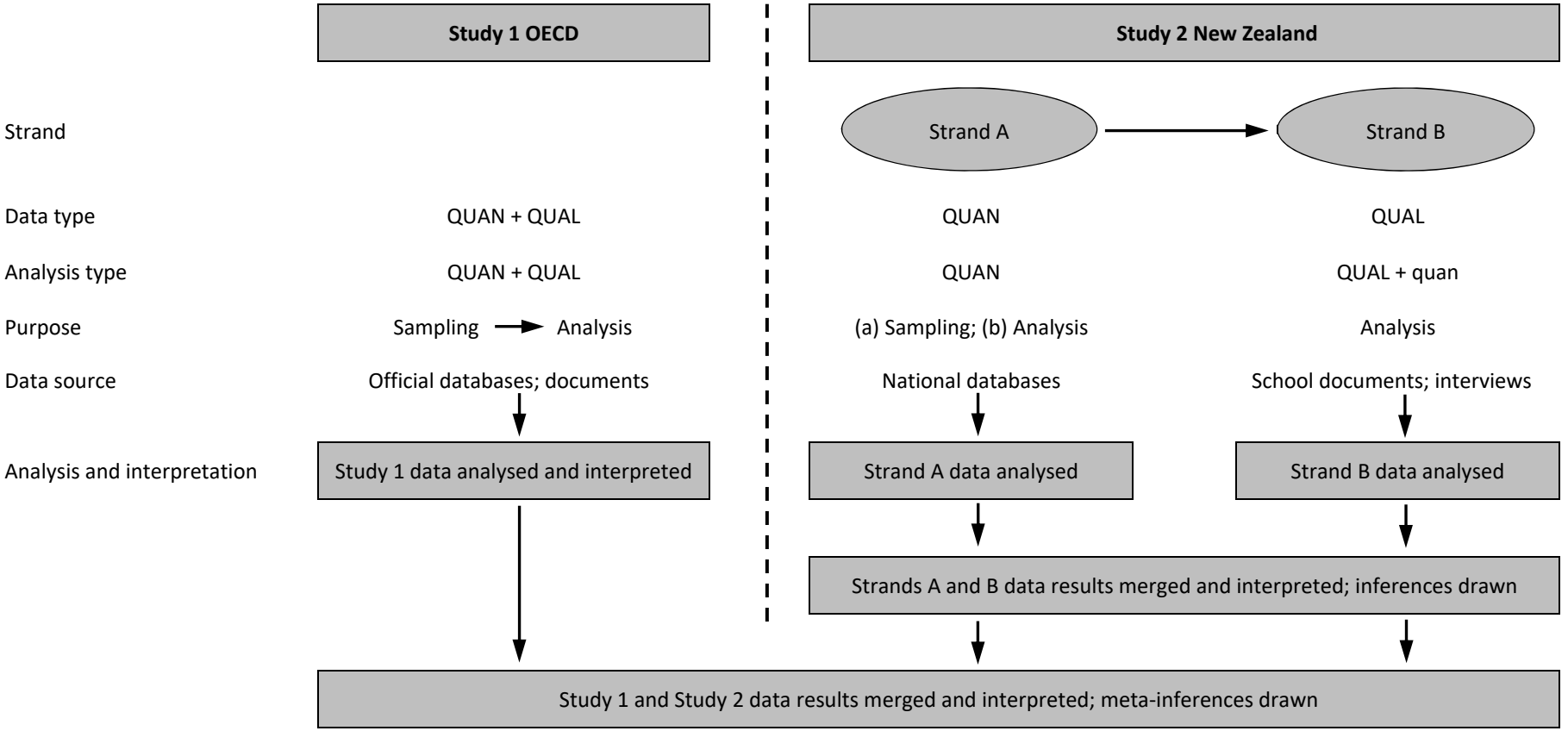

Figure 4. Study 1 and Study 2 overall research design.

Note. Qual = qualitative data/analysis; quan = quantitative data/analysis; QUAL = qualitative data/analysis prioritised; QUAN = quantitative data/analysis prioritised; → = sequential methods; + = concurrent methods

Study 1 Methodology

This section outlines procedures for identifying countries of research interest, their classification using the International Standard Classification of Education (ISCED), and subsequent data collection, collation and analysis. The first subsection describes the sampling processes that were undertaken to determine countries for inclusion in Study 1. For reasons of consistency, it was decided a requirement for selection be that each country was a member of the OECD, or became an OECD member after the earliest Programme for International Student Assessment (PISA) test used in this study. On this basis, non-OECD G20 and partner countries, which were used for comparative purposes in the OECD data, were excluded from possible selection. ISCED, which was used to categorise secondary school exit programmes and their associated qualifications in the sampled countries, is explained in the second subsection, including its classification of qualification types that were potential dead ends and doorways. ISCED was selected as the best tool for categorising and comparing qualifications as it was comprehensive, standardised and OECD-wide, enabling inter-country comparison through performance and equity lenses. The final two subsections describe the single strand, mixed methods approach that was adopted, firstly with data collection, and subsequently with data collation and analysis.

PISA data were used as a categorisation and sampling tool as they provided standardised outcomes for all OECD countries. PISA was a triennial international survey which, in 2015, was conducted in 72 countries and economies (OECD, 2018). It aimed to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students in reading, mathematics and science literacy, as well as cross-discipline competencies such as collaborative problem solving. PISA outcomes were an indicator of the quality and equity of education programmes and school systems (OECD, 2013b). Of importance to this research were data showing the strength of the relationship between performance in PISA and socio-economic status (equity).

There have been criticisms of PISA, such as those relating to test design, result analysis and score interpretation (Hopfenbeck et al., 2018) and cultural and linguistic biases (Asil & Brown, 2016). Different authors and organisations have also raised issues

concerning honesty relating to selective test cohorts and reporting (Eivers, 2010; Loveless, 2014, Part 1). However, PISA provided the most comprehensive data about student capabilities available for international comparison. Although PISA testing typically occurred towards the end of compulsory education, and the focus of this study was upper secondary, its standardised, internationally comparable performance and equity data were, nonetheless, essential for this research. These data enabled countries' upper secondary qualifications pathways and outcomes to be examined in relation to their attainment and equity profiles in PISA, and to determine whether there was any correlation. The use of PISA data in this context was thus not intended to describe countries' secondary school qualification outcomes or any other attainment, and there was no suggestion of causality between these data and qualification outcomes.

Study 1 sampling procedures.

A final sample of 16 countries selected for inclusion in Study 1 was identified using data from the three most recent PISA tests at the time of data collection: 2006 (science focus), 2009 (reading focus) and 2012 (mathematics focus). The sampling strategy was based on data presented in three OECD graphs, one for each of these three PISA tests, which contrasted the extent to which students' average academic performance in that test was influenced by their socio-economic backgrounds (OECD, 2007a, p. 189; 2010b, p. 58; 2013b, p. 27). Socio-economic data were drawn from the student-level PISA index of economic, social and cultural status and used as a proxy for equity in the distribution of learning opportunities (OECD, 2007a). Thus, countries that simultaneously achieved an above-average level of student performance and a below-average impact of economic, social and cultural status on student performance were considered to have more equitable education systems. Conversely, countries with a below-average level of student performance and an above-average impact of economic, social and cultural status on student performance were considered to have less equitable education systems. Figure 5, for example, shows the graph depicting the strength of the relationship between performance in PISA 2012 (the *y*-axis) and socio-economic status (equity; the *x*-axis). Methodologies using educational attainment in PISA in relation to socio-economic status

are common in research using inter-country education data sets, for example, Alegre and Ferrer (2010), Causa and Chapuis (2010), Field et al. (2007) and the OECD (2016b, 2016c).

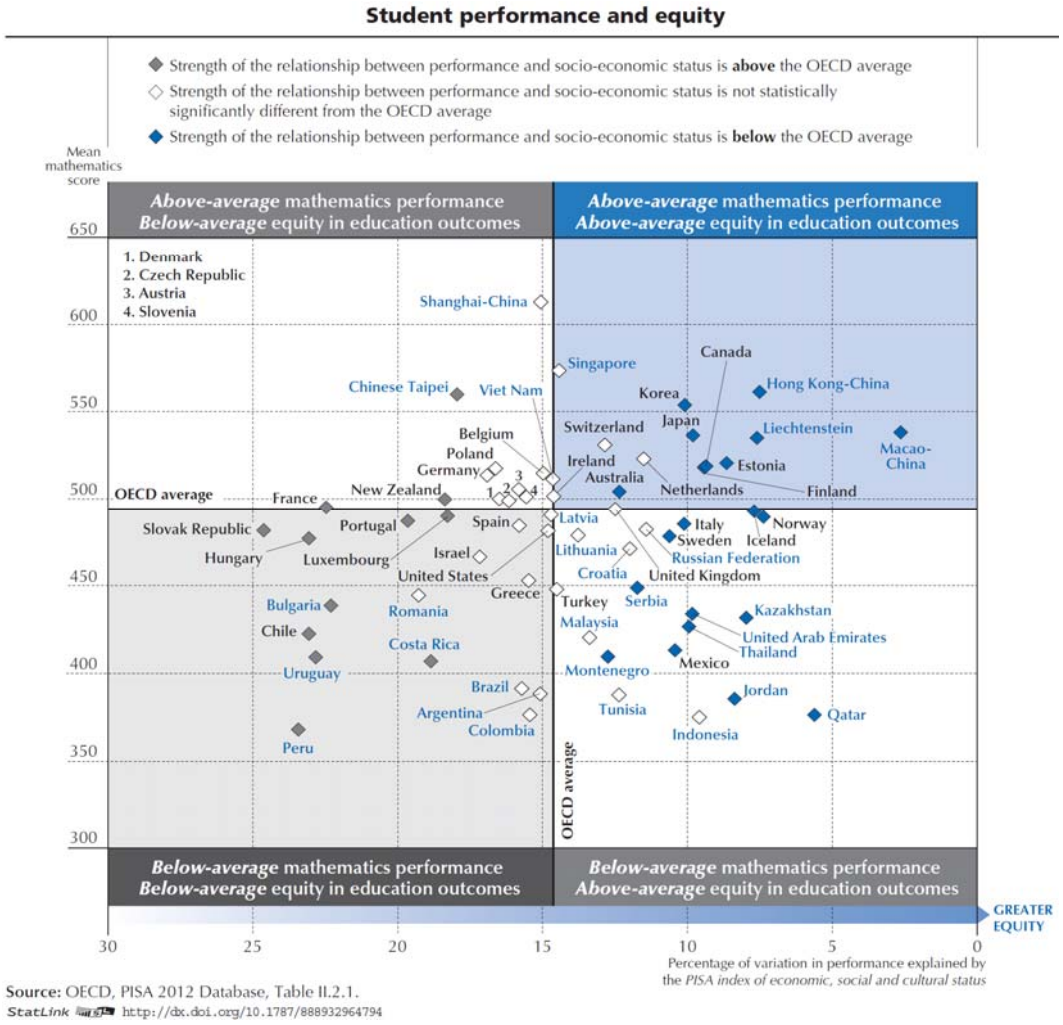

Figure 5. Student performance [in PISA Mathematics 2012] and equity. From PISA 2012 Results: Excellence through Equity: Preliminary Version - Giving Every Student the Chance to Succeed Vol. II (p. 27), by OECD, 2013, doi:10.1787/9789264201132-en. Copyright 2013 by the OECD.

The sampling requirement for countries used in this study was that the strength of the relationship between performance (shown on the *y*-axis of Figure 5) and socio-economic status or background (the *x*-axis) for each country in the three PISA tests was statistically significantly different from the OECD average impact. These differences could be above or below the OECD average impact, but had to be present in either:

1. all three test results, which were positioned in the same quadrant on their respective graphs (Canada, Chile, Estonia, Finland, Italy, Japan, Korea, Luxembourg and New Zealand met this criterion); or
2. two test results that were positioned in the same quadrants on their respective graphs, with the third in a different quadrant (Hungary, Iceland, Norway); or
3. two test results that were positioned in the same quadrant on their respective graphs, with the third result positioned in the same quadrant but which was not statistically different from the OECD average impact (Australia, Belgium, Germany, Slovakia).

The 16 countries listed in numbers 1–3 above met these criteria and were used in this study. Based on their PISA results and the sampling process outlined, they were categorised into one of four quadrants, as shown in Figure 6. The three countries with two PISA results in one quadrant and the third in another (Hungary, Iceland and Norway) were placed in the quadrant in which they had two results. The nomenclature of *low-performing* (LP), *high-performing* (HP), *low-equity* (LE) and *high-equity* (HE) countries was adopted for this study to indicate in which quadrant each of the 16 countries was positioned.

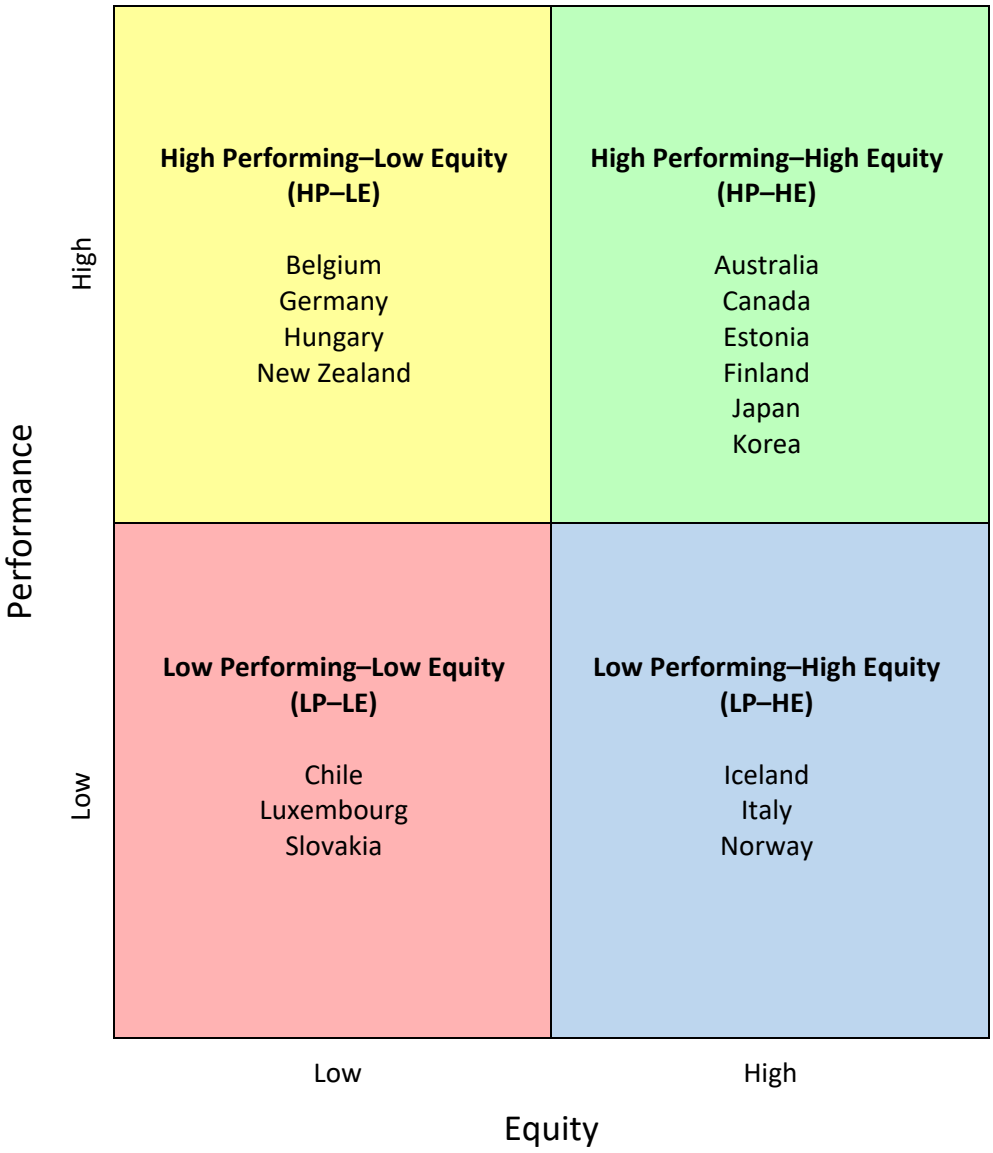

Figure 6. Research countries in assigned quadrants based on performance in the 2006, 2009 and 2012 PISA tests, and the student-level PISA index of economic, social and cultural status (equity).

The International Standard Classification of Education (ISCED)

Upper secondary qualifications and their pathways in the 16 research countries were classified using the International Standard Classification of Education (ISCED). ISCED was a classification instrument developed by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in the 1970s, to categorise and report cross-nationally comparable education statistics and indicators that were of interest to

policymakers, using standardised definitions (UNESCO-UIS, 2012). The OECD describes ISCED as:

> A programme-based taxonomy which seeks to reduce complex national educational structures along certain classification criteria into defined international categories. It thus provides the basis for transforming detailed national education statistics, which were compiled on the basis of national concepts and definitions, into aggregate categories that are deemed to be internationally comparable and that can be meaningfully interpreted. (2004b, p. 79)

The main units of ISCED classification are education programmes and their qualifications, classified according to their content into nine levels ranging from early childhood (level 0) to doctoral (level 8). The focus of this research was on programmes and their corresponding qualifications in upper secondary education. UNESCO-UIS (2012) classified this level of education as ISCED Level 3 (ISCED 3), considered to constitute minimum preparation of students for post-secondary education or employment, or both.

The revised ISCED 2011 version was adopted by UNESCO in 2011, replacing the earlier ISCED-97. However, both versions were referenced in this study as ISCED-97 was still in current usage in many official data sources during the research period, which coincided with the phasing in of ISCED 2011. Table 1 summarises and aligns the classification subcategories of ISCED-97 and 2011. As shown in Table 1, ISCED-97 3A and 3B programmes provided doorways to differentiated tertiary programme destinations, whereas these two tiers were amalgamated in ISCED 2011 into a single subcategory that provided doorways to higher (tertiary) ISCED levels.

ISCED classified programmes as *terminal* if they did not provide direct access to the higher ISCED tertiary levels 5, 6 or 7 (OECD, 1999a; UNESCO-UIS, 2012); terminal programmes lead to the titular "dead ends" of this thesis. ISCED-97 3C programmes and their equivalent ISCED 2011 classifications of *level completion*, *no level completion* and *partial level completion* met this criterion, although some 3C (long) programmes, such as pre-apprenticeship programmes, provided pathways to post-secondary non-tertiary ISCED Level 4. In this research, programmes leading to ISCED 4 are considered to be

doorways as they provide pathways to further qualifications opportunities. Doorways and dead ends are indicated in the column on the right in Table 1.

ISCED classifications also used the dimension of programme orientation, namely *general* and *vocational*. Programme orientation in ISCED-97 was a major subclassifier (as seen in Table 1), while in ISCED 2011 all programmes could be general or vocational in orientation, with specific orientation classification occurring at more detailed sublevels of the classification system not shown in Table 1 for reasons of clarity. UNESCO-UIS (2012) defines general education programmes as those that are:

> Designed to develop learners' general knowledge, skills and competencies … often to prepare students for more advanced education programmes at the same or higher ISCED levels … General education programmes are typically school- or college-based. General education includes education programmes that are designed to prepare students for entry into vocational education but do not prepare for employment in a particular occupation, trade, or class of occupations or trades, nor lead directly to a labour market-relevant qualification. (p. 80)

In contrast, vocational education programmes are:

> Designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. Vocational education may have work-based components (e.g., apprenticeships, dual-system education programmes). Successful completion of such programmes leads to labour market-relevant vocational qualifications. (p. 84)

ISCED's limitations in accommodating the curricular diversity, complexity and flexibility of national education contexts, programmes and qualifications have been highlighted (e.g., OECD, 2004b; Sauvageot, 2008). Nevertheless, it was the only classification system available for categorising and comparing upper secondary programmes and qualifications across countries; as such, it was an essential methodological tool for this research.

Table 1

International Standard Classification of Education (ISCED) 1997 and 2011 Level 3 Programme Subclassifications Leading to Doorways or Dead Ends

ISCED-97 Subclassification by programme orientation and destination					ISCED 2011 Subclassification by ISCED 3 level completion, direct access to higher (tertiary) ISCED levels and duration[a]					
			Destination			Destination				
Programme subcategory	Programme orientation	% of programme that is vocational/ technical	Further progression	Preparing for specific occupations/trades or further vocational/ technical education	ISCED 3 level completion	Direct access to higher (tertiary) ISCED levels 5, 6 and 7	Direct access to post-secondary, non-tertiary education (ISCED 4)	Leads directly to labour-market-relevant qualification	Programme duration; cumulative duration since start of primary education (ISCED 1)	Dead end or doorway
3A	General	< 25%	Tertiary 5A	No	Yes	Yes	Yes	No	No specified programme duration; no specified cumulative duration since start of primary education	Doorway
3B	Pre-vocational/ pre-technical	≥ 25%	Tertiary 5B	Yes						
3C (long)	Vocational/ technical	Not specified	Labour market; ISCED 4; other ISCED 3 programmes	Yes	Yes	No	No *or* Yes	Yes	≥ 2 years at ISCED 3 *and* ≥ 11 years since start of primary education; similar duration to ISCED 3A/3B	Dead end *or* doorway depending on programme
3C (short)	Vocational/ technical	Not specified	Labour market; ISCED 4; other ISCED 3 programmes	Yes	No	No	No	No	< 2 years at ISCED 3 *or* < 11 years since start of primary education; more than 1 year shorter than duration of 3A/3B	Dead end
3 (partial)[b]	–	–	–	–	Partial (modular: part of sequence of ISCED 3 programmes but not last programme in sequence	No, but programme completion may give access	No, but programme completion may give access	No, but programme completion may lead directly to labour-market-relevant qualification	≥ 2 years at ISCED 3 *and* ≥ 11 years since start of primary education	Dead end *or* doorway depending on programme composition & completion

Note. Source of data: *Classifying Educational Programmes: Manual for ISCED-97 Implementation in OECD Countries* (1999 ed.), by OECD, 1999, retrieved from http://www.oecd.org/edu/1841854.pdf; *International Standard Classification of Education ISCED 1997*, by UNESCO, 1997, retrieved from http://www.unesco.org/education/nfsunesco/doc/isced_1997.htm; *International Standard Classification of Education ISCED 2011*, by UNESCO Institute for Statistics, 2012, doi:10.15220/978-92-9189-123-8-en; *ISCED Fields of Education and Training 2013 (ISCED-F 2013): Manual to Accompany the International Standard Classification of Education 2011*, by UNESCO Institute for Statistics, 2014, doi:10.15220/978-92-9189-150-4-en

[a]All programmes may be general or vocational in orientation. [b]Classification introduced in ISCED 2011.

Study 1 research design.

Study 1 had a single strand, mixed methods research design comprising concurrent quantitative and qualitative data collection and analytic methods (shown in Figure 4). Both types of data were equally prioritised and integrated during data gathering, analysis and interpretation.

The study comprised two stages, the first of which involved identifying countries of research interest. PISA data were used to classify low-performing and high-performing, and low-equity and high-equity countries that were members of the OECD. In the second stage, data were gathered from official, public-domain databases and documents into a single, combined data set, and analysed to identify similarities and differences between secondary school exit qualifications pathways in the identified countries. The combined findings were used to answer all three Study 1 research questions, which were interrelated:

1. What is the nature of upper secondary school exit qualifications pathways in OECD countries whose PISA results show the strength of the relationship between performance (attainment) and socio-economic background (equity) to be statistically different to the OECD average impact?
2. What are the similarities and differences between qualifications pathways in the four groups of OECD countries with low/high attainment and low/high equity in PISA assessments?
3. How are qualifications pathways in New Zealand's NCEA Level 3 similar to and different from qualifications pathways in the OECD countries investigated?

Study 1 data collection.

Details of ISCED 3 programmes and qualifications in the 16 research countries were obtained from the UNESCO Institute for Statistics (UNESCO-UIS) website (2016) and compiled into an Excel spreadsheet. ISCED 3 programmes had to meet the following criteria to be eligible for inclusion in this research:

- be secondary school based or within secondary school purview;
- be full-time, formal education programmes (defined as those that constitute a "continuous 'ladder' of full-time education" (UNESCO, 1997,

p. 47), including recognised dual programmes of part-time employment and part-time school-based education);

- have a minimum duration of 1 year;
- lead to national or jurisdictional ISCED 3 qualifications;
- be targeted to mainstream secondary school aged students; and
- have sufficient student numbers to enable reliable comparative analysis.

A broad range of quantitative and qualitative data about these qualifications was gathered concurrently for 12 categories and 99 attendant subcategories of interest, as detailed in the "Data Collection Categories, Level of Analysis and Coding" tables in Appendix A (odd-numbered tables A1–A23). Information was obtained from official databases and documents produced by governments or government departments, ministries or agencies of individual research countries, and from intergovernmental organisations such as the OECD, European Union and UNESCO. All information was in the public domain. Comprehensive notes explaining OECD source data, which are beyond the scope of this thesis to present, are detailed in Annex 3 of the OECD's (2016a) *Education at a Glance 2016*, while the *Reader's Guid*e (2016b, pp. 21–23) provides general information about the statistical coverage of these source data. Both of these documents served as reference sources when planning the study and collecting and analysing data.

The level of focus for data gathering (shown in column two of the "Data Collection Categories, Level of Analysis and Coding" tables in Appendix A) was determined by the information that was most valid for each category and subcategory, to best address the research questions. For example, data about graduation rates for ISCED 3 qualifications (Category 11) were investigated at a country-wide level. Data about standardised central examinations (Category 9) were examined according to broad programme orientation (i.e., general, vocational), while some categories and subcategories best suited analysis at an individual qualification level, such as Category 7, which investigated the different assessment components of each ISCED 3 qualification.

Where countries had states or regions which differed to the rest of that country in any subcategories, these differences were included in the final data where practicable. For example, the province of Quebec in Canada had a different structure for delivering

vocational education to the rest of Canada; thus, both sets of data were included in the subcategories pertaining to programme and qualification types.

Study 1 data collation and analysis.

Due to the large volume and diversity of data gathered, it was recorded in a document-type that facilitated direct comparison of categories, irrespective of whether these contained quantitative or qualitative information. For this reason, Microsoft Excel was used for "data wrangling." Although Excel is primarily a quantitative data tool, qualitative data, which were gathered for over half of the categories, were treated as text tables within the larger spreadsheet, with coding columns inserted beside them.

The first Study 1 research question concerned the nature of secondary school exit qualifications in OECD countries with different attainment and equity profiles. To best address this, a master spreadsheet was created, containing the 16 research countries grouped and colour-coded according to their attainment and equity quadrant profiles, as shown in Figure 6. The colour coding facilitated visual identification and analysis. Each country's ISCED 3 qualification types were added to the spreadsheet, and quantitative and qualitative data were entered into the 99 subcategory columns for each country and qualification. Qualitative data were coded categorically according to differentiated descriptors (listed in the third and fourth columns in the "Data Collection Categories, Level of Analysis and Coding" tables in Appendix A).

Tallies of numerical data were calculated for each quadrant in each subcategory column, as applicable. Because the sample contained more high-performing countries (HPCs) than low-performing countries (LPCs)—10 versus six—and more high-equity countries (HECs) than low-equity countries (LECs)—nine versus seven—this had the potential to skew results, especially when small tallies were involved. This risk was addressed by calculating quadrant averages in the relevant subcategory columns. The difference between low- and high-performing quadrants, and between low- and high-equity quadrants was then calculated for columns containing quadrant averages or tallies. OECD averages were added to columns for comparative purposes where these were available.

As the master spreadsheet contained approximately 24,000 cells of manually inputted data, including qualitative data and supporting notes, a simplified spreadsheet was developed from the master to facilitate analysis. The simplified spreadsheet included a converged display of quantified categorical data and qualitative themes, as well as coding columns, averages and tallies. It excluded the categories and subcategories listed below that were investigated but not used in the analysis due either to insufficient available data or not contributing to answering the research questions.

- Qualifications offered by each type of institution (school):
    - whether all schools were required to offer the same qualifications;
    - the number of solely general qualifications;
    - the number of general qualifications that included an optional vocational component;
    - the number of combined general and vocational qualifications; and
    - the number of vocational qualifications.
- Qualification structures:
    - whether the qualification was standards-based, norm-referenced, or a combination.
- Derivation of the final grade:
    - how the final grade was derived;
    - the percentage of external and internal assessment contributing to the final grade; and
    - whether the final grade was scaled.
- Reporting of summative results:
    - whether there was a policy framework regulating the reporting of summative results;
    - the nature of written information provided on student results; and
    - the nature of written information provided to students at the end of ISCED 3 on formal certificates of learning.

Data were examined by performance and equity quadrant groupings, to address the second Study 1 research question about similarities and differences in qualifications

pathways between the four groups of countries with low- or high-performance and low- or high-equity designations. Each column on the simplified spreadsheet was scrutinised to determine whether combined performance or equity scores provided the largest contrast between quadrants; quadrant pairings that provided the largest contrast were of research interest. Where there was little difference between pairings, the subcategory's results were considered inconclusive and were not discussed unless their inconclusiveness was in itself significant, or important as part of a larger picture.

The master spreadsheet was regularly referenced to provide context and detail and inform the analysis. Where the same outcomes were evident with quadrant averages and numerical tallies, numerical results were used for the final analysis as these gave a more detailed picture. Averages were used if numerical data did not provide an accurate comparative picture, such as where small tallies were skewed by the different number of countries in each quadrant. Columns that could not be tallied or averaged, such as those with data ranges, or more than one possible code per item, were examined manually for performance or equity contrast. These columns were predominantly subcategories that were investigated at an individual qualification level, and the coding typically summarised qualitative data.

The third Study 1 research question, how New Zealand's NCEA L3 pathways compared with those of the other countries investigated, was addressed in the final step. For this, subcategories were identified in which New Zealand's upper secondary qualifications pathways were similar to and different from other countries, including other HP–LE countries.

Study 1 Reliability and Validity

This study involved both quantitative and qualitative data gathered from official documents; these were used as a traditional resource for their content, rather than as topics or active agents within their social context (Prior, 2008; Scott, 1990). The procedures outlined in this section were implemented to ensure reliability and validity at all stages of the study.

Study 1 reliability.

Broadly speaking, reliability in quantitative and qualitative research refers to consistency or comparability, such as between multiple data sources, over time, or between multiple coders on a project. A threat to the reliability of the data used in this study was that education systems never remain static, potentially resulting in data inconsistencies within and between countries. For example, some data predated recent changes to some countries' qualifications systems, while other data were reported subsequently and impacted by the changes. Accordingly, four steps were taken to ensure the reliability of quantitative and qualitative data:

- data were rechecked for accuracy against the source data once they had been compiled;
- data codes were created by the researcher and critiqued by her academic supervisors, who filled the role of external auditors;
- data were coded by the researcher and then checked across countries to ensure consistency in coding; and
- categorical qualitative data were quantified based on theme and code counts and recalculated to check the accuracy of initial aggregations of information.

Study 1 validity.

The focus of validity in quantitative and qualitative research is to check the quality, accuracy or trustworthiness of data collection, analysis and interpretation. A potential threat to the validity of the data is that official documents are not necessarily free from bias (Bryman, 2016). According to Corbetta (2003), "[Institutional] documents often are not objective representations of the institutional reality to which they refer, but instead provide an 'official' representation of it" (p. 306). Scott (1990) proposed four interdependent criteria for evaluating the validity of documents used as data sources: authenticity, credibility, representativeness and meaning. In Table 2, these evaluation criteria are aligned with potential threats to the validity of documents used in this study and strategies used to minimise these threats.

Table 2

Potential Threats to Document Validity and Steps Taken to Minimise These

Criterion	Potential validity threat	Strategies used to minimise threat
Authenticity	Evidence is not original or genuine; of questionable origin	• Gathered data from primary sources or other official government or intergovernmental websites, databases and documents.
Credibility	Evidence is inaccurate, biased or distorted	• Gathered and compared data from multiple official government and intergovernmental data sources where practicable to check accuracy of data. • Sought corroborating evidence from additional sources where documents had been translated into English.
Representativeness	Evidence is incomplete or atypical of its kind	• Updated information when new data were released during data gathering. • Included OECD averages for comparative purposes (where available).
Meaning	Evidence is unclear, biased or interpretive	• Sought supplementary evidence from additional sources where information lacked clarity. • Used multiple data sources where practicable to check for bias. • Clarified evidence via phone communication with education officials as necessary.

As the sample size was small (n = 16), the use of inferential statistical techniques (e.g., analysis of variance or chi-square analyses), which rely on large samples producing normally distributed data, were largely avoided. Numeric counts rather than percentages were used to describe some small samples, and statistical generalisations were avoided. With respect to representativeness, the 16 countries included in the study were atypical of OECD countries. That is, they were not a random sample but a purposive one comprising countries selected because their performance in PISA relative to their socio-economic

status was statistically significantly different to other OECD countries. Given the small sample size and its atypical nature, results were interpreted with caution. The inclusion of disconfirming, discrepant and contradictory data that ran counter to prevailing themes contributed to the validity of data interpretation.

Chapter 4: Study 1 Findings

This chapter presents findings that address the three research questions for Study 1. These concern the nature of upper secondary qualifications pathways in, and similarities and differences between, the four groups of OECD countries with low/high attainment (performance) and low/high equity in PISA assessments, and how New Zealand's pathways compare with these. The identification of pathways that were potential dead ends or doorways was a particular focus.

Findings are presented in 12 categories which broadly align with the major areas of research interest.

1. School information and programme orientation.
2. Enrolment rates and share of students by programme orientation.
3. ISCED 3 age profiles and programme durations.
4. Number of ISCED 3 programme types by general or vocational classification, and their destinations.
5. Number of qualifications available through different programme types.
6. ISCED 3 qualification structures.
7. Components of ISCED 3 qualifications.
8. Internal summative assessment frameworks at ISCED 3.
9. Standardised central examinations at ISCED 3.
10. Administration and quality assurance of ISCED 3 qualifications.
11. Graduation rates for ISCED 3 qualifications.
12. Entry rates into tertiary education.

Findings for these 12 categories address the first Study 1 research question:

> What is the nature of upper secondary school exit qualifications pathways in OECD countries whose PISA results show the strength of the relationship between performance (attainment) and socio-economic background (equity) to be statistically different to the OECD average impact?

Findings are then summarised in tabular format by performance and equity country groupings, followed by a discussion of key differences between low- and high-performing,

and low- and high-equity countries. These sections address the second Study 1 research question:

> What are the similarities and differences between qualifications pathways in the four groups of OECD countries with low/high attainment and low/high equity in PISA assessments?

In the final section of this chapter, New Zealand's upper secondary pathways are examined in relation to the 12 categories listed above, to address the third Study 1 research question:

> How are qualifications pathways in New Zealand's National Certificate of Educational Achievement (NCEA) Level 3 similar to and different from qualifications pathways in the OECD countries investigated?

Data for each category and associated subcategories were either investigated at a country, programme or qualification level according to what was the most valid for that category. Categories 1–4, which provide a national context for qualifications pathways in each of the 16 research countries by identifying school and programme information and student age profiles, were explored at a country-wide level. In Categories 5–7, a detailed examination of ISCED 3 qualifications was undertaken, followed in Categories 8–10 by an inspection of their overarching regulatory and compliance frameworks; both of these groupings were investigated at the level of specific programme and qualification types. Finally, two measures of ISCED 3 qualifications' success were examined in Categories 11 and 12, each at a country-wide level. Data in each subcategory were scrutinised to determine whether quadrant pairings by either performance or equity country groupings provided the largest contrast; pairs of quadrants with the greatest difference between them are a focus of these findings.

The "Data Collection Categories, Level of Analysis and Coding" tables in Appendix A (odd-numbered tables A1–A23) provide details of the 12 data categories and associated subcategories, coding descriptors, and levels of analysis. Raw data for all categories are presented in 12 associated "Data Tables" in Appendix A (even-numbered tables A2–A24).

Category 1: School Types and Programme Orientation

School types and education programmes were examined in this category to provide a national context for qualifications pathways in each research country. Three subcategories were investigated: the number of school types or education programmes available to 15-year-olds; the types of schools; and the orientation of programmes offered by these different schools. The data showed some contrast when countries were grouped by low-equity versus high-equity countries (LECs vs. HECs), with a small contrast in one subcategory only when countries were grouped by low-performing versus high-performing countries (LPCs vs. HPCs).

Number of school types and education programmes.

There was contrast by equity country groupings for the number of school types or distinct education programmes available to 15-year-olds, with LECs having a higher average number per country than HECs (3.1 vs. 1.6 respectively). The High Performing–High Equity (HP–HE) quadrant had the lowest average number per country (1.5), while the Low Performing–Low Equity (LP–LE) quadrant had the highest (3.3). Individual countries with the most school types or distinct programmes were LECs: LP–LE Slovakia (five) and Luxembourg (four), and HP–LE Belgium and Germany (four).

Types of schools.

The different types of secondary schools offering ISCED 3 ranged from those with a solely general education focus to those offering various combinations of general and vocational and those with a solely vocational focus. Two types of schools showed a contrast by equity country groupings: schools with a general focus that provided some vocational education (eight in LECs vs. three in HECs); and schools that provided both general and vocational education (five in HECs vs. just one in LECs).

Orientation of programmes offered by different types of schools.

General programmes were most commonly delivered in schools with a general focus (12 countries) or schools offering both general and vocational programmes (four countries). However, there was considerable variety in the types of schools providing vocational programmes. These ranged from vocational-only schools (such as in HP–LE Hungary and

LP–HE Italy) to schools offering different combinations and types of vocational and general programmes. The latter programme types included those with an initial general focus followed by vocational specialisation in later years, such as LP–HE Iceland's *Starfsnám á framhaldsskólastigi með bóknám sem forkröfu* (vocational programme building on general education). Although most results in this subcategory were inconclusive, there was some contrast by performance country groupings for programmes that could accommodate flexible combinations of general and vocational learning, found in three HPCs (HP–LE New Zealand and HP–HE Australia and Canada) but no LPCs.

Category 2: Enrolment Rates and Share of Students by Programme Orientation

In this category, the enrolment rates of 15–19-year-old students in public and private institutions as a percentage of the population for this age group were identified for each research country. Enrolment rates by ISCED 3 programme orientation were then examined, drawing from two different OECD data sets to gain a more comprehensive picture. The first data set contained enrolment rates of 15–19-year-olds, comprised mainly of upper secondary school students, as a percentage of all students enrolled in general or vocational programmes. The second data set showed the share of all students by general or vocational programme orientation, including those not enrolled in upper secondary. Analysis of the data revealed an overall difference between LPCs and HPCs in this category.

Enrolment rates of 15–19-year-old students as a percentage of the population for this age group tended to be higher in HPCs than in LPCs, with Japan (94%) and Belgium (92%) having the highest. In contrast, LPCs tended to have lower enrolment rates than HPCs, with Luxembourg (76%) and Italy (77%) the lowest. HPC Canada was a marked exception to these trends: its enrolment rate of just 73% was the lowest of all countries in this study.

Enrolment rates by ISCED 3 programme orientation were then examined using the first data set: enrolment rates of 15–19-year-olds in general or vocational programmes as a percentage of all students enrolled in these programmes. Results showed that, with some exceptions, HPCs tended to have higher enrolment rates of 15–19-year-olds in general

programmes and correspondingly lower enrolment rates in vocational programmes than LPCs. The reverse pattern was observed for LPCs which, with some exceptions, tended to have lower enrolment rates of 15–19-year-olds in general programmes and higher rates in vocational programmes. Countries with the highest enrolment rates in general programmes were HPCs Hungary (54%) and New Zealand (51%), while those with the lowest were LPCs Slovakia (21%) and Luxembourg (27%).

Conversely, individual countries with the highest enrolment rates in vocational programmes were LPCs Italy and Slovakia (42% and 44% respectively), while the lowest were in HPCs Australia and New Zealand (8% each). Belgium was an exception to the pattern for HPCs as enrolment rates were similar to LPCs: just 29% of 15–19-year-olds, as a percentage of all students, were enrolled in general programmes compared with 39% in vocational programmes. Chile was an exception to the pattern for LPCs, with enrolment rates similar to HPCs: 41% were enrolled in general programmes, and 19% were enrolled in vocational programmes.

Enrolment rates by ISCED 3 programme orientation were then examined using the second data set: the share of all students by general or vocational programme orientation. With some exceptions, a similar LPC/HPC contrast to that of the first data set was evident, with HPCs tending to have a higher proportion of general to vocational programme students. Conversely, LPCs tended to have a higher proportion of vocational to general programme students. HPC Canada had the highest proportion of general to vocational students, at 19:1. Finland was a notable exception to the HPC pattern, with a low proportion of general to vocational students (0.4:1) that was more consistent with LPCs. The reverse was evident for LPC Chile, which had a high proportion of general to vocational (2.3:1) that was more consistent with HPCs.

Category 3: Age Profiles and Programme Durations

This category was examined to identify associations between age profiles and ISCED 3 programme durations. The subcategories investigated were the:

- starting and ending ages and duration of compulsory education;
- typical starting age of upper secondary;

- age of first selection;
- theoretical programme duration for general and vocational programmes; and
- typical graduation age from general and vocational programmes.

Data for each subcategory were examined by performance–equity country groupings, as shown in Table 3. Results were mixed, with four subcategories showing contrast by performance, four showing contrast by equity, and two that were inconclusive.

Compulsory education.

Compulsory education was the number of years or age span during which students were legally required to participate in education. LECs had a younger average compulsory education starting age than HECs (5.6 vs. 6.3 respectively), an older average ending age (16.9 vs. 15.6 in HECs) and, on average, more total years of compulsory education (11.3 vs. 9.5 in HECs).[3] The youngest starting age was in LEC Luxembourg (4), while the oldest was in HECs Estonia and Finland (7). The oldest ending ages of compulsory education, below which all students were legally required to participate in education, were in LECs Belgium, Chile and Germany (18),[4] compared with the youngest ending ages in HECs Korea (14) and Japan (15).[5] There was a similar LEC/HEC contrast for total years of compulsory education: the most years (12) were in LECs Belgium, Chile, Germany and Luxembourg, versus the least in HECs Korea (8), Estonia, Finland and Japan (9).

However, the legal ending age, and total years, of compulsory education did not necessarily reflect post-compulsory retention patterns. For example, despite HECs Japan and Korea's comparatively young ending ages (15 and 14 respectively) and fewer years of compulsory education (9 and 8 respectively), both countries had high enrolment rates of 15–19-year-olds in education (94% and 87% respectively), as previously described in Category 2.

[3] LEC New Zealand's compulsory starting age was six; however, the majority attended from age five.

[4] In LEC Germany full-time education was compulsory until age 18, although from age 15 only part-time schooling was compulsory (i.e., part-time vocational education and part-time employment).

[5] The ending age of compulsory education in HEC Canada was 16 except in Manitoba, New Brunswick, Nunavut and Ontario, where it was 18.

Table 3

ISCED 3 Age Profiles and Programme Durations, by Performace–Equity Country Groupings

Quadrant	Compulsory education[a]			Typical starting age upper secondary[b]	Age of first selection[c]	ISCED 3 programme duration[d]			Typical graduation age[e]	
	Average starting age	Average ending age	Total years			3A (general)	3A, 3B (vocational)	3C (vocational)	General	Vocational
High Performing–Low Equity	5.8	**17.0**	**11.3**	14–18	12.3	2–5	2–5	**2–5**	17–20	**18–29**
High Performing–High Equity	**6.3**	15.6	9.2	14–16	**15.3**	2–3	3–4	**0.5–3.5**	17–19	**17–30**
Low Performing–Low Equity	5.3	**16.7**	**11.3**	11–16	13.3	**4–4**	**4–5**	2–3	17–19	17–20
Low Performing–High Equity	**6.0**	16.0	10.0	14–16	**15.3**	**3–5**	**4–5**	1–5	18–19	18–22

Note. ISCED 3 = International Standard Classification of Education, Level 3. **Bold font** = pair of country groupings in each column with the highest combined score, by performance or equity; outcomes in columns with no bold font are inconclusive.

Data adapted from: [a]*Education at a Glance 2016: OECD Indicators,* p. 475, by OECD, 2016, doi:10.187/eag-2016-en; [b]*Education at a Glance 2016: OECD Indicators*, p. 472, by OECD, 2016, doi:10.187/eag-2016-en; [c]*Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, p. 57, by OECD, 2012, doi:10.1787/9789264130852-en; [d]*ISCED Mappings,* by UNESCO Institute for Statistics, 2017, retrieved from http://uis.unesco.org/en/isced-mappings; [e]*Education at a Glance 2016: OECD Indicators,* p. 470, by OECD, 2016, doi:10.187/eag-2016-en

Typical starting age of upper secondary ISCED 3.

The typical starting age of upper secondary ISCED 3 refers to the age or age range of students at the beginning of the school year. Typical starting ages ranged from 14–19, with 15 being the most common. The youngest starting age, of 14, was in LP–LE Chile and LP–HE Italy, and at the lower end of HP–LE Belgium's age range of 14–16. Although results were inconclusive, with no performance or equity contrast between quadrants, there was a strong equity contrast when comparing the ending age of compulsory education. In most HECs except Canada and Italy, the typical starting age of upper secondary was approximately the same as the ending age of compulsory education, compared with just one LEC, New Zealand. In other words, upper secondary education was optional in these countries.

Age of first selection.

Although the age and nature of first formal selection varied between countries, it was usually based on academic performance. It typically involved streaming students into different classrooms, curricula or schools, leading to general or vocational programmes and qualifications that could serve as gatekeeping mechanisms for post-school opportunities. The findings showed an LEC/HEC contrast.

LECs tended to have a younger age of first selection than HECs, with average ages of 12.7 versus 15.3 respectively. The age of first selection in LECs ranged from 10 (Germany) to 16 (Chile and New Zealand), compared with a narrower range in HECs, of 14 (Italy and Korea) to 16 (Australia, Canada, Finland, Iceland and Norway). The HP–LE quadrant countries had the youngest average age of first selection, of 12.3; this was attributable to Germany (10), Hungary (11) and Belgium (12). New Zealand had a different profile from the other HP–LE quadrant countries, with first selection occurring at 16. The HP–HE quadrant had the oldest average age of first selection, of 15.3, with individual countries ranging from 14 (Korea) to 16 (Australia, Canada and Finland). Unlike countries with a younger age of first selection, most of those with an older age typically had no high-stakes tests for secondary school admission. In these countries, students could choose their programmes and subjects later in their schooling.

HECs were also more likely than LECs to have aligned ages for the end of compulsory education, the start of upper secondary, and first selection, such as HECs Japan and Iceland, where all three events occurred at ages 15 and 16 respectively. Conversely, in LECs these three events were more likely to occur at different ages; in LEC Germany, for example, they occurred at ages 10 (first selection), 15–16 (starting age of upper secondary) and 18 (ending age of compulsory education).

Theoretical programme duration for general and vocational programmes. *Theoretical duration* refers to the standard number of years of full-time attendance required to complete a programme (OECD, 2002). Because of the range of cumulative durations and ISCED progression opportunities available in vocational programmes, these were examined in two separate groups. The first group comprised two classifications that could provide access to tertiary ISCED 6, namely ISCED 3A (vocational) and 3B. The second group was ISCED 3C, which did not lead directly to ISCED 6. Contrary to the LEC/HEC contrast of the previous three subcategories, the findings for this subcategory showed an LPC/HPC contrast.

The duration of general programmes and vocational 3A/3B programmes ranged from 2 to 5 years. LPCs tended to have longer programme durations than HPCs, with averages of approximately 2 years versus 3 years respectively. All countries offering ISCED 3A (vocational) or 3B programmes had the same, or similar, programme lengths for these as for their 3A (general) programmes.

There was greater variability in ISCED 3C programme duration than with the other ISCED classifications, and results were inconclusive when examined by performance–equity groupings. ISCED 3C programme durations ranged from 0.5 years (HP–HE Estonia) to 5 years (LP–HE Norway). Some countries offered multiple ISCED 3C programmes of different durations, such as preparatory courses which also served as stand-alone programmes, leading to further ISCED 3C study. For example, in LP–HE Italy students could complete a 3-year ISCED 3C vocational training programme, followed by an additional, fourth year, to gain more advanced ISCED 3C credentials.

Typical age of graduates from ISCED 3 programmes.

The typical graduation age from ISCED 3 programmes referred to the age or age range of students at the beginning of the school year in which graduation typically occurred; however, the graduates could be any age (OECD, 2016a). The OECD noted that defining a typical graduation age was difficult because the ages of graduates varied considerably in some countries; this age variation was particularly evident for some vocational programmes in this study. Results for typical graduation ages from general programmes were inconclusive, with little difference between quadrants, while those from vocational programmes showed an LPC/HPC contrast.

The typical ages of graduates from general programmes ranged from 17–20, with the most common ages being 17–18 and the widest individual country range, of 18–20, in HPC Germany. The typical ages of graduates from vocational programmes ranged from 16–30, with the most common ages being 18–19. LPCs had a smaller range of ages overall than HPCs (17–22 vs. 16–30 respectively). The widest individual country ranges for vocational graduates were in HPCs New Zealand (16–29), Australia and Canada (18–30).

There was no clear correlation between performance–equity country groupings for the typical age of graduates from ISCED 3 programmes and the other subcategories in Category 3, namely the ending age of compulsory education, the starting age of upper secondary, programme durations, or the age of first selection.

Category 4: Number of ISCED 3 Programme Types and Highest ISCED Level of Destination Access

In this category, the number and percentage of ISCED 3 programme types were examined by general versus vocational classification, and destination. The data showed that HPCs offered more general programmes than LPCs but fewer vocational programmes; however, vocational programmes in HPCs were more likely to provide direct access to ISCED 6 (bachelor's-level) tertiary study.

HPCs offered more general programme types in total than LPCs (21 vs. eight). Nine countries offered one type of general programme, whereas HPCs Japan and Korea offered five each, and Belgium, Germany and Hungary offered two each, explaining the

higher overall count in HPCs. LPCs Iceland and Norway also offered two general programme types apiece. Conversely, LPCs offered more vocational programmes in total than HPCs (23 vs. 19), despite there being four fewer LPCs in the sample. Countries offering the highest number of vocational programme types were LPCs Luxembourg (seven) and Slovakia (five), while the lowest were HPCs Australia and New Zealand, which had no upper secondary vocational programmes that met the criteria for this research.

General and vocational programme types, and the access these provided to ISCED 6, were then examined as a percentage of all programme types offered by each of LPCs and HPCs (shown in Figure 7). A higher percentage of programme types in HPCs were general, compared with LPCs (52.5% vs. 25.8% respectively). All general programmes provided direct access to tertiary ISCED 6.

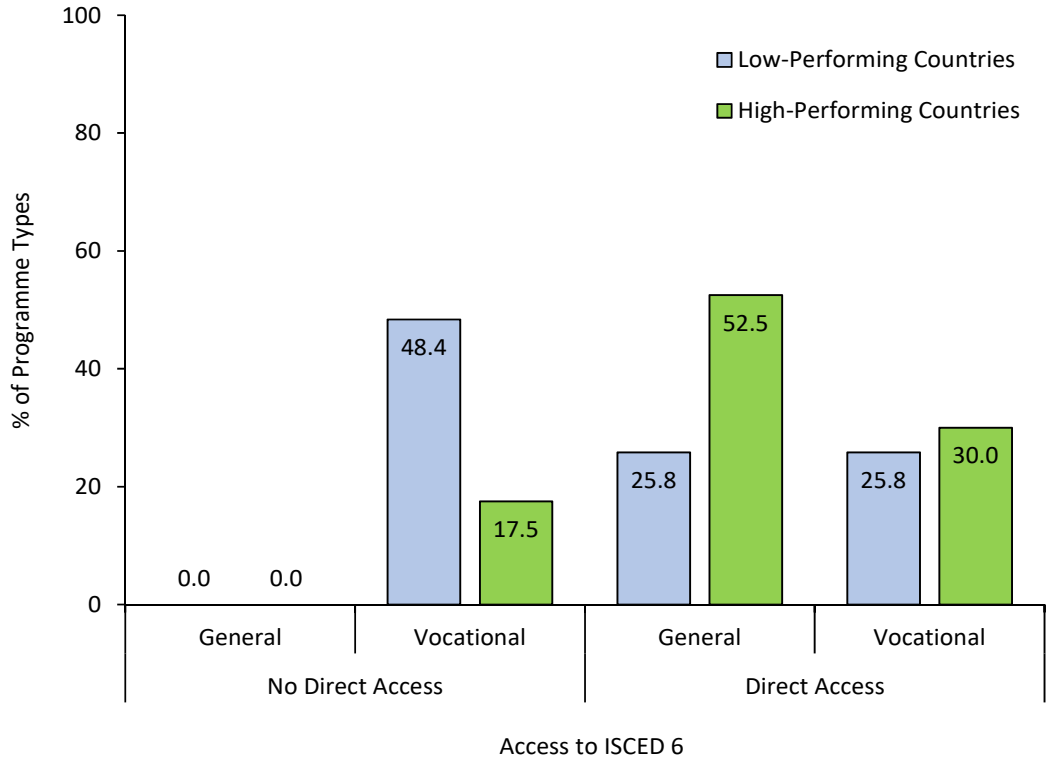

Figure 7. Percentage of total ISCED 3 general and vocational programme types offered by low-performing and high-performing countries that provide no direct access, or direct access, to ISCED 6. ISCED 6 = International Standard Classification of Education Level 6. Programme types $n = 72$. Data adapted from *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings

The reverse pattern was evident for LPCs: a higher percentage of programme types were vocational compared with HPCs (74.2% vs. 47.5% respectively). However, although LPCs offered a higher percentage of vocational programme types, a smaller percentage of these provided direct access to ISCED 6 (25.8% in LPCs, 30.0% in HPCs). In contrast, 48.4% of programmes offered by LPCs were vocational programmes that did not provide access to ISCED 6, compared with just 17.5% of programmes offered by HPCs.

Figure 8 shows the highest ISCED level that vocational programme types gave access to, including those enabling ISCED 6 access as previously shown in Figure 7. LPCs offered a higher percentage of vocational programme types whose highest level of access was post-secondary, non-tertiary ISCED 4 (43.5% vs. 20.0% in HPCs) or ISCED 5 (13.0% vs. 5.0% in HPCs). ISCED 4 programmes served varying purposes in different countries, such as providing pathways to ISCED 6, or through apprenticeship programmes to the labour market. ISCED 5 was short-cycle tertiary education, a level below the ISCED 6 bachelor's classification, and provided a destination for programmes such as such as LPC Iceland's Fine and Applied Arts and LPC Slovakia's Conservatoire art programmes. In contrast, 60.0% of vocational programmes offered by HPCs provided direct access to ISCED 6, compared with 34.8% of vocational programmes in LPCs.

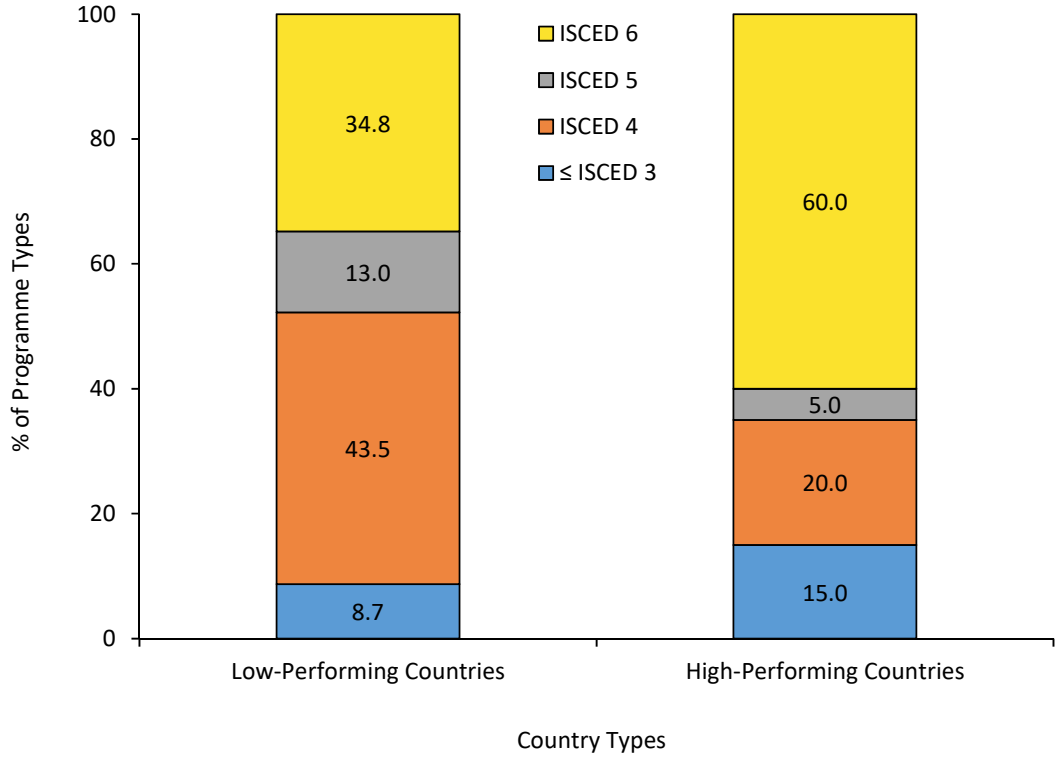

Figure 8. Percentage of ISCED 3 vocational programme types offered by low-performing and high-performing countries, by their highest level of ISCED programme access. ISCED = International Standard Classification of Education. Vocational programme types $n = 42$. Data adapted from *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings

Category 5: Number of ISCED 3 Programme, Qualification and Classification Types

The number of ISCED 3 qualification types available through general and vocational programme types was investigated in this category. Qualifications and their associated programmes, and the ratios between these, were then examined by their more specific ISCED-97 classifications. The data showed contrast by equity country groupings, with HECs having the highest ratio of programme types to qualifications. Overall, LECs tended to offer more qualifications per programme classification in vocational pathways, whereas HECs tended to offer fewer qualifications, which could credential multiple programme types. This contrast was most pronounced with ISCED 3A (vocational) and 3B classifications, which provided direct access to tertiary ISCED levels 5 and 6.

Total qualification types.

More vocational than general qualification types (34 vs. 19 respectively) were offered across the 16 research countries, with the LEC quadrants offering more vocational qualifications than the HEC quadrants (20 vs. 14 respectively). Table 4 details the number of general and vocational qualifications and the ratio between these, by performance–equity country groupings. All quadrants except the HP–HE quadrant had lower general to vocational ratios, with the LP–LE quadrant the lowest at 0.3:1. LP–LE Luxembourg and Slovakia had the lowest individual country ratios, of 0.2:1 and 0.25:1 respectively. HP–LE New Zealand and HP–HE Australia had no ISCED 3 vocational programmes or qualifications that met the criteria for this research; however, vocational components could contribute to both countries' general programmes and qualifications.

Table 4

Number of General and Vocational Qualifications and the Ratio Between These, by Performance–Equity Country Groupings

	Qualification types		
Quadrant	General	Vocational	Ratio
High Performing–Low Equity	**6**	**10**	0.6:1
High Performing–High Equity	**6**[a]	6[a]	1.0:1
Low Performing–Low Equity	3	**10**	0.3:1
Low Performing–High Equity	4	8	0.5:1

Note. **Bold font** = pair of country groupings in each column with the highest combined score, by performance or equity; outcomes in columns with no bold font are inconclusive. Data adapted from *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings

[a]Japan's *Kotogakko Sotsugyo Shomeisho* (Certificate of Secondary Education) credentialled general and vocational programmes types, with no distinction made between these; it was therefore counted twice, as a general and a vocational qualification type.

Total qualification and programme types by ISCED-97 classifications.

Qualification types and their associated programmes were then examined by their ISCED-97 classifications. Most countries offered one ISCED 3A (general) qualification, with just

three countries, HP–LE Belgium (Flemish region) and Germany, and LP–HE Norway offering two. Eight countries offered ISCED 3A (vocational) qualifications, including LP–LE Chile and Slovakia, which offered two each. ISCED 3B was the least common classification, offered in only four countries, one from each quadrant. Eleven countries offered ISCED 3C qualifications, including HP–LE Belgium (Flemish region), LP–LE Luxembourg and LP–HE Norway, which each offered three.

The ratio of ISCED 3 programme types to qualifications was investigated by performance–equity country groupings; the results (presented in Table 5) showed a contrast by equity. For ISCED 3A (general), HECs had the highest ratio of programme types to qualifications, 1.9:1, versus 1.1:1 in LECs. The HP–HE quadrant had the highest quadrant ratio of ISCED 3A (general) programmes to qualifications; this meant that several different programmes led to the same qualification in some HP–HE countries. The highest ratios were evident in HECs Japan and Korea, which each offered five ISCED 3A (general) programme types that were credentialled with the same qualification type.

A similar LEC/HEC pattern was evident for ISCED 3A (vocational) and 3B, which each had the same programme to qualification ratios (2.0:1 in HECs vs. 0.9:1 in LECs). For ISCED 3A (vocational), HEC Korea had the highest ratio, of 3:1, while the lowest, of 0.5:1, was in LEC Hungary, where successful students gained two qualifications, *Érettségi és szakmai bizonyítvány* (the state *Maturity* examination and a vocational certificate).

ISCED 3C programme to qualification ratios were inconclusive, although there was a slight contrast by performance country groupings that warrants comment. Despite there being four fewer LPCs than HPCs, LPC quadrants offered more ISCED 3C programmes and qualifications than HPCs (14 and 10 respectively), although the ratio between these was slightly higher in HPCs (1.25:1 vs. 1.2:1 in LPCs). LPC Norway had the lowest ratio of programmes to qualifications of all countries offering ISCED 3C, of 0.33:1. This low ratio was attributable to the upper secondary vocational programme, which led to three different qualifications: a Trade Certificate, a Journeyman's Certificate, or a final, general year culminating in an ISCED 3A (general) Certificate of Competence enabling direct access to ISCED 6.

Total ISCED-97 classification types.

The average number of different ISCED-97 Level 3 classifications offered by each country was examined in this subcategory. The HP–HE quadrant had the lowest average, of two classifications per country, while the LP–LE quadrant had the highest average, of three. The latter was partially attributable to Luxembourg, which offered all four ISCED classifications: 3A (general) and (vocational), 3B and 3C.

Category 6: ISCED 3 Qualification Structures and Pathway Progressions

This category was examined to identify overarching qualification structures and the opportunities these provided for pathway progression, including from upper secondary to post-secondary education. Eight subcategories were investigated to determine whether:

- a qualification's structure was part of a larger national qualifications framework (NQF) and, if so, the nature of this framework;
- combined school and workplace-based learning could contribute to the final qualification;
- the qualification, or parts thereof, could contribute to post-school qualifications;
- ISCED 3C qualifications led to further qualifications (doorways);
- University entrance (UE) could be gained directly from the qualification.

In each subcategory, qualifications were examined where appropriate in three ISCED groupings: 3A (general), 3A (vocational) and 3B, and 3C. ISCED 3A (vocational) and 3B were aggregated for analysis as both classifications provided doorways to tertiary ISCED 5 and 6, whereas ISCED 3C typically did not (although in some countries such as HPCs Australia and New Zealand, credit from ISCED 3C qualifications could contribute to an ISCED 3A general qualification). The results for most subcategories were either inconclusive or showed a contrast by LPC/HPC groupings.

Table 5

Number of ISCED-97 Programme and Qualification Types and the Ratio Between These, by Performance–Equity Country Groupings

	3A (general)			3A (vocational)			3B			3C		
Quadrant	Programmes	Qualifications	Ratio	Programmes	Qualifications	Ratio	Programmes	Qualifications	Ratio	Programmes	Qualifications	Ratio
High Performing–Low Equity	7	6	1.2:1	2	3	0.7:1	3	3	1.0:1	5	5	1.0:1
High Performing–High Equity	14	6	**2.3:1**	4	2	**2.0:1**	1	1	1.0:1	5	3	1.7:1
Low Performing–Low Equity	3	3	1.0:1	5	5	1.0:1	1	1	1.0:1	8	5	1.6:1
Low Performing–High Equity	5	4	**1.3:1**	2	1	**2.0:1**	1	1	1.0:1	6	7	0.9:1

Note. ISCED-97 = International Standard Classification of Education 1997. Some qualifications are double-counted as they credential more than one programme type. **Bold font** = pair of country groupings in each Ratio column with the highest combined score, by performance or equity; outcomes in Ratio columns with no bold font are inconclusive. Data adapted from *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings

National qualifications frameworks.

Each qualification was examined to determine whether it was part of an NQF. NQFs were of interest as their overarching structure could potentially enhance flexibility by facilitating progression within and across general and vocational programmes, enabling ongoing learning and qualifications attainment and reducing dead-end pathways and qualifications (OECD, 2007b). The data showed a wide variety of types of NQF and stages of NQF development and implementation across quadrants and qualifications. The findings were inconclusive when examined by performance and equity.

The European Qualifications Framework was a major driver of recent, rapid NQF development in European Union member countries and affiliates (Cedefop, 2015), including the development of learning outcomes or standards-based assessment methods and qualifications. The eight European Union countries in this study (HP–LE Belgium, Germany and Hungary; HP–HE Estonia and Finland; LP–LE Luxembourg and Slovakia; and LP–HE Italy) and two affiliates (LP–HE Iceland and Norway) had either implemented NQFs or were in the process of developing or implementing these. Furthermore, eight of these countries had linked their NQFs to the overarching European Qualifications Framework, while HP–HE Finland and the German region of HP–LE Belgium planned to do so. The distribution of these 10 European Union countries over the four quadrants contributed to the inconclusive performance–equity outcome.

The European Union countries and affiliates were at different stages of NQF development and implementation. For example, LP–HE Italy was referencing qualifications directly to the European Qualifications Framework before implementing their NQF. LP–HE Iceland's NQF was at an early operational stage and was being used as a reform tool in the move to learning-outcomes-based assessment. HP–HE Finland and HP–LE Hungary were in the process of formally adopting their frameworks, and HP–LE Germany's framework included vocational and higher educational qualifications but at the time of writing did not include general education qualifications.

A greater range of NQF development was evident in the six non-European Union countries or affiliates. LP–LE Chile and HP–HE Japan had no NQF; HP–HE Canada's framework was restricted to tertiary degrees only; HP–HE Korea's was in an early stage of

planning; and HP–HE Australia and HP–LE New Zealand had comprehensive, unified frameworks encompassing qualifications across secondary, tertiary and vocational sectors.

NQF development typically went hand-in-hand with the development of learning outcomes or standards-based assessment methods and qualifications. Countries in all stages of NQF development and implementation, including the 10 European Union countries and affiliates in this study, had either implemented these for some or all ISCED 3 qualifications or were planning to do so. Countries without comprehensive NQFs, such as HP–HE Canada and Japan and LP–LE Chile, were the least likely to have outcomes-based assessment components or qualifications at ISCED 3.

Combining school- and workplace-based learning.

The facility for combined school- and workplace-based learning to contribute to qualifications was of interest as, in addition to presenting opportunities for students to gain practical and real-world experience and qualifications, it could provide pathways to post-school learning and qualifications. Results for the vocational 3A/3B and 3C groupings were inconclusive when examined by performance and equity, while results for ISCED 3A (general) showed a small LPC/HPC contrast.

Combined school- and workplace-based learning was most prevalent in vocational pathways. Seven of the 11 countries offering ISCED 3A/3B vocational qualifications (64%) and all 11 countries offering ISCED 3C qualifications (100%) accommodated combined school- and workplace-based learning in at least one of these qualifications in their respective ISCED classifications. ISCED 3A (general) qualification types were least likely to accommodate combined school- and workplace-based learning, with just two HPCs providing this option, Australia and New Zealand. In both cases, a general qualification was the main ISCED 3 qualification type offered.

Qualifications contributing to post-school qualifications.

The purpose of this subcategory was to investigate whether qualifications or parts thereof could contribute to post-school qualifications. Qualifications with clear horizontal and vertical permeability were of importance to this research as they provided pathways to further learning and qualifications opportunities; this was more likely to occur if

qualifications were modularised or offered credit transfer systems (OECD, 2007b), such as those that were linked to an NQF. Results for the ISCED 3A/3B and 3C vocational groupings were inconclusive when examined by performance–equity country groupings, while results for general qualifications showed an LPC/HPC contrast.

Vocational 3A/3B qualifications were the most likely ISCED classifications to contribute to post-school qualifications, across all quadrants (12 countries), followed by ISCED 3C qualifications (seven countries). For example, HP–HE Australian ISCED 3C Vocational Education and Training programmes undertaken as part of the general Senior Secondary Certificate of Education also provided credit towards nationally recognised vocational qualifications within the Australian Qualifications Framework, including apprenticeships and traineeships. In HP–HE Ontario, Canada, Dual Credit Programmes simultaneously gave students credits towards a post-secondary certificate, diploma, degree or a Certificate of Apprenticeship in addition to credits towards their Secondary School Diploma.

General qualifications were the least likely ISCED classification to contribute to post-school qualifications and thus the most likely to be stand-alone qualifications. However, six countries offered general qualifications that did contribute to post-school qualifications (five HPCs, one LPC), including HPCs Australia and New Zealand, whose general qualifications provided two-way permeability and accommodated the horizontal and vertical transfer of qualification components. In Australia, subjects or units from higher education qualifications could also count towards the Senior Secondary Certificate of Education. In New Zealand, relevant NCEA credits could cross-credit to other national certificates and vocational qualifications (and vice versa), both within and beyond the traditional school curriculum, and students could obtain these while either simultaneously working towards NCEA, or after its attainment, or both.

Progression to further ISCED 3 qualifications.

This subcategory was examined to identify further qualifications opportunities following attainment of ISCED 3 qualifications that were not the highest possible school exit qualification or did not provide level completion, such as terminating ISCED 3C qualifications. The availability of further qualifications opportunities indicated pathway

progression, while a lack of such opportunities could signal a qualifications dead end. Results showed some contrast by performance country groupings.

As previously outlined in Category 5, 11 countries offered ISCED 3C qualifications. Of these, two offered formal upper secondary pathways leading from ISCED 3C to another ISCED 3 qualification that provided UE (HPCs Estonia and Hungary). Three countries offered formal post-school pathways leading from ISCED 3C to qualifications at ISCED 4 or 5 that provided UE (HPCs Belgium [French region] and Korea, and LPC Slovakia). Four countries provided the greatest flexibility by offering both within-school and post-school pathway opportunities to gain UE (HPCs Belgium [Flemish region] and Germany, and LPCs Iceland and Norway). Only two countries, both LPCs, had terminating (dead-end) ISCED 3C qualifications with no formal pathways to further qualifications providing UE (Italy and Luxembourg).

In some countries, ISCED 3 pathways provided multiple qualifications and school exit points before the final exit qualifications that were the focus of this study. An example was LP–HE Italy's three-year, ISCED 3C vocational education and training *Attestato di Qualifica Professionale* qualification: with a final, fourth year of study students could earn an additional ISCED 3C qualification, the *Diploma Professionale di Tecnico*. A different example was HP–LE New Zealand's general NCEA qualifications: NCEA Levels 1 and 2 were typically undertaken and separately certificated in the 2 years prior to the final-year NCEA Level 3 qualification (although there was the facility for considerable overlap in the chronology of these three levels).

Attaining University Entrance directly from the qualification.

Previously, in Categories 4 and 5, access to tertiary ISCED 6 was investigated according to ISCED classifications. The focus of this category was on any additional criteria that might be required in practice to gain university entry from ISCED 3 qualifications, and any provisions provided within qualifications pathways to facilitate this access. The findings showed variety in UE practices between and within countries, and between ISCED 3A (general) and ISCED 3A/3B (vocational) qualifications. (ISCED 3C qualifications by definition did not usually provide tertiary access.) The most notable contrast, by LPC/HPC country groupings, was evident with vocational qualifications: despite offering

fewer vocational qualifications per country on average (refer to Category 5), all 10 HPCs provided potential UE opportunities from upper secondary vocational pathways or qualifications, compared with just two of the six LPCs.

Eight countries offered at least one general qualification that provided automatic UE; this was more common in LECs. Approaches varied for the remaining general qualifications, including for different general qualifications within the same country; these are depicted in Table 6. The most common approach, evident in 10 countries and more common in HECs, was for universities to set additional admission requirements. In HP–HE Australia, for example, a ranked overall position was calculated by aggregating scaled marks from the state Senior Secondary Certificate of Education, to obtain an Australian Tertiary Admission Rank for UE selection. Some universities in HP–LE Germany considered discretionary criteria such as GPA rankings, interviews, and entrance examinations in addition to higher education entrance qualifications such as the *Abitur*. In LP–LE Slovakia the external *Maturita* examinations theoretically provided UE, but in practice, universities were not obliged to consider these results, and many administered their own entrance examinations. A different situation existed in HP–HE Japan, where the upper secondary Certificate of Graduation did not provide UE but was a prerequisite for sitting UE examinations.

Some HECs used general qualification outcomes in conjunction with other school achievements or activities for UE. For example, in HP–HE Korea, results gained in the competitive College Scholastic Ability Test (administered independently of schools) took precedence over the ISCED 3A High School Certificate, although some universities also considered upper secondary academic records, service activities, extra-curricular activities and suchlike.

Table 6

Number of ISCED-97 3A and 3B Qualification Types that Do and Do Not Provide University Entrance, by Performance–Equity Country Groupings

			Provides University Entrance				
ISCED qualification classification	Quadrant	Does not provide University Entrance	Yes	If specific tertiary criteria are met within the components of the qualification	In conjunction with other school achievements/ qualifications	In conjunction with additional tertiary criteria	To some types of universities/ university courses only
3A (general)	High Performing–Low Equity	0	**3**	1	0	2	0
	High Performing–High Equity	1	1	0	**2**	**4**	1
	Low Performing–Low Equity	0	**2**	0	0	1	0
	Low Performing–High Equity	0	2	0	**1**	**3**	0
3A/3B (vocational)	High Performing–Low Equity	1	**3**	0	0	1	1
	High Performing–High Equity	1	0	0	**1**	2	0
	Low Performing–Low Equity	0	**2**	0	0	1	0
	Low Performing–High Equity	1	0	0	**1**	1	1

Note. ISCED = International Standard Classification of Education. **Bold font** = pair of country groupings in each ISCED qualification classification column with the highest combined score, by performance or equity; outcomes in columns with no bold font are inconclusive. ISCED 3A (general) qualification types $n = 23$; ISCED 3A/3B (vocational) qualification types $n = 14$. Sum of total qualification types > n as some qualifications met multiple criteria.

There were three different approaches evident for ISCED 3 vocational pathway students who wished to gain UE. The first approach, seen in countries such as HP–HE Finland and Japan, was where ISCED 3A/3B vocational qualifications provided direct access to ISCED 6 degree-level study, often with the same admission requirements as for general qualifications (shown in Table 6). However, in some countries, this route was not always straightforward in practice. For example, students in LP–LE Chile could theoretically qualify for UE through their vocational qualifications but could be disadvantaged when sitting the additional examinations required by many universities, as their vocational pathways provided weak preparation for the general focus of these examinations (OECD, 2009).

The second and third approaches were briefly touched on in the previous subsection. The second approach enabled students to build on their vocational studies via formalised pathways within the upper secondary school system that either led to another vocational pathway whose qualification did provide UE or to further learning to gain a general qualification. This approach was most prevalent in HPCs. HP–HE Estonia provided an example of the former route: students could transition from ISCED 3C vocational courses based on basic education, whose qualifications did not provide UE, to ISCED 3B vocational secondary education, whose qualifications did provide UE. An example of the latter route was seen in LP–HE Norway, where ISCED 3C vocational students had the opportunity to complete their studies with a final, general year to qualify for UE; this could either be undertaken following the first two years of vocational study or at the completion of upper secondary vocational studies.

The third approach for vocational students to gain UE, which was more prevalent in LPCs, was observed where ISCED 3 vocational qualifications provided pathways to post-school opportunities to gain UE in lieu of provisions within upper secondary school. Such pathways led either to ISCED 4 qualifications or to specific types of university qualifications such as ISCED 5 short-cycle tertiary education, which in some cases subsequently provided pathways to ISCED 6. The former approach, of UE via an ISCED 4 pathway, was seen in LP–LE Slovakia's ISCED 3C vocational programmes that culminated in the *Vyučný list* (Certificate of Apprenticeship) or *Vysvedčenie o záverečnej skúške*

(Certificate of Final Examination). These provided a pathway to post-school, ISCED 4 Follow-Up Programmes leading to the ISCED 3A (general) *Maturia* qualification that gave UE. The latter approach, of UE via ISCED 5, was apparent in ISCED 3C vocational secondary education in HP–LE Belgium (Flemish region), which led to the Certificate of the Second Year of the Third Stage. This qualification gave access to an ISCED 5 Associate Degree, which in turn led to ISCED 6. (Alternatively, direct UE access to ISCED 6 could be gained by completing an optional Third Year of the Third Stage and attaining the Diploma of Secondary Education.)

Category 7: Assessment Components of ISCED 3 Qualifications

The 53 qualifications (19 general and 34 vocational) previously identified in Category 5 were investigated in this category to gain a comprehensive picture of their different assessment components. Three broad types of assessment were identified: internal (including workplace based), oral, and final written examinations. Qualifications that credentialled more than one programme type were examined for each of these programme types, meaning these were *double-counted* in aggregated qualification counts.

Internal assessment components showed the largest performance/equity contrasts, for general and vocational qualification types. These contrasts were mostly by equity country groupings, with just one component, mandated internal assessment or examinations, showing contrast by performance. Oral assessment components showed contrast by both performance and equity: for general qualifications, mandated oral examinations were more prevalent in LPCs, while discretionary oral examinations and assessments were more prevalent in LECs. The smallest contrasts between performance/equity quadrant groupings were evident in final written examination components, where contrasts by performance were the most prevalent for both qualification types.

Internal assessment.

Internal assessment components were defined as those assessed by the school or workplace which counted towards students' final upper secondary ISCED 3 qualifications.

Of the three types of assessment, internal assessment components showed the strongest pattern of difference, with an LEC/HEC contrast; results are shown in Table 7.

Most internal assessment for qualifications in HECs was at the discretion of individual schools, in 90% of general qualifications and 92.3% of vocational qualifications versus 55.6% and 45% respectively in LECs. HECs also had a significantly higher percentage of qualifications with non-curricular components such as behaviour, participation or, most commonly, attendance; this was evident in 80% of general qualifications and 61.5% of vocational qualifications, compared with 0.0% and 20% respectively in LECs. Similarly, HECs had a higher percentage of qualifications with extra-curricular components such as sporting, music or service, particularly in vocational qualifications, of 38.5%, compared with 0.0% in LECs. For example, HEC Italy's ISCED 3A (general) and (vocational) high school *Diploma di istruzione secondaria superiore* included School Credit components that incorporated school attendance and conduct marks, and credit for out-of-school activities such as cultural, arts and sports.

The exception to this strong equity contrast was seen in qualifications with mandated internal assessment or internal examinations (including practical skills demonstrations), where there was a clear contrast by performance quadrant groupings. LPCs had a notably higher percentage of qualifications with mandated internal assessment or examinations than HPCs: 71.4% of general qualifications and 83.3% of vocational qualifications, versus 25% and 46.7% respectively in HPCs. In LPC Slovakia, for example, organisation of the internal part of the ISCED 3A (general) and (vocational) school-leaving *Vysvedčenie o maturitnej skúške* qualification was mandated by legislation. The internal component and external examination component were then combined for the final qualification grade.

Oral assessment.

Oral assessment components were internally or externally set and marked and could be prescribed or optional depending on factors such as the subjects studied. As with internal assessment, most oral assessment subcategories showed a contrast by equity quadrant groupings (see Table 8). In LECs, 100% of general and vocational qualifications included the facility for some form of oral assessment for at least one subject, compared with 60%

and 84.6% for general and vocational qualifications respectively in HECs. The countries with no oral assessment components were all from the HP–HE quadrant: Estonia and Finland (general qualifications) and Japan and Korea (general and vocational qualifications).

The nature of oral examination components was then identified, such as whether they were discretionary or mandatory, and externally or internally assessed. There was a marked contrast between LECs and HECs regarding internal oral assessment, including that offered at the discretion of individual schools. In LECs, 70% of vocational qualifications had internal oral assessment provisions compared with just 7.7% in HECs, a difference of 62.3 percentage points. The equity contrast was also evident in general qualifications: 55.6% of general qualifications in LECs had internal oral assessment provisions, compared with 20% in HECS, a 35.6 percentage point difference.

A smaller equity contrast, in this instance in favour of HECs, was seen in vocational qualifications with mandatory internally assessed oral examination components: 38.5% of HEC vocational qualifications included mandatory internally assessed oral examinations in at least one subject, versus 20% of LEC qualifications. Results for general qualifications were dissimilar to vocational qualifications as their contrast was by performance, providing one of two exceptions to the predominant equity contrast in this category. In LPCs, 42.9% of general qualifications included mandatory internal oral examinations in some subjects, compared with just 8.3% in HPCs. The second exception to the equity contrast was where mandatory external oral examinations were required for partial assessment of specified subjects in general qualifications, such as in LPC Norway's ISCED 3A (general) *Generell studiekompetanse*, where balloted students sat an oral examination and an external assessor awarded the marks. In LPCs, 71.4% of general qualifications had mandatory external oral examinations in specified subjects, compared with 25% in HPCs; this was a 46.4 percentage point difference.

Final written examinations.

Final written examinations were set by external agencies such as the state or professional bodies, or internally by individual schools, and could be prescribed or optional depending on factors such as subjects studied. Results for this subcategory differed from the internal

and oral qualification subcategories for two reasons: the contrast was mainly by performance rather than equity country groupings, and it had the smallest contrasts between these groupings (refer to Table 9).

All 19 general qualifications (100%) had mandatory or optional final written examination components, which were set by external state or professional bodies in 73.7% of these qualifications. General qualifications in LPCs were more likely than those in HPCs to have externally set examinations (85.7% versus 66.7% respectively). In comparison, a smaller percentage of vocational qualifications (73.5%) had mandatory or optional final written examination components, which were set by external state or professional bodies in 80% of these qualifications. There was little difference between quadrants regarding externally set examinations for vocational qualifications.

LPCs had a higher percentage of qualifications with prescribed subjects to be examined than HPCs; this was observed in 57.1% of general qualifications and 66.7% of vocational qualifications in LPCs, compared with 33.3% in each of general and vocational qualifications in HPCs.

In some qualifications, final written examination components were optional depending on subjects studied. For general qualifications, there was a small contrast between LPCs and HPCs of 14.3% versus 8.3% respectively. For vocational qualifications, the contrast differed from most others in this subcategory as it was by equity country groupings: 30.8% of written examinations in HECs were optional depending on the subjects studied, compared with none in LECs.

Table 7

Percentage of ISCED 3 General and Vocational Qualifications with Internal Assessment Components, by Performance–Equity Country Groupings

	No internal assessment		Mandated internal assessment or examinations (including practical)		School-based assessment, at discretion of individual schools		Workplace assessment/ vocational skills demonstrations, at discretion of training providers		Non-curricular (e.g., conduct, attendance)		Extra-curricular (e.g., sports, music, service)	
Quadrant	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational
High Performing–Low Equity	0.0	0.0	50.0	60.0	50.0	40.0	16.7	70.0	0.0	0.0	0.0	0.0
High Performing–High Equity	16.7	16.7	0.0	16.7	**83.3**	**66.7**	0.0	50.0	**66.7**	**50.0**	0.0	**33.3**
Low Performing–Low Equity	0.0	0.0	**66.7**	**90.0**	66.7	50.0	0.0	30.0	0.0	40.0	0.0	0.0
Low Performing–High Equity	0.0	0.0	**75.0**	**75.0**	**100.0**	**100.0**	0.0	75.0	**100.0**	**62.5**	25.0	**37.5**

Note. ISCED = International Standard Classification of Education. Qualifications using more than one assessment method are included in each relevant column. General qualifications n = 19; vocational qualifications n = 34. **Bold font** = pair of country groupings in each column with the highest combined raw score, by performance or equity; outcomes in columns with no bold font are inconclusive.

Table 8

Percentage of ISCED 3 General and Vocational Qualifications with Oral Assessment Components, by Performance–Equity Country Groupings

	No oral assessment		Mandatory external oral examinations in specified subjects		Mandatory internal oral examinations in some subjects only		Optional external oral examinations		Oral internal assessment where applicable, including at discretion of school		Sample of students sit oral examinations[a]	
Quadrant	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational
High Performing–Low Equity	0.0	0.0	50.0	60.0	**16.7**	10.0	**33.3**	0.0	**50.0**	**50.0**	0.0	0.0
High Performing–High Equity	**66.7**	33.3	0.0	0.0	0.0	**33.3**	0.0	0.0	33.3	16.7	0.0	0.0
Low Performing–Low Equity	0.0	0.0	**66.7**	50.0	**66.7**	30.0	**0.0**	0.0	**66.7**	**90.0**	0.0	0.0
Low Performing–High Equity	**0.0**	0.0	**75.0**	62.5	**25.0**	**37.5**	0.0	0.0	0.0	0.0	50.0	25.0

Note. ISCED = International Standard Classification of Education. Qualifications using more than one assessment method are included in each relevant column. General qualifications n = 19; vocational qualifications n = 34. **Bold font** = pair of country groupings in each column with the highest combined raw score, by performance or equity; outcomes in columns with no bold font are inconclusive.

[a]Norway only.

Table 9

Percentage of ISCED 3 General and Vocational Qualifications with Final Written Examinations, by Performance–Equity Country Groupings

	No final written examination/s		Final written examination/s set by state/territory/ professional body		Prescribed number and/or types of subjects to be examined		May be optional depending on subjects studied		Schools have autonomy in setting/ designing final written examination/s		Sample of students sit examination/s[a]	
Quadrant	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational
High Performing–Low Equity	0.0	0.0	66.7	60.0	50.0	50.0	16.7	0.0	33.3	40.0	0.0	0.0
High Performing–High Equity	0.0	**50.0**	66.7	33.3	16.7	0.0	0.0	**33.3**	83.3	33.3	0.0	**0.0**
Low Performing–Low Equity	0.0	40.0	**66.7**	50.0	**0.0**	**40.0**	**0.0**	0.0	33.3	50.0	**0.0**	0.0
Low Performing–High Equity	0.0	**25.0**	**100.0**	87.5	**100.0**	**100.0**	**25.0**	**25.0**	25.0	37.5	**50.0**	**25.0**

Note. ISCED = International Standard Classification of Education. Qualifications using more than one assessment method are included in each relevant column. General qualifications n = 19; vocational qualifications n = 34. **Bold font** = pair of country groupings in each column with the highest combined raw score, by performance or equity; outcomes in columns with no bold font are inconclusive.

[a]Norway only.

Category 8: ISCED 3 Internal Summative Assessment Frameworks

Previously, in Category 7, internally assessed, summative components were identified in many qualifications in this study. The purpose of this category was to investigate the overarching regulatory frameworks for these components at ISCED 3. With one exception, results were similar for general and vocational programme types, and the data did not discriminate between LPC and HPC groupings or contribute to answering the research questions. The exception was the subcategory "Mechanisms to ensure the reliability of marking within and across schools," where there was a clear LPC/HPC contrast: no LPCs had common reliability mechanisms for either general or vocational programme types, whereas four HPCs had common reliability mechanisms for general and five HPCs for vocational programme types. HPCs Australia and New Zealand used a combination of two different mechanisms for their sole (general) programme type: national, state or local guidance materials, and moderation of marking. Each country except HP–HE Finland used the same approach for their general and vocational programme types. Finland, on the other hand, had no formal reliability mechanisms for general programmes but used national guidance materials for assessing student performance in vocational programmes, and voluntary moderation of marking.

Category 9: Standardised Central Examinations at ISCED 3

Standardised central examinations at ISCED 3 had a formal consequence, such as being part of a process to certify learning or impacting on a student's eligibility to progress to a higher level of education (OECD, 2013a). Several subcategories had small *n*s, particularly for vocational qualification types, as data were examined at a programme rather than qualification level (i.e., general or vocational). For these subcategories, overall trends are reported, as analysis by performance–equity groupings was not always useful.

Twelve countries had standardised central examinations for general qualifications, and 10 countries had them for vocational qualifications. The four countries that did not have standardised central examinations for general qualification types were HP–HE Japan and Korea, LP–LE Chile, and LP–HE Iceland. These four countries, plus HP–HE Estonia and Finland did not have standardised central examinations for vocational qualification

types. Standardised central examinations were compulsory in all countries where these existed, except HPCs Australia (although in practice virtually all Australian schools offered these) and New Zealand. New Zealand's standardised central examinations existed for some assessment standards in general subjects, although it was not mandatory to undertake or attain these modules to gain the ISCED 3A (general) NCEA L3 qualification.

The findings showed that a higher percentage of prescribed subjects for general and vocational qualification types were assessed using standardised central examinations in LPCs, including the national language or language of instruction and "other" mandatory subjects (shown in Figure 9). In contrast, a higher percentage of student-choice subjects were assessed using standardised central examinations for both qualification types in HPCs.

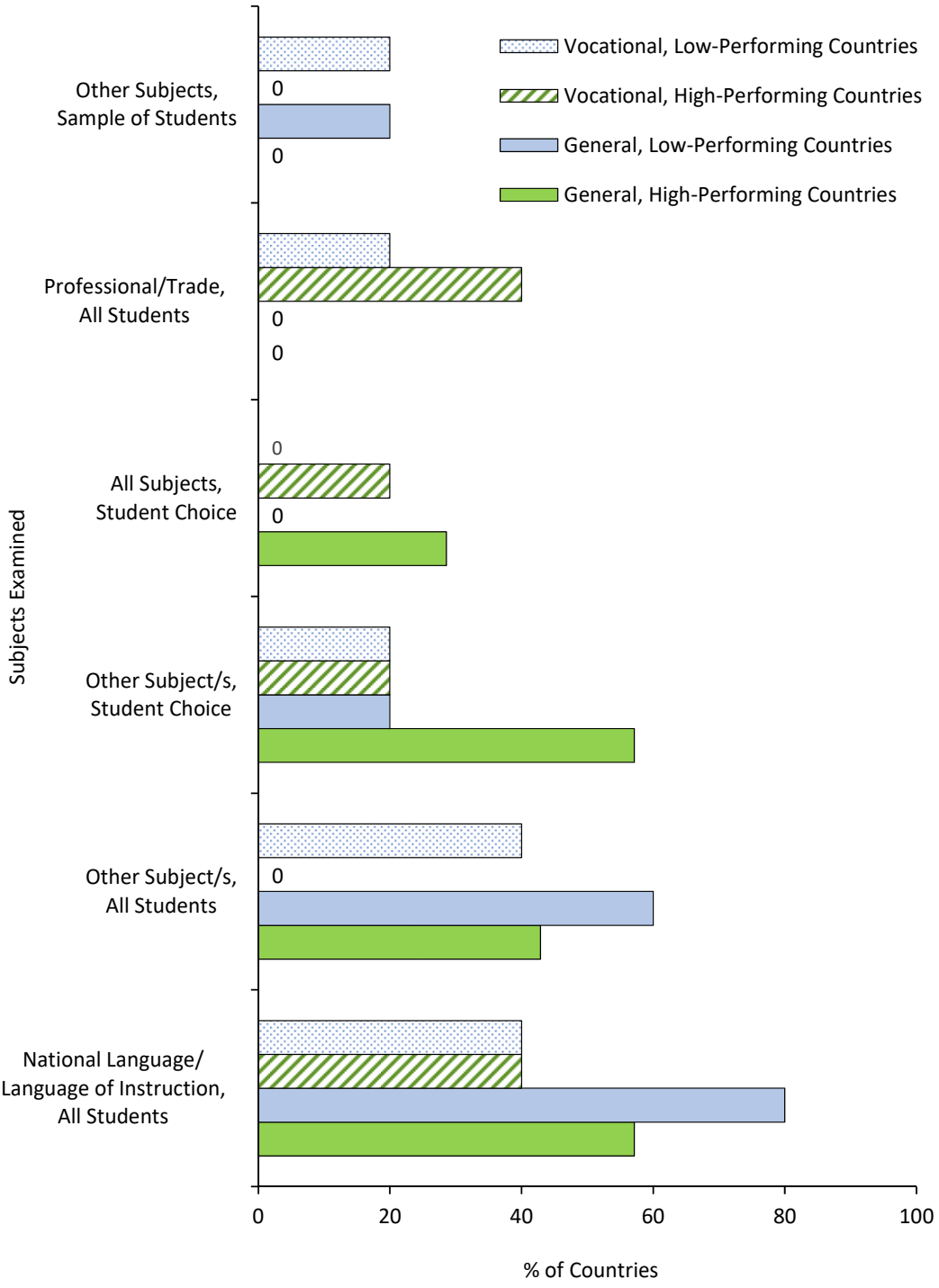

Figure 9. Subjects examined for general and vocational qualification types in low-performing and high-performing countries with standardised central examinations. Countries with central examinations for general qualifications $n = 12$; vocational qualifications $n = 10$. Some subject groupings were double-counted where qualification regulations prescribed more than one subject: for example, (a) the national language (all students) and (b) other subjects (student choice). Data adapted from: "Features of Student Assessment Frameworks in Primary and Upper Secondary Education," *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, by OECD, 2013, doi:10.1787/9789264190658-en; various, including individual country documents.

Category 10: Responsibility for Assessment, Administration and Quality Assurance of ISCED 3 Qualifications

The purpose of this category was to investigate who was responsible for assessment, administration and quality assurance of ISCED 3 general and vocational qualifications. Qualifications often had multiple levels of responsibility, either for different components or by different stakeholders. For example, responsibility for the administration of HP–HE Estonia's ISCED 3A (general) *Gümnaasiumi lõputunnistus* (Certificate of General Secondary Education) was devolved to individual schools, while administration of the *Riigieksamitunnistus* (National Examination Certificate) component was the responsibility of the Ministry of Education and Research. Another example was LP–HE Norway's upper secondary vocational qualifications, where responsibility for quality assurance involved tripartite co-operation between education and training authorities and social partners at national, county and sectoral levels working with schools and apprenticeship training enterprises.

Results, presented in Table 10 and Table 11, were mixed when examined by performance–equity contrast. Overall, contrasts by performance were evenly divided between general and vocational qualifications, while contrasts by equity predominantly pertained to vocational qualifications.

Table 10

Responsibility for Assessment and Administration of Different Components of ISCED 3 Qualifications, by Performance–Equity Country Groupings

	External state statutory bodies/markers		Regional/local statutory bodies/markers		Subject/professional specialists/ bodies/ boards		Individual teachers/instructors/ employers/schools	
Quadrant	General	Vocational	General	Vocational	General	Vocational	General	Vocational
				Assessment				
High Performing–Low Equity	**2**	**2**	1	1	0	**6**	**5**	**11**
High Performing–High Equity	**3**	0	1	0	0	**3**	**4**	3
Low Performing–Low Equity	0	**3**	1	**4**	0	0	3	**10**
Low Performing–High Equity	0	0	3	**4**	0	5	4	6
				Administration				
High Performing–Low Equity	**2**	**3**	2	4	0	6	2	4
High Performing–High Equity	**4**	**4**	**3**	**1**	0	3	**2**	1
Low Performing–Low Equity	2	2	0	0	0	**5**	1	**9**
Low Performing–High Equity	1	1	**3**	**5**	0	**7**	**4**	**6**

Note. ISCED = International Standard Classification of Education. Qualifications with more than one level of responsibility, either for different components or by different stakeholders, are included in each relevant column. General qualifications $n = 19$; vocational qualifications $n = 34$.

Table 11

Responsibility for Quality Assurance of ISCED 3 Qualifications, by Performance–Equity Country Groupings

	No unitary QA authority		Multiple external QA authorities; inconsistent/weak QA processes		State statutory bodies		Regional/local statutory bodies/agencies		Professional bodies		Individual schools: internal QA systems/ standards/self-assessment indicators = basis for QA audit; continuous improvement focus	
Quadrant	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational
High Performing–Low Equity	0	4	0	**4**	**3**	**7**	**3**	8	0	**6**	1	5
High Performing–High Equity	2	3	0	0	**2**	4	**1**	3	0	0	1	**5**
Low Performing–Low Equity	2	3	1	**1**	1	**7**	0	3	0	**3**	1	2
Low Performing–High Equity	2	0	0	0	2	6	0	5	0	4	4	**6**

Note. ISCED = International Standard Classification of Education. QA = quality assurance. Qualifications with more than one level of responsibility, either for different components or by different stakeholders, are included in each relevant column. General qualifications $n = 19$; vocational qualifications $n = 34$.

Responsibility for assessment.

Responsibility for assessing qualifications or components of these was most commonly devolved to individual schools or employers, for both general and vocational qualifications (16 and 30 qualifications respectively). This result was one of two in this subcategory that showed a contrast by equity for vocational qualifications: 21 LEC qualifications versus nine HEC qualifications. The other equity contrast, albeit smaller, was evident for vocational qualifications where external state statutory bodies or markers were responsible for assessing different qualification components, in five LEC qualifications but no HEC qualifications.

Most other results in this subcategory showed contrast by performance. This was seen in the second-most common responsibility for vocational qualifications assessment, which was by subject or professional specialists or bodies: 14 qualifications, nine from HPCs versus five from LPCs. In LP–HE Norway, for example, county-appointed, trade-specific examination boards, on which social partners were represented, prepared and assessed vocational examinations.

Responsibility for administration.

The most common levels of responsibility for administering vocational qualifications or components thereof were subject or professional specialists or bodies (21 qualifications: 12 from LPCs vs. nine from HPCs), or individual schools (20 qualifications: 15 from LPCs vs. five from HPCs). Examples of the former were HP–HE Australia's Industry Skills Councils and HP–LE Germany's Chambers of Industry and Commerce.

For general qualifications, administrative responsibility ranged from the macro levels of state and regional statutory bodies (nine and eight qualifications respectively) to the micro-level of individual schools (nine qualifications).

Responsibility for quality assurance.

There was considerable variety in responsibility for quality assurance of qualifications, with this responsibility often shared between different stakeholders. Most commonly, quality assurance for general and vocational qualifications was undertaken by overarching

state statutory bodies, in eight general and 24 vocational qualifications. For vocational qualifications, regional or local statutory bodies and individual schools (19 and 18 qualifications respectively) also commonly had responsibility for quality assurance.

Vocational qualifications showed a contrast by equity country groupings for four of the six sections in this subcategory. LECs were more likely than HECs to have: multiple external quality assurance authorities, or inconsistent or weak quality assurance processes (five LEC vs. no HEC qualifications); or responsibility sitting with state statutory bodies (14 LEC vs. 10 HEC qualifications) or professional bodies (nine LEC vs. four HEC qualifications). In contrast, responsibility for quality assurance of vocational qualifications in HECs was more likely than in LECs to be devolved to individual schools (11 vs. seven respectively). A typical scenario was for internal quality assurance systems, standards or self-assessment indicators to provide a basis for quality assurance audit, with a continuous improvement focus.

Category 11: Graduation Rates for ISCED 3 Qualifications

To determine successful attainment at ISCED 3, graduation rates for qualifications by first-time graduates were investigated. Three OECD indicators were examined using 2014 data: the percentage of first-time graduates gaining ISCED 3 qualifications, and the percentage of all students expected to graduate from general, and vocational, programmes. Because of the aggregated nature of the OECD source data, it was not possible to separate out the subset of qualifications that were the focus of this research (n = 53); findings are thus for all ISCED 3 qualifications.

HPCs tended to have a higher percentage of first-time graduates gaining ISCED 3 qualifications than LPCs. In HPCs, outcomes ranged from 88% (Hungary) to 97% (Finland and Japan), while in LPCs the range was wider and lower, from 74% (Luxembourg) to 93% (Italy).

Where countries had high expected graduation rates from either general or vocational programmes, there tended to be a greater contrast between outcomes from these two programme types, as shown in Figure 10. The exception was HP–HE Australia, which had comparatively high expected graduation rates from both programme types

(general 74%, vocational 80%). HP–LE Germany also had a small difference between general and vocational programmes (general 48%, vocational 43%), but expected graduation rates from both programme types were lower. The largest differences were seen in some HP–HE quadrant countries such as Canada, where 85% of students in general programmes were expected to graduate compared with just 4% in vocational programmes. There was a similar pattern of contrast for Korea (78% vs. 17%) and Japan (74% vs. 23%). Finland, which also had a large difference between expected graduation outcomes, had a different profile, with more students expected to graduate from vocational programmes (96%) than general (46%).

Expected graduation rates from general programmes for individual countries ranged from 27% in LP–LE Slovakia to 85% in HP–HE Canada. The HP–HE quadrant had the highest range of expected graduation rates from general programmes, from 46% in Finland to 85% in Canada, while the LP–LE quadrant had the lowest range, from 27% in Slovakia to 59% in Chile. For vocational programmes, the lowest and highest expected graduation rates were both from the HP–HE quadrant: 4% in Canada, 96% in Finland.

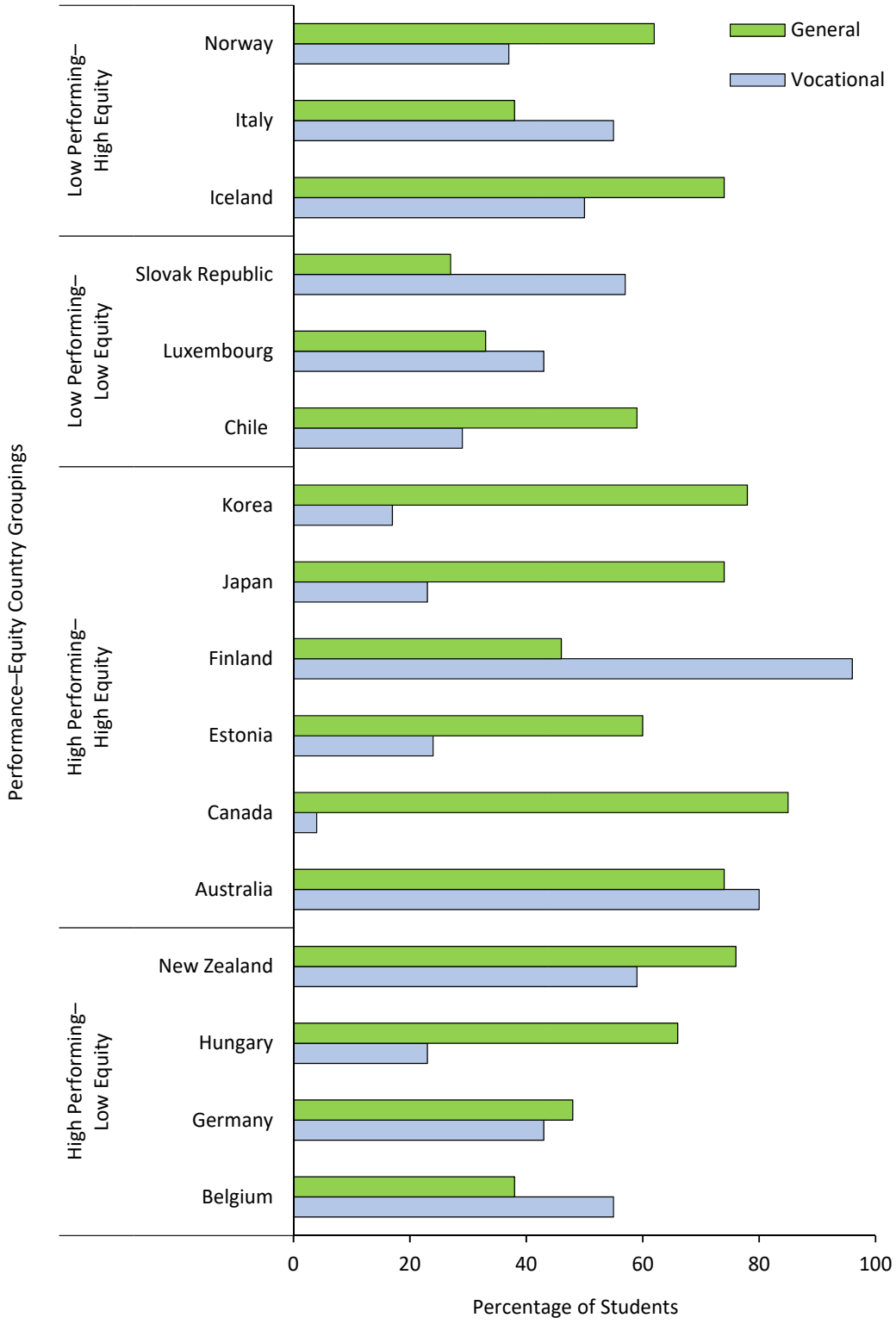

Figure 10. Percentage of students expected to graduate from upper secondary general and vocational programmes in 2014, by performance–equity country groupings. Data adapted from *Education at a Glance 2016: OECD Indicators*, p. 56, by OECD, 2016, doi:10.187/eag-2016-en. The OECD calculated gross graduation rates by dividing the number of graduates by the population at the typical graduation age.

Category 12: Entry Rates into Tertiary Programmes

First-time entry rates into tertiary-ISCED 5 and 6 were investigated to determine successful pathway transitions from ISCED 3 to higher education levels. ISCED 5 was short-cycle tertiary education, which was the lowest level of tertiary education. Programmes were typically vocationally-specific and practically-based, designed to meet requirements for master craftspeople, performing artists, para-professional vocations, skilled technicians and the like. Some ISCED 5 programmes provided pathways to ISCED 6, which was bachelor's degree-level or equivalent (OECD, 2015). As not all students transitioned directly from upper secondary to tertiary education, two data sets for each of ISCED 5 and 6 were examined to gain a more comprehensive picture of tertiary admissions: entry rates for students under the age of 25 and total entry rates (excluding international students). ISCED 6 admissions showed an LEC/HEC contrast, while results for ISCED 5 admissions were inconclusive; the latter may be attributable to only seven countries reporting entry rates for this classification. (The ISCED 5 classification was previously discussed in Category 4 and Category 6.)

Eleven of the 16 research countries reported entry rates into ISCED 6 programmes. HECs tended to have higher entry rates than LECs in both data sets. HEC Australia had the highest total entry rate (79%) and the highest entry rate for under 25-year-olds (62%) while LEC Luxembourg had the lowest[6] (13% in each data set). As shown in Table 12, LECs also had the widest range of entry rates in each data set. For example, the percentage of all LEC students enrolled in ISCED 6 showed a 49 percentage point difference between Luxembourg (13%) and Belgium (62%), compared with a 30 percentage point difference between HECs Finland (49%) and Australia (79%).

[6] Luxembourg's outcomes were likely underestimated as it was a net exporter of students.

Table 12

Range of Entry Rates (Percentage) into ISCED 5 and ISCED 6 Programmes (2014), by Low-Equity and High-Equity Country Groupings

	ISCED 5		ISCED 6	
Countries	All students	< 25 years	All students	< 25 years
Low equity	0–50	0–34	13–62	13–61
High equity	4–5	1–3	49–79	40–62

Note. ISCED = International Standard Classification of Education. Data adapted from *Education at a Glance 2016: OECD Indicators*, p. 324, by OECD, 2016, doi:10.187/eag-2016-en. The OECD reported entry rates as net entry rates that were calculated by dividing the number of first-time entrants into each type of tertiary education by the total population at the corresponding ages, expressed as a percentage.

Other Subcategories of Information Investigated

Several other subcategories of information were investigated, but the data did not discriminate between LPC/HPC or LEC/HEC groupings or contribute to answering the research questions. This section lists these subcategories, with an overall, summary finding for each.

For Category 8 ("ISCED 3 Internal Summative Assessment Frameworks") four subcategories of information investigated had inconclusive results.

1. The existence of a policy framework that regulated internal summative assessment.
    - Finding: identified for nine countries' general programme types and eight countries' vocational programme types.
2. Responsibility for ensuring compliance with the policy framework.
    - Finding: most commonly devolved to individual schools for general and vocational programme types (nine and seven countries respectively), or undertaken by state or provincial agencies or authorities (five countries for each of general and vocational programme types).
3. Reference standards used in general and vocational programme types.

- Finding: most common were national/state curriculum goals (nine and seven countries respectively), followed by national/state standards (in six and four countries respectively).

4. Weight of internal summative assessment in determining year-end marks.
    - Finding: ranged from 0% (e.g., HP–LE Hungary's ISCED 3A [general] matriculation examination, *Érettségi*) to 100% (e.g., LP–LE Luxembourg's ISCED 3B technician's diploma, *Diplôme de technician*). The most common weightings involved combinations of internal summative and external assessment.

For Category 9 ("Standardised Central Examinations at ISCED 3"), three subcategories of information investigated had inconclusive results.

1. Responsibility for developing central examinations.
    - Finding: most commonly at a central government, authority or agency level for general and vocational qualification types and least likely to be devolved to local or regional agencies or individual schools.
2. Responsibility for marking centralised examinations for general and vocational qualification types.
    - Finding: ranged from central government to individual schools.
3. Mechanisms used to ensure the reliability of marking within and across schools (where standardised examination marking was undertaken at a school level).
    - Finding: the most common mechanisms for general qualifications were a partially external examination committee; national guidance materials such as exemplars, rubrics or performance criteria; and within-school moderation. The most common mechanisms for vocational qualifications were national guidance materials and external moderation. Countries typically used more than one mechanism for a qualification type. For example, HP–LE New Zealand used a combination of three mechanisms for their general NCEA qualification: national guidance materials, within-school moderation and external moderation by an external body.

Study 1 Summary of Findings by Performance and Equity

Findings from Study 1 described in this chapter are detailed, interlinked and complex. The purpose of this section is to present a tabular summary of findings with the largest contrasts between low versus high performance (Table 13) and low versus high equity (Table 14). This summary addresses the second Study 1 research question:

> What are the similarities and differences between qualifications pathways in the four groups of OECD countries with low/high attainment and low/high equity in PISA assessments?

The tables do not include findings with smaller, or no contrast between the low- and high-performance/equity country groupings; thus, not all categories are represented in the two tables. Unless otherwise stated, findings apply to general and vocational programme or qualification types. To enhance clarity, if findings in the low/high columns are the opposite of each other, just the finding with the greater count or score is presented, with a blank space in the adjacent column. For example, Table 13 shows that HPCs had *higher enrolment rates of 15–19-year-olds*. The adjacent LPC column has a blank space, indicating that the opposite applies: *lower enrolment rates of 15–19-year-olds*.

Table 13

Summary of Findings by Low-Performing and High-Performing Countries

Low-performing countries	High-performing countries
Category 2: Enrolment rates and share of students by programme orientation	
	• Higher enrolment rates of 15–19-year-olds
• Lower enrolment rates of 15–19-year-olds in general programmes and correspondingly higher enrolment rates in vocational programmes	• Higher enrolment rates of 15–19-year-olds in general programmes and correspondingly lower enrolment rates in vocational programmes
• Higher proportion of vocational to general programme students	• Higher proportion of general to vocational programme students
Category 3: Age profiles and programme durations	
• Longer ISCED 3A and 3B programme durations	
Category 4: Number of ISCED 3 programme types and highest ISCED level of destination access	
• More vocational programme types offered	• More general programme types offered
• A higher percentage of programme types were vocational, and a lower percentage were general	• A higher percentage of programme types were general, and a lower percentage were vocational
	• A higher percentage of vocational programme types provided direct access to ISCED 6
• A higher percentage of vocational programme types offered whose highest level of access was post-secondary, non-tertiary ISCED 4, or short-cycle tertiary ISCED 5	
Category 5: Number of ISCED 3 programme, qualification and classification types	
• More likely to offer ISCED 3C programmes and qualifications	

(continued)

Low-performing countries	High-performing countries
Category 6: ISCED 3 qualification structures and pathway progressions	
	• A higher percentage of general qualifications or components of these contributed to post-school qualifications • More likely to offer UE opportunities from vocational pathways or qualifications
• More likely to provide formal post-school vocational pathways to gain UE, via ISCED 4 or 5	• More likely to provide opportunities in upper secondary to build on ISCED 3C qualifications to gain UE, either via formalised pathways leading to another vocational pathway whose qualification did provide UE or to further learning to gain a general qualification
• Terminating (dead end) ISCED 3C pathways in two LPCs	• No terminating (dead end) ISCED 3C pathways in any HPCs
Category 7: Assessment components of ISCED 3 qualifications	
• A higher percentage of qualifications had prescribed subjects; a higher percentage of these subjects were assessed with written examinations • A higher percentage of all qualification types had mandated assessment components, including: - internal assessment or internal examinations (including practical skills demonstrations) - final external written examinations, - oral examinations	
Category 8: ISCED 3 internal summative assessment frameworks	
	• More likely to have common mechanisms to ensure the reliability of marking within and across schools

(continued)

Low-performing countries	High-performing countries
Category 9: Standardised central examinations at ISCED 3	
• A higher percentage of prescribed subjects examined	• A higher percentage of student-choice subjects examined
Category 11: Graduation rates for ISCED 3 qualifications	
	• A higher percentage of first-time graduates gained ISCED 3 qualifications

Note. HPC = high-performing country; LPC = low-performing country; UE = University Entrance; ISCED 3 = International Standard Classification of Education Level 3.

Table 14

Summary of Findings by Low-Equity and High-Equity Countries

Low-equity countries	High-equity countries
Category 1: School types and programme orientation	
• Higher average number of school types or distinct educational programmes available for 15-year-olds	
Category 3: Age profiles and programme durations	
• More total years of compulsory education; younger average starting age and older average ending age	
• Younger age of first selection; more likely to have high-stakes tests for secondary school admission	
• Less likely to have a similar age for end of compulsory education, start of ISCED 3 upper secondary and age of first selection; at least some upper secondary education thus compulsory in most LECs and students more likely to select programmes and subjects earlier in their schooling	• More likely to have a similar age for end of compulsory education, start of ISCED 3 upper secondary and age of first selection; upper secondary education thus optional in most HECs and students more likely to select programmes and subjects later in their schooling
Category 5: Number of ISCED 3 programme, qualification and classification types	
• Higher ratio of qualifications to programme types (i.e., more than one qualification could be attained from some programmes)	• Higher ratio of programme types to qualifications (i.e., more than one programme could be credentialled with the same qualification type, particularly for ISCED 3A and 3B classifications)
• More vocational qualification types offered	
Category 6: ISCED 3 qualification structures and pathway progressions	
• ISCED 3A (general) and 3A/3B (vocational) qualifications more likely to provide automatic UE without additional tertiary criteria	• ISCED 3A (general) qualifications more likely to provide UE in conjunction with additional tertiary criteria and/or other school achievements or activities in general qualifications

(continued)

Low-equity countries	High-equity countries
	• Universities more likely to set admission requirements additional to ISCED 3 qualification
Category 7: Assessment components of ISCED 3 qualifications	
	• More likely that decisions about internal assessment components at the discretion of individual schools • A higher percentage of qualifications included non-curricular or extra-curricular components
• A higher percentage of qualifications included oral assessment provisions, including at the discretion of individual schools	
Category 10: Responsibility for assessment, administration and quality assurance of ISCED 3 qualifications	
• Quality assurance of vocational qualifications more likely to involve multiple external quality assurance authorities, or inconsistent or weak quality assurance processes, or have responsibility sitting with state statutory bodies or professional bodies	• Quality assurance of vocational qualifications more likely to be devolved to individual schools and have a continuous improvement focus
Category 12: Entry rates into tertiary programmes	
	• Higher entry rates into ISCED 6 programmes for (1) students < 25 years, and (2) all students

Note. HPC = high-performing country; LPC = low-performing country; UE = University Entrance; ISCED 3 = International Standard Classification of Education Level 3.

Study 1 Discussion of Findings

Some of the salient findings relating to ISCED 3 pathways and qualifications presented previously in this chapter are discussed in this section. Findings are aggregated into broad groupings and discussed in two subsections, the first comparing LPCs and HPCs, and the second comparing LECs and HECs. In the first subsection, four groups of differences between LPCs and HPCs are discussed, relating to vocational pathway provisions, vocational pathway progression, student attainment, and approaches to prescriptiveness in the assessment of general and vocational qualifications. In the second subsection, four groups of differences between LECs and HECs are discussed: age profiles; the variety of schools, programmes and qualifications offered; devolution of responsibility for making high-stakes, assessment and qualifications-related decisions; and pathway progression. The findings selected for discussion are those with the greatest contrast or difference between the LPC/LEC and HPC/HEC cohorts. To maintain consistency with the summary of findings in Table 13 and Table 14, the discussion of each point is framed according to the cohort with the higher score count in the findings. As for the previous "Summary of Findings" section, this discussion addresses the second Study 1 research question:

> What are the similarities and differences between qualifications pathways in the four groups of OECD countries with low/high attainment and low/high equity in PISA assessments?

Differences between low-performing and high-performing countries.

The Study 1 findings show important differences between LPCs and HPCs regarding vocational pathway provisions. On average, LPCs offered a wider variety and a higher percentage of vocational programme types than HPCs. LPCs also tended to have higher average enrolment rates in vocational programmes and a higher proportion of vocational to general programme students than HPCs.

A key issue at stake in this research, however, is not the variety of vocational programmes offered by the two country cohorts or their rates of enrolment in these, but the doorways they provide to post-school opportunities. HPCs had a narrower range of

vocational offerings and lower vocational enrolment rates than LPCs, but a higher percentage of vocational programmes that enabled direct pathway progression to ISCED 6 degree-level tertiary study. HPCs were also more likely than LPCs to provide formalised structures within upper secondary to build on ISCED 3C qualifications to gain entry to ISCED 6 study, via pathways leading either to another vocational qualification that provided access or to an ISCED 3A general qualification. In contrast, LPCs offered a higher percentage of vocational programme types whose highest level of access was post-secondary, non-tertiary ISCED 4, or short-cycle tertiary ISCED 5, and were more likely to provide pathways to ISCED 6 via these post-school ISCED 4 or 5 qualifications. They were also more likely to offer terminating (dead end) ISCED 3C programmes and qualifications.

A second key issue for this research concerns successful student attainment, of which ISCED 3 graduation rates provide a measure. The HPC cohort had shorter average ISCED 3A and 3B programme durations than the LPC cohort, but higher expected graduation rates for first-time graduates from all ISCED 3 programmes and thus higher attainment. These findings provide a correlation between ISCED 3 outcomes and PISA outcomes, the latter of which were used as part of the methodology to identify LPC and HPC cohorts for this research. The LPC and HPC cohorts achieved lower and higher outcomes respectively in both PISA testing of 15-year-olds and ISCED 3 attainment on exit from upper secondary.

Another notable finding regarding differences between LPCs and HPCs is that LPCs took a more prescriptive approach to ISCED 3 general and vocational qualifications and their assessment. For example, a higher percentage of qualifications had prescribed subjects compared with HPCs, and a higher percentage of these was assessed with written examinations. In contrast, a higher percentage of student-choice subjects was examined in HPCs. LPCs also had a higher percentage of all qualifications with mandated assessment components, including internal assessment or examinations, practical skills demonstrations, internal and external oral examinations, and final external written examinations. Despite their more prescriptive approach to qualifications and assessment, however, no LPCs in this study had common reliability mechanisms to ensure the

reliability of marking within and across schools; HPCs were more likely to have such mechanisms, for general and vocational programmes.

Differences between low-equity and high-equity countries.

In addition to showing important differences between LPCs and HPCs, the findings show important differences between LECs and HECs. One such group of differences relates to age profiles. On average, students in LECs spent more total years in compulsory education than in HECs, starting and ending at younger and older average ages respectively. LEC students were typically more likely to have high-stakes tests for secondary school admissions than in HECs, and first selection or specialisation—where students chose or were assigned school types, pathways, programmes and subjects—was more likely to occur at a younger age and earlier in their schooling. Ages for the end of compulsory education, the start of upper secondary and the age of first selection were thus less likely to align, meaning ISCED 3 upper secondary education was more likely to commence and be at least partially completed during compulsory schooling. Conversely, ages in HECs for the end of compulsory education, the start of upper secondary and the age of first selection were more likely to align. This alignment meant ISCED 3 upper secondary education commenced post-compulsory schooling and was thus optional in most HECs, and specialisation or first selection was more likely to occur post-compulsory education.

Another group of differences between LEC and HEC relates to variety, such as of schools, programmes and qualifications. The findings show that LECs tended to offer greater variety. For example, they provided a greater variety of school types or distinct educational programmes for 15-year-olds than HECs, and they offered more vocational qualification types on average than HECs. LECs also offered a higher ratio of qualifications to programme types, meaning more than one qualification could be attained from some programmes. In contrast, HECs offered a lower ratio of qualifications to programme types but used these qualifications to credential multiple programme types. This practice was evident, for example, in vocational pathways, where HECs tended to offer fewer qualifications per programme type but were more likely to use these same

qualifications to credential multiple programme types, particularly for ISCED 3A (vocational) and 3B vocational classifications.

The findings show key differences between LECs and HECs regarding the devolution of responsibility to individual schools for making high-stakes, ISCED 3 assessment and qualifications-related decisions. Schools in HECs often had greater discretionary authority for such decision making than in LECs. For example, a higher proportion of decision making about internal assessment in HECs typically occurred at an individual school level, including decisions about non-curricular or extra-curricular components of qualifications (which a higher percentage of qualifications in HECs included).

Differences in the degree of responsibility devolved to individual schools were also evident in the administration and quality assurance of some or all assessment components of ISCED 3 qualifications. Schools in HECs were more likely than those in LECs to have responsibility for at least some of these processes. For example, quality assurance of vocational qualifications was often devolved to individual schools and was more likely to have a continuous improvement focus, as distinct from an accountability focus. In contrast, administration and quality control in LECs were more likely to involve multiple external quality assurance authorities, have inconsistent or weak quality assurance processes or have responsibility sitting with higher level state statutory bodies or professional bodies.

Of importance to this research are equitable qualifications pathways that provide doorways to further learning and qualifications opportunities. An indicator of equity in upper secondary qualifications pathways is the percentage of students who successfully transition into ISCED 6, degree-level university study. Paradoxically, the findings show that in HECs, universities were more likely to set admission requirements additional to ISCED 3 qualifications. Conversely, in LECs, ISCED 3 qualifications—including ISCED 3A and 3B vocational qualifications—were more likely to satisfy UE requirements without additional, university-specified criteria. Despite effectively having to jump through more hoops to secure university admission, HECs had higher average entry rates into ISCED 6

programmes than LECs for two groups of students: students < 25 years and all students. HECs thus had more equitable outcomes.

Comparison of New Zealand's Qualifications Pathways with Other Research Countries

The purpose of this section is to single out and examine New Zealand's upper secondary school qualifications and pathways in relation to the 12 categories reported in the previous sections. This comparison addresses the third Study 1 research question:

> How are qualifications pathways in New Zealand's NCEA Level 3 similar to and different from qualifications pathways in the OECD countries investigated?

New Zealand was categorised as a High Performing–Low Equity (HP–LE) country. Results that differed substantively from the other HP–LE quadrant countries, and other HPCs and LECs, were of particular interest in this section; thus, not all categories and results are reported here.

Comparison, Category 2: Enrolment rates and share of students by programme orientation.

New Zealand's enrolment rate of 15–19-year-old students as a percentage of the population of this age group was atypical of the HP–LE quadrant and HPCs. At 82%, it was the lowest in the HP–LE quadrant, the second-lowest of the 10 HPCs (HP–HE Canada had the lowest, 73%), and ranked 11th of the 16 research countries overall.

New Zealand's enrolment rate of 15–19-year-old students in vocational programmes as a percentage of the population of this age group was also unrepresentative of the HP–LE quadrant and HPCs, at just 8%. This enrolment rate was the same as for a similarly atypical HP–HE Australia and was explained by the general classification of the single upper secondary ISCED 3 qualification in each country. No data were reported for HP–HE Canada, whose main upper secondary qualification was also of general orientation.

Comparison, Category 3: Age profiles and programme durations.

Category 3 findings showed that LECs tended to have a younger age of first selection than HECs. However, New Zealand's average age of first selection, of 16, was anomalous for HP–LE quadrant countries (average of 12.3) and LECs (average of 12.7) and aligned more closely with HECs, whose average age of first selection was 15.3.

Category 3 findings also showed that, on average, LECs had more years of compulsory education than HECs. New Zealand's total of 10 years was the lowest of the HP–LE quadrant countries (the others ranged from 11–12) and lower than the LEC average of 11.3; it was more representative of HECs, which averaged 9.5 total years of compulsory education.

Another similarity between New Zealand and HECs concerns the typical starting age of upper secondary in relation to the ending age of compulsory education. In most HECs except Canada and Italy, these two ages are approximately the same, compared with just one LEC, New Zealand. In other words, upper secondary education was optional in these countries.

Comparison, Category 4: Number of ISCED 3 programme types and highest ISCED level of destination access.

In Category 4, New Zealand differed from other HP–LE quadrant countries in offering just one general programme type and no vocational programme types, compared with two and three or four respectively in the other HP–LE quadrant countries. New Zealand was similar in this respect to HP–HE Australia and Canada, which also offered a single general programme type only; in all three countries, vocational learning was accommodated in the general programme structure.

Comparison, Category 5: Number of ISCED 3 programme, qualification and classification types.

The number and type of ISCED 3 programmes described in Category 4 had a bearing on the number and type of ISCED 3 qualifications offered. Because New Zealand's main upper secondary programme was general, so too was its main qualification, the NCEA L3. New Zealand's lack of upper secondary vocational qualifications was different to other

HP–LE countries (which had an average of 3.3 vocational qualification types each), to all LECs (an average of 2.9 vocational qualification types), and to all HPCs (an average of 1.3 vocational qualification types). HP–HE Australia and Canada had similar profiles to New Zealand, with no vocational qualification types.

New Zealand was also aligned more closely with HP–HE Australia and Canada (except the province of Quebec) as the only countries to offer just one ISCED 3 programme and qualification classification, ISCED 3A (general). In contrast, the other three HP–LE quadrant countries each offered three different ISCED 3 classifications, while the average number of classifications for all HPCs and LECs were 2.2 and 2.7 respectively.

Comparison, Category 6: ISCED 3 qualification structures and pathway progressions. New Zealand's qualification structures set it apart from the majority of research countries. It was the only HP–LE quadrant country, but one of four HPCs, whose ISCED 3A (general) qualification's structure was part of a larger NQF; the other three were HP–HE Australia, Estonia and Finland. LP–LE Luxembourg and LP–HE Norway also had general qualifications that were part of a larger NQF. Furthermore, New Zealand was the only HP–LE quadrant country, and one of two HPCs (the other was Australia), whose NQF was comprehensive, linking all vocational, school and university qualifications. Two LPCs also had comprehensive NQFs, Luxembourg and Norway.

HPCs New Zealand and Australia also differed in providing the only ISCED 3A (general) qualifications whose structure accommodated combined school and workplace-based learning; this facility was more typical of vocational qualification structures, where it was found in 57.6% of qualifications. However, unlike Australia, there were no restrictions on the proportions of general and workplace-based vocational learning that could contribute to New Zealand's NCEA L3.

New Zealand's NCEA L3 was the only ISCED 3A (general) qualification that provided UE if specific tertiary criteria were met within the components of the qualification; this meant students could complete their NCEA L3 with or without UE entitlement. One UE criterion, for example, was the attainment of 14 credits from each of three curriculum-derived, university-approved subjects. While there were no mandatory

subjects required for NCEA L3, this UE criterion limited the number of vocationally-based, non-university-approved subjects students could study if they wished to gain NCEA L3 with UE entitlement.

Comparison, Category 7: Assessment components of ISCED 3 qualifications.
In addition to the qualification structures described in the previous section, the assessment components of New Zealand's NCEA provided a further notable difference to other qualifications. The NCEA had the highest degree of flexibility with assessment approaches of all qualifications in this study, with any combination of external, internal, written, oral, practical or workplace-based assessment components possible, over and above any individual subject requirements.

There was a high level of discretionary decision making devolved to schools and teachers regarding the different types of assessment they could use for individual subjects and students, over and above any subject-specific requirements. This high level of discretionary decision making aligned New Zealand more closely with HECs, where 90% of general qualifications included discretionary school-based assessment, compared with 55.6% in LECs. However, some NCEA L3 assessment components were prescribed where students wished to be eligible for course/subject endorsement, which recognised exceptional achievement, such as a minimum of three internally and three externally assessed credits attained in that subject.

Decisions about vocational assessment components offered under the purview of industry training organisations were made by those organisations, as was also the case for HP–HE Australia's ISCED 3A (general) Senior Secondary School Certificate. While this was common practice in 57.6% of vocational qualifications in this study, New Zealand's NCEA and Australia's Senior Secondary School Certificate were the only general qualifications that afforded this level of flexibility.

New Zealand and Australia's (general) qualifications were also similar regarding vocational components and UE eligibility. New Zealand's NCEA L3 provided UE if specific university-approved subject criteria were met within the components of the qualification, whereas Australia's Senior Secondary School Certificate prescribed a

maximum proportion of the final grade that could comprise vocational components for a student to be eligible for an ATAR ranking for UE; this proportion varied across jurisdictions.

Comparison, Category 8: ISCED 3 internal summative assessment frameworks.
The only countries that used national, state or local guidance materials as a mechanism to ensure the reliability of marking within and across schools for general qualifications were HPCs New Zealand, Belgium (French region) and Australia. New Zealand and Australia also used moderation of marking for general qualifications, the only countries to have a formalised summative assessment framework for doing so. New Zealand's moderation included within-school moderation and systematic external moderation by the New Zealand Qualifications Authority (NZQA).

Comparison, Category 9: Standardised central examinations at ISCED 3.
New Zealand was the only country where all standardised, central examinations for an ISCED 3A (general) qualification were undertaken by student choice. Students wishing to gain externally assessed credits, as required for subject endorsement, for example, could do so through external standards that—along with internal standards—assessed curriculum-derived, university-approved subjects.

Responsibility for marking central examinations for general qualifications resided at two different levels in New Zealand, depending on the subjects: by the NZQA, and by individual schools. Just two other countries, both HECs, used central government or education authority markers: Australia and Norway.

New Zealand was also most similar to HP–HE Australia regarding the mechanisms used to ensure the reliability of marking within and across schools for standardised central examinations, where marking was undertaken at a school level. Of all general and vocational qualification types, they were the only countries to have three layers of accountability, although there were differences between their approaches. New Zealand used national guidance materials, within-school moderation, and external moderation by the NZQA; Australia also used within-school moderation, but additionally used external

examination boards and partially external examination committees to ensure the reliability of marking.

Comparison, Category 10: Responsibility for assessment, administration and quality assurance of ISCED 3 qualifications.

New Zealand had two levels of responsibility for quality assurance of ISCED 3 qualifications: state statutory bodies (principally the NZQA); and individual schools, where internal quality assurance systems and standards were the basis for quality assurance audit and a continuous improvement focus. School-level responsibility for qualifications' quality assurance was atypical of HPCs, with HP–HE Korea the only other HPC to devolve this responsibility to individual schools; it was, however, used by four of the six LPCs.

Comparison, Category 11: Graduation rates for ISCED 3 qualifications.

New Zealand was the highest-ranked HP–LE country for the percentage of first-time graduates gaining ISCED 3 qualifications (95%), the third-highest overall after HP–HE Finland and Japan (97%), and equal to HP–HE Korea. Although this score was commensurate with other HPCs overall, it was most typical of HP–HE quadrant countries.

New Zealand had the third-highest percentage of graduates expected to graduate from general programmes (76%), after HP–HE Canada and Korea (85% and 78% respectively); this was a higher percentage than all other LECs and more closely aligned with HECs.

Comparison, Category 12: Entry rates into tertiary programmes.

New Zealand had the second-highest entry rates into ISCED 5 programmes after LP–LE Chile, for all students (28%) and students < 25 years (13%). However, as previously reported in Category 12, results for ISCED 5 admissions were inconclusive as only seven countries (including New Zealand) reported data for this classification.

Chapter 5: Study 2 Introduction and Background

Study 2 is related to, but distinct from Study 1. Both studies have an overarching focus on attainment and equity in upper secondary school exit qualifications pathways, but where the latter compared countries, Study 2 has a single-country—New Zealand—focus. Attainment and equity are examined in New Zealand's National Certificate of Educational Achievement Level 3 (NCEA L3) and University Entrance (UE) pathways and provisions to address one supporting research question:

> What are the similarities and differences in opportunities provided through qualifications pathways between selected New Zealand schools whose student attainment rates in NCEA Level 3 and University Entrance are significantly different from schools with similar socio-economic profiles?

Study 2 comprises four chapters that parallel the structure of Study 1. The current chapter (Chapter 5), provides background to Study 2, namely the New Zealand policy context, while Chapters 6, 7 and 8 present the Study 2 Literature Review, Methodology and Findings respectively.

Background to the Research: New Zealand Policy Context

The decades immediately following World War II were a period of prosperity for New Zealand, whose economy was predominantly based on exporting agricultural products. However, the 1970s and 1980s saw a period of economic decline following the loss of traditional export markets and rising international oil prices, contributing to increasing inflation and social unrest, and growing unemployment, particularly among unskilled and semi-skilled workers (Hipkins et al., 2016). In the absence of a ready job market for unqualified school leavers, greater numbers of secondary school students remained at school for longer. The increased number of these students placed pressure on the norm-referenced upper secondary qualifications that were designed to rank, sort and ultimately fail approximately half of all candidates. Thus, the qualifications offered in each of the three final years of upper secondary school, which were, in essence, "explicit social sorting

mechanism[s]" (Hipkins et al., 2016, p. 17), were becoming increasingly irrelevant with mounting pressure for change.

By the 1980s, New Zealand's education debates were framed by two different political agendas: improving outcomes and equality of opportunity (Timperley, 1994). The former came from the political "right" and reflected concerns that education outcomes, which were static or declining for some student cohorts, could compromise New Zealand's growth and economic competitiveness at a global level (Allais, 2010; OECD, 1999b; Philips, 2000; Strathdee, 2009, 2011; Tobias, 2004). The latter had its origins in the political "left" and grew out of concerns of equality for disadvantaged and minority students (Timperley, 1994), and the government's desire to make qualifications more equitable for all students (Lange, 1988). These debates occurred against a backdrop of global neo-liberal trends that saw a move to less regulated economies and improved efficiencies (Strathdee, 2009, 2011; Tobias, 2004).

The New Zealand government's response to these education debates was part of a broader programme of sweeping public policy reform. The Education Act 1989 was enacted, and as part of the ensuing *Tomorrow's Schools* reforms individual schools became self-managing Crown entities, and their governance and management changed to a local, marketised model. While education policy, curriculum and high-stakes assessment remained centralised, responsibility for their implementation was devolved to locally elected Boards of Trustees, which were tasked with the governance of individual schools (Nusche et al., 2012; Wylie, 2012). The overarching Department of Education was replaced by the Ministry of Education (a policy-only body) and other statutory bodies with responsibility for specific centralised education functions. National qualifications, for example, became the responsibility of the newly established New Zealand Qualifications Authority (NZQA; Brown, 2004; Wylie, 2012).

The overarching legislative framework of the Education Act 1989 did not prescribe actual practice; individual schools became responsible for interpreting macro-level legislation and developing local policies that aligned with the broadly stated statutory requirements (Philips, 2000; Robinson, Ward, & Timperley, 2003). The intention was that micro-level policy could be customised in response to the unique local circumstances of

each school, enabling schools to develop practices to best suit their students' specific education needs. The facility for local responsiveness gave effect to the government's desire to make education more equitable for all students:

> to ensure that a new system of education administration promotes and progressively achieves greater equity for women, Maori, Pacific Island, other groups with minority status; and for working class, rural and disabled students, teachers and communities. (Lange, 1988, p. 25)

Locating decision making "as close as possible to the point of implementation" (Lange, 1988, p. iii) reflected an increased democratisation of education, providing a mechanism for "a partnership between the professionals and the particular community in which it is located" (p. 1).

New Zealand Qualifications Framework.

Before *Tomorrow's Schools*, a front-end model of education prevailed in New Zealand, whereby learning was viewed in a narrow, academic context that focussed on the first 2 decades of a person's life, with clear divisions between traditional academic (also called general) and vocational education (Advisory Council on Educational Planning, 1974; Tobias, 2004). One of the responsibilities of the newly established NZQA was to develop a national qualifications framework (NQF, henceforth NZQF[7]) to incorporate all national qualifications (Hipkins et al., 2016; Philips, 2000), and in 1990 this was introduced. The NZQF closely followed the establishment of the Scottish Vocational Education Council (in 1985) and England and Wales' National Council for Vocational Qualifications (in 1986), to reform vocational qualifications. Although New Zealand borrowed heavily from these other early frameworks, their designs were broadened considerably and used as the basis for a complete overhaul of *all* registered qualifications and their assessment, resulting in the world's first unified framework. The introduction of a single, standards-based national qualifications structure encompassing a broad range of qualifications broke the

[7] In 2010 the NQF and the associated Register of Quality Assured Qualifications were combined into a single, comprehensive framework and renamed the New Zealand Qualifications Framework (NZQF). For consistency, the abbreviation NZQF is used throughout.

traditional general/vocational binary, theoretically giving both types of learning equal status (Philips, 2003; Strathdee, 2009, 2011).

Promoters of social justice endorsed the NZQF and considered its standards-based assessment to be fairer than the traditional, norm-referenced, examination-based system it replaced. The latter had disadvantaged Māori and Pasifika students (Philips, 2003; Shulruf, Hattie, & Tumen, 2010a; Strathdee, 2003) and those from low-income families (Dobric, 2005), who historically scored poorly under this regime. Additionally, some argued that the previous one-size-fits-all assessment system was not well-tailored to students' cultural needs and, as such, may have negatively and unfairly affected their academic achievements (Bishop, Berryman, Tiakiwai, & Richardson, 2003; Shulruf et al., 2010a).

The NZQF's implementation was not without controversy. It was the focus of protracted contestation grounded in political ideology (Dobric, 2005), notably from some high-socio-economic single-sex schools with a tradition of high attainment in the previous norm-referenced national qualifications which had historically favoured their students (Philips, 2003; Strathdee, 2009, 2011). Strong opposition also came from sector groups such as the New Zealand Business Roundtable (Irwin, 2000), a neo-conservative think-tank and advocacy organisation, and the closely aligned lobby group the Education Forum (Smithers, 1997), which opposed the adoption of standards-based assessment for traditional academic subjects (Philips, 2003).

The National Certificate of Educational Achievement.

New Zealand's education system is made up of 13 year levels ranging from the first year of primary education at around age 5 (Year 1), to the final year of secondary education at around age 17–18 (Year 13). Each of the final 3 years of secondary schooling, Years 11–13 (Y11–Y13) have traditionally been credentialled with high-stakes qualifications. As part of ongoing qualifications reforms, the NCEA was progressively introduced from 2002 to 2004, representing what Hipkins et al. (2016) call "a seismic shift in assessment for qualifications" (p. 3). The NCEA saw a wholesale move from traditional, examination-based, norm-referenced qualifications at Y11 (School Certificate), Y12 (Sixth Form Certificate) and Y13 (Bursary), to a flexible, modular, NZQF-aligned structure in which

credits gained from outcomes-based assessment standards were aggregated towards NCEA qualifications. It was intended that students be judged on their own merits rather than in relation to the achievement of others, a move Dobric (2006) describes as a "shift in framing the purpose of senior secondary education from the selection of high-achieving students to the progression of all students" (p. 86). The NCEA was considered a fairer and more equitable qualifications system that could reduce disparity in educational achievement across different ethnic and socio-economic groups and ensure that all students, irrespective of their circumstances, had the opportunity to develop the knowledge and skills that would enable their participation in the changing workforce (Dobric, 2005, May; OECD, 2004c; Shulruf et al., 2010a).

The NCEA has three levels, Levels 1–3 (L1–L3), which broadly align with the three final years of schooling, Y11–Y13. Each NCEA level is credentialled separately, although there can be considerable overlap as students may work towards more than one NCEA level concurrently and a proportion of credits may cross-credit to other levels. Students study several subjects, each of which is assessed against a number of standards. There are three types of standards: (a) curriculum-based internally and (b) externally assessed achievement standards (the latter principally via end-of-year examinations), and (c) vocationally-based, internally assessed unit standards. Curriculum-based subjects are typically subdivided into a combination of internally and externally assessed modules that are assessed with achievement standards, each of which is awarded at one of three levels: *Achieved*, *Merit* or *Excellence*. Vocational learning (which sometimes occurs in partnership with outside providers such as industry training organisations or tertiary institutions) is similarly modular but is assessed with unit standards, most of which have just one level of pass—*Achieved.* Each standard has a credit value reflecting the amount of learning involved. Any combination of unit and achievement standard credits can be aggregated towards NCEA qualifications, and relevant standards can be cross-credited to other, vocationally-focussed, national certificates.

Since its introduction, the NCEA has undergone regular reviews and improvements (NZQA, 2017d) such as certificate and course endorsements, which were introduced in 2007 and 2011 respectively and recognise high achievement. Merit or Excellence

certificate endorsements are awarded for achieving at least 50 Merit or Excellence credits respectively, at or above the level of the NCEA certificate. Merit or Excellence course endorsements are awarded for achieving at least 14 Merit or Excellence credits respectively in an individual subject or course; at least three of the 14 credits must be from internally assessed standards, and at least three from externally assessed standards. Other notable changes were introduced from 2011–2014. In 2011–2013, achievement standards were progressively updated to align them with a new curriculum, and curriculum-derived unit standards were removed from the NZQF; the unit standards remaining are mainly vocationally-derived. Additionally, new, more rigorous UE requirements took effect from 2014. The 2011–2014 changes resulted in an anticipated increase in (university-approved, curriculum-derived) Level 3 achievement standard entries from 2014 and a corresponding decrease in (vocationally-derived) unit standard entries. These recent changes and their implications for qualifications pathways will be a focus of this investigation.

The combination of a devolved policy environment and the modular, flexible and permeable architecture of the NZQF and NCEA means schools have considerable autonomy regarding the courses and subjects they provide, which was intended to "[give] schools the flexibility to design and deliver programmes that will engage all students and offer them appropriate learning pathways" (Ministry of Education, 2007, p. 41). Schools thus have the facility to provide a variety of pathways, enabling students to smoothly transition from school to further learning or employment, including for at-risk students intending to transition straight into the workforce (Ministry of Education, 2018). The potential for further, or lifelong, learning, which is an important aim of national qualifications frameworks (Coles, 2006), is enabled by the modular nature of the NZQF and NCEA. In summary, it was envisaged that upper secondary students might, at the discretion of the schools they attend, undertake individualised programmes of study comprising a combination of NCEA levels, general and vocational courses, types of assessment standards, and NZQF national certificates.

University Entrance.

Before the NCEA's implementation, UE was determined by outcomes in Year 13 Bursary examinations, which were only offered in general subjects. However, unlike the Bursary

qualification, NCEA credits could also be gained from vocational learning, meaning the Y13, NCEA L3 award did not necessarily indicate preparedness for university-level study (Hipkins et al., 2016). A new approach to UE eligibility was thus introduced in tandem with NCEA L3 that required a subset of criteria to be met in an NCEA L3 qualification, meaning NCEA L3 could be attained with or without UE eligibility. One UE requirement was 14 credits in each of two subjects selected from the University Approved List of general subjects; the remaining subjects could comprise any combination of general and vocational study, giving system-level equivalence to these two types of learning.

Further changes to UE were introduced from 2014, including increasing the number of approved subjects from two to three; these changes are summarised in Appendix B. This increase reduced the number of vocational subjects students could fit into their programmes if they wished to gain UE and, consequently, the flexibility of the credential. Moreover, as approved subjects are curriculum-derived, they are assessed using achievement standards, which potentially provide better positioning than vocationally-derived unit standards in rank-score[8] calculations, used by many universities to determine admission to competitive-entry courses. Schools thus vary in the extent to which they offer or encourage unit standards (Crooks, 2011), as students studying vocational subjects can be disadvantaged in meeting UE requirements (Madjar et al., 2009; McNaughton, Rosedale, & Oldehaver, 2014; Shulruf et al., 2010b; T. R. Turner, Irving, Li, & Yuan, 2010). The additional approved-subject requirement has accentuated a general–vocational hierarchy and reduced equivalence between general and vocational learning, compromising the original egalitarian purpose of the NCEA. Furthermore, the changes to UE requirements led to a national decrease in UE attainment in 2014. Although the drop affected outcomes for both genders, all ethnicities and all decile bands,[9] Māori and Pasifika

[8] Rank scores are calculated from a student's best 80 credits, where Achieved, Merit and Excellence credits are worth two, three and four points respectively. Because most (vocationally-derived) unit standards can only be passed with Achieved grades, whereas (curriculum-derived) achievement standards can be passed with Achieved, Merit or Excellence, the latter can potentially give students a higher rank score.

[9] Deciles are a mechanism for targeting government funding. There are 10 decile bands into which schools are grouped according to socio-economic indicators. The lower a school's decile, the greater the proportion of students from low-socio-economic communities, and the more government funding it receives.

students and students in low-decile schools were disproportionately affected. Despite steady gains in 2015 and 2016, outcomes had not reached pre-2014 attainment levels at the time of writing when examined by gender, ethnicity (with the exception of the Asian cohort, which showed a small gain from 2013 to 2016), and decile band (NZQA, 2017a, pp. 10, 13, 16). Kiro et al. (2016) proffer that an unintended consequence of the changed requirements may have been a reduced emphasis on UE.

Assessment.

New Zealand has a non-prescriptive approach to evaluation and assessment generally (Absolum, Flockton, Hattie, Hipkins, & Reid, 2009; Crooks, 2011; Nusche et al., 2012). The government's preferred directions for assessment policy and practice are outlined in assessment documents such as the *Directions for Assessment in New Zealand (DANZ) Report* (Absolum et al., 2009), which provides advice to the Ministry of Education to inform the design of strategies, policies, and plans for assessment, and the Ministry of Education's (2011) *Position Paper: Assessment (Schooling Sector)*, which is a high-level paper that informs assessment policy development and review. Both documents state that the foremost function of assessment is to increase students' learning capabilities. The importance of using assessment to improve learning is reinforced in *The New Zealand Curriculum* (Ministry of Education, 2007) with a broadly worded assessment purpose statement to this effect and a guiding list of characteristics of effective assessment. Individual schools are required to customise their assessment policies and practice consistent with the prescribed legislative framework of the Education Act 1989 and supporting policy documents to meet the specific learning needs of their students (Absolum et al., 2009), including assessment to improve learning within a high-stakes NCEA qualifications environment (Absolum et al., 2009; Nusche et al., 2012). New Zealand's model of assessment is highly devolved and high-trust, placing considerable responsibility on teachers as primary assessors of their students' learning (Absolum et al., 2009; Nusche et al., 2012).

Yates and Johnston (2017) observe that, by international standards, New Zealand teachers have a comparatively substantial role in decision making about assessment for high-stakes upper secondary qualifications. When making decisions about the

composition of qualifications pathways and subjects, considerations by individual teachers and schools include:

- whether assessment standards offered will be (vocational) unit standards or (university-approved) achievement standards or a combination of these;
- whether to offer internally or externally assessed achievement standards, or a combination;
- whether standards will be assessed in smaller parts or holistically;
- the timing or length of the assessment;
- the feasibility of further assessment opportunities; and
- whether assessment materials might be locally developed to suit their students' unique and diverse needs.

To ensure that school-based marking of internally assessed standards is consistent nationally, the NZQA undertakes annual external moderation of a random selection of marked student work and related assessment materials (such as tasks, activities and tests) for NZQA-selected standards across all curriculum areas (NZQA, 2017b). The subject moderators provide reports and schools must address any identified issues arising from task design and lack of agreement with teachers' marking by moderators.

Chapter 6: Study 2 Literature Review

As for Study 1, this literature review situates Study 2 in the context of fair and equitable qualifications pathways for diverse learners in upper secondary school. However, where the Study 1 Literature Review had a broad, international focus, this review is centred on the New Zealand context. The first section, on fairness, begins by exploring literature with the same interlinked concepts as for Study 1, of fairness and equity, diversity, and social justice, followed by an examination of fairness relating to opportunities to learn, streaming or tracking and career guidance. The second section continues the fairness theme with an investigation of literature about fair assessment for high-stakes qualifications, including of diverse learners, and the role of culturally responsive approaches in fair assessment. Drawing from international and New Zealand literature, the third section situates New Zealand's NCEA L3 and University Entrance (UE) in relation to dead ends and doorways. The literature review concludes with an examination of the paradox of NCEA L3, which seems to tick all the boxes, identified in the literature, that comprise a good qualifications structure and yet has highly inequitable qualifications outcomes.

Fairness: New Zealand

This first section of this Study 2 Literature Review parallels the Study 1 Literature Review with an examination of literature and policy documents about fairness and equity, diversity and social justice that are New Zealand-focussed. The next subsections investigate fairness and opportunities to learn, streaming or tracking and career guidance, and the effect that teachers' expectations of students may have on these processes, in relation to the titular dead ends and doorways of this thesis.

Fairness and equity: New Zealand.

Historian David Fischer (2012) contends that "on the subject of fairness, no nation in the world has more to teach than New Zealand" (p. 493). Terms from local popular culture such as *fair go*, *fair enough*, *a fair deal, fair play* and *fair's fair* reflect notions of fairness and social justice, which Fischer argues have underpinned New Zealand's development since pre-colonial times. Fairness is embedded in *The New Zealand Curriculum* (Ministry

of Education, 2007) through the core value of "*equity*, through fairness and social justice" (p. 10; emphasis in original) and as one of the characteristics of effective assessment, which is to be "*valid and fair*" (p. 40; emphasis in original). Section 246A(1)(f) of the Education Act 1989 requires the NZQA to ensure schools have "assessment and moderation procedures that are fair, equitable, and consistent," while the NZQA "has a formal quality assurance process to ensure that the assessment of each standard is fair across all students, regardless of the school they attend" (2012a, para. 4). In the *Code of Professional Responsibility and Standards for the Teaching Profession* (Education Council, 2017), Professional Responsibility 2(6) requires teachers to work in the best interests of learners by "being fair and effectively managing [their] assumptions and personal beliefs" (p. 10). A search in Google Scholar using the search term "fairness in school qualifications assessment" revealed that 23% of approximately 132,000 results have a New Zealand context, or reference New Zealand, despite its comparatively small population. In short, New Zealand has socio-cultural and legal mandates for fair and equitable assessment and qualifications provisioning.

Fairness and diversity: New Zealand.

New Zealand is characterised by population diversity. According to the OECD report on *PISA 2015 Results: Excellence and Equity in Education* (2016c), approximately 50% of New Zealanders are either foreign-born or have at least one foreign-born parent, and a large proportion of immigrants are highly educated. Furthermore, between 2006 and 2015 the percentage of immigrant students increased by between 5 and 10 percentage points. Population diversity is particularly evident in schools. In 2016, just 51% of students were New Zealand European/Pākehā; the remaining 49% identified as multiple and non-European ethnicities: Māori (24%), Asian (11%), Pasifika (10%), and all other classifications (4%; Ministry of Education, 2017b).

Several key education policy documents mandate that schools and teachers accommodate and be responsive to diverse students. The Education Act 1989 has numerous references to diversity. For example, Section 61(3)(a)(i) requires schools to develop a charter with a section that includes "the aim of developing, for the school, policies and practices that reflect New Zealand's cultural diversity and the unique position

of the Maori culture." Cultural diversity is one of eight principles that embody beliefs about what is important in *The New Zealand Curriculum*: "The curriculum reflects New Zealand's cultural diversity and values the histories and traditions of all its people" (Ministry of Education, 2007, p. 9), and students are to be encouraged to value "*diversity,* as found in our different cultures, languages, and heritages" (p. 10; emphasis in original). The Ministry of Education's (2011) *Assessment Position Paper* states "It is important that policy and practice, at all levels of the system, encourage and enable an inclusive approach that recognises and responds to diversity (differing backgrounds, experiences, culture, educational need)" (p. 24). Diversity is integral to all four areas of professional responsibility in the *Code of Professional Responsibility and Standards for the Teaching Profession* (Education Council, 2017), for example:

> 2(3): respecting the diversity of the heritage, language, identity and culture of all learners. (p. 10)

In the same document, references to diversity are similarly interwoven throughout the "Standards for the Teaching Profession," such as "Understand and acknowledge the histories, heritages, languages and cultures of partners to Te Tiriti o Waitangi [The Treaty of Waitangi[10]]" (p. 18). In *Quality Teaching for Diverse Students in Schooling: Best Evidence Synthesis*, Alton-Lee (2003) argues that:

> This frame rejects the notion of a "normal" group and "other" or minority groups of children and constitutes diversity and difference as central to the classroom endeavour and central to the focus of quality teaching in Aotearoa, New Zealand. It is fundamental to the approach taken to diversity in New Zealand education that it honours the Treaty of Waitangi. (p. v)

Fairness and social justice: New Zealand.

According to the Ministry of Education (2010), New Zealand's "education system has evolved alongside the development of New Zealand as a nation with an egalitarian

[10] The Treaty of Waitangi is an agreement entered into by representatives of the British Crown and Māori in 1840. It is considered to be New Zealand's founding document, and although it has never been enacted as municipal law, it strongly influences New Zealand's system of government, is referred to in specific pieces of legislation such as the Education Act 1989 and underpins the education system.

outlook, a concern for social justice and a desire to ensure equality of opportunity" (p. viii). A core value of *The New Zealand Curriculum* is that students will be encouraged to value equity "through fairness and social justice" (Ministry of Education, 2007, p. 10). Teachers' *Code of Professional Responsibility* includes "promoting and protecting the principles of human rights, sustainability and social justice" (Education Council, 2017, p. 12).

As previously discussed, New Zealand's strongly avowed rhetoric in favour of fairness, equity and social justice has been strengthened in recent decades by significant system-level change, including to policy, schooling, assessment and qualifications structures. However, although steady improvement is occurring, these changes have not yet translated into fairer or more equitable educational outcomes for some student cohorts. The impact of socio-economic background on learning outcomes is large when compared with other OECD countries, and students with low-socio-economic status are at greater risk of low achievement (Madjar et al., 2009; Nusche et al., 2012; OECD, 2016c). This pattern is particularly apparent with New Zealand Māori and Pasifika students, who are notably over-represented in low-socio-economic and academic attainment statistics (Ministry of Education, 2010, 2012; Office of the Auditor-General, 2016).

Educational disparities between Māori students and those of the majority are of significant concern at all levels, which Allen, Crooks, Hearn, and Irwin (1997) argue is due to the systemic disadvantage of Māori students in the schooling system. The multi-ethnic Pasifika diaspora, which includes migrants from the Pacific as well as New Zealand-born Pacific students, is similarly over-represented among those failed by the schooling system (Benseman, Coxon, Anderson, & Anae, 2006; McNaughton et al., 2014; Ministry of Education, 2012), with "inequitable access to, participation in and outcomes for Pasifika learners throughout all educational sectors" (Anae, 2010, p. 3). For example, just 33.8% of Māori and 43.4% of Pasifika school leavers attained NCEA L3 or higher in 2016, compared with 57.6% of New Zealand European/Pākehā and 75.5% of Asian school leavers (Ministry of Education, 2017a).

Māori and Pasifika students are significantly over-represented in lower decile schools and under-represented in higher decile schools, as shown in Figure 11. In 2016,

the Year 13 rolls of (low) decile 1–3 schools comprised 37.1% Māori and 32% Pasifika students, compared with just 9.2% and 4.3% respectively of Year 13 rolls in (high) decile 8–10 schools. Conversely, Year 13 New Zealand European and Asian students are under-represented in decile 1–3 schools (19.5% and 11.4% respectively) and over-represented in decile 8–10 schools (69.7% and 16.9% respectively; Ministry of Education, 2017b).

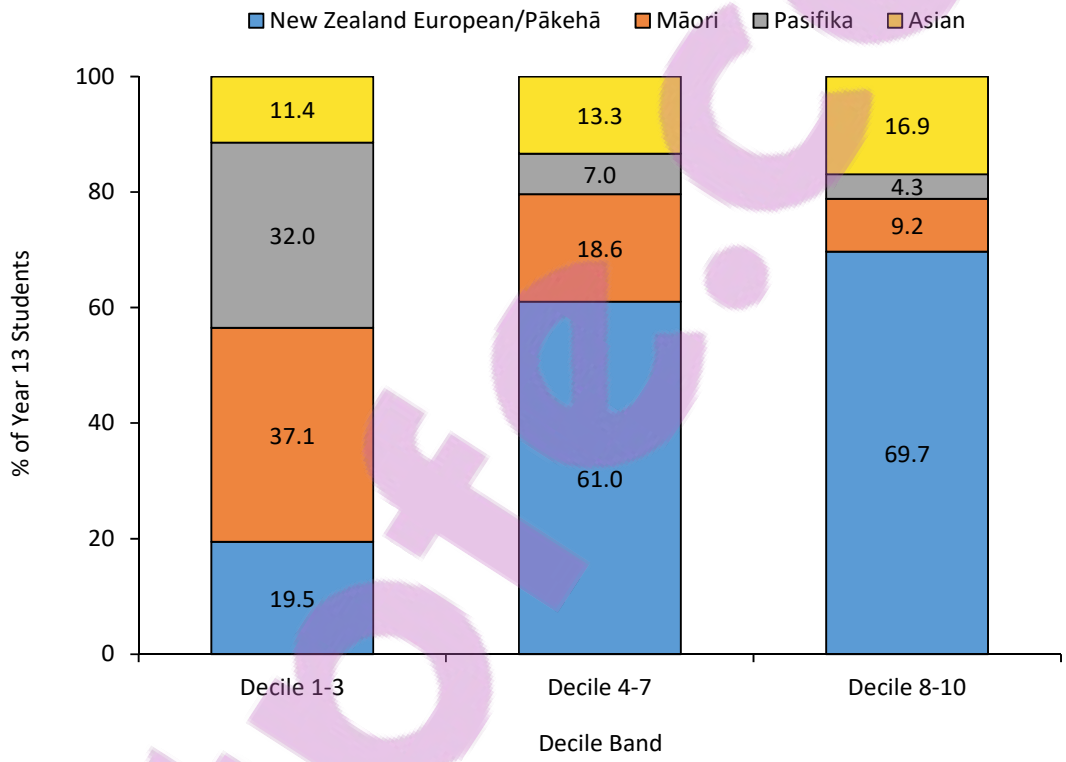

Figure 11. Percentage of Year 13 students of New Zealand European, Māori, Pasifika and Asian ethnicities, by decile band. Source of data: *School Rolls*, by Ministry of Education, 2017, retrieved from http://www.educationcounts.govt.nz/statistics/schooling/student-numbers/6028

Many lower decile schools have invested heavily in vocational courses, which are unit standards based. Figure 12 shows that in 2016, 31.7% of NCEA L3 results for standards assessed in decile 1–3 schools were unit standards, compared with only 11.0% in decile 8–10 schools. This pattern is reversed for externally assessed NCEA L3 achievement standards, which comprised just 15.5% of results for standards assessed in decile 1–3 schools, compared with 30.6% in decile 8–10 schools (NZQA, 2017a). Vocational courses,

which are based on unit standards, have been particularly popular with students who need alternative pathways towards their NCEA than those afforded by conventional academic learning and assessment practices (hospitality-related services-sector courses and tourism are prevalent examples). However, unit standards can potentially compromise UE eligibility and lead to academic dead ends, "giving students an assortment of unrelated *credits*, or insufficient grounding in subjects critical for achieving particular aspirations in tertiary education or employment" (Madjar et al., 2009, pp. 105–106; emphasis in original). The higher percentage of unit standards assessed in low-decile schools thus has implications for students wishing to attend university, notably Māori and Pasifika students who are over-represented in these schools and less likely than other ethnic groups to undertake degree-level studies (Madjar et al., 2009).

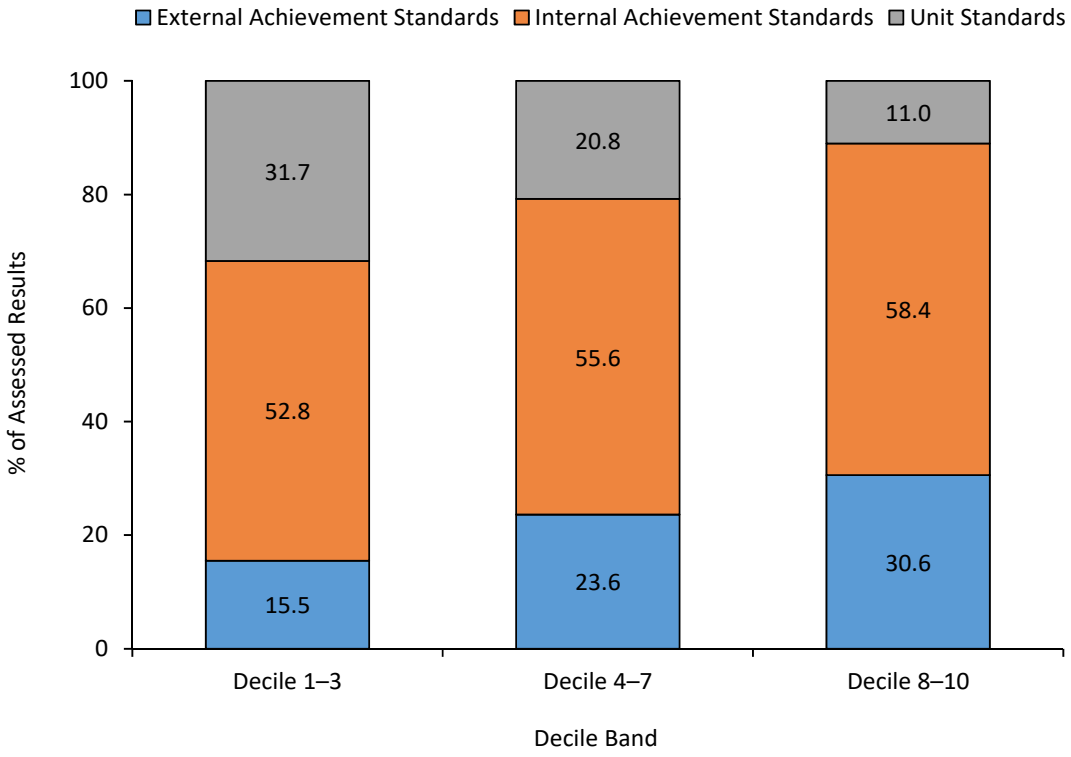

Figure 12. Percentage of assessed results for NCEA Level 3 externally assessed achievement standards, internally assessed achievement standards, and unit standards, by decile band. Source of data: *Annual Report on NCEA and New Zealand Scholarship Data and Statistics (2016)*, by NZQA, 2017, p. 78, retrieved from http://www.nzqa.govt.nz/assets/About-us/Publications/stats-reports/ncea-annualreport-2016.pdf

On the one hand, the seamless integration of traditional general and vocational learning, and the modular nature of the NCEA, enable schools to provide a broad choice of pathways leading to very different areas of achievement. On the other hand, there is a danger this breadth may result in subject combinations that lead to dead ends, closing down further learning pathways such as university studies (Hipkins, 2010; Madjar et al., 2009; OECD, 2012b). Research from the University of Auckland's Starpath Project supports this concern. Findings show that some NCEA subject decisions can lead to qualifications dead ends and that these decisions have had a particularly negative impact on students from low-decile schools, specifically Māori and Pasifika students (Madjar et al., 2009; Shulruf et al., 2010b). For example, irrespective of their attainment before Year 11 (a key transition point into upper secondary and the level at which NCEA L1 is typically undertaken), these students are less likely to take NCEA L1 courses that lead to the study of university-approved subjects at NCEA L3 (doorways) and are therefore less likely to gain UE (Shulruf et al., 2010a). Although there have been steady gains in the intervening years since the implementation of the NCEA, attainment by Māori and Pasifika students has continued to trend at lower levels than for other student cohorts (McNaughton et al., 2014; Office of the Auditor-General, 2016). This disadvantage is particularly problematic considering an original intent of the NZQF was to promote social justice by giving traditional general and vocational learning equal status.

Fairness and opportunity to learn.

Equity of attainment is linked to equality of learning opportunities and resources (Causa & Chapuis, 2010; Gipps & Stobart, 2009). Minority and diverse students frequently have inequitable opportunities to learn and, consequently, inequitable access to qualifications pathways and assessment opportunities that provide doorways to post-school learning and qualifications opportunities. International literature shows, for example, that they often receive inferior instruction (Nieto, 2005; Saravia-Shore, 2008), including by under-qualified or inexperienced teachers (R. W. Cole, 2008a; Peske & Haycock, 2006). They are frequently placed in courses that are less academically challenging (Oakes, 2005) and over-represented in special education (Luciak, 2006). Their schools are likely to receive less

funding, with concomitant unequal access to resources, and they are more likely to be taught with subpar materials and equipment (R. W. Cole, 2008b; Nieto, 2005).

There are parallels in the New Zealand literature showing that students in lower decile schools, particularly Māori and Pasifika students, also may have inequitable opportunities to learn and thus inequitable access to qualifications pathways and assessment opportunities. Regarding the quality of instruction, the Office of the Auditor-General (2016) found that "there are inexperienced principals and teaching staff in schools that operate in the most challenging circumstances" (p. 8), in which Māori are over-represented. The University of Auckland Starpath Project reported that the quality of teaching in low-decile schools was frequently an impediment to academic attainment, especially in the sciences (Kiro et al., 2016). When combined with a focus on less academically challenging, unit standards based vocational subjects at the expense of university-approved subjects, this “often presented formidable barriers to academic achievement for these students, and entry to degree-level study” (p. 8). Another Starpath study, by T. R. Turner et al. (2010) found that the number of achievement standards offered by a school was a strong numeric predictor of academic success, particularly for Māori and Pacific students in the moderately high ability range. For these students, “the probability of success (at achieving entrance to university according to the NZQA criteria) increases significantly and substantially as the number of available achievement standards increases” (p. 4). As was noted in the preceding subsection, many lower decile schools offer a lower proportion of achievement standards and a correspondingly higher proportion of unit standards, which potentially compromise UE eligibility and can lead to academic dead ends.

One difference between New Zealand schools and those in the previously cited international literature concerns school funding and resourcing. New Zealand schools receive government-allocated operational funding apportioned according to decile rating, to mitigate the impact of disadvantage. Schools can supplement government funding with parent donations and fundraising events if they wish, although schools in high-decile communities are typically able to generate a higher proportion of income through these avenues than those in low-decile communities. One outcome of locally raised,

supplementary revenue gathering is that higher decile schools can often afford higher quality resources, materials and equipment, thereby perpetuating unequal access to these.

Fairness and streaming.

Streaming (also known as tracking), particularly early streaming, can have a pervasive impact on fair and equitable access to learning and associated qualifications pathways (Brunello & Checchi, 2007; Cuadra & Moreno, 2005; Lyche, 2010; Madjar et al., 2009). Streaming tends to increase inequities in the school system, as minority students and those from disadvantaged backgrounds are more likely to be in lower streams (Oakes, 2005; OECD, 2015).

Streaming of New Zealand's NCEA subjects occurs at a school level and is evident in the nature of the courses schools choose to offer, and to which students they offer these. Schools often take advantage of the modular structure of the NCEA to create different versions of courses within a subject area (such as English or mathematics) that are essentially streamed, and which may constrain or enable future pathway opportunities and progression. For example, parallel courses may:

- have different prerequisite requirements, such as prior attainment;
- offer different types of credits, such as from internal or external achievement standards, or unit standards;
- offer a different number of credits;
- offer different levels of credits, such as a combination of NCEA Level 2 and Level 3 credits; or
- have different content.

However, the implications of streamed courses are not always apparent to students and their families and can be made even less so by names that schools typically assign to courses they create (Madjar et al., 2009; McNaughton et al., 2014), such as Foundation English, Alternative English, English for the Workplace, English with Shakespeare, English for Academic Purposes and English through Film. The net effect is that, while students may have access to a subject, the composition of the particular course they undertake within that subject area may shut down future subject progression, limit employment

options, or exclude assessment opportunities for standards and credits necessary for UE eligibility (Madjar et al., 2009).

Fairness and career guidance.

Schools may provide guidance to assist students in making qualifications pathway and subject decisions, either for all students or as an intervention for selected students; this can help to improve fairness and equity by promoting greater social inclusion of disadvantaged and marginalised groups in education (OECD, 2004a). Such guidance is described using various terms in the literature, including *academic advisement* (Young-Jones, Burt, Dixon, & Hawthorne, 2013), *career guidance* (Hughes & Karp, 2004), *college and career readiness counselling* (Poynton & Lapan, 2017) and *academic counselling* (Webber, McKinley, & Rubie-Davies, 2016). *Career education and guidance* and *career counselling* are used interchangeably in this thesis as umbrella terms to encompass any information, advice and guidance—both formal and informal—about subject, pathway and career choices given to secondary school students to assist them in making subject, pathway, qualifications and career decisions.

The OECD (2000, 2012b) identifies career guidance as one of the key features of effective transition from school to working life. This identification is supported by international studies that endorse the need for systematic academic advice via structured career guidance and academic counselling programmes (Belasco, 2013; Hughes & Karp, 2004; Scheel & Gonzalez, 2007; Sweet, 2013), and it is an emerging New Zealand field of research (Kiro et al., 2016; Madjar et al., 2009; McKinley et al., 2009; McNaughton et al., 2014; Webber et al., 2016). Despite this body of evidence, many New Zealand secondary school students do not receive any form of academic counselling (Webber et al., 2016).

Although the field of teacher expectations per se sits outside the scope of this thesis, school-based academic counselling is an exception. In this endeavour, teachers' expectations of diverse and low-socio-economic students can directly influence students' subject choices, qualifications pathways and, ultimately, post-school study and career opportunities. The literature shows that New Zealand teachers often have lower expectations of diverse students and those from low-socio-economic backgrounds,

particularly Māori and Pasifika students (Bishop, Berryman, Cavanagh, & Teddy, 2009; Kiro et al., 2016; H. Turner, Rubie-Davies, & Webber, 2015; Webber et al., 2016). Alton-Lee (2003) reports that "New Zealand educators need to break a pattern of inappropriately low expectations for some students, particularly Māori and Pasifika learners" (p. 21).

Findings showing lower teacher expectations of New Zealand's diverse students are consistent with international literature. On the release of *A Nation at Risk: The Imperative for Educational Reform* (1983), the Chairman of American President Ronald Regan's National Commission on Excellence in Education summarised the Commission's central conclusion: "*We expected less of our young people, and they gave it to us*" (as cited in Commission on Chapter 1, 1992, p. 3; italics in original). In support of this assertion, the Commission reported: "That minority and low-income children often perform poorly on tests is well known. But the fact that they do so because we systematically—and wilfully—expect less from them is not" (p. 3). Saravia-Shore (2008) similarly signals that "teachers may have low expectations for students of diverse backgrounds" (pp. 46-47), while the OECD (2012b) reports that low-performing schools with a high proportion of disadvantaged students often have low expectations for their students, and that school leaders have to set high expectations for all students and teachers to succeed.

There is a useful body of recent literature showing teachers' expectations of diverse and lower socio-economic students when undertaking academic counselling for NCEA. For example, teachers might direct students away from subjects or standards they consider to be "harder to pass," such as curriculum-derived, university-approved subjects or externally assessed achievement standards (Madjar et al., 2009), thereby impacting on UE eligibility. In *Starpath Phase 2 Final Summative Evaluation Report*, Kiro et al. (2016) found that the quality of advice about NCEA subject pathways received by students in low-decile schools, especially Māori and Pasifika students, often presented barriers to achieving their aspirations, including entry to university: "Some [Māori and Pasifika students] believed that teachers had counselled them and/or their peers into lower value courses, and that a form of academic differentiation or profiling was emerging based on inadequate evidence" (p. 16). The authors concluded that, for Māori, Pasifika and other

students in low-decile schools to be successful, "New Zealand needs teachers who hold and encourage high aspirations for their students" (p. 4).

In another Starpath study, of how NCEA choices affect Māori, Pasifika and other students from low-decile schools, Madjar et al. (2009) similarly found that school-directed or guided subject choices can significantly limit students' future pathways and perpetuate existing academic stratification of ethnic and socio-economic subgroups. Furthermore:

> Lack of adequate guidance and academic counselling early in their NCEA career, and at regular intervals subsequently, is disadvantaging academically able Māori, Pacific and other students in low-decile schools who are easily diverted toward inappropriate options and pathways, rather than being challenged and helped to set and achieve high academic goals. (p. 102)

McNaughton et al. (2014) reported a comparable pattern: "There is variable and sometimes opportunistic (rather than systematic and planned) advice from the schools" (p. 9). Importantly, McNaughton et al. identified academic counselling as an enabler for Pasifika students to gain access to and achievement in NCEA pathways leading to tertiary study and employment in high-growth, high-demand areas.

Patterns of low-expectation or inadequate academic counselling may be established at the lower secondary level, affecting subject and pathway choices as students transition into upper secondary. Research for New Zealand's *Competent Children, Competent Learners* project by Wylie and Hipkins (2006) identified that regarding lower secondary (Year 9 and 10) subject choices:

> Māori and Pasifika students were more likely to say they wished they had had more guidance … It does seem that students with "cultural capital" that aligns well with current educational systems are making subject choices that they are happier with subsequently. Given the emergent clustering of some "low ability" students into subjects that may close down study options later, this is a concern. (p. 128)

These findings align with those of the Ministry of Pacific Island Affairs (2014), which reported that 47% of the 918 Pasifika students they tracked from Year 9 to Year 11 indicated that nobody helped them choose their subjects. Compared with students who had help choosing their subjects, these students were significantly less likely to want to

continue to further education or training, less likely to know what they want to do post-school and more likely to want to start work after leaving school.

Fair Assessment for High-Stakes Qualifications

This section examines literature on fair assessment for high-stakes qualifications, including the New Zealand context for fairness and assessment, and culturally responsive assessment, content and practices. Assessment is defined as "high-stakes" when the outcomes have important consequences for at least one key stakeholder (Stobart & Eggen, 2012). For example, assessment that contributes to credentialling the final year of upper secondary schooling (the focus of this research) can have major post-school and life-defining consequences for students as stakeholders (Madjar et al., 2009). Recent international and New Zealand developments in high-stakes upper secondary assessment are reflected in a move from traditional, standardised, examination-based qualifications which acted as gatekeeping mechanisms using ranking, sorting, grading and labelling, to qualifications that use pre-defined criteria as the basis for assessment and to describe what students know and can do (Strathdee, 2011; Tierney, 2013). The latter approach is increasingly seen as a fairer basis for high-stakes credentialling (Cuadra & Moreno, 2005).

Assessment for high-stakes qualifications often occurs via large-scale assessment systems, where the locus of decision making is on a continuum ranging from an individual school level to central or government agencies (Stobart, 2005). New Zealand's NCEA, for example, accommodates assessment at both ends of the spectrum, with decisions about internally and externally assessed standards the responsibility of individual schools and the NZQA respectively. As assessment issues relating to fairness and equity are fundamentally the same for both devolved and centrally delivered qualifications assessment, as well as for day-to-day classroom assessment (Stobart, 2005), much of the literature reviewed in this section applies to assessment generally with a specific focus on the New Zealand multicultural context.

Fairness and assessment: New Zealand.

If fairness in New Zealand's education and qualifications systems is a social justice imperative, as previously argued (see "Fairness and social justice: New Zealand"), then so,

by extrapolation, is fairness in assessment. *The New Zealand Curriculum* (Ministry of Education, 2007) states that effective assessment benefits and involves students and is valid and fair. The NZQA (2001) describes fair qualifications assessment methods as those that "will not disadvantage individuals or groups by hindering or limiting them in ways unrelated to the evidence sought" (p. 7).

An important strategy for New Zealand's approach to fair assessment is responding to diverse learner needs, including identified groups of priority learners such as Māori and Pasifika with evidence of system under-performance (Nusche et al., 2012). According to the DANZ report, "No student or group of students should be pathologised (viewed in deficit terms) or assumed incapable of developing assessment capabilities; rather, it is important that teachers foster confidence, engagement, and achievement for all students and all groups of students" (Absolum et al., 2009, p. 20). An assessment imperative identified in the DANZ report, to attend to the needs of all students, states that: "To respond appropriately and effectively to the increasing cultural diversity of our classrooms and to the learning needs of those who have been least well served by the system, we need to ensure that our assessment practice is inclusive and informative" (Absolum et al., 2009, p. 7). This imperative is supported by the Ministry of Education's (2011) position paper on assessment: "Effective assessment … requires a high level of responsiveness to unique learning and learner contexts" (p. 6). Responding to diverse learner needs is also seen in the NZQA's three strategies (*Future State*, *Te Rautaki Māori* and *Pasifika Strategy*) that underpin their core business of assessment and qualifications. These strategies include a focus on identified priority groups: Māori, Pasifika, learners with special education needs and those from low-socio-economic backgrounds (Office of the Auditor-General, 2016).

Culturally responsive assessment.

Cultural responsiveness acknowledges the need for awareness of, and responsiveness to, the knowledge, skills and ways of thinking and being which diverse students bring to their learning (Bishop, 2008; Gay, 2010; Hood, 1998; Villegas & Lucas, 2002). There are a variety of other labels for work in this field, including *culturally relevant* (Ladson-Billings, 1994), *culturally competent* (Diller & Moule, 2005), *culturally congruent* (Mohatt & Erickson, 1981), *culturally compatible* (Jordan, 1985), *culturally proficient* (Lindsey,

Roberts, & Campbell-Jones, 2013), and *culturally appropriate* (Au & Jordan, 1981; P. Johnston, 2010; Philpott et al., 2004). Despite differences in meaning and approach, a common underlying thread is their recognition that discontinuities between the school culture and the home and community cultures of minority students and those from low-income families are a salient factor in their low academic achievement, and that students will achieve at higher levels when teaching is filtered through their own cultural experiences (Bennett, 2007; Castagno & Brayboy, 2008; Delpit, 2006; Duncan-Andrade & Morrell, 2008; Ladson-Billings, 1994; Souto-Manning, 2010). Cultural inclusiveness thus has an implicit expectation of receptiveness and responsiveness to diversity.

In this thesis, the term *culturally responsive* is used. Cultural responsiveness requires equitable practices which take into account personal and social circumstances, experiences and knowledge of students from diverse cultural backgrounds (Hood, 1998; Philpott et al., 2004). Culturally responsive teachers create an environment where students' cultures are valued and used as an asset rather than a deficit, thereby affirming and developing the cultural capital they bring to the classroom (Ladson-Billings, 1995b) and enabling students to connect the intended learning with what is already familiar to them (Absolum et al., 2009; Gay, 1994). Such practices more fairly meet the needs of minority and indigenous students, who have been historically the least well served by the assessment practices and qualifications systems of culturally dominant groups. Cultural responsiveness is congruent with part of the OECD (2012b) definition of equity in education: "personal or social circumstances such as gender, ethnic origin or family background, are not obstacles to achieving educational potential (fairness) and . . . all individuals reach at least a basic minimum level of skills (inclusion)" (p. 9).

In the New Zealand context, the work of writers such as Bevan-Brown (2003, 2005), Cowie and Penney (2016) and Mahuika, Berryman, and Bishop (2011) underscores the extent to which different types of information and outcomes are interpreted and valued by Māori students through a lens of culture and context, and the consequent importance of congruity between their home and school environments for effective learning and assessment. Culturally responsive approaches targeted to Māori students are evident in, for example, two education sector policy and strategy initiatives. Rather than models

based on problematising and changing students, these initiatives seek to improve schools and their practices so that Māori students can achieve as Māori. The first initiative is the government's Māori education strategy *Ka Hikitia*. Its goal is "to guide action to make a significant difference for Māori students in education for the next five years and beyond" (Ministry of Education, 2013, p. 6) by "stepping up how the education system performs to ensure Māori students are enjoying and achieving education success as Māori" (p. 5). The second initiative is *Te Kotahitanga*, a research and professional development programme to increase the educational achievement of Māori students in mainstream English-medium secondary schools by establishing a culturally responsive pedagogy of relations with these students (Ministry of Education, 2017c).

With minor modifications, a definition of culturally responsive teaching by Gay (2010) serves equally well as a definition of culturally responsive assessment due to the intertwined nature of teaching and assessment:

> Culturally responsive *assessment* uses the cultural knowledge, prior experiences, frames of reference, and performance styles of … diverse students to make learning *and assessment* encounters more relevant to and effective for them. (Adapted from Gay, 2010, p. 31; changes from original in italics)

This definition can also be applied to assessment for high-stakes qualifications and, by extrapolation, can explain culturally responsive qualifications pathways, which consist of multiple culturally responsive assessment opportunities leading to culturally responsive qualifications that are, in turn, part of a culturally responsive large-scale assessment system. In such a system, assessment is likely to be standards based, with the locus of assessment-related decision making devolved to individual schools, enabling responsiveness to local circumstances and diverse students. Crooks (2011) cautions, however, that there is potential for conflict between classroom assessment *for* learning (formative) and *of* learning (summative) which must be carefully negotiated, especially where assessment is for high-stakes qualifications such as internally assessed NCEA standards. In these situations, "classroom assessment is a complex mixture of assessment for learning and high-stakes summative assessment. Teachers need to walk a delicate line between their mentor (for learning) and assessor (of learning) roles" (p. 76).

Culturally responsive assessment is an emerging area of research that has not yet accrued a large body of empirical and conceptual scholarship, particularly concerning high-stakes assessment, while the terms *culturally responsive qualifications pathways* and *culturally responsive qualifications* are not in common use in scholarly literature. For example, searches undertaken using Google, including Google Scholar and Google Books Ngram Viewer, netted just two relevant results for the search term *culturally responsive qualification**, both in the context of indigenous education. The first was the NZQA's (2012c) Māori Strategic Plan *Te Rautaki Māori*, which aims to improve qualifications outcomes for Māori achieving and enjoying education success as Māori. The second result referenced culturally responsive qualifications for early childhood educators in Canada within an education framework for First Nations jurisdiction over education (Longboat, 2013). Broadened searches using the related labels described previously in this chapter, of culturally relevant, culturally competent, culturally congruent, culturally compatible, culturally proficient and culturally appropriate qualification did not reveal additional relevant literature.

Nevertheless, within the emergent field of culturally responsive assessment is a smaller body of literature on assessment for qualifications which demonstrates that culturally responsive assessment for high-stakes qualifications is possible. There is a promising example in the Northern Territory, Australia (Elliott & Slee, 2009; Slee, 2010), that prepares Indigenous teacher assistants working in very remote, bilingual, bicultural schools for teacher qualification through Charles Darwin University's Bachelor of Teaching and Learning, using an in situ model of academic course delivery and assessment. Slee and Keenan (2009) argue that not only is it possible to design culturally responsive assessment strategies that fit within Charles Darwin University's assessment regulations but that this duality is mandatory under the university's assessment rules, and represents accepted best practice internationally.

Culturally responsive assessment content.

The socio-cultural context in which people live influences how different groups interpret information, the importance they attach to different types of information, and what outcomes they value (Bevan-Brown, 2003; Mahuika & Bishop, n.d.). Assessment can,

therefore, be—wittingly or unwittingly—biased in favour of the dominant culture that designs it (Gipps & Murphy, 1994; Mahuika et al., 2011); in New Zealand, this is likely to be Pākehā/New Zealand European (Mahuika & Bishop, n.d.). Such bias raises issues of whose knowledge is taught and what knowledge is assessed and equated with achievement (Gipps & Stobart, 2009). In contrast, culturally responsive assessment content reflects the backgrounds, experiences and circumstances of different groups (Alton-Lee, 2003; Mahuika et al., 2011; Saravia-Shore, 2008) and is aligned with definitions of achievement or learning outcome statements that recognise diverse knowledge (Gipps & Stobart, 2009; Montenegro & Jankowski, 2017; Stobart, 2005).

Culturally responsive assessment content can be readily incorporated into New Zealand's high-stakes NCEA qualification, particularly in internally assessed standards. The policy-based provision for teachers to develop assessments and resources relevant to their students' local contexts (Ministry of Education, 2011; NZQA, 2015a) is given effect through the devolved qualifications environment and the modular, standards-based nature of the NZQF, allowing "schools the flexibility to design and deliver programmes that will engage all students and offer them appropriate learning pathways" (Ministry of Education, 2007, p. 41).

The nationally set, one-off examinations used for most externally assessed standards do not offer the same opportunities for culturally responsive approaches to assessment content as do internally assessed standards. Nevertheless, opportunities exist in some subjects such as English, geography and music to tailor programme content to suit local circumstances; such content is typically examined in externally assessed standards using generic questions that enable students to respond using their tailored content.

Culturally responsive assessment practices.

Assessment practices can differentially affect outcomes for different student cohorts (Stobart, 2005). For example, assessment tools developed by dominant groups may be culturally inappropriate for minority students, and "rely on first language skills and meta-cognitive test strategies that further exacerbate existing social, educational and vocational inequities for culturally diverse participants" (P. Johnston, 2010, p. 233). Standardised assessments are a notable case in point (Gipps, 1999; Philpott et al., 2004). Assessment

developers must understand the cultural and linguistic ramifications of their assessment tools if they are to fairly assess students' skills and knowledge (Anae, 2010; Philpott et al., 2004). "Only by doing this will actual skills and/or knowledge be assessed rather than the medium of instruction or the cultural understandings on which task interpretation depends" (Absolum et al., 2009, p. 20).

Culturally responsive assessment practices are those that align with culturally responsive curricula and include the use of tools, understandings and methods that recognise heterogeneous knowledge. One culturally responsive assessment practice is to enable students to demonstrate their learning in contextualised ways that acknowledge their frames of reference and performance styles (Absolum et al., 2009; Alberta Education, 2005; Bishop et al., 2003; Gay, 2010; Ministry of Education, 2011; Philpott et al., 2004; Villegas & Lucas, 2002). Montenegro and Jankowski (2017) observe that "assessment approaches and processes can help reinforce a sense of belonging or add to students' belief that they do not belong because their learning or experiences are not deemed as valid or important" (p. 10).

Another culturally responsive assessment practice is to offer a variety of assessment routes, tools, tasks and opportunities that allow for multiple indicators of learning (Alberta Education, 2005; N. S. Cole & Zieky, 2001; Mahuika & Bishop, n.d.; NZQA, 2015a; Philpott et al., 2004; Villegas & Lucas, 2002), rather than assessing learning through a homogeneous bottleneck. Offering a variety of assessment approaches enables students who might be disadvantaged in one type of assessment to better demonstrate their learning in another (Gipps, 1999; Gipps & Stobart, 2009; Klenowski, 2016; Stobart, 2005).

New Zealand schools are able, if they wish, to use a variety of assessment practices for internally assessed NCEA standards that allow for multiple indicators of learning. This flexibility enables diverse students to demonstrate their learning in a variety of ways: "assessment can involve a variety of methods and approaches (appropriate to the student and the context) that give the student the opportunity to show competence" (NZQA, 2015a, para. 2). According to the NZQA, "assessment for qualifications does not have to be by a separate event. In fact a 'one off' [*sic*] assessment is likely to be less reliable than a range of assessments" (NZQA, 2017c, para. 6). This culturally responsive approach is

predicated on the understanding that "Learners can be assessed against the same criteria in a variety of ways, but each learner must be treated fairly" (NZQA, 2001, p. 41).

Some countries, such as Norway, have reduced the number of formal examinations in favour of continuous assessment, while other countries, including New Zealand, have seen an increased emphasis on formal examinations (Briseid & Caillods, 2004). In light of this trend, New Zealand's assessment statements detailed above appear to be at odds with the increased emphasis on external examinations in recent years. For example, to be eligible for a Merit or Excellence course endorsement, at least three credits in that subject must be from externally assessed standards. Furthermore, the 2014 changes to UE require an additional approved subject, most of which comprise a combination of externally and internally assessed standards; in contrast, vocational subjects are based on internally assessed standards (see Chapter 5, "The National Certificate of Educational Achievement"). External NCEA standards do not offer the same opportunities for culturally responsive assessment practices as do internal standards, although students have the option of being assessed through the medium of Māori language in the former. This option is also available for internally assessed standards where this is appropriate, and schools can provide it.

A more comprehensive approach to culturally responsive assessment practices is implicit in the NZQA's (2012c) Māori Strategic Plan *Te Rautaki Māori*, which aims to improve qualifications outcomes for Māori as part of the government's education sector goal of Māori achieving and enjoying education success as Māori (see "Fairness and assessment: New Zealand"). One of the goals of *Te Rautaki Māori* is the advanced use of mātauranga Māori, which incorporates a Māori worldview and knowledge, culture and values, and is integral to the way Māori view and understand the world. According to the NZQA (2012c), "Using mātauranga Māori to contextualise learning for Māori affirms cultural identity as well as broadens the learning pathways available to promote Māori education success" (p. 6). To this end, the NZQA is developing *Ara Tohu* (pathways), which will see relevant qualifications pathways offered in a Māori context. "Qualification pathways relevant to te ao Māori [the Māori world] and the New Zealand economy means that Māori learners can fulfil their potential across all learning areas" (NZQA, 2012c, p. 8).

Implications for Dead Ends and Doorways in New Zealand

The literature reviewed previously in this chapter draws on international and New Zealand research and is used in this section to situate NCEA L3 and UE in relation to dead ends and doorways. The implications of this literature for NCEA qualification structures are examined, including the extent to which these are typical of fair, equitable, large-scale qualifications systems, and can accommodate culturally responsive approaches to suit diverse learners. The final subsection, "Dead ends, doorways, attainment and equity," presents the paradox of the NCEA L3 qualification, which has highly inequitable attainment outcomes (dead ends), and yet also has structures that accommodate fair, equitable and culturally responsive approaches and pathways (doorways).

Dead ends, doorways and equitable qualifications structures.

The literature reviewed in this chapter shows that the system-level structures of New Zealand's upper secondary NCEA exit qualification tick many boxes for a fair, equitable, large-scale qualifications system. Examples are listed below.

- NCEA is flexible and modular, enabling general and vocational learning to contribute to the L3 qualification and providing theoretical equivalence between these two learning areas. (UE requirements, however, advantage general learning, thereby constraining the proportion of vocational learning that can be included in a student's NCEA L3 programme if they wish to gain UE, creating a general–vocational hierarchy.)
- Early streaming and academic selection are not required. For example, the facility for combining general and vocational learning in a single qualification means students do not need to be streamed at an earlier stage of their schooling into one or other of these; indeed, such decisions can theoretically be deferred until the end of upper secondary education.
- NCEA has the potential to provide good quality pathways without dead ends, with effective links to the world of work as well as to degree-level tertiary studies.
- The flexible, modular structure of NCEA gives all students the option of completing upper secondary and pursuing tertiary studies if they wish.

- The modular structure of NCEA enables a flexible approach when planning individual students' NCEA pathways, to avoid year-level repetition.
- The egalitarian structure of NCEA increases its relevance to all students, rather than just to an academically inclined elite.
- As a standards-based qualification, NCEA does not sort by norm-referencing or ranking, but accredits students based on what they know and can do.

Dead ends, doorways and cultural responsiveness.

In addition to having structures typical of a fair, equitable, large-scale qualifications system, the literature reviewed in this chapter also shows that NCEA L3 ticks many of the boxes for a large-scale qualifications system that can accommodate culturally responsive approaches to suit diverse learners. Such approaches are at the discretion of individual teachers and schools, who may—or may not—choose to engage with culturally responsive approaches. Examples are listed below.

- The locus of decision making about which pathways, subjects and courses to offer is devolved to individual schools, giving schools the flexibility to best cater for their diverse students.
- Similarly, decisions about assessment for internally assessed standards is at the discretion of individual schools, giving schools the option of developing culturally responsive approaches appropriate to their diverse students' circumstances.
- In many subjects and standards, teachers can choose to develop culturally responsive assessment content and resources or tailor existing, nationally-developed content to suit their diverse students' circumstances.
- Assessment practices can be adopted that recognise heterogeneous knowledge. For example, teachers can design NCEA assessment tasks, learning outcome statements and marking schedules that recognise a range of cultural knowledge and experiences of different groups.
- For externally assessed standards, students have the option of being assessed in most subjects through the medium of Māori language.

- Individual schools can identify and provide targeted, culturally responsive support to those who are at risk of failing NCEA.

One box that the NCEA does not tick concerning cultural responsiveness relates to externally assessed standards. Most of these are examined in one-off, nationally set examinations which do not as readily lend themselves to culturally responsive assessment approaches as do internally assessed standards.

Dead ends, doorways, attainment and equity.

The literature examined in this chapter shows that the NCEA L3 qualification presents a paradox. On the one hand, it has a fair, equitable and culturally responsive structure that potentially enables diverse students to achieve a high-quality upper secondary exit qualification that provides doorways to post-school learning and qualifications opportunities, including entrance to degree-level university study. On the other hand, however, NCEA L3 and associated UE outcomes are highly inequitable and strongly stratified by socio-economic and socio-cultural circumstances. Moreover, not all NCEA L3 qualifications are equivalent, with some students gaining an NCEA L3 comprising academic dead ends that do not provide pathways to post-school learning and qualifications opportunities.

Madjar et al. (2009) found that "in the experience of students, parents and teachers, the NCEA system does not exist in a singular or ideal form, but in its practical application, dependent on each school and its capacity to work with the system" (p. 80). Shulruf et al. (2010a) similarly reported, "It appears that the NCEA assessment system works well, but some of the ways in which it has been interpreted and implemented by students, schools and tertiary education institutions are not optimal" (p. 162). Individual schools determine the nature of their qualifications pathways through the subjects and courses they offer. They influence students' pathway choices through practices such as streaming and academic counselling. Importantly, they also potentially influence their students' qualifications outcomes, particularly those of their diverse students, through their approaches to NCEA assessment content, practices and pathways, and the degree to which these are fair and culturally responsive.

Previous studies and reports about NCEA attainment have tended to be premised on associations between high-decile and low-decile schools, or student ethnicity, and qualifications outcomes (e.g., Kiro et al., 2016; McKinley & Madjar, 2014; McNaughton, 2011; Yuan, Turner, & Irving, 2010). This research takes a contrasting approach in examining differences between high- and low-performing cohorts of schools, each of which includes decile 1 to decile 10 schools and a range of ethnicities, school types, sizes and geographic locations. This approach moves the focus from socio-economic and socio-cultural factors as possible influencers of student attainment to the role that schools may play in constraining or enabling qualifications success, through the qualifications pathways, subjects and courses they offer and their associated systems, policies and procedures.

Chapter 7: Study 2 Methodology

Study 2 examined attainment and equity in qualifications pathways in New Zealand's secondary school exit qualification, the NCEA. The study sought an answer to the following research question:

> What are the similarities and differences in opportunities provided through qualifications pathways between selected New Zealand schools whose student attainment rates in NCEA Level 3 and University Entrance are significantly different from schools with similar socio-economic profiles?

This chapter details the mixed methods research design used in Study 2. The methodological eclecticism of the overall research, previously outlined in Chapter 3, is also evident in the design of Study 2, which had two strands and utilised both quantitative and qualitative approaches, and sequential and concurrent design elements. Strand A, which was based on quantitative NCEA attainment data, is described, including the sampling process undertaken to identify low-performing schools (LPSs) and high-performing schools (HPSs) and participants for the subsequent stages of the research. Ethical considerations are presented, followed by a description of Strand B, which was based on qualitative school document data and interviews. Approaches to mixed methods data analysis are explained, and the chapter concludes with a summary of issues relating to reliability and validity and how these were addressed.

Study 2: Research Design

Study 2 contained elements of both mixed methods sequential explanatory and concurrent triangulation designs, as shown in Figure 4. Sequential explanatory designs typically involve two stages, each with a single type of data: quantitative data collection and analysis, followed by qualitative data collection and analysis to build on the results of the first stage. In this study, Strands A and B broadly followed this pattern. For Strand A, nationally available, quantitative NCEA attainment data and Ministry of Education institution information were gathered and analysed. This strand served two main purposes. The first was to categorise LPSs and HPSs and identify schools of interest to the

research. The second purpose was to analyse similarities and differences between the two groups of schools, to inform subsequent data gathering during Strand B.

Strand B differed, however, from a typical second stage of a sequential explanatory design, as two different types of qualitative data were gathered (from school documents and interviews) rather than the more usual one. Furthermore, some of the categorical data were quantified before analysis (Miles & Huberman, 1994; Tashakkori & Teddlie, 1998).

Study 2 also contained elements of concurrent triangulation design, which are usually single-stage, characterised by the concurrent collection of different but complementary quantitative and qualitative data on the same topic. The data are analysed and merged at the data-interpretation stage, which typically involves discussing the extent to which the data triangulate or converge. However, this study's design differs from prototypical triangulation design in the following ways:

- the two-stage sequencing of Strands A and B;
- the second qualitative data source in Strand B;
- the iterative manner in which data from each source in Strand B data were used to inform, confirm, supplement or clarify the other during the data gathering and analysis stages; and
- the use of data conversion, whereby some categorical data were quantitatively categorised, enabling both qualitative and quantitative analysis rather than the more usual qualitative analysis alone.

These four differences increased the complexity and methodological eclecticism of the research design.

Strand A

The information gathered and analysed in Strand A was used for subsequent data collection, analysis and sampling. Thus, Strand A was undertaken before Strand B, as the first stage of a sequential process. Using NZQA data, a national population of schools with decile ratings was identified that entered NCEA L3 candidates in 2014 ($N = 425$), and a sampling process was undertaken to ensure greater comparability between schools. A mathematical model was developed to stratify the schools identified through the sampling

and identify LPSs, HPSs and individual schools of interest for this research. The data were analysed to determine similarities and differences between the LPS and HPS cohorts and to inform subsequent data gathering during Strand B.

The NZQA data provided information about the performance of over 35,000 Year 13 (Y13) students who entered for more than 850,000 Level 3 (L3) standards worth more than 3,700,000 credits. Because this large data set comprised the entire population of Y13 students who entered for L3 standards in 2014, its representativeness provided robust and generalisable data on which to base subsequent sampling and analysis.

Strand A data sources.

NCEA L3 and UE 2014 attainment data for each school were downloaded from the NZQA website (2015b). These data, which were in the public domain, were compiled into Excel spreadsheets, along with decile ratings obtained from the Ministry of Education's (2015a) *Directory of Schools*. Deciles, numbered from 1–10, are a measure of the socio-economic position of a school's student community relative to other schools throughout the country and were used as a proxy for equity in this research. (See "University Entrance" in Chapter 5 for an explanation of deciles). Deciles are based on five socio-economic indicators for a school community, drawn from census data:

- percentage of households with income in the lowest 20% nationally
- percentage of employed parents in the lowest skill level occupational groups
- household crowding
- percentage of parents with no educational qualifications
- percentage of parents receiving income support benefits (Ministry of Education, 2016).

Deciles were recalculated during the period of this research, affecting some schools: changed decile ratings, based on 2013 census data, were released in 2014 for implementation in 2015. As 2014 NCEA data were used for this research, a decision was made to use the recalculated ratings as these provided the most accurate picture of schools in 2014.

Other institution information was obtained from the Ministry of Education's *Directory of Schools* (2015a) and Education Counts statistics website (2015b) and added to the spreadsheet for each school:

- school and Y13 roll sizes
- school type (e.g., secondary Y9–15)
- definition (description of the type of institution)
- authority (ownership/operation or registration status, such as State Integrated[11])
- geographic location
- school gender
- ethnicity information

Two types of additional data were obtained on request from NZQA and added to the spreadsheet for each school. The first presented a numeric breakdown of attainment by ethnicity, for each of NCEA L3 and UE. The second type of data showed the percentage of credits at L3 or higher gained from external achievement standards, internal achievement standards and unit standards. This second data type was obtained for successful NCEA L3 students and eligible but unsuccessful L3 students. Both types of data were cumulative, meaning they included students who may have achieved the qualification and standards concerned in an earlier year.

Schools that offered alternative Y13 qualifications in 2014 in addition to NCEA L3 were identified and added to the spreadsheet. Specifically, names of schools with entries in A-level Cambridge International Examinations were obtained on request from Cambridge Assessment, and names of schools with entries in the International Baccalaureate Diploma were identified from the International Baccalaureate Directory of Schools (IB Schools of NZ, 2015).

Strand A sampling procedures.

Using the population of schools with a decile rating, that entered Y13, NCEA L3 candidates in 2014 (N = 425), a sampling process was undertaken to ensure greater

[11] A former private school that has integrated into the state education system while retaining its special character.

comparability between schools. In total, n = 136 schools were removed from the sample, for reasons that included:

- small size (< 5 NCEA L3 candidates or < 20 Y13 students);
- operating under a different legislative framework to the majority of schools (e.g., private schools and kura kaupapa Māori[12]); and
- offering non-NCEA qualifications (e.g., A-level Cambridge International Examinations or the International Baccalaureate Diploma), as roll-based attainment reporting may have under-rated their NCEA and UE performance, potentially providing a biased sample. The proportion of Y13 students in these schools involved in non-NCEA qualifications ranged from a small number to most of the Y13 cohort, in some or all of their subjects, compounding this variability.

Appendix C provides a detailed breakdown of reasons for removing schools from the sample. The final sample contained n = 289 schools.

The effects of these omission criteria were then tested by conducting a linear regression analysis (attainment on decile) with each sample (i.e., the population of schools, the schools removed from the sample, and the final sample). Firstly, a composite attainment score for each school in the population was calculated using NCEA L3 and UE results. The composite attainment score was determined by averaging outcomes from four cumulative NZQA data sets: (a) participation-based NCEA L3, (b) roll-based NCEA L3, (c) participation-based UE, and (d) roll-based UE. The roll-based, cumulative cohort for each school had as its denominator all Y13 students who were on the school's roll on July 1, 2014. The numerator for each of NCEA L3 and UE was the total number of Y13 students who gained the qualification by the end of the 2014 academic year, or who had already achieved it in a previous year. The smaller, participation-based, cumulative cohort for each school had as its denominator the number of Y13 students who, from their results before, and entries during, 2014 could *potentially* have gained NCEA L3 or UE by the end of 2014, or who had already achieved this in a previous year. The numerator for each of NCEA L3 and UE was the total number of Y13 students who gained the qualification by

[12] Māori-medium immersion school.

the end of the 2014 academic year (NZQA, 2016b). Both roll-based and participation-based data types were used as some schools could have been advantaged or disadvantaged by using just one method. For example, roll-based reporting may have under-rated a school's performance where a substantial proportion of students were either pursuing non-NZQF qualifications or did not enter for the minimum number of credits required to gain an NCEA qualification by the end of that year (such as students undertaking a smaller programme of assessment).

For the next step in testing the effects of the omission criteria, a linear regression analysis (attainment on decile) was conducted with the three samples. As detailed in Table 15, while all three models were statistically significant, Model 3 (involving the final sample) demonstrated the best fit ($F(1,288) = 363$, $p < .001$) and predictive validity ($\beta = .75$, $R^2 = .56$).

Table 15

Predictors of Student Achievement

Predictor	Model 1 (Population)	Model 2 (Removed schools)	Model 3 (Final sample)
β	.54***	.33***	.75***
F	176.95***	16.18***	363.13***
R^2	.293	.101	.557

Note. *** $p < .001$.

For the final step in testing the effects of the omission criteria, a Pearson's chi-squared test was used to determine how representative the decile composition of the final sample was ($n = 289$) compared with that of the removed schools ($n = 136$). The result demonstrated a significant difference between these two groups of schools ($\chi^2 = 32.7$, $p < .001$). Examination of the adjusted standardised residuals showed that the largest discrepancies were with deciles 1, 6 and 10. Inspection of the discrepancies

between expected and observed cell counts showed a significant under-representation of decile 1 and decile 10 schools and a significant over-representation of decile 6 schools in the final sample.

Discrepancies with decile 1 and decile 10 schools were attributed to several factors: many kura kaupapa Māori were low decile (10 decile 1 vs. 0 decile 10); many schools with < 5 NCEA L3 candidates were low decile (14 decile 1 vs. 0 decile 10); and many schools with < 20 Y13 students were low decile (24 decile 1 vs. 0 decile 10). At the other end of the range, many private schools were high decile (13 decile 10 vs. 0 decile 1), as were many schools offering non-NCEA qualifications (13 decile 10 vs. 0 decile 1). Reasons for the discrepancy involving decile 6 schools were unclear. Some overlap between categories was noted: for example, nine of the 13 decile 10 schools offering non-NCEA qualifications were private schools.

Identifying low-performing and high-performing schools and research schools.
To address the Study 2 research question concerning qualifications pathways in schools with significantly different socio-economic profiles, NCEA L3 and UE attainment results were used to stratify the sample and identify two relatively homogeneous subgroups of schools with attainment rates significantly below (LPSs) and above (HPSs) the mean. A linear regression analysis of composite student attainment scores on school deciles was run. The standardised residuals from this analysis, which are depicted in Figure 13, were used to create two sampling frames, of LPSs and HPSs. The sampling frames identified 82 schools of research interest whose scores were significantly different to other schools, in the range of standardised residual (*c*) = +/- 1–2.5. These are the schools in the grey shaded areas of the graph shown in Figure 13 and represent maximum variation in the sample (Onwuegbuzie & Collins, 2007). The 42 schools in the lower range, (*c*) = -1– -2.5, comprised the sampling frame of LPSs, and the 40 schools in the upper range, (*c*) = 1–2.5, comprised the sampling frame of HPSs. Schools in the range > SD = +/- 2.5 (*n* = 5 or 1.7% of the sample) were regarded as outliers and removed from the sample.

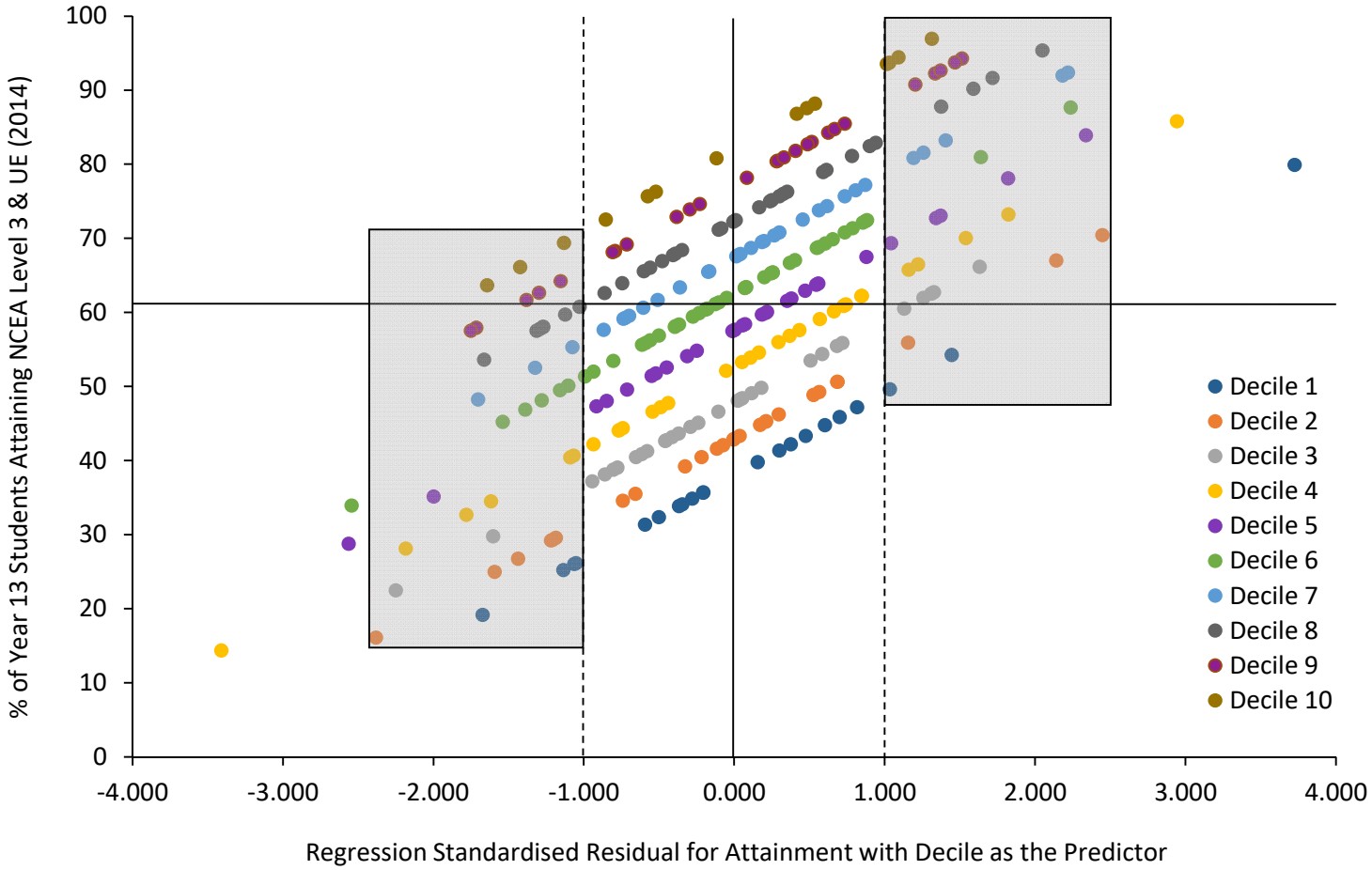

Figure 13. Standardised residuals from a regression of Year 13 student attainment in 2014 NCEA Level 3 and University Entrance (composite score) on school decile. Shaded boxes = sampling frames (+/- 1–2.5) from which low- and high-performing schools were selected

To select 30 research schools, the 15 lowest ranked of the 42 schools in the range *SD* = -1– -2.5 and the 15 highest ranked of the 40 schools in the range *SD* = 1–2.5 were identified and invited to participate in the research. Where a school declined the invitation, as did four LPSs and eight HPSs, the next-ranked school on the relevant LPS or HPS list was approached. The 30 confirmed research schools, 15 LPSs and 15 HPSs, were then the focus of in-depth investigation through Strand B to determine any similarities and differences between the two groups regarding opportunities provided through their qualifications pathways. The sample size of the LPS and HPS groups was informed by Onwuegbuzie and Collins (2007), who recommended a minimum sample size of 12 participants for data collection in quantitative and qualitative research designs.

The 30 research schools represented 35.7% and 37.5% of the LPS and HPS groups respectively. As these percentages were significant proportions of the LPS and HPS sampling frames, their representativeness enabled generalisable inferences to be drawn.

Ethical Considerations

Working "in the field," particularly using qualitative research approaches involving human participants, presents dual challenges of balancing research processes and outcomes with the rights of those participants (Murphy & Dingwall, 2001). For this reason, ethical principles have been developed to guide research practice. Before commencement of Study 2, Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee on 09/07/2015 for 3 years until 09/07/2018 (reference number 015126). Fundamental to the success of this application was addressing ethical issues including voluntary participation, informed consent, and confidentiality and anonymity (University of Auckland, 2015).

A researcher is required to avoid conflicts of interest and declare anything that could be perceived as such (University of Auckland, 2015). Accordingly, it is noted that this researcher is a former secondary school deputy principal; however, she did not anticipate any conflict of interest as she had not worked in a school since 2011 and had no contemporaneous professional or personal links with any New Zealand schools.

Approaching participants.

A cornerstone of ethical research is the principle of informed consent: that is, participants are competent to give their consent and agree to be involved based on adequate information given to them by the researcher (Creswell & Creswell, 2018). Informed consent is also predicated on the understanding that participants will not be harmed by the research or deceived about its aims, and will be respected (Bryman, 2016; Flick, 2014).

Participants in this study were recruited by invitation, and participation was voluntary. Contact was initially made with each principal through an email and follow-up phone call. If the participant was not the principal, contact was then made via a phone call and email with the senior leader who had agreed to participate in the research. They were provided with information about the research process and had the opportunity to ask questions of the researcher before signing a consent form giving their informed consent for the research to be conducted in their school (principals) and to participate (participants). (See Appendix D for a sample information sheet and consent form.)

Confidentiality and anonymity.

The protection of participants' privacy is a legal requirement as set out in the Privacy Act (1993), and participant confidentiality and anonymity are both foundations of ethical research practice (Bryman, 2016; Flick, 2014). All interview information gathered in this study was treated as confidential. Interviews were audio-recorded, and then transcribed by two professional transcribers who signed confidentiality agreements. School and participant names and other unique identifiers were dissociated from responses during the interview transcribing and coding processes (Boeije, 2010; Creswell & Creswell, 2018), and audio files and interview transcripts were stored in a secure manner (University of Auckland, 2015). Schools are identified using their LPS/HPS designation and decile (for example, HPS:D7) to preserve anonymity in the presentation of findings, and participants are referred to using the generic *senior leader* pseudonym.

Participants

Participants in Study 2 were the research schools (N = 30) and senior leaders from these schools who were interviewed (N = 31). This section details the composition of these two groups.

Research schools.

A spreadsheet for the 30 research schools was created, which was a subset of the spreadsheet for all schools (N = 425) described earlier in this chapter. This subset facilitated comparison of the LPS and HPS cohorts' NCEA attainment, institution information and ethnicity data. Table 16 shows summary demographic profiles of the LPS and HPS samples. Overall, the demographic profiles of the 30 research schools reflect a broad cross-section of New Zealand schools, although there are some differences between the LPS and HPS groups. For example, more HPSs are in main urban centres (12 HPSs, 5 LPSs), all nine single-sex schools and 10 of the 11 integrated schools are HPSs, and HPSs have rolls comprising higher overall percentages of all ethnicities except New Zealand European/Pākehā. Conversely, more LPSs are in smaller urban and rural centres (10 LPSs, 3 HPSs), all are co-educational, and LPSs have a higher overall percentage of New Zealand European/Pākehā students on their rolls and lower percentages of all other ethnicities.

Table 16

Demographic Information about the Samples by Low-Performing and High-Performing School Cohorts

	Low-performing schools				High-performing schools				Total low- & high-performing schools			
Category	Sample (n = 15)		Sampling frame (N = 42)		Sample (n = 15)		Sampling frame (N = 40)		Sample (n = 30)		Sampling frame (n = 82)	
Urban area[a]												
Main (> 30,000)	5	(33.3)	19	(45.2)	12	(80.0)	34	(85.0)	17	(56.7)	53	(64.6)
Secondary (10,000–29,999)	4	(26.7)	7	(16.7)	1	(6.7)	2	(5.0)	5	(16.7)	9	(11.0)
Minor/rural (<10,000)	6	(40.0)	16	(38.1)	2	(13.3)	4	(10.0)	8	(26.7)	20	(24.4)
Island												
North	6	(40.0)	26	(61.9)	14	(93.3)	34	(85.0)	20	(66.7)	60	(73.2)
South	9	(60.0)	16	(38.1)	1	(6.7)	6	(15.0)	10	(33.3)	22	(26.8)
School type												
Composite Y1–15	1	(6.7)	4	(9.5)	0	(0.0)	2	(5.0)	1	(3.3)	6	(7.3)
Secondary Y7–15	5	(33.3)	13	(31.0)	11	(73.3)	17	(42.5)	16	(53.3)	30	(36.6)
Secondary Y9–15	9	(60.0)	25	(59.5)	4	(26.7)	21	(52.5)	13	(43.3)	46	(56.1)
Gender												
Co-educational	15	(100.0)	40	(95.2)	6	(40.0)	17	(42.5)	21	(70.0)	57	(69.5)
Boys	0	(0.0)	2	(4.8)	4	(26.7)	5	(12.5)	4	13.3)	7	(8.5)
Girls	0	(0.0)	0	(0.0)	5	(33.3)	18	(45.0)	5	(16.7)	18	(22.0)
Authority												
State: integrated	1	(6.7)	5	11.9)	10	(66.7)	24	(60.0)	11	(36.7)	29	(35.4)
State: not integrated	14	(93.3)	37	(88.1)	5	(33.3)	16	(40.0)	19	(63.3)	53	(64.6)

(continued)

Category	Low-performing schools				High-performing schools				Total low- & high-performing schools			
	Sample (n = 15)		Sampling frame (N = 42)		Sample (n = 15)		Sampling frame (N = 40)		Sample (n = 30)		Sampling frame (n = 82)	
Decile												
Low (1–3)	1	(6.7)	12	(28.6)	4	(26.7)	11	(27.5)	5	(16.7)	23	(28.0)
Mid (4–7)	7	(46.7)	15	(35.7)	6	(40.0)	16	(40.0)	13	(43.3)	31	(37.8)
High (8–10)	7	(46.7)	15	(35.7)	5	(33.3)	13	(32.5)	12	(40.0)	28	(34.1)
Roll size												
Small (160–699)	5	(33.3)	27	(64.3)	5	(33.3)	22	(55)	10	(33.3)	49	(59.8)
Medium (700–999)	6	(40.0)	7	(16.7)	5	(33.3)	10	(25)	11	(36.7)	17	(20.7)
Large (1000–1499)	1	(6.7)	5	(11.9)	5	(33.3)	8	(20)	6	(20.0)	13	(15.9)
Very large (≥ 1500)	3	(20.0)	3	(7.1)	0	(0.0)	0	(0.0)	3	(10.0)	3	(3.7)
Indicative roll information												
New Zealand European/Pākehā	9,834	(71.4)	17,555	(61.5)	6,144	(50.6)	13,669	(51.0)	15,978	(61.6)	31,224	(56.4)
Māori	1,910	(13.9)	6,804	(23.9)	2,390	(19.7)	5,487	(20.5)	4,300	(16.6)	12,291	(22.2)
Pasifika	533	(3.9)	1,491	(5.2)	1,272	(10.5)	3,306	(12.3)	1,805	(7.0)	4,797	(8.7)
Asian	807	(5.9)	1,490	(5.2)	1,627	(13.4)	2,914	(10.9)	2,434	(9.4)	4,404	(8.0)
All other students	696	(5.1)	1,186	(4.2)	717	(5.9)	1,419	(5.3)	1,413	(5.4)	2,605	(4.7)

Note. Column percentages for each information category are in parentheses. Source of data: *Directory of Schools*, by Ministry of Education, 2015, retrieved from http://www.educationcounts.govt.nz/data-services/directories/list-of-nz-schools

[a]Based on population size of surrounding area

Senior leaders.

All interviews except one were conducted with a senior leader in each school who was identified by the principal as being the most appropriate person because their portfolio responsibilities had the most relevance to the research topic, typically one or more of curriculum, assessment, or NZQA Principal's Nominee. The exception involved a group interview with two senior leaders, undertaken at the school's request as one of the senior leaders was new to the school. The 31 participants comprised two principals, one associate principal, 23 deputy and assistant principals, and five heads of department with senior leadership responsibilities, such as NZQA Principal's Nominee. Sixteen participants were female, and 15 were male.

Strand B Measures

Strand B was undertaken as the second stage of a sequential process, following Strand A, and data were gathered from September to December 2015. Two different qualitative data sources were used: school document data about qualifications pathways, subjects and courses, and interview data. Working with these two data sets concurrently enabled different but complementary data from either source to inform, confirm, supplement or clarify the other in an iterative manner during the gathering, analysis and interpretation stages. For example, preliminary analysis of school document data informed and provided context for interview questions and responses, while interview data supplemented and explained school document data.

Strand B data sources.

The first of two data sources used for Strand B was publicly available school documents relating to qualifications pathways, subjects and courses, such as senior course or options handbooks and information on each school's website. This information was provided by the research schools before the interviews and was current at the time of the interview. Information was annotated to aid the researcher's understanding of each school's qualifications pathways and to inform any follow-up questions asked in the interview.

Strand B interview protocols.

One interview was conducted with a senior leader in each research school. The interviews ranged from approximately 30 minutes to 1 hour in length, with an average of 44 minutes. It was not practicable to undertake face-to-face interviews in the majority of research schools due to their geographically diverse locations throughout New Zealand; thus, nine interviews were face-to-face, 15 were conducted via Skype video and six were telephone interviews.

The prepared interview questions were semi-structured and mainly of an exploratory nature. Additional, follow-up questions allowed for in-depth probing of participants' responses, and opportunities were provided throughout the interview for participants to add further information. Some follow-up questions were informed by information previously gathered from school documents, while others sought clarification of information in these documents.

The semi-structured approach allowed for considerable leeway with responses, thereby providing insight into "how the interviewee frames and understands issues and events—that is, what the interviewee views as important in explaining and understanding events, pattern, and forms of behaviour" (Bryman, 2016, p. 468). These explanations and understandings provided an important additional dimension to the data gathered through Strand A, and from school documents, by building on them to give greater breadth and depth of understanding (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2003).

Although the research focus was Y13 pathways, pathway eligibility was often determined before Y13. Some questions, therefore, explored pre-Y13 procedures and practices, while others were sufficiently broad to enable participants to include relevant pre-Y13 information in their responses. Questions included the following themes:

- **Policies and procedures**: what policies and procedures does the school have about qualifications pathways?
- **Streaming**: in what year levels and courses does streaming occur? What are the school's processes for streaming courses and students? What are the implications of streamed courses for progression opportunities?

- **Information**: what information is given to students and parents/guardians about different types of pathways? How are different pathways and courses marketed and targeted to students?
- **Pathway differentiation**: is any differentiation made between general (academic) and vocational pathways and students? Are Youth Guarantee Vocational Pathways[13] promoted or offered? What pathways are provided for NCEA L2 vocational subjects and students progressing from L2 into L3? What are the number, type and NCEA level of credits available in different types of Y13 courses? Are any non-NCEA pathways offered in Y13?
- **Access to exit qualifications**: what is the availability of NCEA L3 and UE through different pathways? What was the effect of the 2014 changes to UE requirements on course provisioning and associated procedures? How do students attain UE literacy and numeracy through different pathways? What provisions are made for UE availability in programmes that include vocational courses? What qualifications pathways are available for accelerated Y13 students?
- **Tracking (monitoring)**: how is student progress tracked towards qualifications attainment, UE literacy and numeracy requirements, and post-school study and career intentions?
- **Partnerships**: what partnerships does the school have with other institutions and organisations for the delivery of academic or vocational courses?
- **Advantage and disadvantage**: what groups of students might be advantaged or disadvantaged by the pathways offered?

[13] Youth Guarantee Vocational Pathways, which were progressively launched from 2013, align Level 2 assessment standards to industry sectors. Trades-related subjects and standards are delivered through Secondary–Tertiary Programmes such as those offered by trades academies, which offer NCEA Level 2 unit standard credits that also contribute to a Youth Guarantee Vocational Pathway endorsement.

Data Analysis

This section describes the preparation and analysis of data gathered in Strand B. School document and interview data were prepared and analysed concurrently using an iterative process to ensure that the thematic categories were aligned between these two data sets.

Strand B: Preparing data for analysis.

The first step in preparing data for analysis involved identifying and labelling the school document data and transcribed interview data, a process Miles and Huberman (1994) call *descriptive coding*. A hierarchy of thematic categories was developed according to the main themes of the research. Qualitative data gathered from school documents were categorised according to these main themes, and categorical data were summarised onto an Excel spreadsheet, to facilitate both qualitative and quantitative analysis methods.

The thematic categories or *nodes* were then set up using the QSR NVivo programme. Interview transcripts were imported into NVivo and coded according to these thematic categories. The categories, which were consistent with those previously outlined in the "Strand B interview protocols" subsection, were supplemented as further themes emerged from the interview data. These additional themes, along with categorical interview data, were also added to the Excel spreadsheet as part of the iterative process; this facilitated the merging of the school document and interview data sets for analysis and enabled quantitative analysis methods to be undertaken in addition to qualitative methods. Tables and graphs were generated to aid analysis.

Miles and Huberman (1994) use the term *pattern coding* to describe the next step in the coding process, where the material was compiled into smaller and more meaningful units to enable interpretation of the data to occur. Using NVivo, participants' coded interview responses for each category were grouped, facilitating qualitative analysis. This aggregation also enabled quantitative analysis of some of the qualitative data, in addition to that of data compiled onto the Excel spreadsheet.

Data analysis and interpretation.

Qualitative analysis approaches were prioritised in Strand B, with quantitative analysis of lesser priority (as shown in Figure 4). Concurrent sequencing enabled these different but

complementary data to be examined simultaneously during the analysis and interpretation stages. This approach reflects Creswell and Plano Clark's (2011) definition of mixed methods analysis: "Mixed methods data analysis consists of analytic techniques applied to both the quantitative and the qualitative data as well as to the mixing of the two forms of data concurrently and sequentially in a single project or multiphase project" (p. 212).

Analyses occurred at three different points in Study 2 (see Figure 4). The first point was the analysis of quantitative NCEA and Ministry of Education data in Strand A, before commencing Strand B. The second was when the merged qualitative school document data and interview data (Strand B) were analysed. The third analysis point was when the data results for Strands A and B were merged and interpreted, and inferences were drawn.

In concurrent triangulation designs, analysis of quantitative and qualitative data most commonly occurs separately, with findings merged at the data-interpretation stage. However, in this study, concurrent sequencing enabled the different types of complementary data to inform, confirm, supplement or clarify the other during the analysis and interpretation of Strand B, and then again when data from Strands A and B were merged and interpreted, continuing the iterative process used during the data gathering stage.

In all stages of analysis, data were examined by thematic category. Although some analysis and interpretation examined the extent to which the different types of data triangulated or converged, which is the approach taken in a prototypical triangulation design, most analysis and interpretation was of the enhanced picture provided by the three different but complementary data sets of Strands A and B (Onwuegbuzie & Leech, 2004).

Study 2 Reliability and Validity

Strategies for ensuring reliability and validity differ in quantitative and qualitative research, and both must be considered in a mixed methods study. As this study involved both quantitative and qualitative approaches, as well as mixed methods sequential and concurrent structures, procedures were implemented within and across these to ensure reliability and validity at all stages of the research. These procedures are outlined in this section.

Study 2 reliability.

Reliability in quantitative research refers to consistency, such as of measurement over time and between multiple data sources, while in qualitative research, it refers to the dependability of data, such as between multiple coders on a project. Several steps were taken to ensure the reliability of quantitative data. Parameters used for selecting particular NCEA data sets, such as *cumulative*, were checked against the parameters of the research design, and NCEA and Ministry of Education data were all rechecked for accuracy against the source data once they had been compiled. All quantified categorical data were recalculated to check the accuracy of initial aggregations of information.

Interview transcriptions were checked against interview recordings to ensure the reliability of qualitative data, and transcription errors were corrected. As all coding was undertaken by the researcher, each interview was coded twice, and the two versions were compared for inconsistencies or drifts in the definition of codes (Creswell & Creswell, 2018; Gibbs, 2007). Where an inconsistency occurred, the segment was reconsidered in the context of the participant's response. Participants were given the option of receiving a copy of their transcription (19 requested these) and audio recording (eight requested these) for review and the opportunity to request edits to their transcripts; no participants requested changes to their transcripts.

Study 2 validity.

Although validity differs in quantitative and qualitative research, the focus of each is to check the quality or accuracy of data collection, analysis and interpretation. Specifically, quantitative validity refers to whether "scores received from participants are meaningful indicators of the construct being measured" (Creswell & Plano Clark, 2011, p. 210). Qualitative validity, also known by its mixed methods "bilingual nomenclature" (Teddlie & Tashakkori, 2003) as *legitimation* (Onwuegbuzie & Johnson, 2006), refers to whether the information is an accurate and trustworthy representation of the phenomenon it represents.

Some recent researchers have focussed on the relatively new field of validity issues specific to mixed methods research, such as Creswell and Plano Clark (2011), Dellinger and Leech (2007), Onwuegbuzie and Johnson (2006), and Teddlie and Tashakkori (2009).

Creswell and Plano Clark (2011) refer to the three foci of data collection, analysis and interpretation when they define validity in mixed methods research as:

> Employing strategies that address potential issues in data collection, data analysis, and the interpretations that might compromise the merging or connecting of the quantitative and qualitative strands of the study and the conclusions drawn from the combination. (p. 239)

Specifically, Creswell and Plano Clark (2011) identify the stages when validity issues may arise as being when mixed methods data are either connected (e.g., sequential designs) or merged (e.g., concurrent designs) at these key points of data collection, analysis and interpretation. As this research design includes both sequential and concurrent elements, the presentation of potential threats to its validity is based loosely on Creswell and Plano Clark's model. Table 17 shows these potential threats and the strategies used to minimise them.

Table 17

Potential Threats to Mixed Methods Validity and Steps Taken to Minimise These

Action	Potential validity threat	Strategies used to minimise threat	Citations
Research design/data collection			
General	Bias in participant selection	• Applied a strict sampling process when selecting research schools. • Used predetermined criteria relating to senior leaders' portfolio responsibilities to select the appropriate participant from each research school.	Creswell and Plano Clark (2011)
	Interview sample size too small to make statistical or analytic generalisations	• Used n = 15 LPSs and n = 15 HPSs to ensure adequate interview sample size for statistical or analytic generalisations.	Onwuegbuzie and Collins (2007)
	Selecting different types of data that do not address the overarching research question	• Ensured that each type of data collected complemented the others and contributed to providing a comprehensive picture of attainment and equity in qualifications pathways. • Addressed the same research questions in both quantitative and qualitative data collection.	
Sequential stages	Using inappropriate sample sizes for the quantitative and qualitative data collection	• Used appropriate sample sizes, with a large quantitative sample and a smaller qualitative sample.	Creswell and Plano Clark (2011)

(continued)

Action	Potential validity threat	Strategies used to minimise threat	Citations
	Selecting participants for the follow-up who cannot help explain significant results	• Selected schools/participants for Strand B that were a subset of Strand A.	Creswell and Plano Clark (2011)
Concurrent stages	Selecting inappropriate individuals for the quantitative and qualitative data collection	• Selected all samples from the same population, to enable data comparability. • Selected qualitative document data and interview participants (Strand B) from the same schools, to enable data comparability.	Creswell and Plano Clark (2011) Leech and Onwuegbuzie (2010)
Data analysis/data conversion			
General	Information obtained through qualitative data collection is inaccurate	• Presented emerging findings to participants and principals at each school, to check that they were an accurate reflection of their experiences (member-checking). • The researcher's academic supervisors filled the role of external auditors in critiquing the analyses.	Creswell and Plano Clark (2011)
		• Triangulated complementary data from different sources in the data merging and analysis stages to build evidence. • Triangulation also enabled an examination of the extent to which the data converged, exposing	Greene (2006)

(continued)

Action	Potential validity threat	Strategies used to minimise threat	Citations
		disconfirming, discrepant and contradictory evidence that ran counter to the prevailing themes; included these data in the analysis, making the findings more accurate.	
	Poor data conversion techniques lead to over-weighting or under-weighting emergent themes	• Quantified the categorical qualitative data, based on theme and code counts, to supplement interview narratives; examined these converted data in relation to other data to ensure reporting of emergent themes was not biased. • Described small samples using numeric counts rather than percentages.	Miles and Huberman (1994) Onwuegbuzie and Johnson (2006) Onwuegbuzie and Leech (2004) Sandelowski (2001) Tashakkori and Teddlie (1998)
Sequential stages	Choosing weak quantitative results to follow up on qualitatively	• Selected quantitative results for follow-up that needed further explanation to inform, confirm, supplement or clarify, to provide a comprehensive picture of qualifications pathways.	Creswell and Plano Clark (2011)
Concurrent stages	Using inadequate approaches to converge the data	• Quantified the categorical qualitative data, based on theme and code counts; developed a converged display of quantified categorical data and qualitative themes, to build an overall picture of qualifications pathways within and across research schools.	Creswell and Creswell (2018)

(continued)

Action	Potential validity threat	Strategies used to minimise threat	Citations
Data merging/data interpreting/drawing inferences			
General	Lack of alignment between stages of the research project, and with the research questions	• Clearly stated the rationale for why each type of data or data combination was used to address mixed methods research questions. • Built procedures into the research design to ensure each data set was given equal weight during data merging and interpreting, to address the mixed methods research questions. • Linked data gathered during each strand to the others and to the research questions, to facilitate merging and interpretation.	Creswell and Plano Clark (2011)
	Drawing inferences from quantitative and qualitative components of a study that are not generalisable to the population	• Used sampling to ensure the participants were a representative subset of the larger population of LPSs and HPSs. • Used the same schools for school document analysis and interviews (Strand B).	Onwuegbuzie and Johnson (2006)
Sequential stages	Not relating stages of a project to each other	• Explicitly linked the strands to each other through the overarching research question to align them.	Creswell and Plano Clark (2011)

(continued)

Action	Potential validity threat	Strategies used to minimise threat	Citations
	Multiple data sets are compared when they are intended to build rather than merge	• Used two complementary data sets (Strands A and B) to build an overall picture of attainment and equity in qualifications pathways. • Focussed on interpretation and inference-drawing rather than on drawing comparisons between the data sets.	Creswell and Plano Clark (2011)
Concurrent stages	Giving more weight to one form of data than the other	• Presented all sets of results with equal emphasis or, where one form of data provided a clearer understanding of a problem, the rationale for emphasising this type of data was explicit in the interpretation.	Creswell and Plano Clark (2011)
	Not addressing disconfirming, discrepant or contradictory findings	• Included disconfirming, discrepant and contradictory data when interpreting data and drawing inferences.	Creswell and Plano Clark (2011) Greene (2006) Teddlie and Tashakkori (2006)

Chapter 8: Study 2 Findings

This chapter presents results from Study 2, investigating the nature of qualifications pathways and associated procedures in 30 selected research schools with contrasting attainment and equity profiles: 15 low-performing schools (LPSs) and 15 high-performing schools (HPSs). The findings presented here address the Study 2 research question concerning any similarities and differences in opportunities provided through qualifications pathways in the LPS and HPS groups. Findings are presented in nine sections which broadly align with the major areas of research interest and groups of interview questions:

1. the role of streaming in differentiating pathways
2. differentiation of pathways and students
3. vocational pathways
4. University Entrance (UE) availability through differentiated pathways
5. partnerships with other institutions and organisations
6. tracking (monitoring) student progress towards career intentions and qualifications attainment
7. students who are advantaged and disadvantaged by qualifications pathways offered in schools
8. self-perceptions of strengths and weaknesses of qualifications pathways
9. other categories of information investigated

The Role of Streaming in Differentiating Pathways

In this section, findings relating to the role of streaming in differentiating qualifications pathways are presented. The common New Zealand usage of the term *streaming*, meaning grouping by ability, is used. Subject prerequisites can serve as a proxy for streaming by either enabling access to courses according to prior attainment (doorways) or limiting access to these (dead ends) and thereby, potentially, to qualifications. Thus, although NCEA Level 3 (L3) was the focus of this research, these findings also examined prior streaming practices that may have impacted on L3 opportunities.

The findings identified streaming at all year levels, specifically junior secondary, which is ≤ Year 10 (Y10), and senior secondary, which is Y11–13 and corresponds to NCEA L1–3 qualifications respectively. The most common subjects streamed at all levels were also those with the most students studying them: English, mathematics and the sciences. The latter encompassed a variety of science-based subjects including agriculture, biology, chemistry, general science, horticulture, human biology and physics.

Findings are presented in five subsections: streaming in the junior school (≤ Year 10); streaming in the senior school (Years 11–13, NCEA L1–3); terminating streamed English, mathematics and science courses; determinants of placement into streamed courses; and processes for determining placement in streamed courses.

Streaming in junior secondary.

Twenty-one of the 30 research schools streamed in the junior secondary school (≤ Y10); this number includes five HPSs and two LPSs that indicated they did not stream, but in subsequent comments described examples of junior school streaming that were, in fact, occurring in their schools. Streaming was significantly more common in HPSs than LPSs (13 vs. eight respectively), as shown in Table 18. Junior school streaming most commonly occurred with core classes, which were the home-class groupings in which junior students were typically taught most of their subjects; a statistically equivalent number of LPS (eight) and HPSs (seven) streamed core classes. Core-class streaming took the form of broad banding, either with a "top" class separated from the remaining mixed-ability classes (four schools), two bands consisting of higher and lower achieving students (two schools), or three bands comprising high-, mid- and low-achieving students (nine schools). There was little difference between LPSs and HPSs as to core-class streaming method.

Table 18

Streaming of ≤ Year 10 Classes in Low-Performing and High-Performing Schools

Schools	Number of schools that stream at least 1 class	Classes streamed			
		Core	English	Maths	Science
LPSs	8	8	1	1	1
HPSs	13	7	3	8	2

The next-most-common types of junior classes to be streamed were mathematics (nine schools), followed by English (four schools) and science (three schools), as shown in Table 18. Schools typically streamed these subjects by block-timetabling them, enabling separate, streamed classes to be formed that cut across core-class groupings. It was with such streaming that the differences between LPSs and HPSs were most apparent, with streaming in all three of these subjects ≤ Y10 more common in HPSs. This difference was particularly the case with mathematics, which eight HPSs streamed, versus just one LPS.

> *So [maths] is the only streaming we have and philosophically I am not a great fan of streaming, but successive heads of maths seem to be absolutely convinced it's the only way. (HPS:D7)*

In significantly more HPSs than LPSs, Y10 streaming included accelerating high-achieving students to NCEA L1 in some subjects (seven HPSs vs. just one LPS).

> *The way that we differentiate, we do accelerate some students at Year 10 level, we accelerate the best 30 students in science, English and maths. (HPS:D8)*

In contrast, in addition to accelerating high-achieving Y10 mathematics students to NCEA L1, one HPS took a different approach with also accelerating low-achieving Y10 students in English, enabling them to gain some NCEA L1 standards and spread their L1 load over 2 years:

> *[The Year 10 literacy-supported] class does some Level 1 standards, just so that the kids don't face the daunting challenge for them of getting 80 credits in 1 year. And so that Year 10 group will include 15-20 credits in the Year 10 year, just to make it more manageable for them in Year 11. (HPS:D7)*

Streaming in senior secondary.

Streaming was more prevalent at senior secondary school levels (Years 11–13, NCEA L1–L3) than junior secondary. At NCEA L1, which was the most common level for streaming to occur, 29 of the 30 research schools streamed at least one subject, as did 24 schools at NCEA L2 and 23 at L3. Subject streaming in the senior school was identified through the presence of one or more of three indicators. The first of these was where parallel courses within a subject area offered a different number of credits:

> *And again, the difference in those [English and Mathematics A and B] courses is mainly that one is offering a few more credits. (HPS:D2)*

The second indicator was where there were different prerequisite requirements for parallel courses within a subject area:

> *There's an Operation Maths for those who only just made it through Level 1 and want to continue [with mathematics]. And there is a literacy pathway for those who struggle with English but want to continue with English for a literacy reason. (HPS:D9)*

Differentiated prerequisite requirements also emerged as an unacknowledged form of "hidden" streaming in the six HPSs and three LPSs that indicated they did not stream NCEA courses:

> *We don't stream anybody. It's self-identified needs, so there's very little in the way of restrictions into courses, but the Maths Department and the English Department create streaming by offering Year 12 and 13 classes [with different prerequisite requirements]. (HPS:D9)*

Hidden streaming was also evident where schools said they did not stream but provided strong guidance about placement into courses with differentiated prerequisite requirements:

> *At Year 11 there is no particular streaming apart from self-streaming . . . And while we say that students could choose which one they went into, in reality, there were letters going home saying, "It is recommended that your daughter should be taking this course," depending on what they had done the previous year. (HPS:D9)*

The third indicator of NCEA-level streaming was where different types of credits were offered in parallel courses within a subject area, such as from internal or external achievement standards, or unit standards:

> *Maths for Numeracy, they are handpicked girls invited to go into that class so I guess you could say that's broad streaming. It will be girls that are really, really struggling and they need help to get through numeracy, so that is a fully internally assessed course and . . . they'll do statistics-based achievement standards. (HPS:D9)*

While students' ability was the most commonly cited reason for offering different types of credits, two LPSs and one HPS also mentioned student anxiety as a driver for streaming by internal versus external assessment methods:

> *The prerequisites for getting into courses are essentially the same. It is on assessment methods. . . . And it goes from internal courses, [to] one external [standard], two externals, so in terms of kids' time management how they react. We are having a huge increase, massive, . . . in anxiety, students with really debilitating anxiety disorders. (LPS:D9)*

Subject streaming at NCEA L1-L3 was identified predominantly in English, mathematics and the sciences, using the three indicators described above. Streaming of these subjects is consistent with subjects streamed in the junior school (described in the previous sub-section). As seen in Figure 14, NCEA L1 English and mathematics streaming occurred in all LPSs and most HPSs; in the latter, just one HPS did not stream English and mathematics. These two subjects lent themselves to streaming as they had the largest numbers of students studying them due to the mandatory literacy and numeracy requirements of L1, and hence the widest range of ability represented. In contrast, fewer schools streamed L1 science subjects, but the difference between LPSs and HPSs was greater: 14 LPSs versus 10 HPSs.

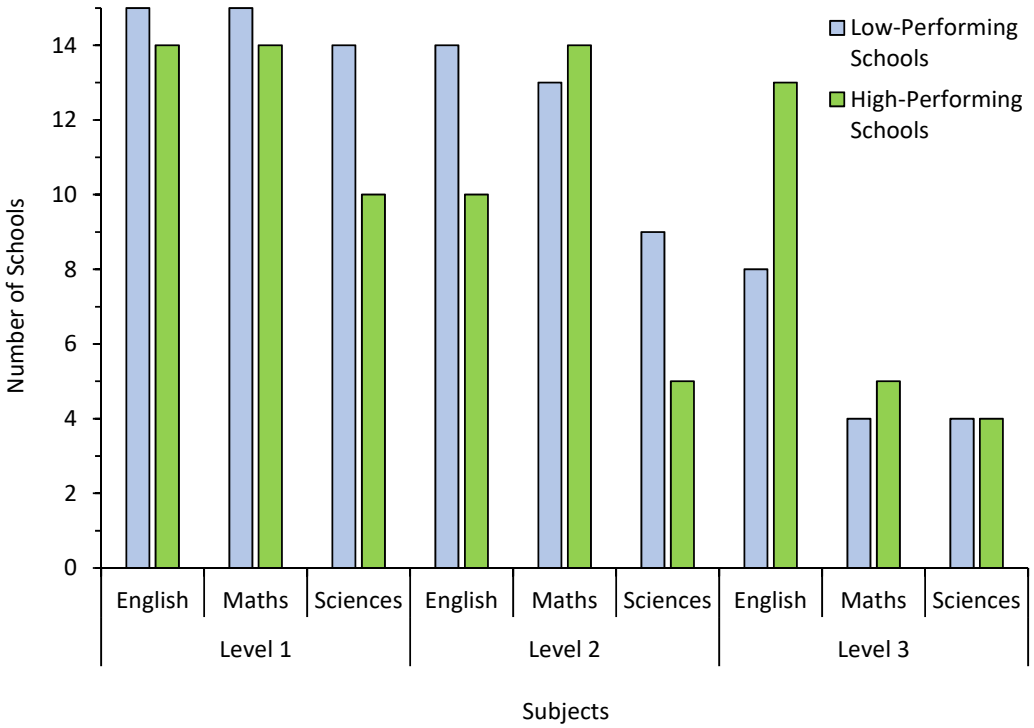

Figure 14. Number of low-performing and high-performing schools that stream NCEA Levels 1–3 English, mathematics and sciences.

At NCEA L2, this disparity between LPSs and HPSs sciences streaming was similarly evident (nine LPSs vs. five HPSs) despite 10 fewer schools streaming sciences overall:

> *We have our university pathway Biology course, and we have another [non-university Biology] course which bases around horticulture and agriculture. (LPS:D7)*

Likewise, although five fewer schools streamed L2 English than at L1, the gap between LPSs and HPSs was wider (14 LPSs vs. 10 HPSs):

> *In English, at Level 2 there has been a two-tier process this year but next year we're going into a three-tier process. So we've got those that are going to be capable of doing the externals, and then a more internal course, and then we've got . . . [Workplace Literacy] which is for those that have really struggled with Level 1 English, and just giving them some practical skills. (LPS:D8)*

In contrast to sciences, L2 mathematics streaming occurred in a statistically equivalent number of LPSs and HPSs, 13 and 14 respectively. Mathematics was the most commonly streamed L2 subject.

> *In maths a lot of it happens based on their results. Those that do well in algebra [are] generally the ones that go on to do the course that has got the externals, with calculus and algebra in that. [For] those that struggle with algebra we do a lower course which is a lot more internal or fully internal-based, and we bring in a few life skill-type things with budgeting and understanding income and tax. (LPS:D8)*

At NCEA L3, two changes to subject streaming patterns occurred. Firstly, English replaced mathematics as the most commonly streamed subject (in 21 schools), and secondly, significantly more HPSs streamed English (13 HPSs vs. eight LPSs), which is the reverse of the pattern seen at L1 and L2. These changes resulted from some students no longer studying mathematics, having attained UE numeracy (10 credits at L1 or above) in Y11 or Y12, but still requiring UE literacy (10 credits at L2 or above).

Table 19 shows that the most common arrangement for streamed Y13 English courses in HPSs (13, vs. eight LPSs), was to offer two or more different UE-approved courses; these typically had different prerequisites, different weightings of internal and external standards and, in some schools, different topics of study. HPSs were also more likely to accommodate Y13 students who did not gain UE literacy in Y12 by differentiating within existing Y13, UE-approved English classes or, in the case of two HPSs, by providing a UE literacy class with the option of also gaining additional credits towards the 14-credit UE approved-subject total. These flexible arrangements provided greater opportunities for qualifications success.

Table 19

Number and Type of Year 13 English Courses Offered in Low-Performing and High-Performing Schools

Schools	1 UE-approved	≥ 2 UE-approved	Also offer UE literacy-only
LPSs	7	8	8
HPSs	2	13	2

Conversely, more LPSs than HPSs offered just one Y13, UE-approved English course (seven vs. two respectively). More LPSs than HPSs (five vs. two) also offered a streamed, Y13, UE literacy-only English course, typically through L2 standards; in some instances, these literacy-only courses also accommodated immigrant English-language learners.

> *Most of the students who go into that [L3 literacy] course are the ones who are there for UE reading and writing, and then that is it in terms of English for them. So that is a very tailored course. It's very small. They do three standards, and the purpose of that course is to get the literacy skills for UE reading and writing. (LPS:D9)*

Although UE literacy-only courses provided a doorway towards UE attainment, they may have simultaneously limited opportunities by not allowing students the option of also gaining L3 English credits towards the 14-credit UE approved-subject total.

Table 20 shows that, overall, more English, mathematics and sciences streaming occurred in LPSs than HPSs at L1 (44 vs. 38 respectively) and L2 (36 vs. 29). At L3 this trend was reversed (16 LPSs vs. 22 HPSs), which is attributable to the increased number of HPSs streaming L3 English, as described above. There was a progressive reduction in the number of subjects streamed from L1 (82) to L2 (65) and L3 (38).

Table 20

Total Number of Level 1, Level 2 and Level 3 English, Mathematics and Science Subjects Streamed in Low-Performing and High-Performing Schools

	NCEA Level		
Schools	1	2	3
LPSs	44	36	16
HPSs	38	29	22

Overall, the association between streaming and low- and high-performance designations was stronger than the association between streaming and roll size. It was assumed that schools with larger rolls would have more resourcing to offer streamed courses within subjects, while small schools might lack the facility to do so. However, the findings showed that most schools —including small schools—offered at least some streamed NCEA courses, irrespective of their roll size. The two schools with the least streaming had large and small rolls and were low and high performing respectively.

Terminating (dead-end) streamed English, mathematics and science courses. A terminating or dead-end course is one that does not allow progression to the next NCEA level in that subject, or in a related subject such as from L1 science to L2 chemistry, irrespective of attainment. The terminating English, mathematics and sciences courses identified in this sample were found to be the lowest level courses where these subjects were streamed according to prerequisite attainment. Terminating L1 and L2 courses were of interest to this research as students were unable to continue in that subject area, thereby reducing the pool of L3 and UE subjects available to them due to lack of prerequisites. Terminating courses in English and mathematics could also impact on students' potential to fulfil UE literacy and numeracy requirements, and their employment prospects.

More LPSs than HPSs offered terminating courses at both NCEA L1 and L2, as shown in Figure 15. At L1, seven LPSs offered nine terminating courses, compared with four HPSs offering four terminating courses. At L2 the difference between LPSs and HPSs

was greater, with eight LPSs offering 14 terminating courses, compared with four HPSs offering seven terminating courses. This pattern was consistent when the individual subject areas of English, mathematics and sciences were examined: except for L1 English, which was the same for LPSs and HPSs, more LPSs than HPSs offered at least one terminating course in each subject area.

> *One of the real problems is if they do go up through the internal line, Maths 1.3, Maths 2.3, they cannot do maths in Year 13 because our criteria . . . says they must have passed one external and the 1.3 classes are internals . . . Same thing happens with English. (LPS:D9)*

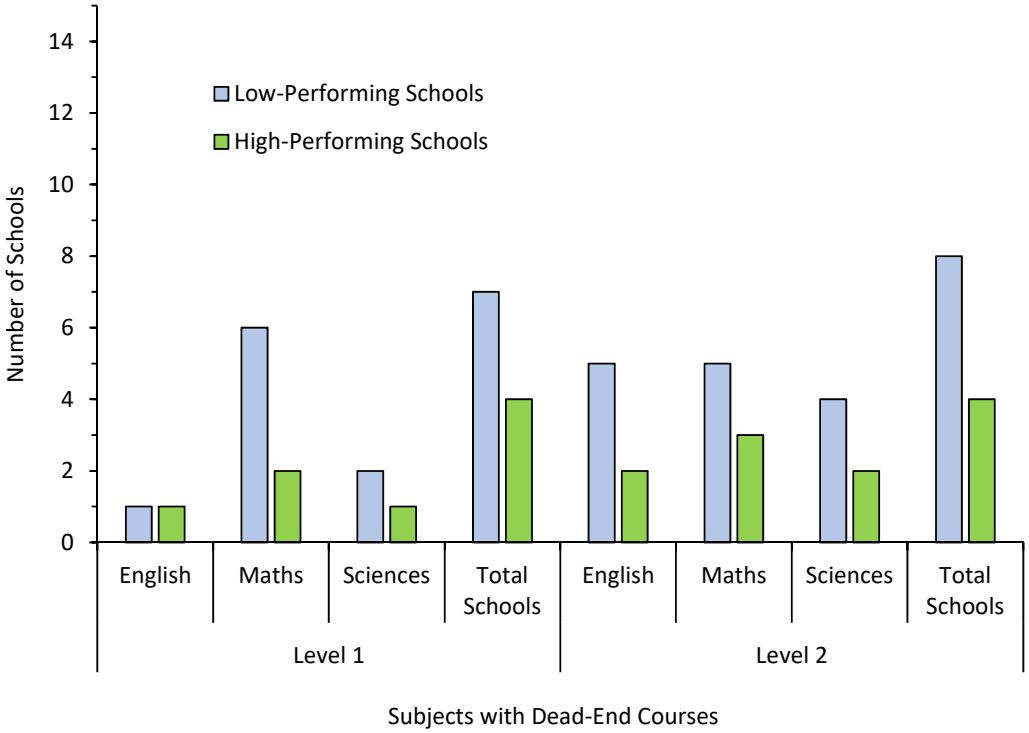

Figure 15. Number of low-performing and high-performing schools that offer terminating NCEA Level 1 and Level 2 English, mathematics and science courses.

In contrast, 12 schools (four LPSs vs. eight HPSs) offered no terminating English, mathematics or sciences courses at L1 or L2. Instead, they accommodated progression to the next level through, for example, flexible prerequisite requirements, or by providing multi-level opportunities or customised programmes within existing courses.

> *It's very flexible, and we'd look at students on that individual basis. If the student particularly wanted to do a subject, then we don't let rules and policies stand in their way, and we're fairly open in terms of allowing students to follow what they want to do. (HPS:D7)*

There was no pattern in the profiles of these 12 schools with no terminating courses, including with roll sizes which ranged from small to very large.

Determinants of placement into streamed NCEA courses.

Placement decisions for streamed NCEA courses were contingent on one or more of the following: prior academic or prerequisite attainment, which was the most common determinant (28 schools); student choice (nine schools); attitude or application, which was the least common determinant (seven schools); and a mix of other criteria (eight schools). These are depicted by LPS and HPS groups in Table 21. Of the four determinants, the most notable difference was with student choice, which significantly more HPSs than LPSs used as a determinant of placement into streamed courses (six vs. two).

> *We do have two [Y11] English classes which are effectively streamed but that was done on student choice, which is [English] and Employment English. So it is effectively streamed. You do end up with the more academic students in [English] and the less academic in Employment English. But we didn't tell students which course they had to go into; they opted in, and it worked out quite well. (HPS:D1)*

Table 21

Determinants of Placement into Streamed Courses in Low-Performing and High-Performing Schools

Schools	Prior academic/ prerequisite attainment	Student choice	Attitude/ application	Other
LPSs	15	2	4	6
HPSs	13	6	3	2

Note. LPS and HPS rows = > 15 (100%) as some schools used more than one determinant according to year level and subject.

Conversely, several factors, grouped and categorised as "other" in Table 21, were more commonly cited as determinants of streaming placement by LPSs (six, compared with two HPSs). This group included such things as learning style (for example, self-directed or collegial); suitability for assessment method (internal or external) based on eligibility for special assessment conditions; teachers' knowledge of a student's circumstances; and career intentions (such as whether UE was required).

> *It's not a figure so much as perhaps more of a teacher input as well, because quite often you know a kid hasn't done very well but you are very aware that they are more capable than that. So it's not a defined number or a number of achievement levels particularly. (LPS:D5)*

There was less difference between the numbers of LPSs and HPSs that used prior academic attainment or prerequisite data to determine placement in streamed NCEA courses, 15 LPSs compared with 13 HPSs:

> *Their grades largely dictate where they go. (HPS:D8)*

Similarly, a statistically equivalent number of schools (four LPSs, three HPS) used attitude or application as a contributing determinant for placement in at least one streamed NCEA course.

> *[For L1 science] We look at their pathway, what pathway they want to pursue. We look at what their attitude and work habits are like, will they cope with the three external exams, what their grades are like. (LPS:D7)*

Process for determining placement in streamed courses.

The processes for determining individual student placement in streamed courses varied between schools, and in some cases between subjects and year levels within schools. Three processes were identified, and are shown by LPS and HPS groups in Table 22:

- decisions made by the school, with changes to these discouraged, although possible in some instances (the most common process, in 19 schools);
- initial decisions made by the school, with an openness to changing these if requested by students or parents (17 schools); and
- consultative decision making between the student, school and, in many cases, parents (the least common process, in nine schools).

Table 22

Processes for Determining Placement in Streamed Courses in Low-Performing and High-Performing Schools

Schools	Decisions by school, change discouraged	Decisions by school, open to change where requested	Consultative decision making involving student/school/parent
LPSs	12	8	4
HPSs	7	9	5

Note. LPS and HPS rows = > 15 (100%) as some schools used more than one process according to year level and subject.

Of these three processes, the greatest difference between LPSs and HPSs was evident where schools reported that they unilaterally made decisions about student placement into at least one streamed course, and any changes were discouraged: significantly more LPSs than HPSs (12 vs. seven respectively) took this approach.

> *We send a formal letter saying, "This is against our advice, we don't believe that this is the best thing, however at your insistence this is the course that they are now enrolled in." It generally doesn't go well. (LPS:D9)*

In some instances, such placements were made by schools using transparent, and inflexible, prerequisites.

> *The parents get no say in that kind of thing, in terms of where [students] sit in English, maths and sciences. They are told the same thing by me at the careers evening and in the literature, as the boys are told consistently, and that is, "If you make the entry criteria you're in, if you don't you won't." So it's quite black and white. (HPS:D8)*

A statistically equivalent number of LPSs and HPSs adopted each of the other two approaches to placement into streamed courses. The first of these, where schools made initial placements into streamed courses but were open to then changing these following requests from students and parents, was taken by a statistically equivalent number of LPSs and HPSs (eight and nine respectively).

> *That is usually negotiated with the HOD [head of department] and in most cases, they are able to take what they want. Sometimes we've done it . . . on a trial basis to see if that's the right fit. Essentially, it's not about gatekeeping so much as that we want the kids to be able to succeed. So it's not saying "you can't do it," it's just always in consultation with the HOD. (HPS:D9)*

The second approach, taken by a statistically equivalent number of LPSs and HPSs, of consultative decision making, was evident in four LPS and five HPSs.

> *So really it's a team around that student. (HPS:D5)*

In specific situations, some schools using this consultative approach indicated that they might override a student's choice, particularly if they believed a student had selected an "easier" course than they were capable of undertaking:

> *Where we would probably step in is if a student was going to take a unit standards option and we thought they were just taking an easy out, then we would probably say, "Sorry, we are going to make that decision for you at this stage," and give it a go for a couple of months. (HPS:D5)*

Senior leaders from two LPSs at either end of the streaming spectrum voiced concerns about their schools' streaming processes, each of which could potentially create dead ends for students regarding future subject progression and career opportunities. The senior leader from a school that reported a complete absence of streaming said this did not always result in students making appropriate choices:

> *The school's philosophy I suppose is anti-streaming, and so it seems to me that the idea of inclusive practice or letting students come into classes that reflect their passion or interests, sometimes takes prevalence over whether it suits them. (LPS:D9)*

In contrast, another school had highly streamed L1 English, mathematics and science courses in which placement was determined predominantly by assessment results. The senior leader voiced concern about Y10 results potentially locking students into predetermined NCEA pathways for the next 3 years:

> *I think the part that I worry about is that sometimes, if you've got students in Year 10 that for whatever reason don't have a good year, and they get their result at the end of the year across all of their subjects, and that result then determines which layer,*

especially in those core subjects, English, maths, science, which layer they get into in Year 11, [this] can then have an ongoing ripple effect of where they can go in the next 2 years. (LPS:D6)

Differentiation of Pathways and Students

Following the previous section's discussion of the role of streaming in differentiating pathways, the focus now moves more specifically to the nature of any differentiation LPSs and HPSs make between academic and vocational pathways, and between profiles of typical students who might study these, including multi-level students undertaking programmes comprising more than one NCEA level. The final subsection presents data about marketing or targeting differentiated pathways or subjects to different types of students. Differentiation of pathways and students are of central importance to this research, as such differentiation may result in education and career dead ends for some students, and doorways to further educational opportunities and wider career choices for others (Madjar et al., 2009; McNaughton et al., 2014; T. R. Turner et al., 2010).

Academic pathway subjects are defined as those that are assessed predominantly or wholly using achievement standards from the Level 3 Approved Subjects List for UE or provide a direct pathway to these from lower NCEA levels. (The term *academic* is used in preference to *general* in this chapter as this was more commonly used in schools.) In comparison, vocational pathway subjects contain unit standards that are developed by industry training organisations and by the NZQA's National Qualifications Services and Māori Qualifications Services (NZQA, 2016c). Vocational subjects offered in schools may be taught or assessed through schools or external providers. These differences are summarised in Table 23.

Table 23

Differences Between Academic and Vocational Pathway Subjects

Academic	Vocational
Based on *The New Zealand Curriculum*	Developed by industry training organisations and by the NZQA's National Qualifications Services and Māori Qualifications Services
Assessed using achievement standards	Assessed using unit standards
L3 subjects are on the UE Approved Subjects List	L3 subjects are not on the UE Approved Subjects List
Taught and assessed by schools	Taught and assessed by schools or external providers

Differentiation of academic and vocational pathways and students.

Senior leaders most commonly described students taking university-approved pathways as "more academic." One senior leader contended that academic pathway students were "more engaged with their learning" (LPS:D10), while another said they "have a clear idea of where they want to go" (LPS:D9).

In contrast to descriptions of students taking university-approved pathways, 21 schools (11 HPSs, 10 LPSs) used deficit language to describe students taking unit standard-based pathways, such as "at risk of not achieving," "less or low-level academic," or "less engaged." Just one HPS and one LPS reported that they did not differentiate between types of students taking academic and vocational pathways.

> *I don't think we really categorise the student; we just help them select a pathway. (LPS:D8)*

Seventeen schools used terms such as *vocational*, *non-academic*, or *career-based*, to differentiate overtly between these and academic pathways. This differentiation was more prevalent in LPSs (10) than HPSs (seven).

> *We also run vocational pathway-based courses at school, the less academic pathways like Mechanical Engineering, Building, Hospitality, Tourism, and throughout our Gateway programme we do a lot of those sorts of programmes, or we send them on STAR[14] courses. (LPS:D8)*

The remaining 13 schools either did not overtly distinguish between different types of pathways through the use of academic or vocational-type labels, or they consistently and publicly emphasised equity between these pathways; the majority of these schools were HPSs (eight, compared with five LPSs).

> *We describe [vocational subjects] in exactly the same way as any other subject. (HPS:D7)*

> *[Previously] we had a lot of really tough conversations go on in here around meeting the needs of all students, and said to ourselves as a school we needed to break down that academic-vocational divide and call them pathways, pathways to the future, so that, for example, a student who chose building and construction wasn't seen as a second-rate pathway because they weren't smart enough to head onto the traditional academic one. (HPS:D5)*

> *There is no real distinction, one thing I push all the time . . . is that being a doctor and being a plumber is equally important if that's where your heart lies. So there is no distinction or segregation in terms of ability between university pathways and the trades' pathways. I make a real effort of saying that they are both incredibly valuable if that's where you want to be heading. (HPS:D2)*

Some schools described using academic or vocational-type labels as an outcome rather than as a starting point, in pathway discussions with students:

> *We talk about that as a goal. Say you want to be a builder. This is the course that is going to give you the prerequisites to get into your building course. So it's not about . . . an academic stream versus a non-academic stream, it's about what's best for your goal, what's your personal pathway? (LPS:D9)*

[14] STAR (Secondary Tertiary Alignment Resource) is additional funding provided to schools to support vocational pathways programmes, typically through partnerships with tertiary education providers and employers (Ministry of Education, 2018).

Differentiation of multi-level students.

Multi-level students are those undertaking a programme comprising more than one NCEA level, at either a higher or lower level than their chronological year or both. The data show little difference between LPSs and HPSs for students multi-levelling outside of chronological year levels.

Senior leaders typically described multi-level students who had one or more subjects at a higher NCEA level than their chronological year as high-achieving students who had been accelerated in those subjects.

> *By the time [students from contributing Māori immersion school] are in Year 12, they have finished Level 3 [Te Reo Māori], and so I use STAR funding to put them through Stage 1 . . . university. (LPS:D9)*

> *So only if somebody was very bright, like a very bright mathematician who might do some university papers for some extension because she needed it. (HPS:D9)*

In contrast, students who had one or more subjects at a lower NCEA level than their chronological year were typically identified as lower achieving, either taking an additional year to gain an NCEA qualification or repeating subjects they had previously failed.

> *At Year 13 we have a lot of students doing a combination of Level 2 and 3 because they haven't quite got Level 2. (LPS:D5)*

However, two further types of students who multi-levelled downwards were also identified, who did not fit this low-achieving profile: immigrant English-language learners; and students who commenced study in a new subject, requiring them to begin at a lower NCEA level.

> *So the ones that have been common, [are] the girls who have wanted to go on to Health Science but didn't want to take physics, and then they get cold feet in Year 13 and think they should have done 12 Physics, so they go back and do it. (HPS:D9)*

There were two different approaches to multi-level study where students had been unsuccessful in attaining an NCEA qualification. Some schools required continued study in a subject or subjects at the lower level, while students in other schools completed their

lower level subject or qualification from classes at the higher NCEA level. The following quotes show these contrasting approaches:

> *I think the reality is at Year 13 we have a lot of students doing a combination of Level 2 and 3 because they haven't quite got Level 2. . . . last year we had a lot of students who were mixing the levels in terms of trying to finish their Level 1 and get Level 2, which does create huge problems because of course you place them in a class, and then they don't want any more Level 1 credits because they have now got it. (LPS:D5)*

> *And for students who have struggled with a particular subject, we suggest they do different things rather than repeating subjects. We don't believe we get a high engagement or much success with students repeating levels and subjects and so they would tend to move in different directions. (HPS:D7)*

Marketing or targeting pathways to students with different profiles

A variety of different approaches to marketing and targeting pathways to students with different profiles was evident across the research schools, especially to academically at-risk students. One approach, which provided a significant point of difference between LPSs and HPSs, involved creating pathway packages targeted to at-risk students, which sometimes involved tertiary providers. At the time of their interviews, five LPSs, but no HPSs, were either in discussions about the possibility of creating packages for such students or were in the process of establishing these, for the next academic year.

> *Yes, we've got that on the table at the moment, because there are a group of students who are in the alternative pathway line where they are struggling academically so they need an alternative pathway where there are unit standards, where there is more practical application. We are thinking about whether we can package them up as five subjects for some of these students. (LPS:D6)*

> *One of the things we are currently discussing, for next year, is that some of our [Y13] students may only be attending part-time with us because we are just recognising the fact of trying to force students to pick five or six subjects, and some of those subjects they are not even slightly interested in, that we might actually be more realistic to say,*

> *"right, well part-time with us and maybe part-time somewhere else with another provider." (LPS:D4)*

Forward-planning of individual, at-risk students' pathways was also notably evident in several HPSs. For example, the approach taken in three HPSs involved identifying students who might struggle to attain an NCEA in 1 year and formalising individualised 2-year NCEA L1, L2 or L3 pathways.

> *We have a Y12 [pathway] group, and this is probably about a dozen or 15 boys who might take 2 years to get NCEA Level 2, or might take 2 years to get NCEA Level 3 in particular. (HPS:D2)*

> *We don't offer any what I would call "alternative" subjects at Year 11. The most we do at Year 11 is assess perhaps after 10 to 12 weeks of school how students are going. So we'll have a discussion about students of concern . . . and by the end of Term 2, we will be talking to those students. We may have put them onto a 2-year pathway at that point. (HPS:D7)*

According to this school, "our aspiration is for them to have Level 2 by the end of Year 13" (HPS:D7).

An equal number of LPSs and HPSs (six) reported they did not package or promote subjects for students with different profiles, although some schools identified pathways and combinations of subjects that students with particular profiles might commonly study.

> *There's nothing that dictates how students should be guided because we don't like putting our kids into boxes. . . . So no, we don't like to push students towards a certain pathway. Where students identify they are interested in a certain pathway, then we give them guidance in that respect . . . And that's the key thing. It's not about progress for you and your ability, it's progress for you in your pathway. (HPS:D3)*

There was little difference between LPSs and HPSs (five and six respectively) regarding marketing these different pathways, targeting them to students with specified profiles, or differentiating between them beyond indicating whether they were UE approved. There was also little difference between LPSs and HPSs (two and three respectively) that reported they did promote or discourage certain subjects according to students' ability:

> *So we do target students that are weak academically, and we do encourage them to do things like Careers and Tourism, and also to go on alternative courses. A lot of those students also I might add are probably quite good in terms of the outdoors, so they're more physically attuned, so we run a more activity-based learning programme at Years 12 and 13 which is highly successful. (HPS:D7)*

Vocational Pathways

Vocational pathways are of interest for two reasons. Firstly, vocational subjects have historically funnelled some students into lower parity or dead-end pathways (Hipkins et al., 2016; Wylie, 2012); and secondly, the New Zealand government's Youth Guarantee Vocational Pathway initiative, introduced progressively from 2013, is changing the landscape of vocational study and qualifications pathways in participating schools. Youth Guarantee Vocational Pathways align Level 2 assessment standards to six broad industry sectors, with trades-related subjects and standards delivered through Secondary–Tertiary Programmes such as those offered by trades academies, which were established primarily for this purpose. Trades academies are based on partnerships between schools, tertiary and industry organisations, and offer NCEA Level 2 unit standard credits that also contribute to a Youth Guarantee Vocational Pathway endorsement. Partnership arrangements for similar courses may differ between schools depending on the scope of each school's Consent to Assess Agreement. For example, a building course might be taught and assessed in-house in one school, whereas a similar course at another school might be taught and assessed at a local polytechnic or trades academy as part of Secondary–Tertiary Partnership provisioning.

In this section, vocational pathways are examined in greater depth. The types of subjects targeted to vocational pathway students are identified, followed by an examination of NCEA L3 vocational subjects offered through schools (including progression from the government's NCEA L2 Youth Guarantee Vocational Pathways), and the role of trades academies in delivering trades-related programmes in partnership with schools. The final subsection investigates the implications of schools' L2 vocational provisions for their subsequent L3 pathways.

Types of subjects targeted to vocational pathway students.

The types of L3 subjects identified by senior leaders as being most commonly targeted towards vocational pathway students were unit standards based. In other words, although they contributed to NCEA L3, they did not count as approved subjects for concurrent UE credentialling.

These subjects were aggregated into four groups for analysis: tourism-related, transition-to-work subjects, trade-based (including those delivered at schools and those delivered off-site through providers such as polytechnics and trades academies), and outdoor education-related. More HPSs than LPSs targeted subjects in the first two groups to vocational students: tourism-related (eight HPSs vs. five LPSs), and transition-to-work subjects (nine HPSs vs. six LPSs).

> *The Gateway course is probably one of our options for those students that aren't quite so academic. So we might say to a Gateway student, "You should do Travel and Tourism as well because you can get your credits together, and we can give you other courses in the holidays." (HPS:D9)*

> *We've got a partnership now with The Warehouse, and so some of our less academically able students we are putting down to get some retail trade [credits] because [district] is a great place to get a job and often that's what they do when they leave school. (HPS:D4)*

Notably, Gateway was not targeted solely to vocational students in four HPSs, where Gateway placements were also encouraged for academically able students in fields as diverse as medical, engineering, aviation and law.

> *We really pushed it with this year's Year 12 that they should look at Gateway not [just] as a subject for those girls that were really struggling but for those girls that might want to go into marine biology or some other area like that. (HPS:D9)*

Statistically equivalent numbers of LPSs and HPSs targeted subjects in the remaining two groups to vocational students: trade-based (10 LPSs, nine HPSs); and outdoor education-related (five LPSs, four HPSs).

NCEA Level 3 vocational subjects offered through schools.

The number of vocational, unit standard-based L3 subjects offered through schools as part of their timetabled option structure ranged from one (an HPS) to 11 (an LPS), as shown in Figure 16. This number excluded supported learning classes for students with special education needs and English-language classes for recent immigrant students, which were only available to targeted learners. Where schools offered more than one off-site subject through a single option line, this was counted as a single subject. For example, a school might have labelled a subject *trades academy*, with students subsequently able to select from several trade-based subjects offered by the external provider, but this was counted as a single subject because students could only choose one. Figure 16 illustrates a clear difference between LPSs and HPSs, which is emphasised by the trend lines on the graph. LPSs offered more L3 vocational subjects overall, a total of 98 across the 15 LPSs compared with 71 across the 15 HPSs; this was an average of 6.5 per LPS, compared with a lower average of 4.7 per HPS.

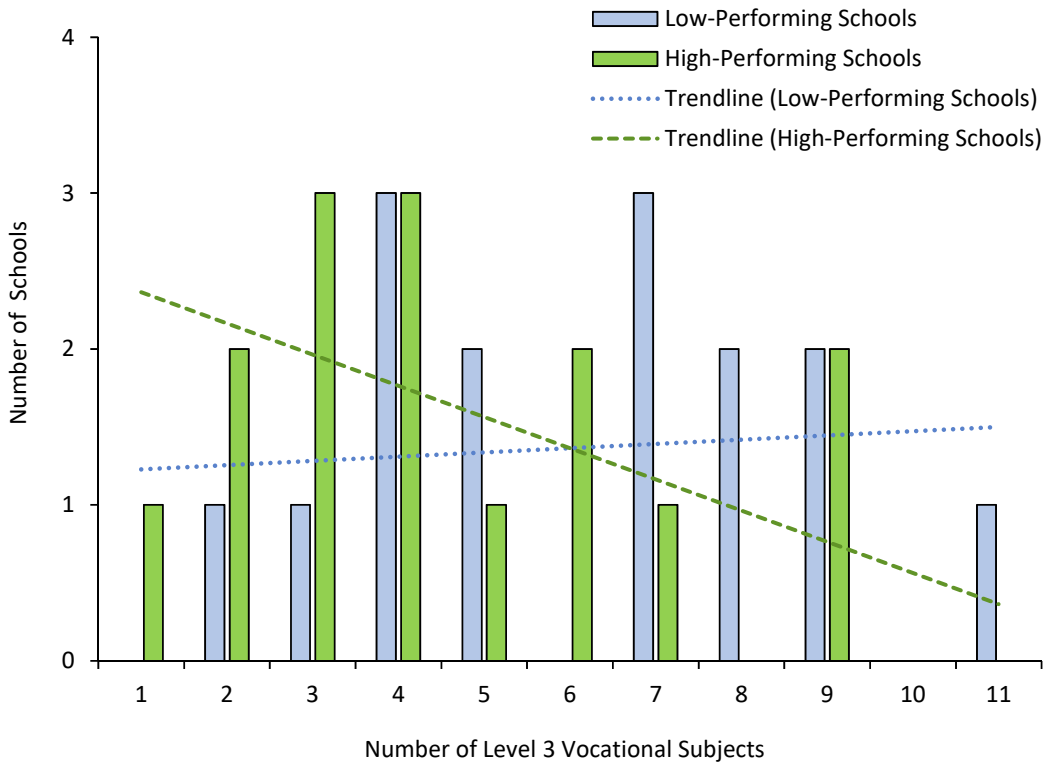

Figure 16. Number of vocational, unit standard-based Level 3 subjects offered by low-performing and high-performing schools as part of their timetabled option structure.

External providers delivered some vocational subjects at off-site facilities such as polytechnics or trades academies; for the latter, this was a condition of enrolment and typically involved attendance there for 1 or 2 full school days each week. There was a significant difference between LPSs and HPSs with off-site delivery: 11 LPSs, but only 4 HPSs, offered at least one vocational subject that was delivered off-site on either 1 or 2 days each week.

Students studying subjects off-site were consequently not attending their other school-based classes for 1 or 2 days each week. Schools offering such arrangements were divided in their opinions of their value. Two HPSs and one LPS cited advantages for the students, such as resulting NCEA credit accrual, completion of NCEA L2, and pathways into employment or apprenticeship opportunities:

> *[Vocational students] get a lot out of it. They do it 2 days a week and [vocational organisation] provides a different environment. They obviously provide a lot more interesting toys to play with because they are a tertiary institute rather than us, and we have students who gain a lot of credits from them. (LPS:D7)*

> *A lot of our at-risk students have been lucky enough to have the benefit of taking the Trades Academy courses which almost guarantees that they will get there [gain NCEA L2]. It's been massive for us having that. (LPS:D8)*

In contrast, three schools, all LPSs, expressed concern about the practicalities of catching up on work missed at school:

> *Very disruptive. The staff find it very, very difficult . . ., because [Trades Academy students] are basically out for 20% of the course. So that is a pretty significant load, and the staff find that difficult. I don't know that the students find it that difficult. I think they cope with it fairly well, whereas the staff feel like if you're not here, you're not learning. (LPS:D4)*

Vocational subjects offered through trades academies were often delivered using this off-site model as part of the government's Youth Guarantee Vocational Pathways initiative, particularly at NCEA L2. There was a considerable range evident in the degree to which the research schools had implemented these Youth Guarantee Vocational Pathways, with little difference between LPSs (seven schools) and HPSs (six schools).

Some schools had comprehensively adopted all six Youth Guarantee Vocational Pathways, with timetables and course handbooks constructed around them, and with students' Vocational Pathway progression a focus for credit tracking. The three quotes below indicate a range of approaches taken in schools:

> *We have timetabled this year our courses in fixed lines . . . and we have made sure that we had each Vocational Pathway represented on each line of our [timetable] at each level. (LPS:D6)*

> *All our courses are mapped to the Vocational Pathways so they can see which credits they get and which pathway from which course. (HPS:D1)*

> *You will see our [Course] Book's colour-coded alignment with Vocational Pathways, where they do match up. (LPS:D6)*

At the other end of the spectrum, some senior leaders seemed barely aware of the existence of the Youth Guarantee Vocational Pathways; furthermore, 15 schools (eight LPSs, seven HPSs) had no reference to these in their course handbooks.

> *Tell me what that is? (LPS:D1)*

> *I know what you're talking about but because of our clientele I haven't kept as up to date with that as I should have done. . . . It's almost like "if you end up with enough credits accumulated in a given area then [NZQA's] database will mop that up and deliver you that qualification"-type of thing. (HPS:D8)*

A small majority of schools did not provide any Youth Guarantee Vocational Pathways (17/30), with little difference between LPSs and HPSs (eight and nine respectively).

> *No. We tend to ignore those funnels if I can describe it that way. Some teachers think that it's really important but then when we look at a girl's profile and what she is good at, and we tell her that "you are headed in this particular direction," they just scoff at us. They think that [Vocational Pathways] are so out of line with where they are going and that it's just a matter of luck. (HPS:D9)*

Progression from NCEA Level 2 vocational pathways to NCEA Level 3 study.

This subsection examines the subjects that schools offered to NCEA L3 vocational students, including students who had previously undertaken Youth Guarantee Vocational

Pathway study as part of NCEA L2. At the time of writing the government had not yet extended the Youth Guarantee Vocational Pathway programme to L3, which several senior leaders expressed concern about:

> *Then they get to Level 3, and all of a sudden this whole thing [Youth Guarantee Vocational Pathways] is not supported any more. (HPS:D3)*

All 15 HPSs offered related NCEA L3 vocational subjects to provide pathway continuity for students who had completed L2 vocational subjects, including Youth Guarantee Vocational Pathways.

> *So basically, we have kept on with what [vocational courses] we've set up at Level 2, and we kept that going at Level 3. Deliberately. Intentionally. (HPS:D5)*

This figure includes all five integrated girls' schools which, although offering very few vocational subjects at either L2 or L3, did provide pathway continuity for these.

In contrast, significantly fewer LPSs (11) provided related, L3 pathways for students who had completed L2 vocational subjects, despite LPSs offering more vocational subjects on average than HPSs (see previous subsection, "NCEA Level 3 vocational subjects offered through schools"). Thus, the only four schools that did not provide pathway progression from L2 to L3 for vocational subjects were LPSs.

> *We struggle at Level 3 sometimes to have adequate courses for our students who especially have gone into vocational areas, like the building and trades-type things. They want to stay at school but we, past Level 2, struggle to offer courses through not having the right qualifications in-house to cope with them, and to be honest, there's better courses like at [polytechnic] available, but they want to stay here. (LPS:D6)*

> *It's not a formal policy, but essentially Level 3 for us is an academic course. There is no full course at Level 3 if you are not academic. It just doesn't exist. (LPS:D9)*

Analogously, more LPSs than HPSs (seven vs. four) commented that their vocational students were disadvantaged because of their schools' lack of L3 vocational pathway provisions.

> *Well, I suppose it's those students who have come up through those trades courses, those STAR courses, get to Year 13 for a fifth secondary school year and find it*

> *incredibly difficult to find subjects that they want to do, and get put into subjects they don't want to do. I don't know that they have a successful year, and sometimes maybe it's not a very happy year. (LPS:D9)*

Importantly, senior leaders in five of these seven LPSs expressed the belief vocational students would be best served by not returning to school in Y13 and progressing to post-school options such as polytechnics and apprenticeships instead.

> *We are hoping those students have got the background . . . behind them now to move on to [polytechnic] or into industry itself and continue their education there. . . . It's the same with the trades: we are also looking to move them into courses in [polytechnic] fully, or into apprenticeships or those sorts of things. (LPS:D7)*

One LPS described actively encouraging such students to leave school:

> *I am trying to say to students, "If you are interested in being a mechanic or a builder or an engineer or working on a farm, and you've got your pre-trade because you can do it at school, and you've got your NCEA Level 2, you really should be thinking about leaving school now." (LPS:D9)*

University Entrance Availability Through Differentiated Pathways

In 2014 changes to UE were introduced, for implementation in 2015 (see Appendix B). Three of these changes emerged from the findings as being of particular importance for schools. The first of these was the requirement of a minimum of 14 credits in each of three approved subjects, an increase of one approved subject. Previously, students could make up their third subject with 14 credits from one or two additional domains (including vocational, unit standards-based subjects), or approved subjects. As the Approved Subjects List comprises achievement standard-based NCEA L3 subjects derived from *The New Zealand Curriculum* (Ministry of Education, 2007), the 2014 change potentially reduced the number of unit standard-based, vocational subjects students could include in their L3 programmes if they wished to attain UE. A second key change for schools concerned NCEA L3 attainment becoming a requirement of UE credentialling, whereas previously students could gain UE without attaining L3. Thirdly, UE literacy requirements increased, including a stipulation of 10 credits rather than the previous eight.

The effects of these 2014 changes on schools' pathway provisions are important as 2014 data are a focus of this research. Accordingly, the first subsection examines the implications of the changed UE requirements for schools. There was some variance regarding the minimum number of UE approved subjects schools expected their Y13 students to study to increase their chances of success, and the first subsection investigates these approaches, as well as the effects of the changes on L3 vocational subject provisioning.

The second subsection investigates the weighting of different types of credits gained by successful and unsuccessful NCEA L3 students in LPSs and HPSs and the implications of these different credit types for UE attainment. The third subsection explores the nature of pathways schools provided for the constituent UE literacy and numeracy requirements.

Implications for schools of the 2014 changes to University Entrance requirements.
An equal number of LPSs and HPSs (four of each) indicated the changes to the UE requirements had had little or no impact on their Y13 pathways or associated processes.

> *We haven't changed any programmes in response to them, but we haven't really needed to. (HPS:D1)*

> *All we did, . . . was to articulate clearly and openly from a long way out what the changes were. (HPS:D8)*

A statistically equivalent number of LPSs and HPSs (eight and seven respectively) cited procedural changes they had made, such as tracking subject selection, credit accrual, and UE eligibility more carefully, and increasing their expectations of students:

> *I think the only thing it's really done it's made us just a little bit more vigilant in terms of making sure that the students are enrolled in a course that will provide [UE] if that's where they want to go. (HPS:D9)*

> *We didn't change anything in terms of our structure. We just made sure they bloody well worked harder. (HPS:D8)*

More LPSs than HPSs cited adverse effects of the changed UE requirements: eight LPSs compared with five HPSs. For example, an LPS which had previously offered hybrid

courses reported having to modify some of these to enable students to gain 14 credits in an approved subject, to the detriment of course innovation:

> *And we find that a lot of our more innovative teachers are feeling they are being bottle-necked back into a more traditional teaching programme because of that. (LPS:D9)*

More LPSs than HPSs also asserted that the changed requirements made it harder to attain UE, nine versus six respectively. An example of this increase in difficulty was the third approved-subject requirement, whereby students could no longer make up their third "subject" by combining credits gained in two subjects, as they could under the previous regulations. Furthermore, the third subject had to be on the UE Approved Subjects List, whereas previously, non-UE-approved, vocational subjects could be used.

> *The third approved subject has really, really made things hard. (LPS:D9)*

One HPS asserted that the third approved-subject requirement was problematic for students who were unsure of their post-school destination and wish to keep other, non-UE-approved pathways open:

> *So that's a prototypical student. Their pathway isn't that clearly decided, and they can see themselves going in multiple pathways. So now, in terms of keeping those open, it's much more difficult because a student like that, yes all . . . pathways are still open to him, but in pursuing the University Entrance pathway [with three UE approved subjects], he's got no room for error. (HPS:D3)*

Because of these changes to UE, an HPS, which had traditionally had a very high UE pass rate, indicated they now had to accept that some students who might have gained UE under the previous system may not do so with the changed requirements:

> *To that extent . . . a change is occurring in our thinking, but it doesn't sit well with our parent body or really with the girls or with us. (HPS:D7)*

One HPS voiced concern that the additional approved-subject requirement reduced the number of vocational subjects students could include in their L3 qualification, narrowing choice:

> *And so you're going to have kids who, in order to be considering doing UE, must start looking at things like doing Business. . . that they probably wouldn't have looked at*

> *doing before. Before, you could use Māori Performing Arts and you could use Tourism together, which would make a circle [the third subject] . . . The subjects available to them have actually been reduced. (HPS:D4)*

The third UE approved-subject requirement also resulted in an increased focus in some schools on academic, UE approved subjects at L3, at the expense of vocational subject provisioning. Similar numbers of LPSs and HPSs (eight and seven) mandated that most or all of their Y13 students include a minimum of at least three UE approved subjects in their programmes, with averages of 3.7 and 3.6 UE approved-subject minima respectively. The remaining 15 schools set requirements that exceeded the UE requirement, in many cases citing the need to maximise students' chances of attaining UE as their reason for doing so, irrespective of students' post-school intentions.

> *So the days where they do four academic subjects and then Equine or Hospitality or something, because they didn't need five subjects, I am trying to change that now. So I am saying, "You need five UE [approved] subjects to be successful at university." (LPS:D9)*

> *So in the last few years we've changed our approach a little bit and [are] saying . . . "Level 3 now is actually about UE. To get UE you need to get Level 3. You need to have all the parts to make up UE." (HPS:D4)*

Of concern, seven schools, all of which were LPSs, indicated they were caught off-guard or insufficiently prepared for the changes to UE requirements in 2014 despite these being signalled for 3 years before their implementation. Examples included: offering hybrid courses containing standards from two approved subjects, which did not provide a minimum of 14 credits in either subject; and insufficient communication of the changes to staff and students.

> *When NCEA first came out, they encouraged us to do hybrid courses, and now at Level 3 you can't do hybrid courses because a student may be relying on those 14 credits in that one subject to be one of their University Entrance [approved] subjects. We did get caught out. . . . So there was a panic for that 6 weeks that we had, to ensure that they actually got another standard to do. (LPS:D8)*

> *In terms of awareness and communicating that to the students, and for our staff and students to understand that, that has probably been the significant challenge for us. (LPS:D4)*

Additionally, some LPSs that had been caught off-guard by the UE changes assigned blame for any shortfall, including blaming staff and students.

> *Real panic. But now everyone is aware of it, . . . but people are supposed to tell me if they change things they are doing. They shouldn't just do it without any consultation. (LPS:D8)*

> *And we talked about [the changes to UE] a great deal, but I think that the students possibly didn't pick up on that, and that may have had an impact on our results. (LPS:D6)*

> *I think a lack of information and understanding on the [staff member's] part as well as the students' part on what the new requirements for UE were. And probably lack of monitoring [by that staff member] . . . So there were a whole lot of contributing factors I think. (LPS:D10)*

Implications of vocational subjects for University Entrance attainment.

The previous subsection highlighted concerns voiced by some schools about the additional approved-subject requirement for UE entry from 2015, and the implications of this for UE attainment by students who had vocational subjects in their programmes. Before the 2014 changes to UE, the inclusion of vocational subjects was already potentially problematic for some students, particularly those applying for limited-entry university programmes. Some universities used a rank-score calculation of a student's best 80 L3 credits for selection into competitive, limited-entry degrees (University of Auckland, 2016). Credits from achievement standard passes of Excellence, Merit and Achieved, were weighted at four, three and two points respectively; achievement standards were offered through subjects on the Approved Subjects List. Most credits offered through vocational subjects, which were not on the Approved Subjects List, were unit standard credits; these were weighted at two points as they could only be attained with an Achieved grade, thus limiting the maximum rank score students could achieve.

The additional approved-subject requirement in the 2014 changes to UE heightened this potential disadvantage to students with vocational subjects in their programme, who intended studying at university. It was, therefore, advantageous for these students that their L3 programmes be comprised mostly or entirely of achievement standard-based, university-approved subjects, rather than limiting these to the minimum number of three required to gain UE and leaving no room for error. Furthermore, including a higher number of achievement standard-based courses potentially better positioned them in rank-score calculations.

As previously discussed in this chapter, LPSs offered a higher average number of L3 (unit standard-based) vocational subjects than HPSs. This difference was also evident when NCEA results were examined by credit type: in LPSs a higher percentage of all L3 credits gained by 2014 Y13 students who attained NCEA L3 were unit standard credits. Figure 17 shows that the LPS median percentage of unit standard credits comprised 27% of all L3 credits gained in LPSs, compared with just 12% in HPSs; moreover, the LPSs' median for unit standards was four percentage points higher than the HPSs' upper quartile of 23%. These data show that students in LPSs carried a higher percentage of unit standard credits in their L3 qualifications than their HPS counterparts, which may have worked to their disadvantage for both UE attainment and access to limited-entry university courses.

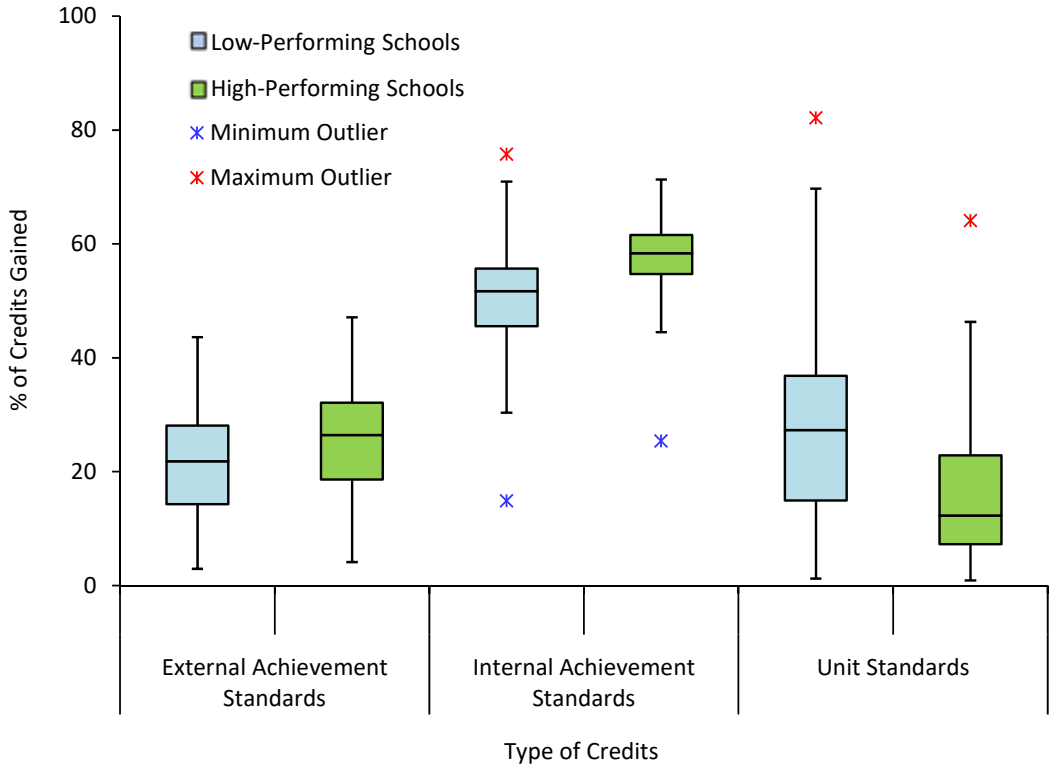

Figure 17. Cumulative percentage of credits gained from ≥ Level 3 external achievement standards, internal achievement standards and unit standards in low- and high-performing schools by 2014 Year 13 students who attained NCEA Level 3.

In contrast, HPSs had higher percentages of external and internal achievement standard credits contributing to their total credits gained, which potentially provided greater advantage for UE attainment and access to limited-entry university courses. In both LPSs and HPSs, the highest percentage of L3 credits gained were from internal achievement standards; this was expected, as there were many more internal than external achievement standards available.

When NCEA data for eligible but unsuccessful Y13 L3 students were examined, there was little difference between LPSs and HPSs in the overall percentages of credits gained from each of the three types of assessment standards (refer to Figure 18), although the range for internally assessed standards was much wider than for students who attained NCEA L3 (Figure 17). Additionally, a much higher percentage of credits gained by unsuccessful students were unit standard credits. There are several possible explanations for this, including the commensurate lower percentage of credits gained from external

achievement standards. Furthermore, as outlined previously in this chapter, a majority of schools identified less able students as more likely to be doing unit standard-based courses, and at greater risk of not attaining qualifications.

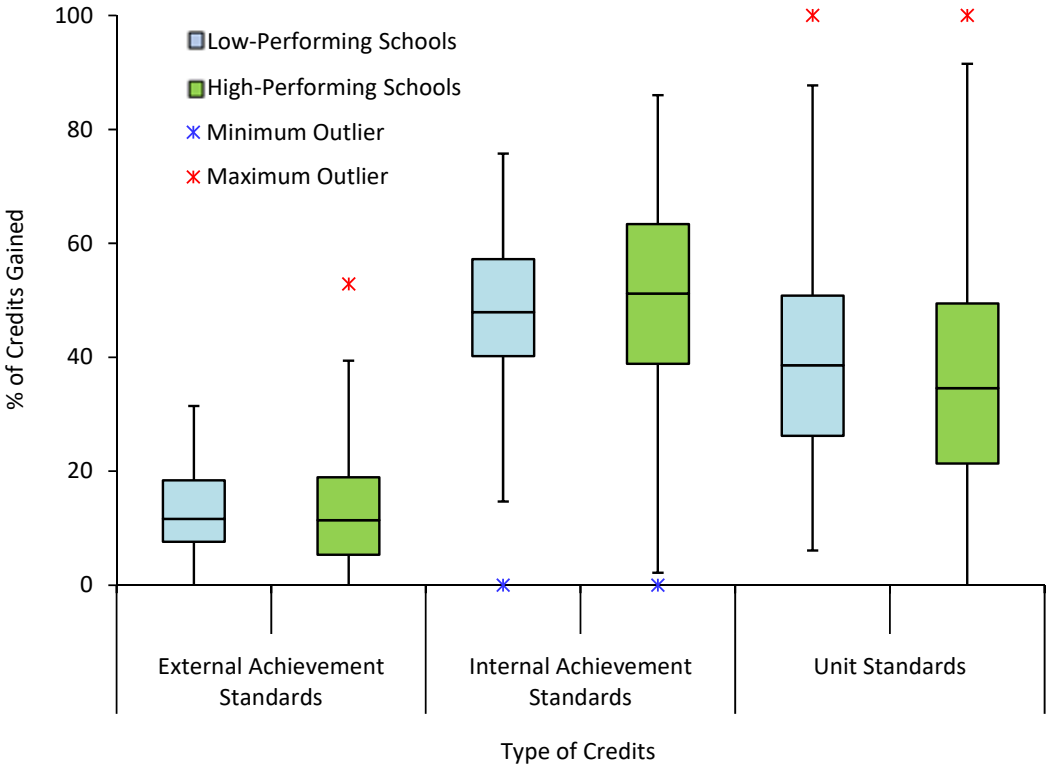

Figure 18. Cumulative percentage of credits gained from ≥ Level 3 external achievement standards, internal achievement standards and unit standards in low-performing and high-performing schools by eligible 2014 Year 13 students who did not attain NCEA Level 3.

University Entrance literacy and numeracy attainment.

No schools highlighted UE numeracy attainment as problematic for their students, but both LPSs and HPSs identified literacy as requiring extra focus to ensure success.

> *So one of our aims . . . is to ensure that when students leave [school] they have at least UE literacy. There is no problem with numeracy, but UE literacy is a benchmark that we like to ensure that the students get. (HPS:D7)*

HPSs were more likely than LPSs to be proactive in enabling students to attain UE literacy, and significantly more HPSs ran targeted programmes in Y12 or Y13 for students at risk

of not achieving this: eight HPSs, versus three LPSs. Furthermore, four HPSs indicated that they aimed for all their students to gain UE literacy and treated this as a qualification or attainment in its own right; no LPSs took this view.

> *We pride ourselves on making sure as many as possible get that particular qualification. (HPS:D8)*

> *So our recommendation for all of our boys is [UE literacy] as something that you need to put in your back pocket in terms of a qualification. (HPS:D3)*

In contrast, LPSs were more likely to be reactive rather than proactive with UE literacy attainment. For example, in some LPSs at-risk students were identified retrospectively, such as in the latter part of Y13.

> *We have [L3] kids this year that we have had to work quite hard to make sure they have actually got University Entrance literacy, because they picked courses which don't have the reading and writing [standards] in them necessarily, and they haven't got them. (LPS:D5)*

Some LPSs had internal systems that created barriers to equitable access to UE literacy attainment. As previously discussed (see "Streaming in senior secondary"), five LPSs offered at least one NCEA L2 English course that was terminating, meaning students who did not complete UE literacy, and those who wished to continue studying English had to repeat that course or undertake a parallel L2 course. In one of these LPSs, a low-stream L2 English programme did not provide sufficient standards for students to gain UE literacy:

> *One of the problems in our school is that they cannot get UE literacy from an internal English class. . . . So they finish Year 12 English, and they still don't have UE literacy. The English faculty says, "It's not our job to get the students literacy," but that's why the students are taking English, of course. (LPS:D9)*

In comparison, just one HPS required students to repeat an L2 English course if they did not attain literacy and wished to do so. The other 14 HPSs provided UE literacy opportunities for such students through one of three pathways: an L3 English class, in some cases with the option of a differentiated programme of study within this; a Y13 UE literacy-only class; or a UE literacy class with the possibility of also gaining 14 English credits as a UE approved subject.

Partnerships with Other Organisations and Education Providers

Entering into partnerships with other organisations and education providers allows schools to offer a wider range of subjects, qualifications pathways and educational opportunities than their staffing or resourcing would otherwise allow. Partnerships can be particularly advantageous for geographically isolated schools, those constrained by small roll sizes, and schools lacking specialist teachers or facilities. In this section, partnerships for the provision of academic pathways are examined, followed by those for vocational pathways.

Partnerships for academic pathways.

For the provision of academic pathways, Te Aho o Te Kura Pounamu (Te Kura, formerly The Correspondence School) was the most commonly cited partnership institution for both LPSs and HPSs (12 and 10 respectively). However, although statistically equivalent in their use of Te Kura, LPSs and HPSs were significantly different regarding the reasons they cited for their partnership. Ten LPSs, but only five HPSs, explained that the partnership enabled them to offer smaller subjects that they would not otherwise be able to provide due to staffing or other resourcing constraints.

> *[Te Kura] because our senior school can have quite low numbers and we can't run courses. (LPS:D8)*

There was no correlation between school roll size and the use of Te Kura in either HPSs or LPSs, with all three very large schools included in the group of schools reporting that they used Te Kura to offer smaller subjects that they would not otherwise be able to provide.

Another reason for using Te Kura, given by three HPSs, was for students with timetable clashes.

> *We deal with some students through Te Kura with courses that they either have a clash with, or alternatively with something that we don't offer. (HPS:D7)*

However, there was a financial cost for Te Kura enrolments due to timetable clashes, which was problematic for two LPSs (the cost per L3 subject per student at the time of writing was $1,637).

Local or regional e-learning networks were the second-most-cited type of partnership arrangement for academic pathways, notably in LPSs (nine, vs. three HPSs). E-learning networks typically required participating schools to provide a teacher to teach an online class, usually a subject with small student numbers, which was available for other schools in the network to access. As a quid pro quo, this arrangement then allowed students in that school to study online courses offered by other schools, enabling access to a wider range of subjects and pathways than a school might otherwise be able to offer. This was especially advantageous for schools with smaller roll sizes:

> *But it's borne out of a desire to be as flexible as possible and to offer students the opportunity to study courses via video conferencing which we won't be able to provide or to run in any given year. (LPS:D7)*

In contrast with Te Kura, which schools from all size groupings reported using, e-learning networks were most commonly used by schools with small and medium roll sizes (seven LPSs, three HPSs). Just two large or very large schools utilised an e-learning network to provide access to subjects their schools did not offer. However, online learning was reported by eight of the 12 schools offering it as being problematic and consequently was promoted to students in course handbooks with cautionary caveats relating to such dispositions as a high level of motivation, sound work habits, independent learning capability, and excellent attendance.

> *But it's pretty hit and miss to be honest, and it's not something I actively promote. (LPS:D9)*

> *We stopped [teaching online courses] about 3 years ago because the teachers found that the students didn't turn up from other schools, and it was just generally unsatisfactory. (HPS:D9)*

Just one school, a small HPS with a Ministry of Education minor-urban-area classification, reported positively about their involvement in e-learning and indicated that they were planning to extend this the following year to provide more pathways for their students:

> *So we have a number of students doing [e-learning] this year. We are broadening it out next year as well, just to open up some more pathways. (HPS:D1)*

Partnerships for vocational pathways.

Polytechnics were the most commonly cited partnership partners for the provision of vocational pathways (in 23 schools), followed by industry training organisations (22 schools), and trades academies (19 schools). As shown in Table 24, similar numbers of LPSs and HPSs had partnerships with industry training organisations and polytechnics. However, it is with trades academy partnerships that the most significant difference between LPSs and HPSs were seen: twice as many LPSs had partnerships with trades academies for the provision of vocational pathways (13 LPSs, vs. just six HPSs). There was no correlation between school roll size and the use of industry training organisations, polytechnics or trades academies in either HPSs or LPSs.

Table 24

Partnerships with Other Institutions and Organisations for Vocational Pathways in Low-Performing and High-Performing Schools

Schools	Industry training organisations	Polytechnics	Trades academies[a]
LPSs	10	12	13
HPSs	12	11	6

Note. Partnerships were for courses delivered in schools and those delivered off-site.
[a]Includes trades academies based in schools.

Other partnerships for the provision of vocational pathways included Māori/iwi providers (three HPSs and one LPS); trusts (one LPS and one HPS); and local businesses, including those based at sites such as aerodromes, pools, ski-fields, national parks and farms (all 30 schools).

> *We've got about 80, 90 employers that take our kids one day a week . . . with Gateway. Which is a lot for a rural school in the middle of nowhere. (HPS:D5)*

> *There's lots of them around town because we rely on them heavily for work experience placements, Gateway, so there are different tradies, there is retail, there is*

hairdressing, building, plumbing, electricians. There are a whole lot of them. (LPS:D10)

A variance in partnership arrangements between schools for similar vocational courses was evident, depending, for example, on whether the school had consent to assess a course or whether a polytechnic or trades academy delivered it. Some schools expressed concern with the difficulty of gaining consent to assess vocational courses at L3 due to restrictions placed on schools by some industry training organisations and standards-setting bodies, and several schools contended that industry training organisations preferred their courses to be delivered through polytechnics and trades academies, rather than granting consent to schools.

One of the things schools are battling with, initially with Level 2 and definitely now with Level 3, is getting consent to assess . . . the industry people themselves are still a little bit reluctant to give consent to assess to secondary schools and [are] basically saying, "Well that's what the polytechs do." . . . . So we got in before all the Vocational Pathways came in, and maybe before the ITOs [industry training organisations] started restricting who they were giving consent to assess to. . . . So we got that consent to assess where other schools as I understand it have really struggled to get it. (HPS:D5)

Several schools with Ministry of Education urban-area classifications of secondary urban, minor urban and rural asserted that off-site delivery arrangements presented issues of equity of access to vocational pathways for their students due to their geographic distance from main urban centres, where vocational providers were often located.

The most common vocational subject studied through polytechnic or industry training organisation partnerships was tourism, in 28 schools (Table 25); the exceptions were two HPSs, which offered tourism to individual students on a case-by-case basis. Other commonly cited vocational subjects, as shown in Table 25, included: a variety of sport, recreation and outdoor education courses; hospitality-related courses including those providing chef, barista and cookery training; land-based courses such as horticulture, agriculture and farming; and a range of pre-apprenticeship trades courses in sectors such as building, carpentry, automotive engineering, and hairdressing. Overall,

LPSs offered a wider variety of, and more, vocational pathways in partnership with other institutions and organisations.

Table 25

Types of Vocational Courses Offered by Low-Performing and High-Performing Schools in Partnership with Other Institutions and Organisations

Schools	Tourism	Sport/ outdoor education	Hospitality/ catering	Trades-based	Land-based	Other
LPSs	15	9	9	13	5	4
HPSs	13	5	2	9	0	1

Note. Excludes equivalent types of vocational courses where a school had consent to assess these.

Tracking (Monitoring)

This section presents data about two interlinked but different types of tracking (monitoring) undertaken in secondary schools in relation to qualifications pathways. The first of these is tracking the alignment of students' subject selections with their post-school career intentions; this is of interest as an absence of effective tracking can lead to dead ends if subject selections do not align with career intentions. The second type of tracking is of progress towards NCEA and UE attainment, including towards the mandatory literacy and numeracy components of UE. Progress tracking identifies students at risk of not achieving qualifications, enabling intervention actions to be implemented in a timely manner, thereby reducing the chance of failure and consequent dead ends.

The words *tracking* and *monitoring* were used interchangeably in schools to mean systematically observing and reviewing progress over a period of time. This is distinct from *track* used to denote streaming or grouping by ability.

Tracking alignment of career intentions with subject selections.

There was a significant difference between LPSs and HPSs regarding the provision of career education programmes. HPSs were more likely to report that they had a systematic

and personalised career education programme, which commenced before Y13: 10 HPSs described such programmes, with six of these schools commencing this ≤ Y10. In comparison, just three LPSs had such career education programmes, all of which commenced ≤ Y10.

HPSs were also significantly more likely to have a formal tracking process as part of these career education provisions, to ensure that students' subject selections aligned with their career intentions: all 15 HPSs reported doing so, compared with nine LPSs. In the schools with formal career tracking, career information about each student was often available to stakeholders, including students and parents, by logging into the school's database.

> *We're very focussed on career education as the start-point, looking at what subjects at school might be required for that particular level of qualification, for that particular career pathway. And we do that every year from Year 9 upwards with the students, so they're starting early to think about where they might wish to go. (HPS:D8)*

> *Career interviews are published on the parent portal [of the electronic student management system], so the parents have access to the notes from the conversations of the careers advisor and their child. (HPS:D7)*

> *So we make an assumption from the start that everybody is going to university, I guess, and there's a lot of talk about that, so tracking right back to Year 10, that's when it starts, "What are you doing at university?" (HPS:D9)*

Tracking progress towards qualifications attainment.

LPSs and HPSs were significantly different in the way they tracked students' progress towards L3 NCEA and UE attainment, including towards the mandatory literacy and numeracy components of UE. Twelve HPSs described systems for regular, active tracking of students' progress, compared with just three LPSs. *Active tracking* was defined as that where students were identified through an ongoing tracking process as being at risk of not achieving NCEA L3 or UE, enabling an individualised plan of action to be implemented in a timely manner to enable qualifications success.

We do have a strong policy in that all students have to be tracked. So every senior management meeting, . . . once every fortnight, I get my data analyst to go through and look at the credits for each student and think of things we're going to do to help those students through. (HPS:D9)

We monitor them all the time for literacy and numeracy at Level 1, Level 2 and Level 3, wherever it's at, to make sure they know where they are up to. (HPS:D9)

Active tracking was typically undertaken by several different stakeholders simultaneously, including students, parents, subject teachers, deans, heads of department, careers teachers and senior leaders (including principals), rather than being the responsibility of a single designated person. Schools most commonly shared credit-tracking information with stakeholders via their student management system in their database.

Between the Careers Department and myself, Teaching and Learning, and Student Support, tracking is part and parcel of our everyday business. (HPS:D9)

The academic tracking we have is so intricate, it is so detailed and that support … is critical to academic success in a school like ours. (HPS:D3)

Nine of the 12 HPSs identified above as having active tracking processes, also described negotiated intervention actions for students at risk of not achieving L3 or UE. These included: the provision of credit top-up opportunities through external holiday programmes; short courses through STAR or Gateway; and in-school top-up programmes. No LPSs reported having similar intervention actions.

We do a lot of monitoring and watching them . . . and so if I think they're going to end up short then we put them on a STAR programme or Gateway, something to top them up with those Level 3 credits and make sure they've got NCEA Level 3. (HPS:D2)

The other thing we offer is life-saving. The girls can do their life-saving qualifications and then they can work at a pool and . . . they could easily get 16 credits in that kind of work. And we let them know that if they work at McDonald's or KFC they can get management credits as well, and some of them get quite a few. And . . . they like to get a few credits so that their Level 3 is assured for those less able girls. (HPS:D9)

These interventions occurred in a timely manner throughout the year, and in some cases were implemented as early as Term 1.

> *So we've got, for example, a girl going on a Communications course in the [September-October] holidays to pick up 10 credits. They're all unit standards, and we're trying to get her to 60 credits. (HPS:D9)]*

> *Even now [November], next door I have eight or 10 [students] who haven't got [their NCEA] and they have been rung, letters have been sent out. If they don't turn up by 9.30 then the school bus goes and picks them up, and they'll come back here and they'll just beaver away until they get over the finish line. (HPS:D2)*

> *So we have got [an option line] set up where, if a kid is in danger of not getting University Entrance and needs it, then they get extra support to get that. (HPS:D5)*

In contrast to active tracking, eight LPSs, but no HPSs, described passive tracking processes where at-risk students were less likely to be identified and supported in a timely manner to enable qualifications success. Although, as for HPSs, credit-tracking information was most commonly shared with stakeholders via schools' student management systems, this information was less likely to be used in these LPSs to identify at-risk students and implement individualised support in a timely manner. These tracking processes have been aggregated into four broad categories: inactive, inconsistent, sporadic, and informal.

The first of these passive tracking processes, inactive tracking, is that which occurs without accompanying, targeted intervention actions for individual at-risk students, and was the most common type of passive tracking identified. One example of inactive tracking was the distribution of credit-tracking report printouts to students and parents or making these available through the school website via the log-in functionality of schools' student management software systems.

> *So we send out throughout the year a credit accumulation report, and that happens probably every 3 or 4 weeks in terms 2 and 3. That goes out to the parents and students, and everybody is aware of where they are tracking. I'm not sure it*

necessarily always helps, but it does help, I think, parents to understand a bit more. (LPS:D5)

KAMAR was the most commonly used student management system, in all 15 HPSs and 12 LPSs. Senior leaders from seven LPSs using KAMAR spoke favourably about the ease with which KAMAR could generate visually appealing and easily understood graphs showing individual student progress towards vocational pathways and qualifications attainment. No HPSs commented on this facility.

You can actually put in your credits and it comes up with these magic, beautiful graphs. (LPS:D8)

We have got lots of wonderful printouts from KAMAR; we can do that regularly. (LPS:D7)

However, when used as an end in themselves, rather than as a starting point for discussion and negotiated intervention actions, KAMAR printouts became a passive tracking tool, where responsibility for any subsequent action was devolved to the students.

Students have access to the KAMAR portal, and so they can go in there at all times to see how their credits are measuring up. We give students, probably three to four [printouts] . . . that matches with their goal setting, so, "Oh this is where I am at, what do I need to do to be able to move forward?" So we give them all the information. (LPS:D6)

The second category of passive tracking, inconsistent tracking, occurred where tracking processes varied between different groups of students. In some schools, this resulted from a lack of consistency between staff members involved in tracking students.

Information is put out to staff around where we're at, where our students are at and how many credits they've accrued. Some form teachers engage with that more and have conversations with students around that more than others. (LPS:D6)

In other schools this inconsistency was evident where identified groups of students were the focus of different tracking processes to the rest of their cohort:

We track our at-risk kids and probably put more emphasis on tracking their credits. And of those, making sure that we put all our priority learners, especially Māori and Pasifika, in that group, and track them. (LPS:D6)

Sporadic tracking, the third category of passive tracking identified, was that which occurred intermittently throughout the year:

> *We look at who has got what as an SLT [senior leadership team] probably twice a year, just to check on how things are going. (LPS:D10)*

> *Information is given in the form of a digital report at the end of Term 2 with their progress. Another one is given after school exams, so Term 3. So that information is provided to them on a semi-regular basis, I guess. (LPS:D10)*

Sporadic tracking was also identified where schools tracked cohorts, as distinct from individual students, on an irregular basis; in some cases, this was retrospective and served an audit function.

> *We have over the last 2 years I guess, started to keep a better track of where students are at, at certain times of the year, just to compare the year groups from their previous years and things like that, just to see how things are going. (LPS:D6)*

The fourth category of passive tracking identified was informal and occurred through casual or chance conversations with students in lieu of, or in addition to, any prescribed process.

> *One of the benefits of a small school is that the support and monitoring for them is something that happens naturally . . . so being able to track and monitor those young people as well as to advise them is a little bit more straightforward. (LPS:D7)*

In further contrast to HPSs, tracking in LPSs was more likely to be the responsibility of a single designated person rather than multiple stakeholders, with senior leaders, particularly principals, less commonly involved in tracking individual students. Several LPSs, but no HPSs, identified challenges with this arrangement, which potentially allowed some students to slip through the cracks.

> *We do have an overlay of checking [literacy requirements]. Our Year 13 dean, that is one of the first things they do. But what happens sometimes is that the kid will make a change of an option and everybody's sort of forgotten. (LPS:D5)*

> *We are relying on the teachers in the classroom monitoring that. I would have liked to have been able to do it, but it was a time factor. (LPS:D6)*

Students Advantaged and Disadvantaged by Year 13 Qualifications Pathways

Senior leaders were asked to identify any groups of students they regarded as advantaged or disadvantaged by the qualifications pathways their schools offered. This information was valuable as advantaged and disadvantaged groups were identified through the lens of senior leaders who were key stakeholders in their schools' qualifications pathways. As such, their perceptions provide supporting, as well as different but complementary, data to that gathered from other sources (including ethnicity data); this enabled a more comprehensive understanding of ways in which schools' qualifications pathways create or limit opportunities for qualifications success.

Advantaged and disadvantaged students.

Ethnicity data, obtained on request from NZQA, comprised four cumulative data sets: (a) participation-based NCEA L3, (b) roll-based NCEA L3, (c) participation-based UE, and (d) roll-based UE. Each data set reported the attainment of students by school and ethnicity (New Zealand European/Pākehā, Māori, Pasifika and Asian). These were examined to test for between-group (ethnic) differences in pass rates in low- and high-performing research schools. Unfortunately, the already small sample size of schools (n = 30) was further reduced due to some ethnicities not being represented in some schools because of their uneven spread across geographic locations (notably Pasifika and Asian ethnicities), and because small ethnic cohorts of < 5 students in schools were removed from the analysis. The problem remained even when the sample was extended to include all LPSs and HPSs (n = 82). Formal statistical analysis was thus eschewed in favour of an observation of overall trends in each of the four data sets; this showed that outcomes for all ethnicities in L3 and UE were higher in HPSs than in LPSs. Moreover, a broadly similar pattern was evident across LPSs and HPSs: with one exception, Māori and Pasifika were the lowest performing cohorts and New Zealand European/Pākehā and Asian were the highest performing. The exception was the Asian cohort in participation-based L3, which was the lowest performing ethnicity in LPSs but the highest performing in HPSs. The reasons for this anomaly in LPSs are unclear.

During interviews, however, no participants referred to ethnicity when asked to identify groups of students who might be advantaged or disadvantaged by their qualifications pathways. As depicted in Table 26, more HPSs than LPSs indicated that all of their Y13 students were equally advantaged by the pathways their schools offered (11 HPSs vs. eight LPSs) and that no students were disadvantaged (eight HPSs vs. four LPSs).

> *Our whole ethos as a school is to make sure that everyone is looked after and whether you are the best of the best or the weakest of the group I'd like to think that we've got a pathway or a way of structuring a pathway . . . that suits your abilities as well as your dreams of where you want to go and what you want to do. I don't feel that one group is advantaged or disadvantaged over the other. (HPS:D8)*

> *I would like to think that there is an advantage there for all of our students, that we have a structure of courses which potentially can meet the needs of a very diverse group of learners. (LPS:D7)*

Smaller, but statistically equivalent, numbers of LPSs and HPSs stated that Y13 students studying academic pathways were advantaged by their schools' pathways (three and four respectively).

> *I think those intending to go to university have got lots of choices; they can do what they are interested in. We bend over backwards, I think, for those students. (LPS:D9)*

> *I guess those going onto a university pathway are advantaged because it's what the majority are doing, . . . so, therefore, most of the programmes are aimed towards them. (HPS:D9)*

Table 26

Students Advantaged and Disadvantaged by Year 13 Pathways Offered in Low-Performing and High-Performing Schools

	Advantaged students			Disadvantaged students		
Schools	Academic pathways	Vocational & non-academic pathways	All students	Academic pathways	Vocational & non-academic pathways	No students
LPSs	4	3	8	1	10	4
HPSs	3	1	11[a]	1	6	8[a]

[a]Total for *All students advantaged* column and *No students disadvantaged* column for HPSs = > 100%. This discrepancy is attributable to seven HPSs, which initially stated that their schools' pathways equally advantaged all their students, then subsequently identified groups of students who were disadvantaged by these pathways.

With regard to disadvantaged students, Table 26 shows significantly more LPSs than HPSs indicated that students studying vocational and other non-academic pathways were disadvantaged by their school's pathways (10 LPSs vs. six HPSs). Three of the most common reasons given for this disadvantage were: not able to cater adequately for L3 vocational students; not able to cater adequately for non-vocational, less academic students; and constraints on course provisioning. Table 27 provides details of these three reasons.

Table 27

Reasons Given by Low-Performing and High-Performing Schools for Why Vocational and Non-Academic Pathway Students were Disadvantaged

Schools	Unable to cater for vocational students	Unable to cater for non-vocational, less academic students	Constraints on course provisioning
LPSs	6	10	6
HPSs	6	6	3

Note. Figures are only for schools that identified vocational and non-academic pathway students as disadvantaged (shown in Table 26). Some schools gave more than one reason for disadvantage.

Concerning the first of these reasons, an equal number of LPSs and HPSs (six each) stated they were not able to cater adequately for L3 vocational students, who consequently faced dead ends in their vocational pathways (previously outlined in the subsection "Progression from NCEA Level 2 vocational pathways to NCEA Level 3 study").

> *The students come back wanting Level 3, and there are not enough Level 3 unit standard courses that we can put into that year. . . . So it's hard to make up a course when they can't get Level 3. (LPS:D9)*

The second reason for perceived disadvantage, of not being able to cater adequately for non-vocational, less academic students, was cited by significantly more LPSs than HPSs (10 vs. six respectively). These students, who may have required modified courses or personalised programmes within existing pathway structures, faced qualification dead ends where schools did not differentiate subjects to meet their needs.

Constraints on L3 course provisioning, also identified by more LPSs than HPSs (six vs. three), was the third reason given for disadvantage. The constraints identified were either as a consequence of a small roll size or because of the geographic location of the school, or both. A small roll size typically constrains the number of specialist facilities, resources and teachers that can be afforded and, consequently, the breadth of subjects offered. Schools with small rolls usually offered traditional academic subjects in the first instance, at the expense of vocational subjects.

> *I think that we are quite traditional in that we will, no matter what, run those more academic courses. Like by hook or by crook I will always make sure Level 3 Calculus runs. (LPS:D8)*

Geographic isolation was most likely to impact on the provision of vocational courses that were taught through polytechnics and trades academies in urban centres, and on urban work placements (see "Partnerships for vocational pathways"). Three of the four schools that cited geographic location as a disadvantage for vocational students were LPSs with secondary urban, minor urban or rural ministry designations. The fourth, an HPS, was situated on the outskirts of town with no nearby public transport service.

> *We are a small town too, and that is difficult. I think our kids do suffer sometimes from being (a) part of a school that is smaller … but also (b) you are out in the*

> *provinces, so you don't sometimes get the same range of things that are available for them. (LPS:D5)*
>
> *I think for us it's quite difficult with the small Year 13, and because of our isolation, to be able to offer everything for some of the students. (LPS:D8)*

Three schools (one HPS, two LPSs), which identified their geographic distance from an urban centre as potentially problematic for vocational students, had overcome this disadvantage by gaining consent to teach and assess all of their trades-based courses in-house.

Self-Perceptions of Strengths and Weaknesses of Qualifications Pathways

Senior leaders were invited to contribute any final comments about their school's qualifications pathways or processes. This opportunity gave respondents the opportunity to raise points not previously covered in the interview, or to emphasise previously discussed themes that were of importance to them. These comments about their qualifications pathways not only provide a valuable summary of self-perceptions of strengths and weaknesses, and advantage and disadvantage, but also show clear differences between self-perceptions in LPSs and HPSs.

Differences in self-perception between low-performing and high-performing schools. There was a marked difference between the nature of concluding comments made by senior leaders in LPSs and HPSs. All 15 HPS senior leaders provided concluding comments that described positive aspects of their school's pathways and associated procedures, compared with just eight LPS senior leaders. These comments have been aggregated into three broad groups relating to course provisions, pastoral support, and high expectations (Table 28).

Table 28

Concluding Comments by Low-Performing and High-Performing Schools about their Level 3 Qualifications Pathways and Processes

	Positive Aspects			Concerns			
Schools	Course provisions	Pastoral provisions	High expectations	Course provisions	Over-assessment	Low attainment	No concluding comments
LPSs	8	0	0	6	1	2	3
HPSs	9	4	8	1	2	0	0

The number of concluding comments relating to the importance of their course provisions for their qualifications success was statistically equivalent between LPSs and HPSs:

> *I guess that's something that we are continually working on, of honouring all pathways. (HPS:D5)*

Statements relating to the importance of strong pastoral support for qualifications success included knowing students well and caring about them and were made by 4 HPSs, but no LPSs.

> *And honestly, the staff here, they will come in on a Saturday, they will give up their lunchtimes if a boy is struggling a bit. The guidance and support thing is, I think, a real feature of our school. (HPS:D2)*

> *I reckon the strongest thing we do here in terms of achievement isn't so much pathway planning, it is pastoral support. You could have the best pathway plan in the world, but if you haven't got pastoral support supporting in a school like ours, it wouldn't matter, it wouldn't matter at all. . . . The boys have to know that you care. They have to know that you are invested in them and their learning. That to us is the most important thing. (HPS:D3)*

> *It's the fact that the teachers are willing to give up a lot of their time for students, and they actually care about them. That, I think, gets a lot of students through. (HPS:D5)*

Comments about having high expectations for qualifications success were also made solely by HPSs (eight, vs. no LPSs).

So we are driven by success. (HPS:D2)

We have high expectations so that everybody believes that they can make it, that if you do your best and work hard and meet all the deadlines, then you will probably be successful. (HPS:D9)

Level 3 is always our minimum . . . You know we believe that most students can gain Level 3. (HPS:D9)

In contrast, the concluding comments of 10 of the 12 LPS senior leaders who made these pertained to concerns about their pathway provisions or processes, compared with just four HPSs. These have been aggregated into three broad groups relating to course provisions, over-assessment associated with offering too many credits, and concerns about low qualifications attainment (Table 28). Of these, the most significant difference between LPSs and HPSs was with course provisions, where senior leaders in six LPSs, but just one HPS, raised concerns about their ability to provide courses for their Y13 students.

We are also finding a bit of conflict trying to balance both [academic and vocational] pathways for students. It's a real nightmare. And the smaller the school gets and the lower the numbers in those levels, the more difficult that will become. (LPS:D4)

Other Categories of Information Investigated

Several other categories of information were investigated, but the data did not discriminate between LPS and HPS groupings or contribute to answering the research questions. These categories were:

- school policies about qualifications pathways
- responsibility for determining prerequisites for streamed courses
- Level 3 credits offered in academic and vocational subjects
- disseminating information about qualifications pathways
- non-NCEA pathways offered
- the government's Better Public Service target of 85% NCEA L2 attainment
- number of points of contact with schools.

This section presents a brief summary of findings for each of these categories and concludes with an unexpected finding that emerged from the methodology rather than the formal data-gathering process: the number of points of contact with schools before the commencement of data gathering.

School policies about qualifications pathways.

Twenty-two of the 30 research schools identified school policies relating to qualifications pathways (12 HPSs and 10 LPSs). In all cases, these policies were overarching in nature, such as curriculum policy, with specific details about qualifications pathways most commonly located at the next level down, in school procedures. LPSs were more likely to be unaware of any school policies relating to qualifications pathways, with seven LPSs versus just two HPSs stating this.

Responsibility for determining course prerequisites.

Responsibility for determining course prerequisites is grouped into two broad categories: schools that determined or approved prerequisites by a combination of senior leaders and heads of department (12 schools); and schools that devolved responsibility for prerequisite decisions to heads of department (17 schools). The first approach was slightly more common in HPSs (seven HPSs, five LPSs), while the second approach, of devolving responsibility to heads of department, was more common in LPSs (10 LPSs vs. seven HPSs).

Level 3 credits offered in academic and vocational subjects.

The most commonly cited number of credits schools recommended for L3 subjects was 18-24, with some of the variability across schools attributable to the number of subjects students were required to study. Seven of the research schools (five LPSs, two HPSs) commented on a disparity between the number of credits offered in academic subjects, and the much higher number of credits students could gain through vocational subjects, especially those offered through outside providers. Some vocational courses cited offered up to double the number of credits available in academic subjects. Because of this difference, several schools indicated that their recommended number of credits for L3 subjects applied to academic subjects only.

Disseminating information about qualifications pathways.

The data identified four main avenues for disseminating pathway information. These avenues were: to groups of students, such as through assemblies, class groups, and mentoring groups; via written formats such as course handbooks, school websites, and newsletters; through one-on-one interviews with students, which may have included parents; and at events such as options open days, careers expos and parents' evenings. Schools typically used a combination of these approaches. The data showed little difference between LPSs and HPSs concerning preferred avenues for disseminating qualifications pathways information.

Non-NCEA pathways.

Twenty-five of the 30 research schools offered at least one non-NCEA pathway for Y13 students, in addition to NCEA L3 (11 HPSs and 14 LPSs). These non-NCEA pathways did not contribute credits towards NCEA or UE and included university papers for accelerated students and South Pacific Educational Courses for supported learning students. The most common non-NCEA pathway available in both LPSs and HPSs was university study, typically offered to students on a case-by-case basis, with mathematics being the most common subject studied. Significantly more LPSs than HPSs offered university study opportunities, 14 versus 10 respectively.

Government Better Public Service target of 85% NCEA Level 2 attainment.

The New Zealand government set a Better Public Service target of 85% of 18-year-olds attaining NCEA L2 by 2017, to boost skills and employment (State Services Commission, 2013). The target was of potential relevance to this research due to possible flow-on effects from NCEA L2 to L3. Nine of 30 schools discussed this Better Public Service target, three HPSs and six LPSs. Of these, the three HPSs indicated that they had not made any changes to their L2 qualifications pathways or associated procedures in response to the government's target. In contrast, all six LPSs indicated that they had made procedural changes at L2, including such things as closer credit tracking, increased monitoring and support of at-risk students, increased assessment catch-up opportunities, and incorporating the 85% L2 target into the school's annual plan.

Number of points of contact with schools.

Making initial contact with the principal in each potential research school, gaining their written consent to conduct the research, gaining the consent of the participant and setting an interview time typically required multiple phone calls and emails. A record was kept detailing all points of contact before commencing data gathering to ensure continuity when liaising with each school. Points of contact included such things as sending emails, leaving messages with office staff where a principal was unavailable and leaving messages on answering machines. Although this methodology was never intended to contribute to formal data, the records, in fact, yielded an interesting pattern. More points of contact were made with LPSs than HPSs before the commencement of data gathering, an average of 13 versus nine respectively. The number of points of contact in LPSs ranged from five to 33, compared with a lower and narrower range of four to 17 in HPSs.

Study 2 Discussion of Findings

In this section, salient findings concerning similarities and differences between LPSs and HPSs regarding NCEA pathways and associated procedures are aggregated and discussed in five broad groupings: streaming, vocational pathways, UE availability through differentiated pathways, school systems, and self-perceptions.

The findings selected for discussion are those with the greatest contrast or difference between the LPS and HPS cohorts, and the discussion of each point is framed according to the cohort with the higher score count. Many findings are not binary: that is, a category more typically associated with HPSs likely included at least one LPS and vice versa. This discussion addresses the Study 2 research question:

> What are the similarities and differences in opportunities provided through qualifications pathways between selected New Zealand schools whose student attainment rates in NCEA Level 3 and University Entrance are significantly different from schools with similar socio-economic profiles?

Discussion: Streaming.

The findings show that LPSs were more likely than HPSs to stream the most commonly prescribed NCEA subjects, English, mathematics and sciences, at L1 and L2, and more

likely to provide terminating (dead-end) mathematics and science courses at L1 and L2 and terminating English courses at L2. Furthermore, LPSs were significantly more likely than HPSs to make unilateral decisions about student placement into streamed courses and to discourage changes to these placements. Terminating NCEA L1 and L2 courses could potentially create barriers to NCEA L3 and UE access and attainment as many schools used these three subjects as prerequisites for studying related subjects at the next NCEA level. In particular, terminating English courses could potentially create barriers to UE access and attainment due to the literacy requirements of UE. In these schools, students who did not attain UE literacy at L2, and those who wished to continue studying English, typically had to repeat English at L2 while in Y13 rather than advancing to an L3 course.

An exception to LPS streaming patterns is evident for L3 English, which HPSs were significantly more likely to stream. They usually did so by offering more than one UE-approved course, each providing the opportunity to meet UE literacy requirements for students who had not previously done so, and each also containing at least 14 L3 English credits, which is the number required for UE approved-subject status. In contrast, LPSs were more likely to stream L3 English by offering two types of course: one that provided at least 14 approved-subject credits, and a UE literacy-only, non-UE-approved English course. The latter addressed a potential barrier to UE attainment by ensuring students who had not yet gained UE literacy were able to do so in a dedicated Y13 literacy-only course, obviating the need to undertake another Y12, L2 English course. However, this potentially created another barrier as they could not also accrue sufficient additional English credits towards the 14-credit approved-subject total, thereby reducing by one the number of subjects in their programmes that could contribute to UE eligibility. Overall, HPSs were more likely than LPSs to accommodate students who did not gain UE literacy before Y13 by differentiating within existing L3, UE-approved English classes. This approach optimised pathway potential by providing more equitable opportunities for students to gain UE. Conversely, LPSs were more likely to require such students to either undertake a targeted L3 UE literacy-only course or repeat English at L2, thereby potentially reducing UE opportunities.

Discussion: Vocational pathways.

The findings show key differences between LPSs and HPSs regarding vocational pathways. LPSs provided more L3 vocational subjects on average than HPSs. These were more likely to be offered in partnership with other institutions and organisations and significantly more likely to be delivered at off-site facilities such as polytechnics or trades academies on 1 or 2 full school days each week. However, despite the higher average number of vocational subjects offered, LPSs were significantly less likely than HPSs to offer related L3 vocational subjects that provided pathway continuity from L2 vocational subjects, including Youth Guarantee Vocational Pathways. It is unsurprising, therefore, that senior leaders in LPSs were significantly more likely to consider Y13 vocational (and other non-academic pathway) students to be disadvantaged because of their school's limited L3 vocational pathway provisions, and to say that their school could not adequately cater for these students. They were also more likely to express the view that their Y12 vocational students would be best served by not returning to school in Y13, but progressing to post-school options such as polytechnics and apprenticeships instead.

In contrast, although they offered fewer L3 vocational subjects on average, all HPSs in this study provided pathway continuity from L2 to L3 for these subjects, including Youth Guarantee Vocational Pathways. Furthermore, their senior leaders were less likely to identify Y13 vocational (and other non-academic pathway) students as being disadvantaged by their Y13 pathway provisions. HPSs were also less likely to distinguish overtly between academic and vocational pathways; where they did distinguish between these, they consistently and publicly emphasised equity between them. On the other hand, LPSs were more likely to overtly differentiate between different types of pathways using traditional "academic-" and "vocational-"type labels.

Discussion: University Entrance availability.

As LPSs offered more L3 vocational subjects on average than HPSs, it was unsurprising that a higher average percentage of unit standard credits contributed to the total number of L3 credits gained by successful Y13 NCEA L3 students. Unit standard credits potentially disadvantaged students in rank-score calculations used by many universities to determine admission to competitive-entry courses, thereby closing doors to these (refer to

the "University Entrance" subsection of Chapter 5). In contrast, higher average percentages of external and internal achievement standard credits contributed to the total number of credits gained by successful NCEA L3 students in HPSs, increasing the likelihood that these students would gain UE and have more competitive rank scores.

Senior leaders in LPSs were more likely than HPSs to cite adverse effects of the 2014 changes to UE requirements and to express the view that these changes, such as the third approved-subject requirement, made it harder for their students to attain UE. The requirement for a third approved subject meant students could no longer make up their third "subject" by combining credits gained in two subjects, as they could under the previous regulations. Furthermore, the third subject had to be on the UE Approved Subjects List, whereas previously, vocational subjects could be used (refer to Appendix B). Studying the UE minimum of three approved subjects left no room for error: if a student failed to achieve 14 credits in one of these, they were ineligible for UE (although the credits they gained still counted towards NCEA L3). Studying more approved subjects than the UE minimum and correspondingly fewer vocational subjects provided a buffer or "insurance policy." Given that most students studied a total of five or six subjects, this meant no more than one or two vocational subjects could be included in their programmes if they wished to maximise their eligibility for UE.

Discussion: School systems and procedures.

Tracking student progress. A common thread underlying several categories of findings concerned school systems and procedures relating to NCEA (as distinct from, and excluding, classroom pedagogical approaches). Senior leaders in HPSs typically described school systems that were robust, clearly articulated and consistently applied, while their colleagues in LPSs tended to describe systems that were weak, ineffective or inconsistent. This contrast was evident in approaches taken with tracking students' progress towards qualifications attainment. HPSs were significantly more likely than LPSs to have comprehensive systems for regular, active tracking of each student's progress towards NCEA L3 and UE attainment, including the literacy and numeracy components of UE. In these schools, attainment data were used regularly and proactively to identify at-risk students and implement individually negotiated interventions in a timely manner,

usually in Y12 or early in Y13. Tracking was typically a collegial process involving multiple stakeholders, including students, parents and senior leaders, including principals.

Conversely, LPSs were less likely to use tracking information effectively to identify and support at-risk students. Tracking processes were more likely to be passive, irregular or ad hoc, enabling individual students to "slip through the cracks." Senior leaders in these schools described intervention actions that were reactive and non-timely, often occurring late in Y13 when it became apparent that students were in danger of failing. Individual student tracking tended to be the responsibility of a single person such as a dean or career advisor, while senior leaders focussed on cohort tracking, such as of priority learners or a whole year group, rather than on individual students.

Career education. Evidence of contrasting school systems is seen in findings relating to the provision of career education programmes, where there were significant differences between LPSs and HPSs. HPSs were more likely than LPSs to have systematic and personalised career education programmes; these commenced before Y13, with most commencing ≤ Y10. Furthermore, tracking systems in HPSs were significantly more likely to include processes for formally tracking the alignment between students' career intentions and their subject selections, to ensure they undertook the necessary subject prerequisites. In many of these schools, career information for each student was available to stakeholders, including students and parents, by logging into the school's database.

University Entrance literacy attainment. HPSs' robust school systems are also evident in their approaches to UE literacy attainment. HPSs were more likely than LPSs to be proactive in ensuring students attained UE literacy, in some cases treating it as a qualification in its own right. They were significantly more likely to run targeted programmes in Y12 or Y13 for students at risk of not achieving UE literacy and were more likely to have internal systems that provided equitable access to UE literacy. Examples include effective tracking of progress towards literacy attainment, timely identification of at-risk students, ensuring all L2 English courses provided UE literacy and enabling progression to an L3 English course irrespective of L2 outcomes. In contrast, LPSs were more likely to have a reactive approach concerning UE literacy attainment, with intervention actions often occurring later in Y13 than in HPSs. They were also more likely

to have internal systems that created barriers to UE literacy access. Examples include ineffective tracking of progress towards literacy attainment, late identification of at-risk students, offering some L2 English courses that did not provide UE literacy and disallowing progression to an L3 English course if UE literacy was not attained at L2.

Preparedness for 2014 changes to University Entrance. LPSs' weak, ineffective or inconsistent systems were evident in their preparedness for the 2014 changes to UE requirements. The findings show that seven LPSs (representing 47% of LPSs in this study) said they were caught off-guard or were insufficiently prepared for changes to UE requirements in 2014 despite these being signalled for 3 years before their implementation. Several of these schools assigned blame for any shortfall, including blaming staff and students. Conversely, all HPSs reported that they were sufficiently prepared for these changes, including several that did not need to do anything differently.

Points of contact by researcher. A finding that may reflect the comparative organisation of systems in LPSs and HPSs is seen in the number of points of contact made with each school by the researcher before commencing data gathering. The records show that, on average, more points of contact were required with LPSs than HPSs to gain consent to undertake the research, arrange access to subject and pathway information and set an interview time. Although this methodology was never intended to contribute formal data, it nonetheless yielded an unexpected pattern of difference between LPSs and HPSs that may be reflective of the efficiency and efficacy of wider school systems and organisation.

Variety of pathways, subjects and courses offered. Findings across several categories underscore the different systemic approaches taken by LPSs and HPSs to best cater for diverse students' needs and achieve qualifications success. On average, LPSs tended to offer a wider variety of pathways, subjects and courses. In addition to their broader range of streamed courses (discussed in "The Role of Streaming in Differentiating Pathways"), they were more likely to offer academic subjects on a case-by-case basis through Te Kura (The Correspondence School), universities or e-learning networks. These avenues enabled schools to offer small, hard-to-staff or timetable-clash subjects to individual students, which they might not otherwise have been able to provide due to

staffing or resourcing constraints, and to provide extension opportunities. LPSs were also more likely to offer a wider variety of, and more, vocational pathways in partnership with other institutions and organisations, and were significantly more likely to offer these through trades academies. At the time of data gathering, they were more likely to be considering creating pathway packages targeting at-risk students. HPSs, on the other hand, tended to offer a narrower range of subjects and pathways than LPSs and individualise or customise students' programmes within these, including for extension, enrichment or remedial purposes. This approach to catering for diverse students' needs was supported by strong, clearly articulated and consistently applied school systems to maximise qualifications outcomes.

Discussion: Self-perceptions.

Senior leaders' concluding comments about their schools' qualifications pathways and associated procedures show clear differences in self-perception between LPSs and HPSs. Those in LPSs were significantly more likely than their colleagues in HPSs to raise concerns, particularly relating to their Y13 course provisions, whereas all 15 HPSs provided concluding comments that described positive aspects of their school's pathways and procedures. For example, senior leaders in just over half of the HPSs—but none in LPSs— indicated their school had high expectations for NCEA L3 and UE success and a firm belief that all students could achieve. HPS senior leaders were also more likely to indicate the importance of their strong pastoral support systems for their qualifications success, including knowing their students well, caring about them and being prepared to go the extra mile for them.

Chapter 9: Discussion and Conclusions

> *"Would you tell me, please, which way I ought to walk from here?"*
>
> *"That depends a good deal on where you want to get to," said the Cat.*
>
> *"I don't much care where—" said Alice.*
>
> *"Then it doesn't much matter which way you walk," said the Cat.*
>
> *"—so long as I get* somewhere*," Alice added as an explanation.*
>
> *"Oh, you're sure to do that," said the Cat, "if you only walk long enough!"*
>
> —Lewis Carroll, *Alice's Adventures in Wonderland,* 1856/1922.

This research was based on the premise that the design of upper secondary school exit qualifications pathways can lead either to *dead ends*—terminating pathways and inequitable outcomes—or to qualifications success for all students and equivalent outcomes that open *doorways* to further, post-school learning and qualifications opportunities. Qualifications pathway provisions and attainment are thus visible indicators of education equity provisions. This premise was tested in two related but independent mixed methods studies, one comparing small groups of countries (Study 1) and the other focussing on a single country, New Zealand (Study 2). The two studies had an overarching lens of attainment and equity in upper secondary school exit qualifications pathways.

In Study 1, aggregated data from three recent Programme for International Student Assessment (PISA) tests—2006, 2009 and 2012—were used to classify countries that were members of the OECD into four quadrants based on attainment and equity. Sixteen countries were identified as outliers across the four quadrants as the strength of the relationship between performance in PISA and socio-economic status for each country was statistically significantly different from the OECD average impact. All 16 countries were used in this study:

- High Performing–Low Equity (Belgium, Germany, Hungary, New Zealand);
- High Performing–High Equity (Australia, Canada, Estonia, Finland, Japan, Korea);

- Low Performing–Low Equity (Chile, Luxembourg; Slovakia); and
- Low Performing–High Equity (Iceland, Italy, Norway).

Across the 16 countries, a total of 73 unique upper secondary programme types and 53 associated exit qualification types were identified and classified using their International Standard Classification of Education (ISCED)[15] classifications to ensure inter-country comparability. Data about each programme and qualification type were then gathered from official, public-domain databases and documents for 12 categories and 99 subcategories of interest and analysed using a single strand, mixed methods research design comprising both quantitative and qualitative data and methods.

Study 2 focussed specifically on New Zealand's National Certificate of Educational Achievement Level 3 (NCEA L3) and University Entrance pathways and had a mixed methods design comprising two research strands. For Strand A, school demographic and attainment data were gathered from official national databases for all eligible New Zealand schools that offered NCEA L3 in 2014 ($N = 425$). Sampling was undertaken to ensure greater comparability between schools; a mathematical model was then developed to stratify the sample ($n = 289$) and identify low-performing and high-performing schools regarding NCEA L3 and University Entrance outcomes. The data were analysed to determine similarities and differences between the low- and high-performing school cohorts and to inform subsequent data gathering. For Strand B, 15 of the lowest ranked low-performing schools and 15 of the highest-ranked high-performing schools were the focus of an in-depth investigation to determine similarities and differences in opportunities provided through their qualifications pathways. Data were gathered from school documents and interviews with senior leaders.

Previous studies have described and compared qualifications systems within and across countries, and qualifications opportunities and outcomes for different socio-economic, ethnic and historically marginalised groups. This thesis deepened and

[15] ISCED is used to describe levels and subcategories of education from level 0 (early childhood) to level 8 (doctoral). The focus of this research was ISCED 3, which is upper secondary, and its progression to ISCED 4 (post-secondary non-tertiary), ISCED 5 (short-cycle tertiary) and ISCED 6 (bachelor's degree-level tertiary). A fuller explanation of ISCED classifications is given in Chapter 3.

extended previous research by seeking to examine different qualifications pathways for groups of countries that were classified by their PISA results as low or high performing and low or high equity (Study 1), and groups of schools that were classified by their NCEA L3 and University Entrance attainment as low or high performing (Study 2). This approach moved the focus from socio-economic and socio-cultural factors as possible influencers of student attainment to the role that countries and schools play in constraining or enabling qualifications success through their qualifications pathways, programmes, subjects and courses and associated systems, policies and procedures.

In this chapter, Study 1 and Study 2 data findings are merged and interpreted and meta-inferences are drawn as the final steps in the mixed methods model used for the study (described in Chapter 3), to answer the overarching research question:

> In what ways do qualifications pathways create or limit opportunities for upper secondary school students to achieve qualifications success?

Interpreting results in mixed methods research "involves stepping back from the detailed results and advancing their larger meaning in view of the research problems, questions in a study, the existing literature, and perhaps personal experiences" (Creswell & Plano Clark, 2011, p. 209), and is undertaken to allow "a more complete, *holistic,* and contextual portrayal of the unit(s) under study" (Jick, 1979, p. 603; emphasis in original). In other words, in mixed methods research, the interpretation is greater than the sum of its parts (Bryman, 2016; Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 2003).

The OECD uses the metaphor of an iceberg to show six predictors of low performance and school failure (see Figure 19). Three of these predictors—labour-market conditions, educational system-level policies, and school factors (comprising structure and resources, and practices)—are shown as "submerged" as they are difficult to observe. The remaining three predictors—student background, student behaviour and educational performance—are positioned above the waterline of the metaphorical iceberg as they are observable. Three of these predictors were a focus of this research: educational performance (attainment), positioned at the tip of the iceberg as it is observable; and educational system-level policies and school factors, located near the base of the iceberg as they are more difficult to observe. This thesis has made visible the harder-to-observe,

submerged predictors of educational system-level policies and school factors, specifically the role they have in constraining or maximising the qualifications pathways and subsequent outcomes of diverse students. The predictor of system-level policies was a focus of Study 1, while that of school factors was a focus of Study 2; there was, however, some overlap of these foci between the two studies.

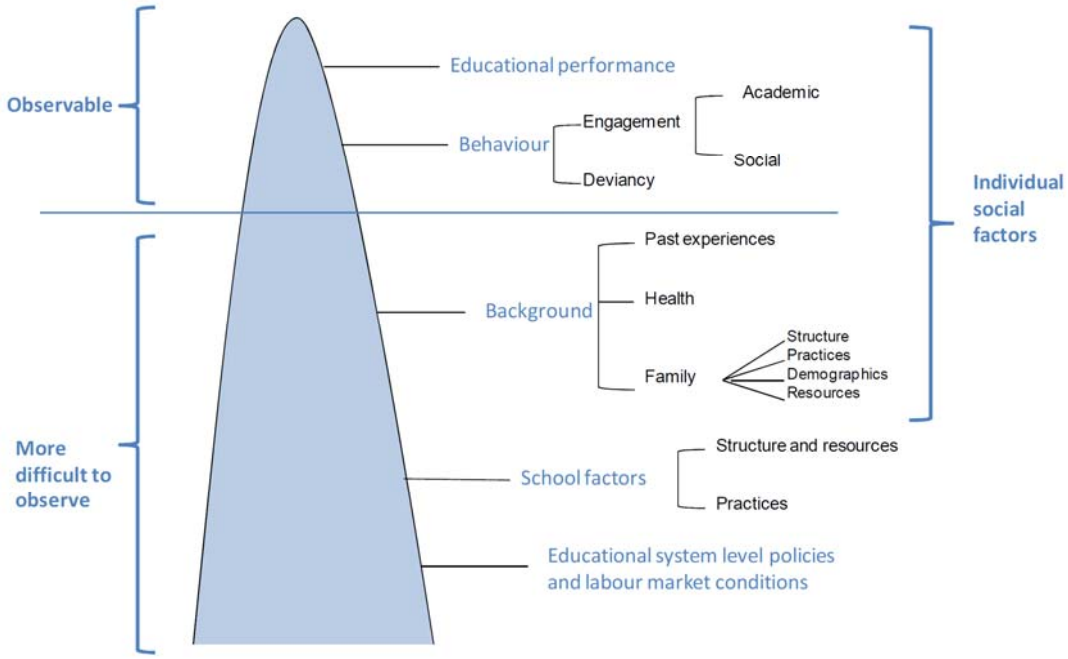

Figure 19. The iceberg of low performance and school failure (repeated from Figure 1). From *Equity and Quality in Education: Supporting Disadvantaged Students and Schools* (p. 21), by OECD, 2012, doi:10.1787/9789264130852-en. Copyright 2013 by the OECD.

This research identified and unpacked three broad groupings of overlapping educational system-level policies and provisions and school factors across the two studies, which can create or limit opportunities for diverse upper secondary students to achieve qualifications success:

- access and opportunity,
- systems and procedures, and
- assessment content and practices.

These findings are conceptualised as a causal diagram titled "The Iceberg of Qualifications Opportunities" (Figure 20), which is an adaptation of the OECD's iceberg metaphor. The

qualifications pathways students undertake, and their subsequent qualifications outcomes are shown above the waterline because they are easily observed and reported. However, national policy and provisions and school factors, which are more difficult to observe and are thus shown submerged at the base of the iceberg, can individually and collectively moderate, or ultimately determine, students' qualifications pathways and outcomes.

The first three sections of this chapter are structured around the three broad groups of merged findings shown in Figure 20: access and opportunity, systems and procedures, and assessment content and practices. There was considerable overlap between these three groups of findings and, depending on the country or jurisdiction, considerable overlap between whether these were determined by system-level policies and provisions or school factors, or a combination of both. The fourth section presents an interpretation of the findings characteristic of high-performing/high-equity countries and schools, which is framed as implications for policy and practice. These findings are then distilled and presented diagrammatically as a Model of a Fair and Equitable Large-Scale, High-Stakes Qualifications System. The case is made for further increasing the fairness and equity of such qualifications systems by incorporating culturally responsive approaches. The chapter concludes with limitations of the thesis and proposed future research directions to build on these findings.

Throughout the chapter, Study 1 and Study 2 findings are discussed at country and school levels respectively and, where appropriate, are aggregated across studies for discussion. Findings identified for inclusion in this discussion are those with the largest contrasts between low versus high performance or equity. It is important to note that many results were not binary: for example, a finding more typically associated with high-performing countries or schools likely included at least one low-performing country or school and vice versa.

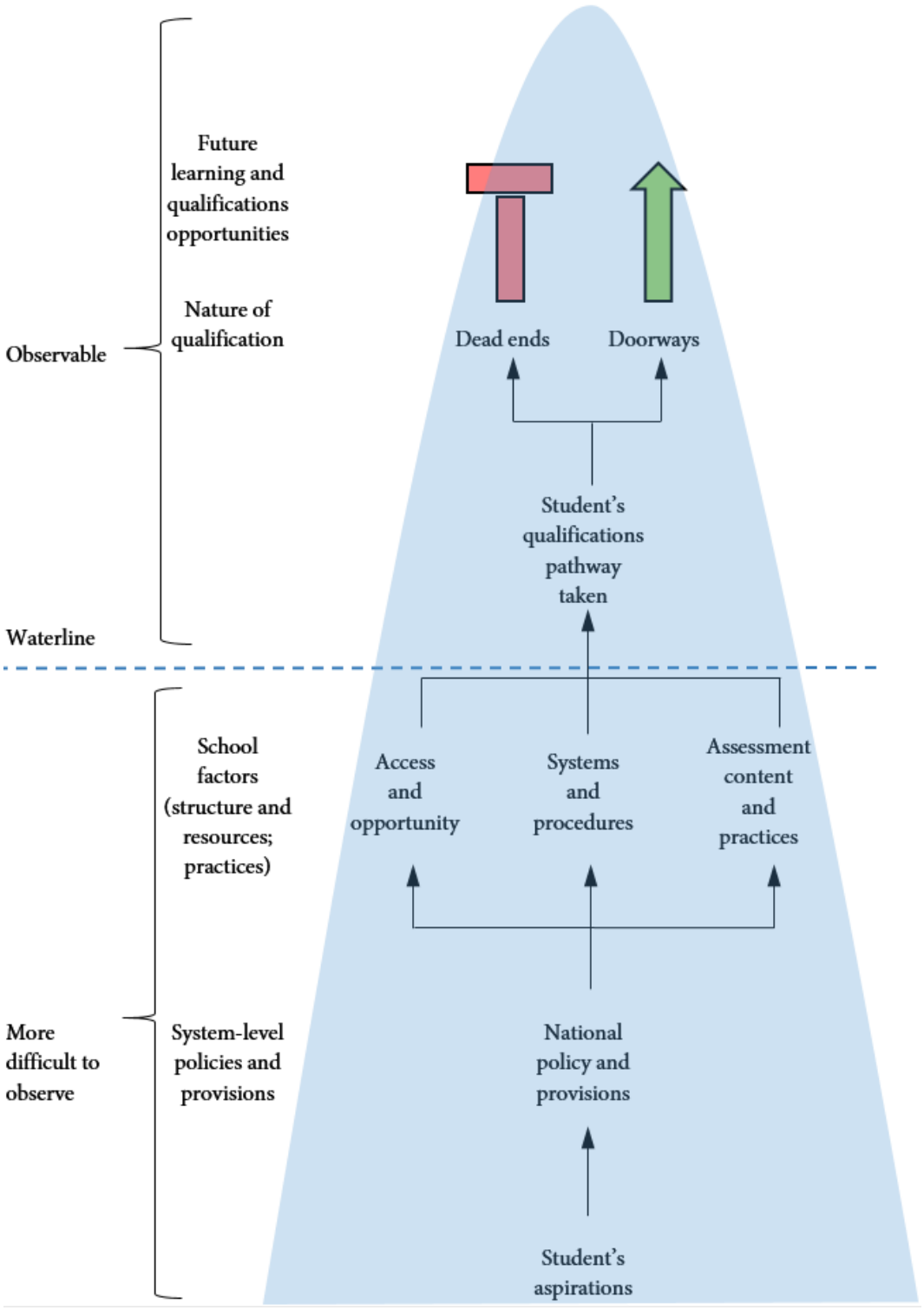

Figure 20. The iceberg of qualifications opportunities: educational system-level policies and provisions and school factors that create or limit opportunities for upper secondary school students to achieve qualifications success. Adapted from "The Iceberg of Low Performance and School Failure," *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, p. 21, by OECD, 2012, doi:10.1787/9789264130852-en

Access and Opportunity

The first broad group of merged findings shown on "The Iceberg of Qualifications Opportunities" (Figure 20), access and opportunity, is discussed in four subsections. The first two subsections examine the range of learning opportunities available and access to these, while the third and fourth subsections concern less visible, "soft" forms of access and opportunity resulting from specialisation and streaming and teacher expectations. Students' opportunities to learn were determined by the qualifications pathways to which they had access, which in turn were determined by system-level policies and provisions, school factors, or a combination of these. For example, system-level policies may prescribe the types of general and vocational pathways and qualifications available and their progression opportunities, while school factors may determine which of these are offered and who has access to what.

Range of learning opportunities.

A seemingly counterintuitive finding for low-performing/low-equity countries (Study 1) and schools (Study 2) was that they tended to offer a greater variety of learning opportunities than high-performing/high-equity countries and schools, such as different school and qualification types, pathways, programmes and subjects. This variety was most evident in vocational pathways, including those with formalised workplace links such as apprenticeship-type pathways as well as solely school-based pathways. Low-performing/low-equity countries and schools tended to offer a wider range and higher proportion of such pathways, subjects and courses than high-performing/high-equity countries and schools and had higher average enrolment rates in these. Some nuanced differences in the nature of this variety were evident when Study 1 findings were examined by performance versus equity country groupings. For example, low-performing countries provided a wider range and higher percentage of vocational programme types on average than high-performing countries, while low-equity countries tended to have a greater variety of school types or distinct educational programmes available for 15-year-olds than high-equity countries.

Also counterintuitive was the related finding that country or school population size was weakly associated with the variety of learning opportunities available. It was assumed that smaller countries and schools would offer a narrower range of provisions than larger countries and schools due to resourcing constraints, but this proved not to be so. There was a stronger association between performance/equity classifications and variety than there was between population size and variety.

The predominant justification given by low-performing countries and schools for offering an expanded range of subjects and options was to better cater for diverse learners. However, a lower percentage of vocational programmes and qualifications in low-performing/low-equity countries and schools enabled direct access to ISCED 6 degree-level tertiary study than in high-performing systems; furthermore, these countries and schools were more likely to offer terminating (dead-end) pathways and qualifications that did not provide tertiary access. Literature presented previously in this thesis (e.g., Kaden et al., 2013; Ministry of Education, 2018; Raffe, 2003) suggests that a broad range of subject and pathway choices are desirable for equitable qualifications systems; indeed, Cuadra and Moreno (2005) argue that this approach to student diversity is the key to the democratisation of secondary education. However, the findings of this thesis show that, in some cases, an overly wide range of opportunities may be counterproductive to achieving equitable outcomes and, furthermore, may have the unintended consequence of funnelling some students into pathways that limit opportunities for qualifications success.

These findings extend an international body of literature showing that, paradoxically, students have higher and more equitable attainment in schools with a constrained curriculum consisting mostly of academic/general courses, with few low-level or vocational courses. The findings are consistent with those of a large-scale study in the 1980s that compared public and private United States high schools. Coleman, Hoffer, and Kilgore (1981) found that Catholic schools, which constituted two-thirds of the private-school sector and did not target an upper-class elite, had smaller roll sizes and budgets and offered a narrower range of courses than public schools, with fewer non-academic, vocational and work-related courses. Despite their constrained curricula, students in Catholic schools had higher and more homogeneous achievement across a range of

measures. Furthermore, the achievement gap between minority students of African-American and Hispanic backgrounds and white students was smaller in Catholic schools than in public schools, with minority students achieving at a level closer to white students. The authors reported that "the evidence is strong that Catholic schools function much closer to the American ideal of the 'common school,' educating children from different backgrounds alike than do the public schools" (p. 235).

The constrained curriculum is also a major explanatory factor for findings from research by Lee and Burkam (2003) into how high schools' structures and organisation influence student dropout. The authors found that students were less likely to drop out in schools with curricula composed mainly of academic courses, with few non-academic courses. They concluded that schools could exert important organisational effects on dropping out, above and beyond individual students' background and behaviour.

Similarly, Shulruf, Keuskamp, and Timperley (2006) reviewed international literature on course-taking to identify how studying particular subjects or clusters of subjects impacts future educational outcomes. They found no evidence to support the view that increasing the breadth of course choices correlated with increased educational outcomes. Indeed, they found that schools with a narrower curriculum and range of subjects, notably schools with few options other than "advanced coursework," had smaller achievement differences between ethnicities. The authors proposed that differentiated learning opportunities and pathways "play a substantial role structuring the social distribution of achievement" (p. 3) as students tend to stratify into pathways and courses by predetermined and co-correlated factors such as gender, ethnicity, socio-economic status and prior achievement. They cautioned that any increase in course choices should be carefully considered.

The move to offering an expanded range of opportunities can be traced back to the 1970s, with the emergence of high schools offering an extensive range of curricular and extra-curricular choices, pathways, subjects and opportunities to better cater for a range of student abilities and interests. These schools have been described as "shopping mall schools" (Powell, Farrar, & Cohen, 1985) and "cafeteria-style schools" (Hirsch, 1987) which offer a "cafeteria-style curriculum" and a "curricular smorgasbord" (National

Commission on Excellence in Education, 1983). None of these terms is used in complimentary ways. In America, for example, the National Commission on Excellence in Education (1983) found that classroom learning was often an "incoherent, outdated patchwork quilt" (p. 22) comprising extensive student choice, diminished academic rigour and "a cafeteria style [*sic*] curriculum in which the appetizers and desserts can easily be mistaken for the main courses" (pp. 17–18). In his controversial work on cultural literacy, Hirsch (1987) also criticised cafeteria-style education, which he asserted fractured the curriculum horizontally across subjects and vertically within subjects, diminishing the pool of commonly shared knowledge that is necessary in the modern world. He argued that a shopping mall high school system is a recipe for cultural fragmentation.

The metaphor of a shopping mall was extended by Powell et al. (1985) in their strong critique of American comprehensive schools, *The Shopping Mall High School: Winners and Losers in the Educational Marketplace*. The authors argued that, like shopping malls, schools are governed by consumer choice and have responded to diverse customers' needs by trying to provide something for everybody. Making schools more like shopping malls:

> suggests educational prosperity just as a new shopping mall in an old neighbourhood signals economic prosperity. If not enough exciting courses or programs hold every student, more must be created. If many students are unspecial because there are few speciality shops, more shops must be developed. (p. 310)

One outcome of shopping mall schools is the development of less challenging curricular content. Students at both ends of the academic spectrum—the ablest and the most disadvantaged—are best catered for in the specialty shops, leaving the majority to pass through high school unchallenged. As students do not always make strategic choices and many courses do not prepare students adequately for post-school study or life, "students can accumulate endless credits without taking classes committed to engaging them in the subjects they are supposed to be studying" (p. 310).

Although metaphors associated with shopping malls or food have not gained traction in New Zealand education, the same potential for fragmentation and breadth at the expense of a coherent whole has become an increasing concern since the introduction

of the NCEA qualification in 2002. NCEA's flexibility in accommodating a wide variety of pathways, subjects and courses within its modular structure has been both a strength and a weakness, resulting in intended and unintended consequences. In their comprehensive report *Towards University: Navigating NCEA Course Choices in Low–Mid Decile Schools*[16], Madjar et al. (2009) found that, while the broader range of subjects possible under the NCEA system provided some at-risk students with the incentive to stay at school and gain qualifications, others, particularly Māori and Pasifika students, took subjects that did not always optimise access to tertiary study.

> Under the NCEA system, students are offered a wider choice of pathways that can lead to very different areas of achievement; and can also lead to dead ends, giving students an assortment of unrelated *credits*, or insufficient grounding in subjects critical for achieving particular aspirations in tertiary education or employment. (pp. 105–106; emphasis in original)

The authors cautioned that "freedom to choose from a vast and complicated array of options should not be an end in itself. It must serve the more important end of better educational outcomes for all students" (p. 106).

Non-strategic and ad hoc course-choice making is akin to the discussion between Alice and the Cheshire Cat in *Alice's Adventures in Wonderland*, in the epigraph to this chapter. Without clear strategic direction ("I don't much care where [I get to]—so long as I get somewhere"), the Cheshire Cat's assurance that Alice was sure to get somewhere if she only walked long enough is analogous to a journey along an incoherent qualifications pathway comprising a variety of unrelated components. The pathway may well lead "somewhere," but the unknown nature of the journey's end might have unexpected consequences. Findings of this author's research showing that low-performing New Zealand schools were more likely than high-performing schools to offer a broader range of pathways, subjects and courses, deepen and extend work such as that by Madjar et al., which shows the unintended, adverse effects of offering an expanded range of opportunities.

---

[16] School deciles are numbered from 1 (low) to 10 (high) and are a measure of the socio-economic position of a school's student community relative to other schools throughout the country.

Access to learning opportunities.

Access to equitable learning opportunities is linked to equity of students' attainment (Causa & Chapuis, 2010; OECD, 2016c). In this thesis, two measures of equitable access to ISCED 3 pathway opportunities were used: graduation rates for first-time graduates from all ISCED 3 programmes, and entry into degree-level tertiary programmes. For the first measure, Study 1 findings show that high-performing countries had higher graduation rates than low-performing countries. In Study 2, low and high attainment of Year 13 students in NCEA L3 and University Entrance was implicit in the respective low- and high-performing school designations. Although these Study 2 attainment patterns were an artefact of how schools were initially classified, they were also notably evident in NCEA L3 and University Entrance when examined by ethnicity. The high-performing cohort of schools had higher overall attainment in all four main ethnic groupings (New Zealand European/Pākehā, Māori, Pasifika and Asian) than the low-performing cohort.

The second measure of equitable access to learning opportunities, entry into degree-level tertiary programmes, was reflected in the percentage of students who either successfully transitioned into degree-level university programmes (Study 1) or qualified to do so (Study 2). In Study 1, high-equity countries had higher average entry rates into degree-level programmes than low-equity countries, irrespective of whether their ISCED 3 school exit qualification provided or contributed to University Entrance, or was a prerequisite for undertaking post-school, university-administered entrance examinations. In Study 2, high-performing New Zealand schools had a higher average percentage of students attain University Entrance than low-performing schools; this was likely an artefact of the methodology used to classify schools.

However, it is the composition of students' NCEA L3 qualifications that reveal key differences in access to learning opportunities between low- and high-performing schools. A subset of criteria must be met within the NCEA L3 qualification to gain University Entrance, meaning NCEA L3 can be attained with or without University Entrance eligibility. For example, although students can study any combination of general or university-approved subjects and vocational subjects (assessed with achievement

standards and unit standards[17] respectively), at least three must be university approved for University Entrance eligibility. More than three, out of a typical programme of five to six subjects, is desirable to give "wriggle room" in case of failure. Any number of vocational subjects can be included in a student's programme, but their inclusion may be at the expense of university-approved subjects, potentially compromising University Entrance eligibility (Madjar et al., 2009; Shulruf et al., 2010b). Successful NCEA L3 students in high-performing schools gained a higher average percentage of their L3 credits from achievement standards and a lower average percentage from unit standards; this approach optimised access to equitable learning opportunities (university-approved subjects) and outcomes (University Entrance). The reverse was seen in low-performing schools, whose successful NCEA L3 students gained a lower percentage of their L3 credits from achievement standards and a higher percentage from unit standards. In these schools, less equitable access to university-approved subjects likely contributed to lower attainment in University Entrance. These findings concur with those of Sweet (2013), who found that schools with low average student achievement were likely to have a greater concentration of students in vocational pathways.

These results also extend those of researchers such as T. R. Turner et al. (2010), who found that the number of achievement standards offered by a school was a strong numeric predictor of academic success for all students, especially higher ability Māori and Pasifika students. The authors concluded that schools could make a difference in the success rate of Māori and Pasifika students by increasing the availability of achievement standards. A study by McNaughton et al. (2014) found that just 13% of Year 13 Pasifika students had a "favoured pathway" (based on subjects in which they achieved the most credits) that would give them greater than 60% odds of attaining University Entrance, due to their enrolment in vocational subjects, and courses that offered a reduced number of credits.

[17] Curriculum-derived achievement standards and vocationally-derived unit standards are used to assess university-approved and vocational subjects respectively. Achievement standards provide better positioning than unit standards for admission to competitive entry university courses, over and above University Entrance requirements. Refer to the "University Entrance" subsection in Chapter 5 for a more detailed explanation of University Entrance requirements, achievement standards and unit standards.

The international literature shows that there are typically equity issues at play regarding the types of students who have access to general and vocational learning opportunities and pathways. The binary partitioning of general and vocational education has traditionally seen students from lower socio-economic and less well-educated backgrounds, including historically excluded, marginalised, indigenous, immigrant, and other minority learners clustered in vocational pathways (Causa & Chapuis, 2010; Field et al., 2007; Luciak, 2006; Polesel, 2008). Such pathways are often associated with attendant problems of qualification dead ends, a reduced likelihood of progressing to tertiary education, lower achievement levels and poorer employment prospects (Sahlberg, 2007; Sweet, 2013). Similar patterns of disadvantage are evident in New Zealand schools, where Māori and Pasifika students and students in low-decile schools are over-represented in unit standards-based, vocational NCEA pathways that limit access to university pathway learning opportunities (Madjar et al., 2009; T. R. Turner et al., 2010).

New Zealand studies such as Madjar et al.'s (2009) have typically reported correlations between decile or ethnicity and types of standards achieved (which reflect access to learning opportunities), whereas the findings from this study showed differences between schools' low- or high-performance classifications and access to learning opportunities. However, although high-performing schools achieved greater overall success in NCEA L3 and University Entrance than low-performing schools across the four ethnic groupings, there was a comparable pattern of disadvantage in the achievement of each ethnic group relative to the other ethnicities. The low- and high-performing cohorts had similarly stratified outcomes for NCEA L3 and University Entrance, with Māori and Pasifika achievement tending to be lower than that of New Zealand European/Pākehā and Asian students.

National qualifications frameworks make it possible to align general and vocational subsystems, which are perceived to have higher and lower status respectively (Field et al., 2007; Raffe, 2003; Sahlberg, 2007; Sweet, 2013; Tuck, 2007). Alignment can potentially open up access to a wider range of learning opportunities by allowing bridges to be created between hitherto siloed and disparate education and training sectors, enabling horizontal and vertical access and mobility between qualifications pathways and credit transfer

between qualifications (OECD, 2007b). Nevertheless, despite most Study 1 countries having some form of national qualifications framework, there was surprisingly little potential for general–vocational inter-pathway mobility, with qualifications structures in just four countries (three high performing, one low performing) readily allowing this. The lack of mobility may be at least partially attributable to general qualifications in Study 1 being more likely than vocational qualifications to be stand-alone. National qualifications frameworks are a relatively recent and rapidly evolving phenomenon, and upper secondary general qualifications appear to have been particularly impervious to framework-related development. The European Commission (2011) attributes this to the selective function of traditional general qualifications for university admission, while Leney et al. (2009) propose this is because:

> A general *baccalaureate* or *matriculation* may have a cultural status as totem or gold standard that is selective and has an ascriptive role as well as an educational one. General education qualifications are often considered tightly linked to a country's cultural identity, due to their national specificity, and so are likely to be resistant to change. (p. 79)

According to Sahlberg (2007), mobility between general and vocational education pathways remains a policy challenge in many countries.

New Zealand's qualifications framework enables mobility and credit transfer between general and vocational pathways, which have theoretical equivalence within the NCEA L3 qualification. However, findings of this thesis show that a general–vocational hierarchy was prevalent, notably in low-performing schools where an increased emphasis on vocational pathways was linked to inequitable attainment in University Entrance. These outcomes build on and deepen those of other studies that reported associations between inequitable access to learning opportunities and low achievement (e.g., Causa & Chapuis, 2010; Field et al., 2007; Sweet, 2013), including by diverse and marginalised students (e.g., Kiro et al., 2016; McNaughton et al., 2014; T. R. Turner et al., 2010). They also demonstrate the paradox of the NCEA: on the one hand, its flexible structure within a broader qualifications framework accommodates diverse learners and individualised pathways that low-performing schools, in particular, had capitalised on with an expanded

range of vocational pathways and unit standard-based assessment. On the other hand, NCEA L3 learning opportunities and outcomes were stratified by a general–vocational hierarchy dictated by the subset of University Entrance requirements that primarily credentialled narrowed, approved-subject-based pathways.

Specialisation and streaming.

Thus far the discussion has centred on access and opportunity in relation to school and qualification types and pathways provided for students. The discussion now turns to an examination of access and opportunity determined by specialisation and streaming into and within qualifications pathways. Specialisation and streaming, which serve gatekeeping roles, occur where students choose or are assigned school and qualification types, pathways, programmes or subjects. They can be a result of system-level policies and provisions or school factors or a combination of these. Findings show, for example, that system-level policies may formally prescribe the age of specialisation and the educational institutions and pathways available for each type of specialisation, whereas "soft" school factors such as systems and procedures may determine streaming within subjects and placement into these courses. Overall, students across both studies who were streamed into lower level or vocational schools, qualifications pathways, programmes or subjects were more likely to have restricted learning opportunities. Consequently, they were also more likely to have access to a narrower range of qualifications pathways, including a higher likelihood of dead ends and pathways that did not provide direct access to ISCED 6.

Specialisation and streaming were more likely to occur in low-performing or low-equity systems (Study 1) and schools (Study 2) than in their high-performing or high-equity counterparts. Study 1 findings showed, for example, that low-equity countries were more likely to have high-stakes tests for secondary school admissions than high-equity countries, and general- and vocational-school and -programme types were significantly more likely to be differentiated according to streamed academic admission prerequisites. First selection or specialisation tended to occur at a younger age and earlier in students' schooling in low-equity countries and was typically determined by system-level policies

and provisions, whereas it was more likely to occur at an older age, in upper secondary, in high-equity countries and be determined by school factors.

These findings on specialisation and streaming and those of the previous subsection ("Access to learning opportunities") support those reported by Sweet (2013), who drew on PISA data to show the relationship between post-compulsory pathways, including apprenticeship pathways, and aspirations, equity and career guidance, in countries with large or medium-sized apprenticeship systems. Sweet found that large apprenticeship systems (based on the percentage of students enrolled) in low-equity countries were underpinned by socio-economic and ability-based streaming that occurred early in the schooling system. A relatively small proportion of 15-year-olds in these countries had tertiary education aspirations compared with other OECD countries, and there were large school-based vocational pathways and small tertiary education pathways. In contrast, smaller apprenticeship systems in high-equity countries were built on school systems that were relatively undifferentiated by achievement, socio-economic status or pathways until age 16. A higher proportion of 15-year-olds had tertiary education aspirations, and there were smaller school-based vocational pathways and larger tertiary pathways in these countries. The largest tertiary systems tended to be found in countries with high equity.

A similar pattern was observed at an individual school level in Study 2, although here specialisation and streaming into and within qualifications pathways were determined by soft school factors rather than formal system-level policy and provisions. Streaming was evident where parallel courses within a subject area such as mathematics offered a different number of credits, different types of credits (e.g., from internally or externally assessed standards), or where there were different prerequisite requirements for these parallel courses. "Hidden" streaming was evident where schools said they did not stream but in fact provided strongly worded guidance to individual students and their families about recommended placement into courses with differentiated prerequisite requirements. Considerable confidence and assertiveness by students and their families would be required if they wished to countermand such guidance. Low-performing schools were more likely than high-performing schools to stream within NCEA subjects in the 2 years prior to the L3 exit qualification, at NCEA L1 and L2, and to provide low-stream,

terminating (dead-end) English, mathematics and science courses at these lower levels. They were also more likely to assign students to streamed courses within subjects rather than allowing student self-selection. The net effect of streaming within NCEA subjects was that, while students may have had access to a subject, the composition of the particular course they undertook within that subject area could shut down future progression, qualification and employment opportunities (Madjar et al., 2009; McNaughton et al., 2014).

Another form of hidden streaming was seen where there was an overt stratification of general and vocational subjects, with lower achieving students streamed into a vocational trajectory, reducing access to general learning opportunities and university pathways. This approach was more common in low-performing schools, which offered a greater average number of vocational subjects but had a higher likelihood of these terminating at the end of NCEA L2; students undertaking dead-end L2 pathways were disadvantaged as they had to undertake new subjects at L3 to replace those that terminated. High-performing schools, which offered a smaller average number of vocational subjects, were less likely to stream lower achieving students into these and were more likely to provide pathway continuity from L2 to L3.

These findings about streaming as an NCEA gatekeeping mechanism concur with those reported by Madjar et al. (2009) in their investigation of why and how Māori and Pasifika students and those from low-decile schools chose their NCEA courses or had such "choices" made for them.

> NCEA subject choice is not necessarily student driven. Schools play a strong mediating role, determining which subjects are available and how they are timetabled, which *standards* within individual subjects are selected, which prerequisites have to be met for progression to more advanced study, and how students are selected for different versions of the core subjects. (p. 6; emphasis in original)

Although Madjar et al.'s study investigated practices that occurred in low-decile schools rather than low- and high-performing schools, their findings are germane to this study.

Any discussion of the benefits or otherwise of streaming enters contested territory. Some international meta-analytic studies show either a small positive effect of streaming in specific circumstances, such as for high achievers, or no effect (e.g., Kulik & Kulik, 1992; Slavin, 1987, 1990). Conversely, in a synthesis of over 800 meta-analyses of quantitative studies relating to achievement, Hattie (2009) reported, "The results show that tracking [streaming] has minimal effects on learning outcomes and profound negative equity effects" (p. 85). These negative equity effects can be particularly acute for historically marginalised and minority students (Field et al., 2007) and where early streaming or specialisation occurs (OECD, 2012b). Indeed, the earlier the pathway specialisation, the greater the achievement difference between students with different socio-economic backgrounds (Causa & Chapuis, 2010; Hanushek & Woessmann, 2010; OECD, 2012b). Using PISA data in a study of the effects of streaming on performance and equality, Hanushek and Woessmann (2006) found that higher streaming countries had greater inequality of performance between students, with no significant effects on overall performance. Causa and Chapuis (2010) investigated the role of policies in relation to equity in student achievement across OECD countries and similarly found that schooling differentiation and early streaming policies increased socio-economic inequality in learning opportunities, with no corresponding gains in average performance. In *Keeping Track: How Schools Structure Inequality*, Oakes (2005) strongly argues that streaming is systemically classist and racist and helps to perpetuate existing inequalities. Oakes' research showed how large American comprehensive schools apportioned places in advanced courses to the ablest and most socially advantaged students, who were taught by more competent teachers, while lower performing and less advantaged students, including a disproportionate percentage of African-American and Latino students, were streamed into lower tracks with lower quality learning experiences.

Findings of this thesis deepen and extend outcomes of studies showing that early specialisation and streaming act as gatekeeping mechanisms, with particular disadvantage to diverse and low-socio-economic students (e.g., Field et al., 2007; Madjar et al., 2009; McNaughton et al., 2014; Sweet, 2013).

Teacher expectations.

Teacher expectations are subjective teacher predictions about future academic progression and achievement, which can become a self-fulfilling prophecy (Meissel, Meyer, Yao, & Rubie-Davies, 2017). The two main self-fulfilling prophecy effects are known as the "Galatea effect" and its corollary, the "Golem effect" whereby higher or lower teacher expectations lead to higher or lower student performance respectively (Babad, Inbar, & Rosenthal, 1982). There are strong links between streaming and teacher expectations, as students who are subjected to lower expectations are typically placed in lower streams or exposed to lower level learning experiences (R. W. Cole, 2008a; Gamoran, 2004; Kiro et al., 2016; OECD, 2012b). The OECD (2012b) reported that:

> The existence of lower level tracks and streams fuels a vicious cycle in the expectations of teachers and students. Teachers can have lower expectations for some students, especially disadvantaged and/or low performing ones, and assign them slower-paced and more fragmented instruction; and students adjust their expectations and efforts, which results in even lower performance. (p. 58)

An unexpected finding of Study 2 was the high level of influence that teachers' expectations of students had on the qualifications pathways students undertook. The impact of this finding, which was unexpected as it was not an explicit focus of the research, was evident in the range and nature of pathways, subjects and courses available—or not available—to different types of students. For example, students who were perceived to be academically able typically had a wider variety of subjects and pathways available to them. They were encouraged via career education and guidance to undertake general pathways, subjects and courses that optimised their opportunities to gain University Entrance, or they were streamed into these. In contrast, students who were considered less academically competent were often counselled or streamed into vocational pathways and subjects, some of which led to academic dead ends, or pathways that did not provide University Entrance eligibility.

Expectations of students are not limited to teacher-student interactions: according to the OECD (2012b), disadvantaged schools often have low expectations of their students. This trend was evident in differences in school-wide expectations of students between low-

and high-performing schools in Study 2. For example, when invited at the end of their interviews to make any final comments about their school's qualifications pathways or processes, senior leaders in just over half of the high-performing schools described their school's high expectations and expressed a firm belief that all students could achieve. They said these high expectations were a contributing factor to their NCEA L3 and University Entrance success rates. As one senior leader from a high-performing, decile 7 school explained:

> *We are hesitant ever to say, "Well that's unrealistic for you." So we are always pushing to get University Entrance.*

In contrast, senior leaders in low-performing schools were more likely to articulate concerns about their qualifications pathways or processes and how these could potentially limit the qualifications attainment of some types of students, such as those studying vocational subjects; concerns included constraints such as a small roll size or geographic isolation. The contrasting expectations of the low- and high-performing cohorts are reflected in their NCEA L3 and University Entrance attainment (see "Access to learning opportunities"). High-performing schools, over half of which espoused high expectations, had higher overall attainment in NCEA L3 and University Entrance, including by all four main ethnic groupings, than low-performing schools, none of which espoused high expectations.

There is a substantial body of international research showing that teacher expectations about students' abilities are subject to bias relating to the students' ethnicity (McKown & Weinstein, 2008; Rubie-Davies et al., 2012), socio-economic status (Ready & Wright, 2011), gender (Retelsdorf, Schwartz, & Asbrock, 2015), special learning needs (Hurwitz, Elliott, & Braden, 2007; Klehm, 2014; Martínez, Stecher, & Borko, 2009) and proficiency in the language of instruction (Callahan, 2005). Evidence suggests that there is also ethnic bias in the New Zealand teaching profession concerning teacher expectations, notably against Māori and Pasifika students (Bishop et al., 2009; Blank, Houkamau, & Kingi, 2016; Hynds, Averill, Hindle, & Meyer, 2017; Peterson, Rubie-Davies, Osborne, & Sibley, 2016). Using a large New Zealand database, Meissel et al. (2017) explored the relationship between standardised achievement results and teacher judgments in reading

and writing for primary school students in Years 4–8 (approximately 8–13 years old). Their findings indicate that teachers' judgments were significantly different for students of different groups, with marginalised learners, including Māori and Pasifika students, being systematically assigned lower teacher judgments after controlling for achievement. The authors concluded that these results provided a clear indication of systematic bias in the New Zealand education system.

A similar ethnically hierarchical bias was reported in a study by H. Turner et al. (2015) of expectations of secondary school Year 9 and 10 mathematics achievement. The authors found that teacher expectations were highest for Asian students, followed by New Zealand European/Pākehā students and then Pasifika students, and lowest for Māori students. While prior attainment significantly predicted teacher expectations, adding student ethnicity improved the prediction significantly, over and above the contribution of achievement. This hierarchy of teacher expectations according to student ethnicity was paralleled in the comparable stratification of NCEA L3 and University Entrance attainment by ethnicity, with Pasifika, followed by Māori achievement consistently lowest of the four ethnic groupings (see "Access to learning opportunities").

Overall, high-performing New Zealand schools in Study 2 were more likely than low-performing schools to have high expectations of all students and to encourage them to undertake subjects that optimised their opportunities to gain University Entrance. These findings contribute to the body of literature on the relationship between teacher expectations and academic attainment, including expectations of and attainment by diverse students.

Systems and Procedures

The second broad group of merged findings shown on "The Iceberg of Qualifications Opportunities" (Figure 20) pertain to systems and procedures. Two types of school-based systems and procedures for NCEA are discussed in this section: career education and

guidance, and tracking (monitoring)[18] student progress towards qualifications attainment. As each of these can determine access, or lack thereof, to different types of pathways—albeit a "soft" form of access—there is an overlap with the previous section on "Access and Opportunity." The discussion relates primarily to Study 2, which included a more in-depth investigation than Study 1 of systems and procedures that are shaped by individual schools.

Career education and guidance.

School-based career education and guidance or counselling assists students in making career and qualifications pathway decisions. It is one of the key features of effective transition from school to working life (OECD, 2000), and can help to improve social equity by promoting greater social inclusion of disadvantaged and marginalised groups in education and employment (OECD, 2004a). Career guidance is "one of the institutional factors that can help to determine the character, quality and effectiveness of post-compulsory pathways" (Sweet, 2013, p. 59).

There was a notable difference between low- and high-performing schools in Study 2 regarding the provision of career education programmes. High-performing schools were significantly more likely than low-performing schools to have systematic and individualised career education programmes. The former were also significantly more likely to commence these programmes before Year 13, with most commencing at or below Year 10. Furthermore, high-performing schools were significantly more likely to include processes for formally and longitudinally monitoring the alignment between students' career intentions and their subject selections, to ensure they undertook the necessary subject prerequisites for their intended post-school pathways. In many of these schools, career information for each student was recorded in their electronic student management system and shared with stakeholders, including the student, their teachers and parents, by logging into the school's database. Although the facility for parental involvement in career counselling was similar in low- and high-performing schools, high-performing schools

[18] The words *tracking* and *monitoring* are used interchangeably to mean systematically observing and reviewing progress over a period of time. This is distinct from *track* used to denote streaming or grouping by ability.

were more likely to describe parent access to career information and NCEA attainment via their student management system.

These findings contribute to existing bodies of New Zealand and international research in several areas. Studies show that regular career conferences are more effective than one-off meetings (Hughes & Karp, 2004; Poynton & Lapan, 2017), and career education and counselling that starts early in a student's secondary schooling is more effective than that which commences towards the end (Belasco, 2013; McNaughton et al., 2014; Poynton & Lapan, 2017; Sahlberg, 2007). A study by Bryan, Moore-Thomas, Day-Vines, and Holcomb-McCoy (2011) found that the number of student–counsellor contacts was a significant predictor of college application rates and that these effects were stronger for earlier student–counsellor contact (i.e., in or before 10th grade). Other research shows the importance of parental involvement in academic and career counselling and guidance (Grubb, Lara, & Valdez, 2002; Hossler, Schmit, & Vesper, 1999), particularly for disadvantaged students (Kiro et al., 2016; Perna & Titus, 2005) and in the field of indigenous education (McKinley & Madjar, 2014; McKinley et al., 2009). Webber et al. (2016) argue that parental involvement is not only a culturally responsive response to engaging with Māori students and their families but is fundamental to indigenous student success.

There are considerable differences across New Zealand and internationally in career education provisions. Studies typically focus on the nature and efficacy of career education per se, or for marginalised student cohorts, rather than on practices in low- and high-performing systems and schools. Much New Zealand literature about career-counselling provisions, for example, focusses on practices in low-decile schools, or for Māori and Pasifika students. While New Zealand literature is useful to an extent in situating this study's career education and guidance findings, in that there are similarities between practices in low-performing schools and those reported for low-decile schools, international literature provides more helpful alignment concerning differences between low- and high-performing systems and schools. For this, the OECD (2012b) presents unambiguous direction with two policy recommendations relating to career guidance and counselling, to improve equity and performance. The first is to prioritise linking schools

with parents and communities, and the second is to ensure the availability and quality of academic and career guidance and counselling programmes, to enable students to make better informed choices for school and post-school options.

New Zealand teachers' expectations of students have been shown to determine the nature of advice provided through career counselling (Kiro et al., 2016; Webber et al., 2016). Because most schools are the final arbiters of entry into subjects and courses, students' aspirations may be modified and pathway decisions made *for* rather than *by* them (Madjar et al., 2009; Wylie & Hipkins, 2006). In such cases, the notion of student "choice" is ultimately more akin to a "wish-list" of preferred subjects that is subject to a school's final veto—which may, in turn, be founded on unconscious bias. There is evidence, for example, that Māori and Pasifika students are being counselled or directed into pathways that do not maximise their potential for tertiary study (Madjar et al., 2009; McNaughton et al., 2014). In the *Starpath Phase 2 Final Summative Evaluation Report* Kiro et al. (2016) noted that:

> Māori and Pasifika students were most likely to talk about low teacher and community expectations and about the damaging impacts of negative stereotypes associated with being seen as "low achievers." Some believed that teachers had counselled them and/or their peers into lower value courses, and that a form of academic differentiation or profiling was emerging based on inadequate evidence. (p. 16)

International research similarly indicates that the expectations of school career counsellors play an important role in facilitating tertiary enrolment and that their role in encouraging tertiary aspirations is particularly critical for low-socio-economic and minority students (Bryan et al., 2011; Holcomb-McCoy, 2010). A study by Bryan, Holcomb-McCoy, Moore-Thomas, and Day-Vines (2009) reported that counsellors' post-secondary expectations of students were a predictor of student–counsellor contact: students were less likely to see school counsellors for college information when they believed counsellors did not expect them to attend college. Belasco (2013) found that visiting a school counsellor for college entrance information had a positive and significant influence on students' likelihood of enrolment in post-secondary education, particularly

for a 4-year degree (versus a 2-year enrolment). Importantly, counselling-related effect sizes were greatest for students from low-socio-economic backgrounds, whereas students from high-socio-economic backgrounds showed minimal to no gains. Moreover, the likelihood of low-socio-economic students enrolling for a 4-year degree increased if they met with the counsellor in two grades, compared with students who met with their counsellor in one grade only.

Findings of Study 2 show that high-performing schools were more likely than low-performing schools to have high-expectation career education programmes that commenced at lower secondary level, involved parents, and were underpinned by effective monitoring of alignment between career intentions and subject selections. These findings extend the existing body of literature about upper secondary career programmes, including for high-decile New Zealand schools and New Zealand European/Pākehā and Asian students, where there is a smaller body of research than for Māori and Pasifika students and those attending low-decile schools.

Academic tracking (monitoring).

Once pathway or subject choices are made, a student's educational trajectory must be appropriately supported and linked to any necessary interventions to optimise opportunities for success (Field et al., 2007; McNaughton et al., 2014). One important component of effective support is regular, active longitudinal tracking or monitoring of individual student progress in real time towards qualifications attainment (Kiro et al., 2016; Madjar et al., 2009; Webber et al., 2016). A policy option recommended by the OECD (2012b) is to promote and use data to identify at-risk students and intervene early. However, this recommendation comes with the caution that data should be used for support, not sanctions: "The data should be used to support further learning, and not to deflect students onto tracks [streams] with lower (or different) expectations" (p. 124). Tracking or monitoring is of critical importance in New Zealand given the modular nature of the NCEA and the subset of components that contribute to University Entrance, and the incremental manner in which credits are accrued towards these. There is considerable potential for students to accumulate unrelated credits that may serve a short-term goal of NCEA L3 attainment, but which do not contribute to meaningful pathways to post-school

opportunities, or to gaining the subset of credits required for University Entrance credentialling.

Effective academic support was a feature of high-performing schools in Study 2 and was typically embedded in school systems that were robust, clearly articulated and consistently applied. High-performing schools were significantly more likely than low-performing schools to have comprehensive systems for actively tracking each student's credit accrual towards NCEA L3 and University Entrance attainment, including the literacy and numeracy components of University Entrance. Most high-performing schools tracked attainment data as part of a regular cycle and used it proactively to identify at-risk students and implement individually negotiated interventions in a timely manner, such as in Year 12 or early in Year 13. Tracking individual student progress—as distinct from cohort progress—typically involved multiple stakeholders such as students, parents and senior leaders, including principals. The principal of a medium-sized, high-performing, decile 2 school explained,

> *I would know every single boy, how many credits they have within one credit. So when I have a discussion with a boy, we know what our boys are like, we know we've got a really good understanding of our boys, where their interests are, where their strengths are.*

In contrast, low-performing schools were significantly more likely to have passive, irregular or ad hoc tracking or monitoring systems, where at-risk students were less likely to be identified and supported, and more likely to "slip through the cracks." Intervention actions were typically reactive and non-timely, often occurring late in Year 13 when it became apparent students were in danger of failing. Individual student tracking was frequently the responsibility of a single person such as a dean or career advisor, while senior leaders were more likely to focus on cohort tracking, such as of government-identified priority learners (e.g., Māori and Pasifika students) or a whole year group, rather than on individual students.

These findings deepen and extend existing New Zealand literature about using data effectively to track or monitor and support attainment. A report from the Office of the Auditor-General, *Education for Māori: Using Information to Improve Māori Educational*

Success (2016) found a high correlation between schools using data effectively and higher Māori student achievement. Schools that used information well had "an intense focus on using information to change processes" (p. 6), were gathering better quality information, and were undertaking more detailed analyses of different groups of students as well as using information about individual students effectively. A major finding from the University of Auckland's Starpath Project (Kiro et al., 2016) was that for Māori, Pasifika and other students in low-decile schools to be successful, data were required that enabled student progress to be tracked over time. "[Data] were essential for students, teachers and parents/whānau [extended family] to track and monitor individual progress, aligned to student aspirations and career trajectories and assess progress towards national qualifications" (p. 21).

Assessment Content and Practices

The third broad group of school factors shown on "The Iceberg of Qualifications Opportunities" (Figure 20) that influence qualifications outcomes comprises assessment content and practices, specifically those relating to ISCED 3 qualifications. Three main types of assessment were identified: internal (including workplace based), oral, and final written examinations. Of these, the former showed the largest contrasts by performance and equity for general and vocational qualification types and is the focus of this section. Internal assessment components were defined as those assessed by schools or workplaces that counted towards students' final upper secondary ISCED 3 qualifications.

Two sets of findings concerning assessment content and practices are discussed: the locus of decision making for ISCED 3 assessment (Study 1 and 2) and equity relating to university-approved versus vocational assessment standards (Study 2). There is some overlap between findings discussed in this section and those discussed previously (see "Systems and Procedures") where qualifications structures enabled individual teachers to make assessment decisions for ISCED 3 qualifications.

Locus of decision making for assessment.

Fair and equitable assessment practices include responding to diverse learners' socio-cultural contexts and knowledge (Gipps & Stobart, 2009; Stobart, 2005). These practices

are more likely to occur when the locus of decision making about assessment is devolved to individual schools and teachers, who know and can respond to their student communities. It was, therefore, unsurprising that high-equity countries in Study 1 were more likely than low-equity countries to devolve responsibility to individual schools to make assessment decisions for ISCED 3 qualifications. These included most decisions about internal assessment components, and systems and procedures for the assessment of vocational qualifications. Schools in high-equity countries were also more likely than those in low-equity countries to have discretionary authority for decisions about the administration and quality assurance of some or all assessment components of ISCED 3 qualifications. For example, quality assurance of vocational qualifications was often devolved to individual schools and was more likely to have a continuous improvement focus, as distinct from an accountability focus. In contrast, administration and quality assurance in low-equity countries were more likely to involve multiple external quality assurance authorities, have inconsistent or weak quality assurance processes or have responsibility sitting with higher level state statutory bodies or professional bodies.

Although New Zealand was classified as a low-equity country, it has a highly devolved education policy environment, within which individual schools have discretionary authority to develop local assessment policies, systems and procedures that align with broadly stated statutory requirements (Absolum et al., 2009). The devolution of some NCEA decision making has resulted in considerable inter-school variety of assessment content and practices for internally assessed NCEA standards, as well as differences in assessment content for some externally assessed standards that allowed this. This high degree of discretionary decision making aligned New Zealand more closely with high-equity countries than with other low-equity countries regarding qualifications assessment practices.

In low-performing Study 1 countries (as distinct from low-equity countries), assessment for general and vocational ISCED 3 qualifications tended to have a higher degree of centralised prescriptiveness than in high-performing countries. For example, low-performing countries had a higher percentage of prescribed subjects for general and vocational qualification types, and a higher percentage of those subjects were assessed with

standardised written examinations. They also had a higher percentage of qualifications with mandated assessment components. Despite their more prescriptive approach to qualifications and assessment, no low-performing countries in this study had common mechanisms to ensure the reliability of marking within and across schools, whereas high-performing countries were more likely to have such mechanisms, for assessment both of general and vocational qualifications.

A higher degree of prescriptiveness was also evident in low-performing New Zealand schools in Study 2, although in contrast to Study 1 countries, the locus of these decisions was at an individual school level. Low-performing schools tended to have more delineated— and restrictive—prerequisite requirements for subjects and courses than high-performing schools. Prerequisite requirements were usually based on previous assessment outcomes and were often used to funnel students into streamed courses and pathways, including university-approved and vocational, which were typically regarded as higher and lower stream, and "harder" and "easier" respectively. Low-performing schools tended to invest heavily in vocational subjects to encourage engagement and success of "less academic" or at-risk students, particularly in NCEA L3.

An additional incentive for schools to invest in vocational subjects was the way these could be assessed: unit standards are structured in such a way that assessment can be broken down into smaller parts, as defined by specific elements and performance criteria or outcome statements, and assessed internally. Conversely, a more holistic approach tends to be taken with (university-approved) achievement standards, which are either internally or externally assessed (Hipkins et al., 2016). Conventional wisdom has been that compartmentalisation makes unit standards more accessible to students such as marginalised and disadvantaged students, who respond best to being taught and assessed in small steps. Additionally, these students have historically performed best in internally assessed standards, which provide opportunities to offer a variety of assessment strategies and opportunities that allow for multiple indicators of learning (although the extent to which teachers' expectations have contributed to these approaches and outcomes is moot). However, the emphasis on vocational subjects at the expense of university-approved subjects for some students in low-performing schools had the unintended consequence of

compromising fair and equitable access to University Entrance credentialling (see "Access to learning opportunities").

Patterns of comparative inequity and disadvantage in (vocational) unit standard versus (university-approved) achievement standard assessment for NCEA have been widely reported in relation to low-decile schools (Kiro et al., 2016; Madjar et al., 2009) and Māori and Pasifika students (Kiro et al., 2016; Madjar et al., 2009; McNaughton et al., 2014; T. R. Turner et al., 2010). Findings of this thesis deepen and extend previous studies by showing that the same pattern of assessment disadvantage reported for low-decile schools in other studies was prevalent in the low-performing cohort, despite comprising a similar range of deciles (from low to high) as the high-performing cohort. Moreover, the low-performing cohort in this study paradoxically contained a larger percentage of New Zealand European/Pākehā students and smaller overall percentages of Māori and Pasifika students than the high-performing cohort. As New Zealand European/Pākehā students achieve greater overall qualifications success than Māori and Pasifika students (NZQA, 2017a), it would be reasonable to expect attainment in the low-performing schools in this study to be higher, especially for University Entrance. However, one factor precluding this was likely the higher average proportion of unit standards in students' programmes in low-performing schools.

Assessment and equity: University-approved versus vocational assessment standards. NCEA and University Entrance data used for this research were from 2014, which was the year that changes to New Zealand's University Entrance were introduced. The changes included a new assessment requirement of 14 credits in each of three approved subjects, an increase from two (refer to Appendix B for details). Previously, the third "subject" comprised 14 credits from any subject or combination of two subjects, including vocational and university approved. The additional approved-subject requirement had no theoretical effect on NCEA L3, whose flexible requirements allow assessment of any combination of general and vocational learning. However, it reduced the number of vocational subjects students could fit into their programmes if they wished to attain University Entrance. Moreover, as approved subjects are assessed using achievement standards, which potentially provide better positioning than vocationally-derived unit

standards for admission to competitive-entry university courses, students in many schools were strongly advised to study predominantly or solely approved subjects in their L3 programmes, including those additional to the three-approved-subject minimum. This change was at the expense of vocational learning in some schools.

As previously discussed (see "Access to learning opportunities"), aligning general and vocational pathways and qualifications in a national qualifications framework indicates equivalence between them, ensuring that vocational education is not perceived as second-best, and thereby democratising qualifications pathway choices. National qualifications frameworks can, therefore, be viewed as social and political constructs (Raffe, 2011): in addition to supporting qualifications attainment, they have a role in promoting equity, social justice and social inclusion (Young & Allais, 2009). New Zealand's qualifications framework gives theoretical equivalence to general and vocational pathways within the NCEA L3 qualification; in practice, though, the additional approved-subject requirement for University Entrance accentuated a pre-existing general–vocational hierarchy, further reducing equivalence between these two types of learning.

Perceptions of the effects of the 2014 changes to University Entrance assessment requirements were notably contrasting between low- and high-performing schools. Senior leaders in low-performing schools were more likely than their colleagues in high-performing schools to cite adverse effects of the third approved-subject requirement. Some said this made it harder for their students to gain University Entrance as they could no longer use vocational learning or combine credits from two subjects for their third subject. Findings described previously in this chapter (see "Access to learning opportunities") showed that successful NCEA L3 students in low-performing schools gained a higher percentage of their L3 credits from unit standards than students in high-performing schools, and a lower percentage from achievement standards, likely contributing to their lower University Entrance attainment. This disadvantage (which was also evident pre-2014), indicated that some low-performing schools had not increased the minimum number of approved subjects they required all students to undertake in response to the 2014 changes to the University Entrance third approved-subject requirement.

The findings showed that the students most disadvantaged by the 2014 changes to University Entrance assessment requirements were, ironically, the very ones who stood to gain the most from the flexibility afforded by the New Zealand Qualifications Framework in democratising pathway choices and promoting equity and social justice. These included at-risk students that some low-performing schools in particular, with the best of intentions, were targeting and supporting through the provision of an expanded range of vocational subjects and unit standard-based assessment. On the one hand this shopping mall approach increased students' chances of gaining NCEA L3, but on the other hand, it compromised their University Entrance eligibility. High-performing schools tended to avoid the pitfalls of a shopping mall approach by ensuring students' vocational programmes contributed to cohesive pathways that optimised qualifications outcomes, including University Entrance, while also providing pathways to post-school employment or apprenticeship opportunities.

Other low-performing schools took a contrasting approach to Year 13 subject provisioning in response to the 2014 University Entrance changes, which also disadvantaged at-risk students. This approach was evident where schools terminated vocational subjects at L2 and reduced the number of vocational subjects offered at L3 to focus on university-approved subjects. Non-academic and vocational pathway students in these schools were encouraged to leave school at the end of Year 12/L2 and transition into post-school polytechnic study or apprenticeships. Those who chose to return to school for Year 13 struggled to fill their programmes and had to undertake new subjects they had not studied before. Year 13 curricula in these schools were constrained to the extent that they prevented fair and equitable progression for vocational pathway students. This dilemma was summed up by the senior leader of a very large, low-performing, high decile school:

> *But when they come back into the beginning of Year 12 sometimes, and certainly Year 13, and they are not the academic ones, there are no other choices . . . We are babysitting them.*

The heightened role of University Entrance as a stratifying and sorting mechanism is based on a narrowed curriculum, a change which positions it uneasily beside its more

egalitarian NCEA L3 parent qualification that can credential a wider range of learning. Hipkins et al. (2016) argue that:

> Around a third of Year 13 students actually transition into university studies. Yet the structure of most courses in Year 13 curriculum has been designed to meet the need of this group to gain UE [University Entrance], regardless of the impact on choices available for other students. In effect, the Year 13 curriculum is held hostage by the UE regulations unless teachers are brave enough, or creative enough, to design innovative alternatives despite UE. (p. 157)

In other words, University Entrance is the proverbial tail that wags the NCEA L3 qualification's dog.

Findings of this thesis deepen and extend work such as that of the University of Auckland's Starpath Project (e.g., Kiro et al., 2016; Madjar et al., 2009) about the implications of general versus vocational subjects for University Entrance attainment, particularly for Māori and Pasifika students and those from low-socio-economic backgrounds. They also contribute to an emerging field of research examining the implications of the 2014 changes to University Entrance requirements.

Interpretation and Implications

The findings of this thesis show that educational system-level policies and provisions and school factors can create or limit opportunities for upper secondary school students to achieve qualifications success, and students from diverse or low-socio-economic backgrounds are most likely to be adversely affected by limitations. Students in high-performing/high-equity countries and schools enjoy greater qualifications success, including students from diverse backgrounds; it is thus argued that the nature of qualifications pathways and provisions in these countries and schools contribute to their success and as such can be considered a blueprint of best practice. In this section, findings characteristic of high-performing/high-equity countries and schools are distilled and framed as implications for policy and practice. A discussion and model are presented, which draw from these implications, of fairness and equity in large-scale, high-stakes

qualifications systems. The case is made for increasing the fairness and equity of such qualifications systems by incorporating culturally responsive approaches.

Implications for system-level policy and provisions.

A summary of implications for upper secondary ISCED 3 system-level policy and provisions is now presented, based on the study's findings. These build on and extend the five broad, system-level policies identified in the Study 1 Literature Review, which can improve the quality and design of upper secondary qualifications pathways. System-level policy and provisions are represented near the base of "The Iceberg of Qualifications Opportunities" (Figure 20) as they provide the foundation from which school factors are developed.

- Remove qualification dead ends and provide pathways with doorways that lead to further learning and qualifications opportunities, including direct access to ISCED 6 tertiary study.
- Provide a carefully considered, constrained selection of school types and pathways that are relevant for all students, not just to an academically inclined elite; avoid offering too many options and trying to be "all things to all students" (shopping mall approach).
- Design general and vocational pathways that have equivalence and can provide direct access to ISCED 6 degree-level study.
- Design an inclusive, flexible, permeable qualifications system such as a national qualifications framework that facilitates seamless transitions within and across general and vocational subsystems.
- Avoid streaming and delay pathway selection and specialisation until upper secondary.
- Reduce reliance on centralised assessment prescriptiveness, including of one-off external examinations.
- Devolve responsibility for internal assessment decisions to individual schools where possible.
- Implement robust moderation systems to ensure the reliability of internal assessment marking within and across schools.

- Design qualifications pathways that are comprised of multiple assessment opportunities and outcomes.

Implications for schools.

A summary of implications for upper secondary schools is presented in this subsection, based on the study's findings. School factors such as structures, resources and practices are shaped by the constraints of system-level policy and provisions, as represented on "The Iceberg of Qualifications Opportunities" (Figure 20). There are parallels between some implications listed here and others presented in the previous section for system-level policy and provisions; this duplication is due to the locus of responsibility for qualifications policies and provisions differing between countries and qualifications systems.

- Remove qualification dead ends and provide pathways with doorways that lead to further learning and qualifications opportunities, including direct access to ISCED 6 tertiary study.
- Provide a carefully considered, constrained selection of pathways, subjects and courses that are relevant and interesting for all students, not just to an academically inclined elite; avoid offering too many options and trying to be "all things to all students" (shopping mall school).
- Avoid streaming and delay pathway and subject specialisation until upper secondary to ensure that all students have fair and equitable access to the full range of qualifications, pathways, programmes and subjects on offer.
- Use subject prerequisite requirements as a guide for subject selection, rather than prescriptively to block progression.
- Develop a high-expectation school culture for all students.
- Implement robust and consistently applied school systems and procedures relating to qualifications pathways and attainment.
- Provide personalised, high-expectation career education and guidance or counselling for all students throughout secondary school.
- Develop close links with parents and involve them in career guidance and counselling.

- Commence career education and guidance programmes early, such as in lower secondary.
- Use achievement data effectively to track students' progress towards qualifications attainment and implement intervention actions in a timely manner for students at risk of failing.
- Adopt assessment practices that are relevant for students and allow for multiple indicators of learning.

Fairness, equity and cultural responsiveness in large-scale high-stakes qualifications systems.

Qualifications systems are fairer if students' attainment is due to circumstances they can influence, such as their effort, rather than predetermined contexts such as socio-economic status or ethnicity that have no bearing on their learning potential (OECD, 2012b, 2016c). However, the findings and supporting literature presented in this thesis show that even policies and practices contributing to high-performing/high-equity qualifications systems are often insufficient to ensure genuinely equitable qualifications access and outcomes for all students. Those at highest risk are typically historically marginalised, indigenous, immigrant and other minority learners and those from low-socio-economic backgrounds.

Considerations of fairness include providing differential opportunities for acquiring skills (OECD, 2016c) and, by extrapolation, qualifications. *Cultural responsiveness* is an umbrella term used in this thesis to describe differential approaches that show an awareness of, and responsiveness to, the personal and social circumstances, experiences, knowledge, skills and ways of thinking and being which students from diverse backgrounds bring to their learning (Bishop, 2008; Gay, 2010; Villegas & Lucas, 2002). Culturally responsive approaches more fairly meet the needs of minority and low-socio-economic students who have been least well served by the qualifications systems of culturally dominant groups; such approaches are predicated on knowing and understanding individual students and affirming and developing the cultural capital they bring to the classroom (Ladson-Billings, 1995a). For these reasons, cultural responsiveness is not typically associated with high-stakes assessment for qualifications, especially where this occurs in large-scale assessment systems and where the locus of

assessment-related decision making is at a central rather than school level. It is unsurprising, therefore, that the concepts of *culturally responsive qualifications* and *culturally responsive qualifications pathways* are not in common use in scholarly literature, while *culturally responsive assessment* is an emerging area of research without a large body of empirical and conceptual scholarship, particularly relating to high-stakes assessment.

The implications for policy and practice presented in the previous two subsections as a blueprint of best practice are distilled and displayed diagrammatically in Figure 21 as a Model of a Fair and Equitable Large-Scale, High-Stakes Qualifications System. The model aligns with "The Iceberg of Qualifications Opportunities" (Figure 20), which in turn is an adaptation of the OECD's "Iceberg of Low Performance and School Failure" (Figure 19). The discussion in this subsection, about fairness and equity in large-scale, high-stakes qualifications systems, is based on the Figure 21 model. However, the model and accompanying discussion extend the blueprint for best practice, encapsulated in the previous implications for policy and practice subsections, through one important addition: it is proposed that fairness and equity in large-scale, high-stakes qualifications systems can be increased by incorporating culturally responsive approaches and that the two are not mutually incompatible. Indeed, it is argued that not only is it possible to incorporate culturally responsive approaches into large-scale qualifications systems but doing so would create fairer and more equitable outcomes.

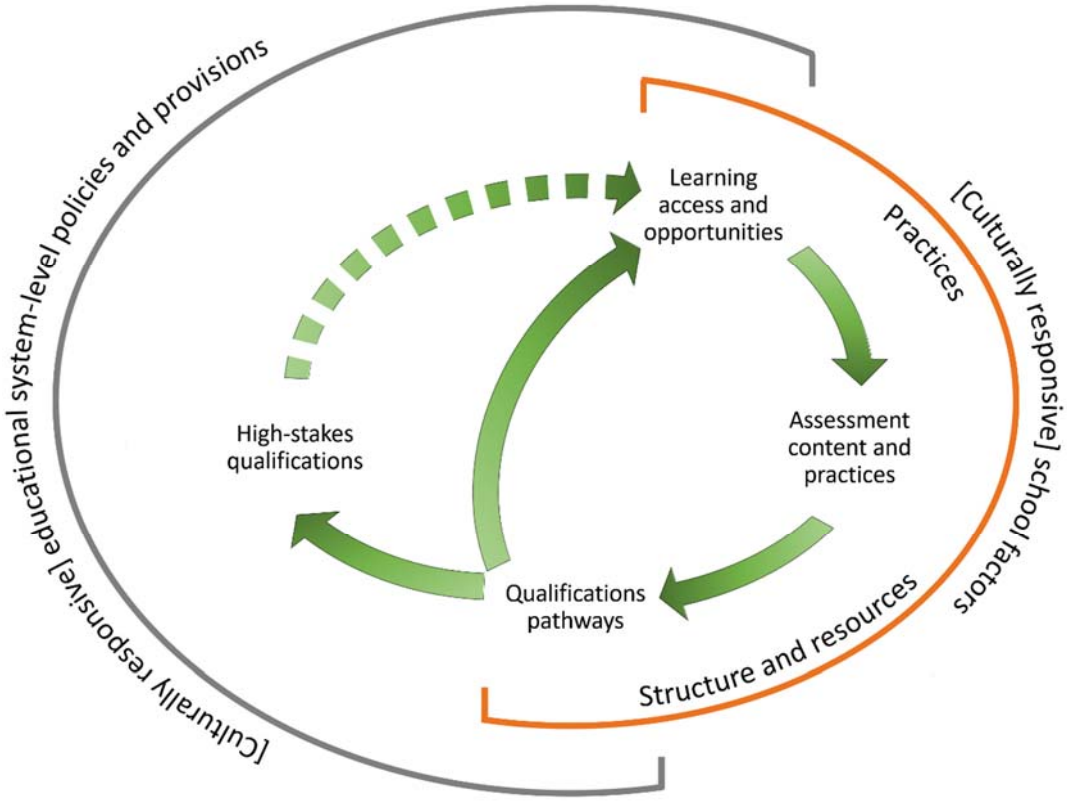

Figure 21. Model of a fair and equitable large-scale, high-stakes qualifications system.

The outer layer of the Figure 21 model is based on the submerged part of the "Iceberg" diagrams and is divided into two overlapping halves. The left side designates system-level policies and provisions, and the right side encompasses school factors, which are in turn subdivided into two overlapping groups comprising structure and resources, and practices. The overlapping sections accommodate variances in the locus of responsibility for different factors between countries and qualifications systems. The term *culturally responsive* is depicted on the outer layer of the model both at system and school levels. These words denote an overarching framework for a culturally responsive large-scale qualifications system, premised on fair and equitable practices for all students that take into account the socio-cultural experiences, knowledge and worldviews of historically marginalised and other minority learners.

On the left side of the model, system-level policy and provisions enable qualifications to be part of a flexible, permeable qualifications system such as a national

qualifications framework that facilitates seamless transitions within and across general and vocational subsystems, which have equivalence. There is a reduced emphasis on centralised assessment prescriptiveness and external examinations; responsibility for internal assessment decisions is devolved to schools, and there are common mechanisms to ensure the reliability of marking within and across schools.

The inner layer of the model depicts four stages of the journey towards attaining a high-stakes qualification. At the top, all students have fair and equitable access to the full range of available learning opportunities. Streaming is avoided, pathway and subject specialisation are deferred until upper secondary, and subject prerequisites are used to guide subject selection rather than to block progression. These approaches are particularly critical for marginalised and low-socio-economic students, who frequently have inequitable access to qualifications pathways and consequently, inequitable opportunities to learn. Streaming and early specialisation increase inequalities in the school system as these students are more likely to be in lower streams (OECD, 2015).

On the inner, right side of the model, assessment content is relevant for all students and is assessed using fair and equitable practices. The locus of responsibility for assessment decisions is devolved to individual schools, enabling the development of culturally responsive assessment content that reflects the local contexts, backgrounds, experiences and circumstances of different groups (Saravia-Shore, 2008). Assessment content is aligned with definitions of achievement or learning outcome statements that recognise diverse knowledge (Montenegro & Jankowski, 2017; Stobart, 2005). Content is assessed using practices that allow for a variety of indicators of learning (Mahuika & Bishop, n.d.; NZQA, 2015a; Philpott et al., 2004) and multiple assessment opportunities (R. W. Cole, 2008a, 2008b; Creswell & Plano Clark, 2011; Gipps & Stobart, 2009), as is possible in standards-based assessment, and when using formative assessment practices (Mahuika et al., 2011). Because the nature of an assessment can differentially affect outcomes for different student cohorts (Gipps & Murphy, 1994; Stobart, 2005), culturally responsive practices enable students to best demonstrate their learning in contextualised ways that acknowledge their frames of reference and performance styles (Absolum et al., 2009; Gay, 2010; Montenegro & Jankowski, 2017; Philpott et al., 2004).

Culturally responsive qualifications pathways (the base of the model's inner layer) consist of multiple culturally responsive assessment opportunities and outcomes. All qualifications pathways can potentially provide direct access to degree-level tertiary study, and there are no dead ends. The range of available pathways is broad enough to ensure relevance to all students but sufficiently constrained that the coherence of qualifications is not compromised. Pathways comprise multiple assessment outcomes; when an assessment component of a qualification is completed the cycle begins again with the next component (the top of the inner layer).

Overarching, fair and equitable school factors (the outer right layer of the model) unify and permeate systems and procedures supporting the first three stages of the journey towards attaining a high-stakes qualification. These are reflected in robust, consistent school-wide structures and resourcing, and practices that include using achievement data effectively to track students' progress and implement any necessary intervention actions.

Fair and equitable practices also include having a high-expectation school culture, which is critical to the success of minority and low-socio-economic students (Kiro et al., 2016). High expectations are evident in career education and guidance programmes, which commence in lower secondary, continue throughout secondary school and involve families. A relational approach is integral to the success of minority and indigenous students (Alberta Education, 2005; Bishop et al., 2009; Holcomb-McCoy, 2010; Kiro et al., 2016; Webber et al., 2016). Providing high-expectation, culturally responsive career guidance and academic support entails working in partnership with students and their families in culturally appropriate ways. Intervention actions for at-risk students are similarly determined in partnership with students and their families. Teachers and career counsellors of marginalised students often expect less of them (Alton-Lee, 2003; Saravia-Shore, 2008) and guide them into lower value pathways that limit progression opportunities such as to tertiary study (Kiro et al., 2016; Madjar et al., 2009). High-expectation teachers and career counsellors thus play an especially vital role in having, and encouraging, high aspirations for marginalised students (Belasco, 2013; Bryan et al., 2011; Kiro et al., 2016) and guiding them into higher value pathways that open doorways to further learning and qualifications opportunities such as tertiary study.

Once the required assessment components have been attained, high-stakes qualifications are awarded (the left side of the inner layer of the model). These qualifications can be described as culturally responsive because their constituent components, and the system-level policies and school factors contributing to each stage of their acquisition, are based on approaches that take into account students' socio-cultural contexts. The qualifications, in turn, provide doorways to further learning and qualifications opportunities, such as those offered through tertiary study, continuing the cycle and contributing to lifelong learning.

The purpose of the model is to propose that the concepts of culturally responsive high-stakes qualifications and culturally responsive qualifications pathways are conceptually and structurally possible and that adopting culturally responsive approaches at every stage of a qualifications journey would create fairer and more equitable outcomes. It is acknowledged, however, that the model presents a simplistic overview of cultural responsiveness. Unpacking it will require, in the first instance, addressing political tensions that arise when accommodating different cultural knowledge frameworks and worldviews (P. Johnston, 2010).

Study Limitations and Future Directions

In this section, study limitations are identified, and directions for future research are proposed to build on and extend these findings, both at an OECD country level and for New Zealand's NCEA.

Education systems and their outcomes never remain static, which presents a methodological limitation of this research. The sample of 16 countries selected for inclusion in Study 1 was identified using data from the three most recent PISA tests at the time of data collection: 2006, 2009 and 2012 (see "Study 1 Methodology"). Subsequent to data gathering and analysis, PISA 2015 results were released which, if included in an updated sampling process, would have resulted in a small number of changes to the country classifications used in this research. Further research that includes post-2012 PISA-based country classifications would be useful to deepen the findings of this thesis.

Limitations of the ISCED 2011 classification system, used for the Study 1 methodology, are acknowledged. ISCED classifications do not adequately accommodate the curricular diversity and complexity of national education contexts or qualifications programmes, or the degree of flexibility and openness of education systems in many countries in accommodating such diversity (OECD, 2004b; Sauvageot, 2008). New Zealand's NCEA L3, for example, is classified as a general qualification that provides direct access to ISCED 6 degree-level study, but it is also possible to gain it with predominantly vocational assessment standards, and without the components required for University Entrance. A related limitation concerns overlap in the usage of the earlier ISCED-97 classification system with the updated 2011 version (refer to Study 1 Methodology). Although standardised ISCED 2011 programme and qualification classifications obtained from the OECD database were used in this thesis, inter-country variability was evident in some of the additional data gathered from countries' official websites and documents. These data revealed an overlap of the two classification systems, with some countries still using the earlier ISCED-97 classifications, as were some organisations such as UNESCO-UIS. ISCED-97 classifications were thus used as data categories for some sections of this thesis. Despite these limitations, the ISCED classification system was the only available tool that was comprehensive, OECD-wide and enabled valid inter-country comparison of qualifications and programmes.

A broad-brush approach was taken in Study 1 in using the ISCED dimension of programme orientation, namely general and vocational, as the major classifier. ISCED subclassifications of distinct types of programmes and specialisations were not used as these would have added a layer of detail that was outside the scope of this research. However, there is evidence in the literature that different vocational subjects, programmes and pathways are differentially correlated with attainment (Shavit & Müller, 2000). Further research is required to investigate more nuanced differences between ISCED 3 subclassifications of vocational programmes and qualifications offered at upper secondary, to determine any variation in attainment and equity between these.

The definition of vocational education used in Study 1 and Study 2 focussed on ISCED 3 upper secondary-school-based vocational pathways and qualifications. This

methodology did not capture data about students of upper secondary age pursuing ISCED 3 vocational pathways and qualifications in out-of-school settings. According to Shavit and Müller (2000), most studies on education and social stratification focus on school-based education to the exclusion of out-of-school training. Some countries, such as Germany, have highly formalised out-of-school training programmes that could yield valuable data about equitable qualifications access and outcomes for diverse students. Future research could, therefore, include a broader investigation of equity in out-of-school versus in-school ISCED 3 vocational pathways. Moreover, vocational education was evaluated primarily regarding its potential to provide pathways to tertiary study. However, it also provides essential pathways to employment, as well as serving as a safety net in reducing the likelihood of unemployment and low-paying employment (Arum & Shavit, 1995; Shavit & Müller, 2000). These non-tertiary pathways were outside the scope of this thesis.

The classification of countries in Study 1 was based on the strength of the relationship between achievement in PISA (performance) and the percentage of variation in performance explained by the PISA index of economic, social and cultural status (equity). A methodological limitation of this research is that the New Zealand schools in Study 2 were not similarly classified by the strength of the relationship between performance and equity because the data required to calculate such an equity index were not available. Instead, schools were categorised by performance, obtained by running a linear regression analysis of composite student attainment scores on school deciles. The standardised residuals from this analysis were then used to create two sampling frames, of low-performing and high-performing schools. Decile was thus not assumed to correlate with equity for initial classification (although it was used as a proxy for equity elsewhere in Study 2). Conceptually, however, it can be assumed that high-performing, low-decile schools were unlikely to attain their high performance without having high equity, whereas this is not necessarily the case for high-performing, high-decile schools, which may have poor equity. Given this limitation, the findings show common characteristics between Study 1 low-performing/low-equity countries and Study 2 low-performing

schools, and between Study 1 high-performing/high-equity countries and Study 2 high-performing schools.

Before the Study 2 sampling process was undertaken (see Study 2 Methodology), a trial linear regression analysis was run with the population of schools ($N = 425$). Of interest was the fact that eight of the 16 highest-ranked schools in the trial analysis were Māori schools, which were subsequently removed from the sample because they either provided a different educational context to mainstream secondary schools (Māori boarding schools) or they operated under a different legislative framework to the majority of schools (kura kaupapa Māori). (See Appendix C). These high-performing Māori schools could provide a rich source of learning and warrant further investigation.

Data gathered for Study 2 related to 2014; this was the year major changes were made to New Zealand's University Entrance requirements, leading to a national drop in University Entrance attainment across all indicators. Although there were steady gains in 2015 and 2016, outcomes had not reached pre-2014 attainment levels at the time of writing. There is a strong equity imperative for further research once national results stabilise and any changes schools made to accommodate the changes, such as to qualifications pathways and associated procedures, are bedded in. Such research should include a longitudinal examination of NCEA L3 and University Entrance outcomes and post-school destination data to gain a more comprehensive picture of the implications of these changes. There should be a particular focus on qualifications pathways and attainment of Māori and Pasifika students and students in low-decile schools, who were disproportionately negatively affected by the University Entrance changes.

A limitation of the New Zealand attainment statistics used in this research is that these data were for NCEA L3 students in Year 13. A small percentage of students, who are academically accelerated, gain L3 in Year 12 while others take an extra year, Year 14, to complete this. Future research could examine and compare qualifications pathways and outcomes for these different groups of L3 students, particularly Māori and Pasifika students and students in low-decile schools; this could provide a more comprehensive picture of equity in NCEA L3 attainment.

Assessment was examined in relation to qualifications, as distinct from classroom practices. Further studies could augment this research by examining the role of classroom assessment practices in relation to ISCED 3 pathways and attainment. Investigating this through a lens of cultural responsiveness would provide particularly valuable links to existing bodies of literature on equitable assessment content and practices, as well as contributing to the emergent field of cultural responsiveness in high-stakes qualifications, which has a paucity of literature.

Final Thoughts

The findings of this thesis show that upper secondary qualifications pathways and provisions in high-performing/high-equity countries and schools are more likely to combine attainment with equity than those of low-performing/low-equity countries and schools. In other words, students in high-performing/high-equity systems are more likely than their peers in low-performing/low-equity systems to have fairer and more equitable access to qualifications pathways that provide doorways to post-school learning opportunities—and to attain greater qualifications success in these pathways—irrespective of their socio-cultural and socio-economic circumstances. Qualifications pathways and attainment are thus visible indicators of education equity provisions.

Students' aspirations shape their qualifications pathways; however, aspirations and pathways can be shaped by policies and provisions whose influence, while pervasive, is not always overt. In the words of Sweet (2013):

> The size and character of pathways are shaped both by policymakers' decisions and by young people and their parents' aspirations and choices. But aspirations can in turn be shaped by policy instruments such as streaming mechanisms and limitations on choice by restrictions on places and resources, as well as by the ways in which information and advice open up or constrain opportunities. (p. 56)

Indeed, the notion of "choice" regarding qualifications pathways is a misnomer; other factors at play mean students can end up with very little actual choice, or "Hobson's choice" regarding their potential schools, qualification types, pathways, programmes, subjects and courses. The challenge for policymakers and school leaders is to ensure that

all upper secondary students have fair and equitable access to qualifications pathways that do not limit them or side-line them into qualifications dead ends, but instead, can lead to academic success and provide doorways to post-school learning and qualifications opportunities.

Appendix A: Study 1: Data Collection Categories, Level of Analysis and Coding; Data Tables

This appendix presents 12 pairs of tables, which are arranged by the 12 data categories investigated in Study 1. The first table of each pair (odd-numbered) shows the data collection categories, coding and level of analysis for that data category. The second table of each pair (even-numbered) contains the data that were gathered and analysed for that category, with accompanying data sources. Table abbreviations and definitions are listed below, followed by a list of the Appendix A tables.

Table Abbreviations and Definitions

(i)(ii)(iii)	Discrete qualification, programme or school types
;	Separator of discrete qualification, programme or school types
A	Art/Artistic
a	Data not applicable because the category does not apply
ACT	Australian Capital Territory
DE	German-speaking region
FL	Flemish-speaking region
FR	French-speaking region
m	Data not available
ON	Ontario
Prof	professional
QDL	Queensland
QU	Quebec
T	Technical
USSC	Upper Secondary School Certificate
V	Vocational
[v]	Varies by jurisdiction/state/province
VUSSC	Vocational Upper Secondary School Certificate
w	Includes data from another category
x	Data included in another category

Colour Coding for Performance–Equity Country Groupings

High Performing–Low Equity
High Performing–High Equity
Low Performing–Low Equity
Low Performing–High Equity

List of Tables Appendix A

Table A1

Category 1 Data Collection Categories, Level of Analysis and Coding: School Types and Programme Orientation

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Type of school	Country	1	Vocational*
		2	Vocational* focus, some general
		3	General focus, some vocational*
		4	General
		5	Both vocational* and general programmes
			** May include workplace-based learning*
Orientation of programme/s offered by school	Country	1	Vocational
		2	Vocational with some general*
		3	General with some vocational*
		4	General
		5	Flexible; can accommodate a combination of vocational and/or general
			** May include general focus in initial year/s then vocational specialisation*
Number of school types or distinct education programmes available to 15-year-old students (2012)	Country	1	1
		2	2
		3	3
		4	4
		5	5

Table A2

Category 1 Data: School Types and Programme Orientation

Country	Type of school[a]	Orientation of programme/s offered by school[a]	Number of school types or distinct education programmes available to 15-year-old students (2012)[b]
Belgium	4; 3[A],2,2	4; 3[A]; 3; 2	4
Germany	4; 3,2,2	4; 3,2,2	4
Hungary	4,5; 3,1	4; 3,2	3
New Zealand	4	5	1
Australia	4	5	1
Canada	5	5	1
Estonia	3; 3	3; 4,3,3	1
Finland	5; 2	3; 3	1
Japan	4; 2,3	4; 3,3	2
Korea	4; 2	4; 2	3
Chile	4; 2	4; 2(A); 2(T)	1
Luxembourg	4; 3,3,2,2	4; 3,3,2,1	4
Slovakia	4; 3,3,3	4; 3,3,2	5
Iceland	4; 1,5,2,2	4; 3,3,2,2	1
Italy	4; 2,1,2	4; 3,3,2	3
Norway	5; 5	4; 2	1

Note. Sources of data: [a]*ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings; [b]*Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, by OECD, 2012, doi:10.1787/9789264130852-en

Table A3

Category 2 Data Collection Categories, Level of Analysis and Coding: Enrolment Rates and Share of Students by Programme Orientation

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Enrolment rates of 15–19-year-old full-time and part-time students, as a percentage of the population of this age group	Country	Percentage	Percentage
Enrolment rates of 15-19-year-olds in general/vocational programmes as a percentage of all students enrolled in general/vocational programmes … (general; vocational)	Country	Percentage	Percentage
… of which vocational is combined school- and work-based	Country	Percentage	Percentage
Share of students by programme orientation (all ages) (general; vocational)	Country	Percentage	Percentage
… of which vocational is combined school- and work-based	Country	Percentage	Percentage

Table A4

Category 2 Data: Enrolment Rates and Share of Students by Programme Orientation

Country	15-19-year-old full-time and part-time students as a percentage of the population of this age group[a]	15-19-year-olds in general/vocational programmes as a percentage of all students enrolled in general/vocational programmes[b]			Share of students by programme orientation (all ages)[b]		
		General	Vocational…	… of which vocational is combined school and work-based	General	Vocational…	… of which vocational is combined school and work-based
Belgium	92	29	39	2	40	60	4
Germany	90	32	17	15	52	48	41
Hungary	86	54	18	16	75	25	23
New Zealand	82	51	8	m	66	34	x
Australia	87	34	8	x	49	51	x
Canada	73	m	m	m	95	5	x
Estonia	90	39	18	0	65	35	0
Finland	86	32	30	m	30	70	10
Japan	94	45	13	a	77	23	a
Korea	87	46	10	a	82	18	a
Chile	80	41	19	1	70	30	2
Luxembourg	76	27	35	8	40	60	14
Slovakia	85	21	44	4	31	69	6
Iceland	m	m	m	m	m	m	m
Italy	77	33	42	x	44	56	x
Norway	87	34	29	9	49	51	16

Note. Data are for 2014. Sources of data: [a]*Education at a Glance 2016: OECD Indicators*, p. 292, by OECD, 2016, doi:10.187/eag-2016-en; [b]*Education at a Glance 2016: OECD Indicators*, p. 294, by OECD, 2016, doi:10.187/eag-2016-en

Table A5

Category 3 Data Collection Categories, Level of Analysis and Coding: Age Profiles and Programme Durations

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Typical starting age upper secondary ISCED 3	Country	1	14
		2	15
		3	16
		4	17
		5	18
Age of first selection	Country	1	< 12
		2	12
		3	13
		4	14
		5	15
		6	16
Starting age compulsory education ISCED 1 (2014)	Country	1	4
		2	5
		3	6
		4	7
Ending age compulsory education (2014)	Country	1	14
		2	15
		3	16
		4	17
		5	18

(continued)

Subcategory	Level of analysis	Coding	
		Code	Descriptor
Total years compulsory education (2014)	Country	1	8
		2	9
		3	10
		4	11
		5	12
Theoretical ISCED 3 programme duration (years) (general; vocational 3A/3B; 3C)	Programme	1	1
		2	2
		3	3
		4	4
		5	5
		6	6+
Typical age of graduates from ISCED 3 programmes (2014) (general; vocational)	Country	1	< 17
		2	17
		3	18
		4	19
		5	20

Table A6

Category 3 Data: Age Profiles and Programme Durations

Country	Typical starting age upper secondary ISCED 3[a]	Age of first selection[b]	Compulsory Education (2014)[c]			Theoretical ISCED 3 programme duration (years)[d]			Typical age of graduates from ISCED 3 programmes (2014)[e,f]	
			Starting age (ISCED 1)	Ending age	Total years	General (3A)	Vocational		General	Vocational
							3A, 3B	3C		
Belgium	14–16	12	6	18	12	2	2	2	18–18	18–19
Germany	15–18	10	6	18	12	3	2–3	2	18–20	19–20
Hungary	15–15	11	6	16	11	4–5	4–5	3–4	17–19	17–19
New Zealand	15–16	16	6[g]	16	10	3	A	a	17–18	16–29
Australia	15–16	16	6	17/15	11	2	A	a	17–18	18–30
Canada	15–15	16	6	16–18[h]	10–12[h]	3	A	2	17–18	18–30
Estonia	16–19	15	7	16	9	3	3–4	0.5-3.5	18–18	18–19
Finland	16–16	16	7	16	9	3	3	a	19–19	19–23
Japan	15–15	15	6	15	9	3; 3+	3; 3+	a	17–17	17–17
Korea	15–15	14	6	14	8	3	3	1–3	18–18	18–18
Chile	14–14	16	6	18	12	4	4	a	17–17	17–17
Luxembourg	15–19	13	4	16	12	4	4–5	3	17–19	17–20
Slovakia	15–18	11	6	16	10	4	4	2–3	18–19	18–19
Iceland	16–16	16	6	16	10	3–4	4	1–4.5	M	M
Italy	14–14	14	6	16	10	5	5	3(+1 prof. diploma)	18–19	18–19
Norway	16–16	16	6	16	10	3	a	3–5	18–18	18–22

Note. Sources of data: [a]*Education at a Glance 2016: OECD Indicators*, p. 472, by OECD, 2016, doi:10.187/eag-2016-en; [b]*Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, p. 57, by OECD, 2012, doi:10.1787/9789264130852-en; [c]*Education at a Glance 2016: OECD Indicators*, p. 475, by OECD, 2016, doi:10.187/eag-2016-en; [d]*ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings; [e]*Education at a Glance 2016: OECD Indicators*, p. 470, by OECD, 2016, doi:10.187/eag-2016-en [f]Typical age refers to the age of the students at the beginning of the school year; students will generally be one year older than the age indicated when they graduate at the end of the school year. [g]Must be enrolled by their sixth birthday but can start from age 5, which most children do. [h]In most jurisdictions compulsory education is up to age 16.

Table A7

Category 4 Data Collection Categories, Level of Analysis and Coding: Number of ISCED 3 Programme Types and Highest ISCED Level of Destination Access

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Programme types (general; vocational)	Country	1 2 3, etc.	1 2 3, etc.
Programme types that provide direct access to ISCED 6 (general; vocational)	Country	1 2 3, etc.	1 2 3, etc
Programme types that do not provide direct access to ISCED 6 (general; vocational)	Country	1 2 3, etc.	1 2 3, etc
Vocational, highest level of access ISCED 3	Country	1 2 3, etc.	1 2 3, etc
Vocational, highest level of access ISCED 4	Country	1 2 3, etc.	1 2 3, etc
Vocational, highest level of access ISCED 5	Country	1 2 3, etc.	1 2 3, etc

Table A8

Category 4 Data: Number of ISCED 3 Programme Types and Highest ISCED Level of Destination Access

	Programme types		Provide direct access to ISCED 6		Do not provide direct access to ISCED 6				
Country	General	Vocational	General	Vocational	General	Vocational…	…of which highest level of access is ISCED 3	…of which highest level of access is ISCED 4	…of which highest level of access is ISCED 5
Belgium	2	3(FL); 2(FR)	2	1	0	2	0	1	1
Germany	2	4	2	2	0	2	1	1	0
Hungary	2	3	2	1	0	2	1	1	0
New Zealand	1	0	1	0	0	0	0	0	0
Australia	1	0	1	0	0	0	0	0	0
Canada	1	0; 1(QU)	1	0	0	0; 1(QU)	0	1	0
Estonia	1	2	1	1	0	1	1	0	0
Finland	1	1	1	1	0	0	0	0	0
Japan	5	3	5	3	0	0	0	0	0
Korea	5	3	5	3	0	0	0	0	0
Chile	1	2	1	2	0	0	0	0	0
Luxembourg	1	7	1	2	0	5	1	4	0
Slovakia	1	5	1	2	0	3	1	0	2*
Iceland	2	4	2	0	0	4	0	3	1
Italy	1	4	1	2	0	2	0	2	0
Norway	2	1	2	0	0	1	0	1	0

Note. Source of data: *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings.

Table A9

Category 5 Data Collection Categories, Level of Analysis and Coding: Number of ISCED 3 Programme, Qualification and Classification Types

		Coding	
Subcategory	Level of analysis	Code	Descriptor
ISCED 3A general (programmes; qualifications)	Programme	1 2 3, etc.	1 2 3, etc
ISCED 3A vocational (programmes; qualifications)	Programme	1 2 3, etc.	1 2 3, etc
ISCED 3B (programmes; qualifications)	Programme	1 2 3, etc.	1 2 3, etc
ISCED 3C (programmes; qualifications)	Programme	1 2 3, etc.	1 2 3, etc
Total ISCED 3 classification types	Country	1 2 3 4	1 2 3 4
Total ISCED 3 qualification types (general; vocational)	Country	1 2 3, etc.	1 2 3, etc

Table A10

Category 5 Data: Number of ISCED 3 Programme, Qualification and Classification Types

	Number of programme and qualification types										
	3A (general)		3A (vocational)		3B		3C		Total ISCED 3 classification types	Total qualification types	
Country	Programme	Qualification	Programme	Qualification	Programme	Qualification	Programme	Qualification		General	Vocational
Belgium	2	2(FL); 1(FR)	1	1	0	0	2(FL); 1(FR)	3(FL); 2(FR)	3	2(FL); 1(FR)	4
Germany	2	3	0	0	3	3	1	1	3	2	4
Hungary	2	1	1	2	0	0	2	1	3	1	2
New Zealand	1	1	0	0	0	0	0	0	1	1	0
Australia	1	1	0	0	0	0	0	0	1	1	0
Canada	1	1	0	0	0	0	1(QU)	1(QU)	1; 2(QU)	1	1(QU)
Estonia	1	1	0	0	1	1	1	1	3	1	2
Finland	1	1	1	1	0	0	0	0	2	1	1
Japan	5	1	3	1	0	0	0	0	2	1[a]	1[a]
Korea	5	1	0	0	0	0	3	1	2	1	1
Chile	1	1	2	2	0	0	0	0	2	1	1
Luxembourg	1	1	1	1	1	1	5	3	4	1	5
Slovakia	1	1	2	2	0	0	3	2	3	1	4
Iceland	2	1	0	0	1	1	3	2	3	1	3
Italy	1	1	2	1	0	0	2	2	3	1	3
Norway	2	2	0	0	0	0	1	3*	2	2	2

Note. Sources of data: *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings; various, including individual country documents.
[a]Same qualification for General and Vocational; no distinction on certificate.

Table A11

Category 6 Data Collection Categories, Level of Analysis and Coding: ISCED 3 Qualification Structures and Pathway Progressions

Subcategory	Level of analysis	Coding	
		Code	Descriptor
Qualification's structure is part of a larger qualifications framework (general; vocational 3A/3B; 3C)	Qualification	0	No
		1	Yes
Nature of the larger framework	Country	0	None/separate qualification structures
		1	Weak framework connections
		2	Early stage of development
		3	Early stage of operation
		4	Links vocational qualifications
		5	Links school qualifications
		6	Links university qualifications
		7	Linked to/in process of linking to external framework
Qualifications framework is partially or fully standards-based/competency-based	Country	0	No
		1	Yes
		2	Proposed; moving towards
Combined school and workplace training available (general; vocational 3A/3B; 3C)	Qualification	0	No
		1	Yes

(continued)

Subcategory	Level of analysis	Coding	
		Code	Descriptor
Qualification (or parts thereof) contributes to higher ISCED-level post-school qualifications (general; vocational 3A/3B; 3C)	Qualification	0	No
		1	Yes
Qualification leads to further ISCED 3 study in upper secondary (general; vocational 3A/3B; 3C)	Qualification	0	No
		1	Yes
University Entrance can be gained directly from the qualification (general; vocational 3A/3B; 3C)	Qualification	0	No
		1	Yes
		2	Yes, providing specific tertiary criteria are met within the components of the qualification
		3	Yes, in conjunction with other school achievements/qualifications
		4	Yes, in conjunction with additional tertiary criteria
		5	Yes, to some types of universities/ university courses only

Table A12

Category 6 Data: ISCED 3 Qualification Structures and Pathway Progressions

	Part of larger qualifications framework				Qualifications framework is partially or fully standards/ competency-based	Combined school and workplace training available			Contributes to higher ISCED-level post-school qualification/s			Leads to further ISCED 3 study in upper secondary			University Entrance can be gained directly from qualification		
		Vocational		Nature of larger framework			Vocational			Vocational			Vocational			Vocational	
Country	General	3A/3B	3C			General	3A/3B	3C	General	3A/3B	3C	General	3A/3B	3C	General	3A/3B	3C
Belgium	1(FL); 0(FR, DE)	1(FL); 0(FR, DE)	1(FL); 0(FR, DE)	3,4,5,6,7(FL); 0,2(FR, DE)	1	0	1	1	0	0(external exam); 1	1	0	1	1	1	1	1
Germany	0	1	1	3,4,6,7	1	0	0	1	0	1	a	1	2	0	1; 4	0; 1; 5	0
Hungary	1	1	1	2,7	1	0	0; 1(A)	1	1	1	0	1	1	0	1; 4	1; 4	0
New Zealand	1	a	a	4,5,6	1	1	a	a	1	1	1	2	0	0	2	a	a
Australia	1	a	a	4,5,6	1	1	a	a	1	1	a	0	0	0	4	a	a
Canada	0	0	0	0,6	0	0	a	a; 1(ON)	1	1	1	0	0	0	1	a	a; 0(QU)
Estonia	1	1	a	3,4,5,6,7	1	0	1	1	m	m	m	0	1	1	3,4	3,4[a]	0
Finland	0	0	a	0,2	2	0	1	A	1	1	a	0	0	0	4	4	a
Japan	0	0	0	0	0	0	0	a	0	0	0	0	0	0	0	0	a
Korea	0	0	0	0,1,2	2	0	a	1	0	0	0	0	0	0	3,4,5	a	3,4,5[b]
Chile	0	0	a	0,1,2	0	0	0[c]	a	0	1	a	0	0	0	4	4[d]	a
Luxembourg	1	1	1	3,4,5,6,7	1	0	0(3A); 1(3B)	1	0	0(3A); 1(3B)	1	0	1	0	1	1	0
Slovakia	0	0	0	0,1,2,7	0	0	0; 1	1	0	0	0	0	0	0	1	1	0
Iceland	1	1	1	3,4,5,6,7,	1	0	0	1	0	0(3A); 1(3B)	1	1	0	7	1; 4	0	0
Italy	0	0	0	0,6,7	2	0	0; 1	1	0	1?	1	0	0	1	3,4	3,4,5	0
Norway	1	1	1	3,6,7	1	0	a	0; 1	1	1	1	0	1	2	1; 4	a	0

Note. Sources of data: *ISCED Mappings*, by UNESCO Institute for Statistics, 2016, retrieved from http://uis.unesco.org/en/isced-mappings; *National Qualifications Framework Developments in Europe: Anniversary Edition*, by CEDEFOP, 2015, doi:10.2801/981905; various, including individual country documents.

[a]After additional year for State Examination. [b]Possible, but only a small percentage of students do so and only a fraction of those succeed. [c]Possible but links are weakly developed and inconsistent. [d]Theoretically possible but vocational programmes provide weak preparation for general tertiary education.

Table A13

Category 7 Data Collection Categories, Level of Analysis and Coding: Assessment Components of ISCED 3 Qualifications

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Existence of different assessment components (general; vocational)	Qualification	1	External written examinations
		2	External oral examinations
		3	External practical/skills examinations
		4	Internal coursework and/or practical/skills assessment
		5	Flexible: any combination of external, internal, written, oral, practical
		6	Non-curricular (e.g., behaviour, conduct, attendance, participation)/ extra-curricular (e.g., sport, cultural, service)
Final written examination/s (general; vocational) (details in Section 9)	Qualification	1	No final written examination/s
		2	Final written examination/s set by state/territory/professional body
		3	Prescribed number and/or types of subjects to be examined
		4	May be optional depending on subjects studied
		5	Providers/schools have autonomy in setting/designing final written examination/s
		6	Sample of students sit written examination/s
Oral assessment (general; vocational)	Qualification	1	No oral assessment
		2	Mandatory external oral examination/s in specified subject/s Mandatory internal oral examinations in some subjects only
		3	Optional external oral examinations
		4	Oral internal assessment where applicable, including at discretion of school/provider
		5	
		6	Sample of students sit oral examinations

(continued)

Subcategory	Level of analysis	Coding	
		Code	Descriptor
Internal/workplace assessment (general; vocational)	Qualification	1	No internal assessment
		2	Mandated internal assessment or examinations (including practical)
		3	School-based assessment, at discretion of individual schools
		4	Workplace assessment/vocational skills demonstrations, at discretion of vocational education and training providers
		5	Non-curricular (e.g., behaviour, conduct, attendance, participation)
		6	Extra-curricular (e.g., sport, cultural, service)

Table A14

Category 7 Data: Assessment Components of ISCED 3 Qualifications

	Existence of different assessment components		Final written examinations (details in Category 9)		Oral		Internal/workplace	
Country	General	Vocational	General	Vocational	General	Vocational	General	Vocational
Belgium	(i)(ii) 4,6	(i)(ii)(iii) 4,6; (iv) 4	(i)(ii) 5	(i)(ii)(iii)(iv) 5	(i)(ii) 5	(i)(ii)(iii)(iv) 5	(i)(ii) 3	(i)(ii)(iii)(iv) 3,4
Germany	(i)(ii) 1,2(+4 some Länder)	(i)(ii)(iii) 1,2,4; (iv) 1,2,4,6	(i)(ii) 2,3	(i)(ii)(iii) 2,3; (iv) 2	(i)(ii) 2,4	(i)(ii)(iii)(iv) 2	(i)(ii) 2(some Länder)	(i)(ii) 2; (iii)(iv) 2,4
Hungary	1,2,3(some subjects),4	(i) 1,2,3; (ii) 1,2,3,6	2,3	(i)(ii) 2,3	2	(i) 2,3; (ii) 2,5	2	(i) 2(some subjects); (ii) 2,4
New Zealand	5	a	2,4	a	3,5	a	3,4(if applicable)	a
Australia	1 *or* 4(ACT, QLD)	a	2 *or* 5(ACT, QLD)	a	5	a	3	a
Canada	1 +/or 4,6([v])	a	2 *and/or* 5	a	5	a	3 (+5 some provinces)	a
Estonia	4,6(USSC) *and* 1,4(exam)	(i) 4,6(+1 for University Entrance); (ii)4	5(USSC) *and* 2,3(exam)	(i) 4,1(except Estonian 2nd language as applicable) *and* 2(optional prof. exam); (ii) 4	1	(i)(ii) 3	3,5	(i) 3,4,6 *and* 2(optional prof. exam); (ii) 3,4,6
Finland	1,3,4(USSC) *and* 1,4(exam)	4(VUSSC) *and* 4,6 *or* 1	2	1 *or* 2(skills examination)	1	5	3	3,4,5
Japan	4,6	4,6	5	5	1	1	3,5	3,5
Korea	4,6	4,6(VUSSC)	5	5	1	1	1,5	1,5
Chile	4	4	5	5	5	5	3	3
Luxembourg	1,2,4	(i)1,2,4; (ii)(iii)(iv)(v) 4	2	(i) 2; (ii)(iii)(iv)(v) 1	2,3	(i) 2,3; (ii)(iii)(iv)(v) 5	2	(i)(ii) 2; (iii)(iv)(v) 2,4
Slovakia	1,2,4	(i)(ii)(iii)(iv) 1(except V subjects),2,4	2	(i)(ii)(iii)(iv) 2(except V subjects),3 *and* 5(V)	2,3,5	(i)(ii) 2,3,5; (iii)(iv) 2,5	2,3	(i)(ii)(iii)(iv) 2,3,5
Iceland	4 *and* 1(exam)	(i) 3 (ii)(iii) 1,2,3,4	2,3,4,5	(i) 3,5; (ii)(iii) 2,3,4 (1,5 unit credit schools)	1	(i)(ii)(iii) 1	3,5	(i)(ii)(iii) 2,3,4
Italy	1,2,4,6	(i) 1,2,4,6; (ii) 1,2,3; (iii) 1,2	2,3	(i)(ii)(iii) 2,3	2	(i)(ii)(iii) 2	2,3,5,6	(i)(ii) 2,3,5,6; (iii) 2,3,5,6
Norway	(i)(ii) 1,2,4,6	(i)(ii) 1,4,6	(i)(ii) 2,3,6	(i)(ii) 2,3,6	(i)(ii) 2,6	(i)(ii) 2,6	(i)(ii) 2,3,5	(i)(ii) 3,4,5

Note. Sources of data: *Countries: Description of National Education Systems,* by Eurydice, (2016), retrieved from https://webgate.ec.europa.eu/fpfis/mwikis/eurydice /index.php/Countries; various, including individual country documents.

Table A15

Category 8 Data Collection Categories, Level of Analysis and Coding: ISCED 3 Internal Summative Assessment Frameworks

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Existence of a policy framework that regulates internal summative assessment (general; vocational)	Programme	0	No
		1	No, but certain basic requirements set at the central level for all schools
		2	Yes
Responsibility for ensuring compliance with the policy framework (general; vocational)	Programme	1	State/provincial agency/authority
		2	Local agency/authority
		3	Providers (school, vocational education and training)
Reference standards used (general; vocational)	Programme	1	National/state curriculum
		2	National/state curriculum goals
		3	National/state standards
		4	National/state education plans
Mechanisms to ensure reliability of marking within and across schools (general; vocational)	Programme	0	No mechanisms
		1	Decision by designated body in individual schools
		2	Availability of national/state/local guidance materials
		3	Moderation of marking
Weight of internal summative assessment in determining year-end marks (general; vocational)	Programme	Percentage	Percentage

Table A16

Category 8 Data: ISCED 3 Internal Summative Assessment Frameworks

	Existence of policy framework that regulates internal summative assessment		Responsibility for ensuring compliance with policy framework		Reference standards used		Mechanisms to ensure reliability of marking within and across schools		Weight of internal summative assessment in determining year-end marks	
Country	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational
Belgium	1	1	1	1	2	2	0(FL); 2(FR)	0(FL); 2(FR)	m(FL); 100(FR)	m(FL); 100(FR)
Germany	m	m	m	m	m	m	m	m	m	m
Hungary	2	2	3	3	3	3	0	0	100	100
New Zealand	2	2	1,3	1,3	3	3	2,3	2,3	[v]	[v]
Australia	2	2	1	1	2,3	3	2,3	2,3	50–100	50–100
Canada	1	1	1	1	[v]	[v]	[v]	[v]	[v]	[v]
Estonia	2	0	3	a	2,3	a	0	a	a	a
Finland	2	2	3	3	2	2	0	2,3(optional)	m	80–100
Japan	m	m	m	m	m	m	m	m	m	m
Korea	2	2	3	3	2	2	1	1	100	100
Chile	2	2	3	3	2,3	2,3	0	0	100	100
Luxembourg	2	2	1,3	1,3	2	2	0	0	100	100
Slovakia	1	0	3	a	3,4	a	0	0	m	a
Iceland	0	0	a	a	a	a	a	a	a	a
Italy	2	2	3	3	2	2	0	0	100	100
Norway	1	1	2	2	2	2	0	0	80	80

Note. Data are for 2012. Sources of data: *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, by OECD, 2013, doi:10.1787/9789264190658-en; various, including individual country documents.

Table A17

Category 9 Data Collection Categories, Level of Analysis and Coding: Standardised Central Examinations at ISCED 3

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Existence of standardised central examinations (general; vocational)	Programme	0	No
		1	Yes
Central examinations are compulsory (general; vocational)	Programme	0	No
		1	Yes
Subjects examined (general; vocational)	Programme	1	National language/language of instruction, all students
		2	Other subject/s, all students
		3	Other subject/s, student choice
		4	All subjects, student choice
		5	Other subjects, sample of students
		6	Professional/trade, all students
Responsibility for developing central examination/s (general; vocational)	Programme	1	Central government/education authority
		2	Central agency
		3	Local/regional agency
		4	Individual school/provider
Responsibility for marking central examination/s (general; vocational)	Programme	1	Central government/education authority
		2	Central agency
		3	Local/regional agency
		4	Individual school/provider

(continued)

Subcategory	Level of analysis	Coding	
		Code	Descriptor
Mechanisms to ensure reliability of marking within and across schools (if marking is undertaken at school level) (general; vocational)	Programme	1	External examination board
		2	Partially external examination committee
		3	National guidance materials (exemplars, rubrics, performance criteria)
		4	Within-school moderation
		5	External moderation by external body

Table A18

Category 9 Data: Standardised Central Examinations at ISCED 3

Country	Existence of standardised central examinations		Central examinations are compulsory		Subjects examined		Responsibility for developing		Responsibility for marking		Mechanisms to ensure reliability of marking within and between schools	
	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational	General	Vocational
Belgium	0(FL); 1(FR)	0(FL); 1(FR)	a(FL); 0(FR)	a(FL); 0(FR)	a(FL); 2(FR)	a(FL); 1(FR)	a(FL); 1(FR)	a(FL); 1(FR)	a(FL); 4(FR)	a(FL); 4(FR)	a(FL); 3(FR)	a(FL); 3(FR)
Germany	1	1	1	1	1,2,3	1,2,3,6	4; 3(Länder)	4; 3(Länder)	3,4	[v],3,4	m	m
Hungary	1	1	1	1	1,2,3	6	3,4	2,4	3,4	2,4	2	2
New Zealand	1	1	0	0	4	4	1	1	1,4	1,4	3,4,5	3,4,5
Australia	1	1	0	0	1,3	1,3	1,2	1,2	1,2	1,2	1,2,4	3,5
Canada	1	1	[v]	[v]	[v]	[v]	[v]	[v]	[v]	[v]	[v]	[v]
Estonia	1	0	1	a	1,3	a	1,2	a	2	a	a	a
Finland	1	0	1	a	4	a	2	a	2	a	a	a
Japan	m	m	m	m	m	m	m	m	m	m	m	m
Korea	0	0	a	a	a	a	a	a	a	a	a	a
Chile	0	0	a	a	a	a	a	a	a	a	a	a
Luxembourg	1	1	1	1	2	2	1	1	4	4	3,5	3,5
Slovakia	1	1	1	1	1,2	1,2	2	2	2	2	3,4	3,4
Iceland	0	0	a	a	1,2	6	a	a	a	a	a	a
Italy	1	1	1	1	1,3	1,3	1	1	4	4	2	2
Norway	1	1	1	1	1,5	5	1	1	1,2,4	3	a	a

Note. Data are for 2012. Sources of data: *Countries: Description of Nation al Education Systems*, by Eurydice, (2016), retrieved from https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Countries; *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, by OECD, 2013, doi:10.1787/9789264190658-en; various, including individual country documents.

Table A19

Category 10 Data Collection Categories, Level of Analysis and Coding: Responsibility for Assessment, Administration and Quality Assurance of ISCED 3 Qualifications

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Assessment of different components (general; vocational)	Qualification	1	External state statutory bodies/markers
		2	Regional/local statutory bodies/markers
		3	Subject/professional specialists/bodies/ boards
		4	Individual teachers/instructors/ employers/schools
Administration of overall qualification (general; vocational)	Qualification	1	State statutory bodies
		2	Regional or local statutory bodies
		3	Subject or professional specialists/bodies
		4	Individual teachers/instructors/ employers/schools
Quality assurance of qualification (general; vocational)	Qualification	1	No unitary quality assurance authority
		2	Multiple external quality assurance authorities; inconsistent/ weak quality assurance processes
		3	State statutory bodies
		4	Regional/local statutory bodies/agencies
		5	Professional bodies
		6	Individual schools: internal quality assurance systems/standards/self-assessment indicators are basis for quality assurance audit; continuous improvement focus

Table A20

Category 10 Data: Responsibility for Assessment, Administration and Quality Assurance of ISCED 3 Qualifications

	Assessment of different components		Administration of overall qualification		Quality assurance of qualification	
Country	General	Vocational	General	Vocational	General	Vocational
Belgium	(i) 1; (ii) 4	(i)(ii)(iii)(iv) 4	(i)(ii) 4	(i)(ii)(iii)(iv) 4	(i)(ii) 4	(i)(ii)(iii)(iv) 4
Germany	(i)(ii) 4	(i)(ii)(iii)(iv) 3,4	(i)(ii) 2	(i)(ii)(iii)(iv) 2,3	3,4	(i)(ii)(iii)(iv) 1,2,3,4,5,6
Hungary	2,4	(i) 1,2,3,4; (ii)1,3,4	1	(i)(ii) 1,3	3	(i)(ii) 3,5
New Zealand	1,4	4	1	1	3,6	3,6
Australia	1,4	3	2	3	3	1,3
Canada	m	m	2	2,3	1	1,4,6
Estonia	1,4	(i) 4; (ii) 3	1,4	(i) 1; (ii) 4	1,4	(i)(ii) 3,4,6
Finland	1,4	3,4	1,4	1	3	3,6
Japan	2	m	1,2	1	m	m
Korea	4	4	1	1,3	6	1,6
Chile	4	4	1	1	1,2	1,2
Luxembourg	4	(i)(ii) 4; (iii)(iv)(v) 1,4	1	(i)(ii)(iii)(iv)(v) 1,3,4	1,6	(i)(ii) 1,6; (iii)(iv)(v) 3,4,5
Slovakia	2,4	(i)(ii)(iii)(iv) 2,4	4	(i)(ii)(iii)(iv) 4	1	(i)(ii)(iii) 1; (iv) 1,5
Iceland	4	(i)(ii)(iii) 3,4	4	(i) 4; (ii)(iii) 3	3,6	(i) 3,6; (ii)(ii) 5
Italy	2,4	(i)(i) 2, 4; (iii) 4	1,2,4	(i)(ii)(iii) 2,3,4	3,6	(i)(ii)(iii) 3,4,6
Norway	(i)(ii) 2,4	(i)(ii) 2,3	(i)(ii) 2,4	(i)(ii) 2,3,4	(i)(ii) 1,6	(i)(ii) 3,4,5,6

Note. Sources of data: *Countries: Description of National Education Systems,* by Eurydice, (2016), retrieved from https://webgate.ec.europa.eu/fpfis/mwikis/eurydice /index.php/Countries; various, including individual country documents.

Table A21

Category 11 Data Collection Categories, Level of Analysis and Coding: Graduation Rates for ISCED 3 Qualifications

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Percentage of students gaining ISCED 3 qualifications (first-time graduates)	Country	Percentage	Percentage
Percentage of all students expected to graduate (general; vocational)	Country	Percentage	Percentage

Table A22

Category 11 Data: Graduation Rates for ISCED 3 Qualifications

Country	Percentage of students gaining qualifications (first-time graduates)	Percentage of all students expected to graduate	
		General	Vocational
Belgium	m	38	55
Germany	91	48	43
Hungary	88	66	23
New Zealand	95	76	59
Australia	m	74	80
Canada	89	85	4
Estonia	m	60	24
Finland	97	46	96
Japan	97	74	23
Korea	95	78	17
Chile	88	59	29
Luxembourg	74	33	43
Slovakia	83	27	57
Iceland	89	74	50
Italy	93	38	55
Norway	84	62	37

Note. Data are for 2014. Source of data: *Education at a Glance 2016: OECD Indicators*, p. 56, by OECD, 2016, doi:10.187/eag-2016-en

Table A23

Category 12 Data Collection Categories, Level of Analysis and Coding: Entry Rates into Tertiary Programmes

		Coding	
Subcategory	Level of analysis	Code	Descriptor
Tertiary-ISCED 5 (total; < 25 years)	Country	Percentage	Percentage
Tertiary-ISCED 6 (total; < 25 years)	Country	Percentage	Percentage

Table A24

Category 12 Data: Entry Rates into Tertiary Programmes

	ISCED 5		ISCED 6	
Country	Total	< 25 years	Total	< 25 years
Belgium	m	m	62	61
Germany	0	0	49	41
Hungary	m	m	m	m
New Zealand	28	13	59	43
Australia	m	m	79	62
Canada	m	m	m	m
Estonia	a	a	62	50
Finland	a	a	49	40
Japan	m	m	m	m
Korea	m	m	m	m
Chile	50	34	55	44
Luxembourg	4	4	13	13
Slovakia	1	1	53	m
Iceland	4	1	68	48
Italy	m	m	m	m
Norway	5	3	65	54

Note. Data are for 2014 and exclude international students. Source of data: *Education at a Glance 2016: OECD Indicators*, p. 324, by OECD, 2016, doi:10.187/eag-2016-en

Appendix B: Changes to University Entrance from 2014, for Entry in 2015

Previous	Changes from 2015
42 credits at NCEA[a] Level 3 or higher	Achievement of NCEA Level 3
14 credits in each of two approved subjects	14 credits in each of three approved subjects
14 credits from no more than two additional domains or approved subjects	The remaining credits to achieve NCEA Level 3 may come from either achievement or unit standards
University Entrance numeracy: 14 credits at Level 1 or higher	University Entrance numeracy: 10 credits at NCEA Level 1 or higher from specified achievement standards or three specific numeracy unit standards
University Entrance literacy: 8 credits from a specific list of standards at Level 2 or higher	University Entrance literacy: 10 credits at Level 2 or higher selected from specific achievement standards, *or* two specific Level 4 English for Academic Purposes unit standards, *or* an academic literacy common assessment tool at Level 3 (no credit value, run by the NZQA).

Note. Adapted from *Changes to University Entrance for 2014*, by the NZQA (2011), retrieved from https://web.archive.org/web/20111109105020/http://www.nzqa.govt.nz/about-us/news/quals-review-guidelines-update-2/

[a]National Certificate of Educational Achievement

Appendix C: Reasons for Removing Schools from the Sample

Schools removed	*n*	Reason
< 5 NCEA L3 candidates	43	Cohort numbers too low to provide useful data
Private	19	Different legislative framework
Kura kaupapa Māori	24	Different legislative framework and educational context
Secondary Māori boarding	6	Different educational context
Designated character schools	11	Different educational context
Offer non-NCEA qualification to some Y13 students	30	Roll-based attainment reporting may underrate NCEA and University Entrance performance, potentially providing a biased sample
< 20 Y13 students	91	Y13 numbers too low to provide a range of pathways
Other	3	Y11-13 school; combined schools' results
Total *n* of reasons	227[a]	
Schools removed	136[a]	
Schools remaining in sample	289	

[a]Many schools met the criteria for removal for more than one reason, for example, (i) a private school, with (ii) fewer than 20 Y13 students. These overlaps account for the difference between the Total *n* of reasons (*n* = 227) and the smaller number of Schools removed (*n* = 136).

Appendix D: Example of Participant Information Sheet and Consent Form

EDUCATION AND SOCIAL WORK

SCHOOL OF LEARNING, DEVELOPMENT AND PROFESSIONAL PRACTICE

Epsom Campus
Gate 3, 74 Epsom Ave
Auckland, New Zealand
T +64 9 623 8899
W www.education.auckland.ac.nz
The University of Auckland
Private Bag 92601
Symonds Street
Auckland 1135
New Zealand

Participant Information Sheet (Senior Manager/Deputy Principal)

What is the project title?	**Dead Ends and Doorways: Attainment and Equity in Upper Secondary School Qualifications Pathways**
Who is the researcher?	Glenys Daniell, Doctor of Philosophy (PhD) student School of Learning, Development and Professional Practice Faculty of Education and Social Work, The University of Auckland **Supervisor:** Professor Helen Timperley; **Co-Supervisor:** Dr Jason Stephens
Why is the research being conducted?	To fulfil the researcher's thesis requirements for a PhD degree.
What is the research about?	**Rationale:** There has been growing international awareness that qualifications pathways and associated assessment structures can play a critical role in ensuring more equitable outcomes for all students. **Aims:** This research will investigate ways in which qualifications pathways can either create opportunities for qualifications success, leading to equivalent outcomes for every student (*doorways*), or limit such opportunities and exacerbate initial educational inequities (*dead ends*). Your school is invited to be part of this research, involving an investigation of your school's NCEA Level 3 and University Entrance pathway structures.
Why is this school being invited to participate in this research?	Your school is one of approximately 30 schools being invited to participate in this research. Schools were selected using 2014 NCEA Level 3 and University Entrance attainment data (performance) and deciles (socio-economic background/equity). Selected schools were identified because the strength of the relationship between their students' performance and socio-economic backgrounds are significantly different to the national average impact.
What does the study involve?	1. One interview of up to 40 minutes in length with you in your capacity as Senior Manager with responsibility for senior qualifications pathways. 2. Providing access to the relevant documents that describe your school's NCEA Level 3 and University Entrance pathway structures (for example, the school website, newsletters, information sheets, option choice forms and subject handbooks). None of the data required will identify any students individually.
What am I being invited to do?	1. Provide access to any relevant documents that describe your school's NCEA Level 3 and University Entrance pathway structures (for example, the school website, newsletters, information sheets, option choice forms and subject handbooks). 2. Undertake an interview of approximately 40 minutes in length about your school's NCEA Level 3 and University Entrance pathway structures.
Will the interview be recorded?	Your permission is sought to audio-record the interview. The audio recording device can be stopped at any time that you request during the interview. The recording will not be shared

	with third parties, with the exception of a professional university-contracted transcriber, who will type up the interview. The transcriber will sign a confidentiality agreement prior to commencing the transcription, and files and transcriptions will be transferred between the researcher and transcriber via a shared Dropbox folder that only they have access to. You will have the opportunity to review your transcript and/or obtain a copy of your recording if you wish. A two-week timeframe will be provided for transcript review.
Will it be anonymous?	All information will be treated as **confidential** and will be reported in a way that does not allow you or your school to be identified. Pseudonyms will be used to preserve your anonymity and that of your school.
How will the findings be used?	Data from the interview will be analysed and used to support the investigation into ways in which qualifications pathways can either create or limit opportunities for qualifications success; this investigation will form the basis of the researcher's PhD thesis. The data may also be used for any additional publications, conference presentations or professional/practitioner presentations that might result from this research.
Will I have the opportunity to comment on the draft findings?	Emerging research findings will be presented to you and the Principal in a written report that is of relevance to your school, and your comments will be invited. No data will be presented in this report that might compromise your confidentiality.
What will happen to the data?	On completion of the research audio files, paper transcripts and identifying data will be securely stored in a locked cabinet by the supervisor and destroyed after 6 years. Electronic data will be deleted and paper transcripts will be shredded.
Can I change my mind about participating?	You have the right to withdraw from the research at any time without explanation, and you can withdraw your data up to 14 days after the interview date. Your principal has given their assurance that your decision regarding your participation or non-participation will not affect your employment status.
Who should I ask if I have queries?	Please do not hesitate to contact me if you have any queries about this research. My contact details are: Glenys Daniell (researcher) g.daniell@auckland.ac.nz Phone 021 2527 254 Other contact details are: Professor Helen Timperley (supervisor) h.timperley@auckland.ac.nz Phone (09) 923 7401 extn. 87401 Associate Professor Lorri Santamaria (Head of School of Learning, Development and Professional Practice) l.santamaria@auckland.ac.nz Phone (09) 373 7599 extn. 463539 For any queries regarding ethical concerns you may contact: The Chair The University of Auckland Human Participants Ethics Committee The University of Auckland Research Office Private Bag 92019 Auckland 1142 humanethics@auckland.ac.nz Phone (09) 373 7599 extn. 87830/83761
What should I do next?	If you are agreeable to participating in the research as outlined above, please read and sign the attached Consent Form. I appreciate your willingness to be involved.

This research was approved by The University of Auckland Human Participants Ethics Committee on 9 July 2015 for three years, Reference Number 015126.

EDUCATION AND SOCIAL WORK

SCHOOL OF LEARNING, DEVELOPM
AND PROFESSIONAL PRACTICE

Epsom Campus
Gate 3, 74 Epsom Ave
Auckland, New Zealand
T +64 9 623 8899
W www.education.auckland.ac.nz
The University of Auckland
Private Bag 92601
Symonds Street
Auckland 1135
New Zealand

Research Consent Form (Senior Manager/Deputy Principal)

This form will be held for a period of 6 years

Research Project Title: Dead Ends and Doorways: Attainment and Equity in Upper Secondary School Qualifications Pathways

Researcher: Glenys Daniell

- I have read the Participant Information Sheet and understand the nature of the research, why this school has been selected and invited to participate, and why I am being interviewed. I have had the opportunity to ask questions and have them answered to my satisfaction. I understand that my participation in this research is voluntary, and it will be conducted according to the procedures and guidelines of The University of Auckland Human Participants Ethics Committee.
- I understand my principal has given assurance that my decision regarding participation or non-participation will not affect my employment status. I understand that I have the right to withdraw from the research at any time without explanation, and can withdraw data up to 14 days after the interview date.
- I understand that there will be an opportunity to comment on emerging findings once these are available.
- I understand that the data will be stored securely and confidentially and will be destroyed after six years.
- I understand that no names or references that identify me or this school will be used in any report about the research, to preserve anonymity.

- **I agree** to provide access to the relevant documents that describe this school's NCEA Level 3 and University Entrance pathway structures (for example, the school website, newsletters, information sheets, option choice forms and subject handbooks). None of the data required will identify any students individually.

- I **agree** to be interviewed about this school's NCEA Level 3 and University Entrance qualifications pathway provisions.

- I **agree / do not agree** (delete one) for this interview to be audio-recorded. I understand that if I agree to be audio-recorded, I can request that the recording device be switched off at any time during the interview. I understand that the recording will not be shared with third parties, with the exception of a professional university-contracted transcriber who has signed a confidentiality agreement, and that I will have the opportunity to review this transcript and/or obtain a copy of the recording if I wish.

- **I wish / do not wish** (delete one) to receive a copy of the transcript.

- **I wish / do not wish** (delete one) to receive a copy of the audio recording.

[... Please turn over]

[... Continued from previous page]

I agree to participate in this research.

Name of School: _____

Your Name: (please print) _____

Designation: _____

Signature: _____ Date: _____

This research was approved by The University of Auckland Human Participants Ethics Committee on 9 July 2015 for three years, Reference Number 015126.

References

Absolum, M., Flockton, L., Hattie, J., Hipkins, R., & Reid, I. (2009). *Directions for assessment in New Zealand (DANZ) report: Developing students' assessment capabilities*. Retrieved from Ministry of Education website: http://assessment.tki.org.nz/Assessment-in-the-classroom/Assessment-position-papers#DANZ

Alberta Education. (2005). *Our words, our ways: Teaching First Nations, Métis and Inuit learners*. Retrieved from http://www.education.gov.ab.ca/k_12/curriculum/OurWords.asp

Alegre, M. À., & Ferrer, G. (2010). School regimes and education equity: Some insights based on PISA 2006. *British Educational Research Journal, 36*(3), 433–461. doi:10.1080/01411920902989193

Allais, S. (2010). *The implementation and impact of National Qualifications Frameworks: Report of a study in 16 countries*. Retrieved from International Labour Organization website: http://www.oit.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/meetingdocument/wcms_126589.pdf

Allen, P., Crooks, T., Hearn, S., & Irwin, K. (1997). *Te Tiro Hou: Report of the qualifications framework inquiry*. Retrieved from Post Primary Teachers' Association website: https://www.ppta.org.nz/dmsdocument/134

Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling: Best evidence synthesis iteration*. Retrieved from Ministry of Education, Education Counts website: https://www.educationcounts.govt.nz/publications/curriculum/2515/5959

Anae, M. (2010). Research for better Pacific schooling in New Zealand: Teu le va – a Samoan perspective. *MAI Review, 2010*(1), 1–24. Retrieved from http://ojs.review.mai.ac.nz/index.php/MR/article/view/298/395

Arum, R., & Shavit, Y. (1995). Secondary vocational education and the transition from school to work. *Sociology of Education, 68*(3), 187–204. Retrieved from http://www.jstor.org/stable/2112684

Asil, M., & Brown, G. T. L. (2016). Comparing OECD PISA reading in English to other languages: Identifying potential sources of non-invariance. *International Journal of Testing, 16*(1), 71–93. doi:10.1080/15305058.2015.1064431

Au, K., & Jordan, C. (1981). Teaching reading to Hawaiian children: Finding a culturally appropriate solution. In H. Trueba, G. Guthrie, & K. Au (Eds.), *Culture and the bilingual classroom: Studies in classroom ethnography* (pp. 139–152). Rowley, MA: Newbury.

Babad, E. Y., Inbar, J., & Rosenthal, R. (1982). Pygmalion, Galatea, and the Golem: Investigations of biased and unbiased teachers. *Journal of Educational Psychology, 74*(4), 459–474. doi:10.1037/0022-0663.74.4.459

Ballard, P. B. (1915). Norms of performance in the fundamental processes of arithmetic, with suggestions for their improvement. *Journal of Experimental Pedagogy and Training College Record, 3*, 9–20.

Banks, J. A. (1976). Pluralism, ideology and curriculum reform. *The Social Studies, 67*(3), 99–106. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/00220973.1943.11019465

Banks, J. A. (1993). Multicultural education: Historical development, dimensions, and practice. *Review of Research in Education, 19*(1), 3–49. Retrieved from http://www.jstor.org/stable/1167339

Banks, J. A. (2006). *Cultural diversity and education: Foundations, curriculum, and teaching* (5th ed.). Boston, MA: Pearson.

Banks, J. A. (2016). Multicultural education: Characteristics and goals. In J. A. Banks & C. A. Banks (Eds.), *Multicultural education: Issues and perspectives* (9th ed., pp. 2–23). Hoboken, NJ: John Wiley & Sons.

Becker, G. S. (1975). *Human capital: A theoretical and empirical analysis, with special reference to education* (2d ed.). New York, NY: National Bureau of Economic Research.

Belasco, A. S. (2013). Creating college opportunity: School counselors and their influence on postsecondary enrollment. *Research in Higher Education, 54*(7), 781–804. doi:10.1007/s11162-013-9297-4

Bell, L. A. (2016). Theoretical foundations for social justice education. In M. Adams & L. A. Bell (Eds.), *Teaching for diversity and social justice* (3rd ed., pp. 3–26). New York, NY: Routledge.

Bennett, C. (2007). *Comprehensive multicultural education: Theory and practice* (6th ed.). Boston, MA: Pearson Allyn and Bacon.

Benseman, J., Coxon, E., Anderson, H., & Anae, M. (2006). Retaining non-traditional students: Lessons learnt from Pasifika students in New Zealand. *Higher Education Research & Development, 25*(2), 147–162. doi:10.1080/07294360600610388

Bevan-Brown, J. (2003). *The cultural self-review: Providing culturally effective, inclusive, education for Māori learners*. Wellington, New Zealand: NZCER.

Bevan-Brown, J. (2005). Providing a culturally responsive environment for gifted Maori learners. *International Education Journal, 6*(2), 150–155. Retrieved from https://files.eric.ed.gov/fulltext/EJ854964.pdf

Biesta, G. (2010). Pragmatism and the philosophical foundations of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Sage handbook of mixed methods in social & behavioral research* (2nd ed., pp. 95–118). Thousand Oaks, CA: Sage.

Bishop, R. (2008). Te Kotahitanga: Kaupapa Māori in mainstream classrooms. In N. K. Denzin, Y. S. Lincoln, & L. Smith (Eds.), *Handbook of critical and indigenous methodologies* (pp. 285–458). Thousand Oaks, CA: Sage.

Bishop, R. (2010). Diversity and educational disparities: The role of teacher education. In Organisation for Economic Co-operation and Development (Ed.), *Educating teachers for diversity: Meeting the challenge* (pp. 119–135). doi:10.1787/20769679

Bishop, R., Berryman, M., Cavanagh, T., & Teddy, L. (2009). Te kotahitanga: Addressing educational disparities facing Māori students in New Zealand. *Teaching and Teacher Education: An International Journal of Research and Studies 25*(5), 734–774. doi:10.1016/j.tate.2009.01.009

Bishop, R., Berryman, M., Tiakiwai, S., & Richardson, C. (2003). *Te Kōtahitanga: The experiences of Year 9 and 10 Māori students in mainstream classrooms*. Retrieved from Ministry of Education, Education Counts website: http://www.educationcounts.govt.nz/publications/maori_education/english-medium-education/9977/5375

Bishop, R., Berryman, M., Wearmouth, J., & Peter, M. (2012). Developing an effective education reform model for indigenous and other minoritized students. *School Effectiveness and School Improvement, 23*(1), 49–70. doi:10.1080/09243453.2011.647921

Bjørnåvold, J., & Coles, M. (2010). *Added value of National Qualifications Frameworks in implementing the EQF*. (European Qualifications Framework Series: Note 2). doi:10.2766/6360

Blank, A., Houkamau, C., & Kingi, H. (2016). *Unconscious bias and education: A comparative study of Māori and African American students*. Retrieved from Oranui website: http://www.oranui.co.nz/images/oranui_reports/unconscious-bias-and-education.pdf

Boeije, H. (2010). *Analysis in qualitative research*. Thousand Oaks, CA: Sage.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood.

Bowles, S., & Gintis, H. (1976). *Schooling in capitalist America*. London, England: Routledge & Kegan Paul.

Briseid, O., & Caillods, F. (2004). *Trends in secondary education in industrialized countries: Are they relevant for African countries?* Retrieved from http://unesdoc.unesco.org/images/0013/001390/139018e.pdf

Brown, G. T. L. (2004). Teachers' conceptions of assessment: Implications for policy and professional development. *Assessment in Education: Principles, Policy & Practice, 11*(3), 301–318. doi:10.1080/0969594042000304609

Brunello, G., & Checchi, D. (2007). Does school tracking affect equality of opportunity? New international evidence. *Economic Policy, 22*(52), 782–861. doi:10.1111/j.1468-0327.2007.00189.x

Bryan, J., Holcomb-McCoy, C., Moore-Thomas, C., & Day-Vines, N. (2009). Who sees the school counselor for college information? A national study. *Professional School Counseling, 12*(4), 280–291. Retrieved from http://www.professionalschoolcounseling.org/doi/pdf/10.5330/PSC.n.2010-12.280?code=asca-site

Bryan, J., Moore-Thomas, C., Day-Vines, N. L., & Holcomb-McCoy, C. (2011). School counselors as social capital: The effects of high school college counseling on college application rates. *Journal of Counseling & Development, 89*(2), 190–199. doi:10.1002/j.1556-6678.2011.tb00077.x

Bryman, A. (2016). *Social research methods* (5th ed.). New York, NY: Oxford University Press.

Burke, G., Keating, J., Vickers, A., Fearnside, R., & Bateman, A. (2009). *Mapping qualifications frameworks across APEC economies*. Retrieved from http://publications.apec.org/publication-detail.php?pub_id=802

Callahan, R. M. (2005). Tracking and high school English learners: Limiting opportunity to learn. *American Educational Research Journal, 42*(2), 305-328. doi:10.3102/00028312042002305

Canady, R. L., & Hotchkiss, P. R. (1989). It's a good score! Just a bad grade. *The Phi Delta Kappan, 71*(1), 68-71. Retrieved from http://www.jstor.org/stable/20404061

Castagno, A., & Brayboy, B. (2008). Culturally responsive schooling for Indigenous youth: A review of the literature. *Review of Educational Research, 78*(4), 941–993. doi:10.3102/0034654308323036

Causa, O., & Chapuis, C. (2010). Equity in student achievement across OECD countries: An investigation of the role of policies. *OECD Journal: Economic Studies, 2010*(1), 1–50. doi:10.1787/eco_studies-2010-5km61lb7b39x

Center for Culturally Responsive Evaluation and Assessment. (2016). *CREA 2016 Conference*. Retrieved from https://crea.education.illinois.edu/home/conference

Child Trends Databank. (2014). *Immigrant children: Indicators of child and youth well-being*. Retrieved from https://www.childtrends.org/?indicators=immigrant-children

Cole, N. S., & Zieky, M. J. (2001). The new faces of fairness. *Journal of Educational Measurement, 38*(4), 369–382. doi:10.1111/j.1745-3984.2001.tb01132.x

Cole, R. W. (2008a). Educating everybody's children: We know what we need to do. In R. W. Cole (Ed.), *Educating everybody's children: Diverse teaching strategies for diverse learners* (2nd ed., pp. vii-xix). Alexandria, VA: Association for Supervision and Curriculum Development.

Cole, R. W. (2008b). Educating everybody's children: We know what works—and what doesn't. In R. W. Cole (Ed.), *Educating everybody's children: Diverse teaching strategies for diverse learners* (2nd ed., pp. 1–40). Alexandria, VA: Association for Supervision and Curriculum Development.

Coleman, J., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity*. Retrieved from https://files.eric.ed.gov/fulltext/ED012275.pdf

Coleman, J., Hoffer, T., & Kilgore, S. (1981). *Public and private schools. An analysis of high school and beyond: A national longitudinal study for the 1980's*. Retrieved from https://files.eric.ed.gov/fulltext/ED214314.pdf

Coles, M. (2006). *A review of international and national developments in the use of qualifications frameworks*. Retrieved from http://www.etf.europa.eu/pubmgmt.nsf/(getAttachment)/4B4A9080175821D1C12571540054B4AF/$File/SCAO6NYL38.pdf

Commission on Chapter 1. (1992). *Making schools work for children in poverty: A new framework prepared by the Commission on Chapter 1: Summary*. Retrieved from http://files.eric.ed.gov/fulltext/ED362618.pdf

Corbetta, P. (2003). *Social research: Theory, methods and techniques*. London, England: Sage.

Corson, D. (1993). *Language, minority education, and gender: Linking social justice and power*. Clevedon, England: Multilingual Matters.

Cowie, B., & Penney, D. (2016). Challenges, tensions and possibilities: An analysis of assessment policy and practice in New Zealand. In S. Scott, D. E. Scott, & C. F. Webber (Eds.), *Leadership of assessment, inclusion, and learning* (pp. 287–304). doi:10.1007/978-3-319-23347-5_12

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209–240). Thousand Oaks, CA: Sage.

Crooks, T. (2011). Assessment for learning in the accountability era: New Zealand. *Studies In Educational Evaluation, 37*(1), 71–77. doi:10.1016/j.stueduc.2011.03.002

Cuadra, E., & Moreno, J. M. (2005). *Expanding opportunities and building competencies for young people: A new agenda for secondary education*. Retrieved from World Bank website: https://openknowledge.worldbank.org/handle/10986/7429

Dellinger, A. B., & Leech, N. L. (2007). Toward a unified validation framework in mixed methods research. *Journal of Mixed Methods Research, 1*(4), 309–332. doi:10.1177/1558689807306147

Delpit, L. (2006). Lessons from teachers. *Journal of Teacher Education, 57*(3), 220–231. doi:10.1177/0022487105285966

Diller, J., & Moule, J. (2005). *Cultural competence: A primer for educators*. Belmont, CA: Thomson/Wadsworth.

Dobric, K. (2005). *A case study of policy adoption: A standards-based national secondary certificate for New Zealand: The NCEA* (Unpublished doctoral thesis). University of Auckland, New Zealand.

Dobric, K. (2005, May). *Discourses in qualifications policy adoption in New Zealand, 1996–2000: Identifying power imbalances in a transformative process*. Paper presented at the First International Congress of Qualitative Inquiry, University of Illinois at Urbana-Champaign, IL. Retrieved from http://www.iiqi.org/C4QI/httpdocs/qi2005/papers/dobric.pdf

Dobric, K. (2006). Drawing on discourses: Policy actors in the debates over the National Certificate of Educational Achievement 1996–2000. *New Zealand Annual Review of Education, 15*, 85-109. Retrieved from https://www.victoria.ac.nz/education/research/nzaroe/issues-index/2005/pdf/text-dobric.pdf

Duncan-Andrade, J., & Morrell, E. (2008). *The art of critical pedagogy: Possibilities for moving from theory to practice in urban schools*. New York, NY: Lang.

Education, Audiovisual and Culture Executive Agency. (2009). *National testing of pupils in Europe: Objectives, organisation and use of results* (Eurydice Network Publication No. EC-78-09-995-EN-C). Retrieved from European Union website: https://publications.europa.eu/en/publication-detail/-/publication/df628df4-4e5b-4014-adbd-2ed54a274fd9

Education Council. (2017). *Our code our standards: Code of professional responsibility and standards for the teaching profession*. Retrieved from https://educationcouncil.org.nz/sites/default/files/Our%20Code%20Our%20Standards%20web%20booklet%20FINAL.pdf

Eivers, E. (2010). PISA: Issues in implementation and interpretation. *The Irish Journal of Education/Iris Eireannach an Oideachais, 38*, 94–118. Retrieved from https://www.jstor.org/stable/20789130

Elliott, A., & Slee, J. (2009, July). *Growing-our-own – Interfacing AUQA's audit report, university policies and the Bradley Report*. Paper presented at the AUQA Forum on Internal and External Quality Assurance: Tensions & Synergies, Alice Springs, Australia. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.147.6337&rep=rep1&type=pdf

European Centre for the Development of Vocational Training. (2009a). *The development of national qualifications frameworks in Europe*. Retrieved from https://www.cedefop.europa.eu/files/6104_en.pdf

European Centre for the Development of Vocational Training. (2009b). *The shift to learning outcomes: Policies and practices in Europe*. Retrieved from https://www.cedefop .europa.eu/files/3054_en.pdf

European Centre for the Development of Vocational Training. (2013). *Analysis and overview of NQF developments in European countries: Annual report 2012* (Working paper No. 17). doi:10.2801/19285

European Centre for the Development of Vocational Training. (2014). *Terminology of European education and training policy: A selection of 130 key terms* (2nd ed.). doi:10.2801/15877

European Centre for the Development of Vocational Training. (2015). *National qualifications framework developments in Europe: Anniversary edition*. doi:10.2801/981905

European Commission. (2008). *The European qualifications framework for lifelong learning (EQF)*. doi:10.2766/14352

European Commission. (2011). *Using learning outcomes* (European Qualifications Framework series: Note 4). doi:10.2766/17497

European Union. (2008). Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning. *Official Journal of the European Union, C 111/01, 6.5.2008*. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:EN:PDF

Field, S., Kuczera, M., & Pont, B. (2007). *No more failures: Ten steps to equity in education*. doi:10.1787/9789264032606-en

Finkelstein, I. E. (1913). *The marking system in theory and practice*. Baltimore, MD: Warwick & York.

Fischer, D. H. (2012). *Fairness and freedom: A history of two open societies: New Zealand and the United States*. Oxford, NY: Oxford University Press.

Flick, U. (2014). *An introduction to qualitative research* (5th ed.). London, England: Sage.

Gamoran, A. (2004). Classroom organization and instructional quality. In H. J. Walberg, A. J. Reynolds, & M. C. Wang (Eds.), *Can unlike students learn together? Grade retention, tracking, and grouping.* (pp. 141–155). Greenwich, CT: Information Age.

García, G. E., & Pearson, P. D. (1994). Assessment and diversity. *Review of Research in Education, 20*(1), 337-391. doi:10.3102/0091732X020001337

Gay, G. (1994). *A synthesis of scholarship in multicultural education*. Oak Brook, IL: North Central Regional Educational Laboratory.

Gay, G. (2010). *Culturally responsive teaching: Theory, research, and practice*. New York, NY: Teachers College Press.

Gibbs, G. (2007). Analyzing qualitative data. In U. Flick (Ed.), *Book 6 of the Sage qualitative research kit*. London, England: Sage.

Giordano, G. (2005). *How testing came to dominate American schools: The history of educational assessment*. New York, NY: Lang.

Gipps, C. (1999). Socio-cultural aspects of assessment. *Review of Research in Education, 24*(1), 355-392. Retrieved from http://www.jstor.org/stable/1167274

Gipps, C., & Murphy, P. (1994). *A fair test? Assessment, achievement and equity*. Buckingham, PA: Open University Press.

Gipps, C., & Stobart, G. (2009). Fairness in assessment. In C. Wyatt-Smith & J. J. Cumming (Eds.), *Educational assessment in the 21st century* (pp. 105-118). doi:10.1007/978-1-4020-9964-9

Gray, J., & Beresford, Q. (2008). A 'formidable challenge': Australia's quest for equity in Indigenous education. *Australian Journal of Education, 52*(2), 197-223. doi:10.1177/000494410805200207

Greene, J. C. (2006). Toward a methodology of mixed methods social inquiry. *Research in the Schools, 13*(1), 93–98. Retrieved from http://www.msera.org/docs/rits-v13n1-complete.pdf#page=100

Greene, J. C., & Caracelli, V. J. (2003). Making paradigmatic sense of mixed methods practice. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 91–110). Thousand Oaks, CA: Sage.

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 11*(3), 255–274. doi:10.3102/01623737011003255

Grubb, W. N., Lara, C. M., & Valdez, S. (2002). Counselor, coordinator, monitor, mom: The roles of counselors in the Puente program. *Educational Policy, 16*(4), 547-571. doi:10.1177/0895904802016004005

Hanson, W. E., Creswell, J. W., Plano Clark, V. L., Petska, K. S., & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology, 52*(2), 224–235. doi:10.1037/0022-0167.52.2.224

Hanushek, E. A., & Woessmann, L. (2006). Does educational tracking affect performance and inequality? Differences-in-differences evidence across countries. *The Economic Journal, 116*(510), C63-C76. doi:10.1111/j.1468-0297.2006.01076.x

Hanushek, E. A., & Woessmann, L. (2010). *The economics of international differences in educational achievement*. Retrieved from National Bureau of Economic Research website: http://www.nber.org/papers/w15949

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement.* Retrieved from https://www.routledge.com/Visible-Learning-A-Synthesis-of-Over-800-Meta-Analyses-Relating-to-Achievement/Hattie /p/book /9780415476188

Hipkins, R. (2010). *The evolving NCEA: Findings from the NZCER national survey of secondary schools 2009*. Wellington, New Zealand: NZCER.

Hipkins, R., Johnston, M., & Sheehan, M. (2016). *NCEA in context* [EPUB version]. Retrieved from https://mebooks.co.nz/ncea-in-context-ebook

Hirsch E. D., Jr., (1987). *Cultural literacy: What every American needs to know*. Boston, MA: Houghton Mifflin.

Holcomb-McCoy, C. (2010). Involving low-income parents and parents of color in college readiness activities: An exploratory study. *Professional School Counseling, 14*(1), 115–124. Retrieved from http://professionalschoolcounseling.org/doi/pdf/10.5330 /prsc.14.1.e3044v7567570t04?code=asca-site

Hood, S. (1998). Culturally responsive performance-based assessment: Conceptual and psychometric considerations. *Journal of Negro Education, 67*(3), 187-196. Retrieved from http://www.jstor.org/stable/2668188

Hopfenbeck, T. N., Lenkeit, J., El Masri, Y., Cantrell, K., Ryan, J., & Baird, J. (2018). Lessons learned from PISA: A systematic review of peer-reviewed articles on the Programme for International Student Assessment. *Scandinavian Journal of Educational Research, 62*(3), 333–353. doi:10.1080/00313831.2016.1258726

Hopkins, D., & Levin, B. (2000). Government policy and school development. *School Leadership & Management, 20*(1), 15–30. doi:10.1080/13632430068851

Hossler, D., Schmit, J., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore, MD: John Hopkins University Press.

Hout, M., & DiPrete, T. A. (2006). What we have learned: RC28's contributions to knowledge about social stratification. *Research in Social Stratification and Mobility, 24*(1), 1–20. doi:10.1016/j.rssm.2005.10.001

Hughes, K. L., & Karp, M. M. (2004). *School-based career development: A synthesis of the literature*. Retrieved from http://www.tc.columbia.edu/iee/PAPERS /CareerDevelopment02_04.pdf

Hummer, R. A., & Lariscy, J. T. (2011). Educational attainment and adult mortality. In R. G. Rogers & E. M. Crimmins (Eds.), *International handbook of adult mortality* (pp. 241–261). Retrieved from https://link.springer.com/chapter/10.1007%2F978-90-481-9996-9_12

Hurwitz, J. T., Elliott, S. N., & Braden, J. P. (2007). The influence of test familiarity and student disability status upon teachers' judgments of students' test performance. *School Psychology Quarterly, 22*(2), 115–144. doi:10.1037/1045-3830.22.2.115

Hutchings, P. (2016). *Aligning educational outcomes and practices* (Occasional Paper No. 26). Retrieved from National Institute for Learning Outcomes Assessment website: http://www.learningoutcomesassessment.org/documents/Occasional%20Paper%2026.pdf

Hynds, A., Averill, R., Hindle, R., & Meyer, L. (2017). School expectations and student aspirations: The influence of schools and teachers on Indigenous secondary students. *Ethnicities, 17*(4), 546–573. doi:10.1177/1468796816666590

IB Schools of NZ. (2015). *International Baccalaureate directory of schools*. Retrieved from http://www.ibschoolsnz.org.nz/schools.html

Irwin, M. (2000). Achievement 2001. In New Zealand Council for Educational Research (Ed.), *Proceedings of the Examining Assessment Conference* (pp. 77-103). Wellington, New Zealand: NZCER.

Isaacs, S. (2001). Making the NQF road by walking reflectively, accountably and boldly. In *Implementing education policies: The South African experience* (pp. 124–139). Cape Town, South Africa: University of Cape Town Press.

Jick, T. D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly, 24*(4), 602–611. Retrieved from https://www.jstor.org/stable/2392366?seq=1#page_scan_tab_contents

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26. doi:10.3102/0013189X033007014

Johnson, R. B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 297-319). Thousand Oaks, CA: Sage.

Johnston, G. (2004). *Healthy, wealthy and wise? A review of the wider benefits of education* (New Zealand Treasury Working Paper 04/04). Retrieved from New Zealand Treasury website: https://treasury.govt.nz/sites/default/files/2007-09/twp04-04.pdf

Johnston, P. (2010). Towards culturally appropriate assessment? A contribution to the debates. *Higher Education Quarterly, 64*(3), 231–245. doi:10.1111/j.1468-2273 .2010.00463.x

Jordan, C. (1985). Translating culture: From ethnographic information to educational program. *Anthropology & Education Quarterly, 16*(2), 105–123. doi:10.1525/aeq.1985.16.2.04x0631g

Kaden, R., Tota, P., Robitschko, A., & Batanoiu, R. (2013). *Global national qualifications inventory: Prepared for ASEM education ministers conference, Kuala Lumpur, 13–14 May 2013 (ASEMME 4)*. Retrieved from http://kutsekoda.ee/fwk/contenthelper /10462244/10484631

Kandola, R., & Fullerton, J. (1998). *Diversity in action: Managing the mosaic* (2nd ed.). London, England: Chartered Institute of Personnel and Development.

Keevy, J., Chakroun, B., & Deij, A. (2011). *Transnational qualifications frameworks*. doi:10.2816/16602

Kirkcaldy, B. D., Furnham, A., & Siefen, R. G. (2013). Health and educational performance among young migrants. *International Journal of Adolescent Medicine and Health, 25*(1), 13–30. doi:10.1515/ijamh-2013-0003

Kiro, C., Hynds, A., Eaton, J., Irving, E., Wilson, A., Bendikson, L., . . . Rangi, M. (2016). *Starpath phase 2: Final summative evaluation report*. Retrieved from University of Auckland, Starpath Project website: https://cdn.auckland.ac.nz/assets/education /about/research/starpath/documents/Starpath%20Summative%20Report.pdf

Klehm, M. (2014). The effects of teacher beliefs on teaching practices and achievement of students with disabilities. *Teacher Education and Special Education, 37*(3), 216–240. doi:10.1177/0888406414525050

Klenowski, V. (2016). Fairer assessment for Indigenous students: An Australian perspective. In S. Scott, D. E. Scott, & C. F. Webber (Eds.), *Leadership of assessment, inclusion, and learning* (pp. 273–285). doi:10.1007/978-3-319-23347-5_11

Kulik, J. A., & Kulik, C.-L. C. (1992). Meta-analytic findings on grouping programs. *Gifted Child Quarterly, 36*(2), 73–77. doi:10.1177/001698629203600204

Ladson-Billings, G. (1994). *The dreamkeepers: Successful teachers of African American children*. San Francisco, CA: Jossey-Bass.

Ladson-Billings, G. (1995a). But that's just good teaching! The case for culturally relevant pedagogy. *Theory into Practice, 34*(3), 159–165. doi:10.1080/00405849509543675

Ladson-Billings, G. (1995b). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal, 32*(3), 465–491. Retrieved from http://links.jstor.org/sici?sici=0002-8312%28199523%2932%3A3%3C465%3ATATOCR%3E2.0.CO%3B2-4

Lamb, S., Jackson, J., Walstab, A., & Huo, S. (2015). *Educational opportunity in Australia 2015: Who succeeds and who misses out*. Retrieved from Mitchell Institute website: http://mitchellinstitute.org.au/wp-content/uploads/2015/11/Educational-opportunity-in-Australia-2015-Who-succeeds-and-who-misses-out-19Nov15.pdf

Lange, D. (1988). *Tomorrow's schools: The reform of education administration in New Zealand*. Wellington, New Zealand: Government Printer.

Lee, V. E., & Burkam, D. T. (2003). Dropping out of high school: The role of school organization and structure. *American Educational Research Journal, 40*(2), 353–393. doi:10.3102/00028312040002353

Leech, N. L., & Onwuegbuzie, A. J. (2010). Guidelines for conducting and reporting mixed research in the field of counseling and beyond. *Journal of Counseling and Development, 88*(1), 61–70. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1002/j.1556-6678.2010.tb00151.x

Leney, T., Gordon, J., & Adam, S. (2009). The shift to learning outcomes: Policies and practices in Europe. *Cedefop Reference series: 72*. Retrieved from http://www.cedefop.europa.eu/en/publications-and-resources/publications/3054

Lindsey, R. B., Roberts, L. M., & Campbell-Jones, F. (2013). *The culturally proficient school: An implementation guide for school leaders* (2nd ed.). Thousand Oaks, CA: Corwin.

Longboat, K. D. (2013). *Jurisdiction principles in First Nations education: Components of an education framework for First Nations jurisdiction over education*. Retrieved from Assembly of First Nations Education, Jurisdiction, and Governance website: https://www.afn.ca/uploads/files/education/jurisdictionprinciplesfirstnationseducation.pdf

Loveless, T. (2014). *The 2014 Brown Center report on American education: How well are American students learning?* (Vol. 3, No. 3). Retrieved from Brookings Institution

website: https://www.brookings.edu/wp-content/uploads/2016/06/2014-Brown-Center-Report_FINAL-4.pdf

Luciak, M. (2006). Minority schooling and intercultural education: A comparison of recent developments in the old and new EU member states. *Intercultural Education, 17*(1), 73–80. doi:10.1080/14675980500502370

Lyche, C. (2010). *Taking on the completion challenge: A literature review on policies to prevent dropout and early school leaving* (OECD Education Working Papers, No. 53). doi:10.1787/5km4m2t59cmr-en

Madjar, I., McKinley, E. A., Jensen, S. E. F., & Van der Merwe, A. (2009). *Towards university: Navigating NCEA course choices in low–mid decile schools*. Retrieved from University of Auckland, Starpath Project website: https://cdn.auckland.ac.nz/assets/education/about/research/docs/starpath/Towards-university-Navigating-NCEA-course-choices-in-low-mid-decile-schools.pdf

Mahuika, R., Berryman, M., & Bishop, R. (2011). Issues of culture and assessment in New Zealand education pertaining to Maori students. *Assessment Matters, 3*, 183–198. Retrieved from http://www.nzcer.org.nz/nzcerpress/assessment-matters/articles/issues-culture-and-assessment-new-zealand-education

Mahuika, R., & Bishop, R. (n.d.). *Review paper 6: Issues of culture and assessment in New Zealand education pertaining to Māori students. A paper commissioned to inform the Directions for Assessment in New Zealand (DANZ) Report*. Retrieved from https://web.archive.org/web/20130505231719/http://assessment.tki.org.nz/Assessment-in-the-classroom/Assessment-position-papers/DANZ-research

Martínez, J. F., Stecher, B., & Borko, H. (2009). Classroom assessment practices, teacher judgments, and student achievement in mathematics: Evidence from the ECLS. *Educational Assessment, 14*(2), 78–102. doi:10.1080/10627190903039429

McKinley, E., & Madjar, I. (2014). From schools in low-income communities to university: Challenges of transition for Māori and Pacific students. In F. Cram, H. Phillips, P. Sauni, & C. Tuagalu (Eds.), *Māori and Pasifika higher education horizons* (Vol. 15, pp. 241–252). Retrieved from https://doi.org/10.1108/S1479-364420140000015020

McKinley, E., Madjar, I., Van der Merwe, A., Smith, S. L., Sutherland, S., & Yuan, J. (2009). *Targets and talk: Evaluation of an evidence-based academic counselling programme*. Retrieved from University of Auckland, Starpath Project website: https://cdn.auckland.ac.nz/assets/education/about/research/docs/starpath/Targets-and-talk-evaluation-of-an-evidence-based-academic-counselling-programme.pdf

McKown, C., & Weinstein, R. S. (2008). Teacher expectations, classroom context, and the achievement gap. *Journal of School Psychology, 46*(3), 235–261. doi:10.1016/j.jsp.2007.05.001

McNaughton, S. (2011). Educational outcomes in adolescence for Māori and Pasifika students. In P. D. Gluckman (Ed.), *Improving the transition: Reducing social and psychological morbidity during adolescence. A report from the Prime Minister's chief science advisor* (pp. 97-109). Retrieved from Office of the Prime Minister's Chief Science Advisor website: http://www.pmcsa.org.nz/wp-content/uploads/Improving-the-Transition-report.pdf

McNaughton, S., Rosedale, W. F. N., & Oldehaver, J. (2014). *Enhancement of tertiary education strategy priority frameworks: Full report*. Retrieved from Tertiary Education Commission website: http://www.tec.govt.nz/assets/Reports/Enhancement-of-tertiary-education-strategy-priority-frameworks.pdf

Meissel, K., Meyer, F., Yao, E. S., & Rubie-Davies, C. M. (2017). Subjectivity of teacher judgments: Exploring student characteristics that influence teacher judgments of student ability. *Teaching and Teacher Education, 65*, 48–60. doi:10.1016/j.tate.2017.02.021

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2 ed.). Thousand Oaks, CA: Sage.

Ministry of Education. (2007). *The New Zealand curriculum*. Wellington, New Zealand: Learning Media.

Ministry of Education. (2010). *OECD review on evaluation and assessment frameworks for improving school outcomes: New Zealand country background report 2010*. Retrieved from http://www.educationcounts.govt.nz/publications/schooling/oecd-review-on-evaluation-and-assessment-frameworks-for-improving-school-outcomes/references

Ministry of Education. (2011). *Position paper: Assessment (schooling sector) - Ko te whārangi takotoranga ārunga, ā te tāhuhu o te mātauranga, te matekitenga*. Retrieved from http://assessment.tki.org.nz/Media/Files/Ministry-of-Education-Position-Paper-Assessment-Schooling-Sector-2011

Ministry of Education. (2012). *Statement of intent 2012–2017*. Retrieved from http://www.education.govt.nz/assets/Documents/Ministry/Publications/Statements-of-intent/2012StatementOfIntent.pdf

Ministry of Education. (2013). *Ka hikitia - accelerating success 2013–2017: The Māori education strategy*. Retrieved from https://education.govt.nz/assets/Documents/Ministry/Strategies-and-policies/Ka-Hikitia/KaHikitiaAcceleratingSuccessEnglish.pdf

Ministry of Education. (2015a). *Directory of schools*. Retrieved from http://www.educationcounts.govt.nz/data-services/directories/list-of-nz-schools

Ministry of Education. (2015b). *School rolls*. Retrieved from http://www.educationcounts.govt.nz/statistics/schooling/student-numbers/6028

Ministry of Education. (2016). *How deciles are calculated*. Retrieved from http://www.education.govt.nz/school/running-a-school/resourcing/operational-funding/school-decile-ratings/#How

Ministry of Education. (2017a). *NCEA Level 3 or UE award (2009–2016)*. Retrieved from http://www.educationcounts.govt.nz/statistics/schooling/senior-student-attainment/school-leavers2/university-entrance-standard-numbers

Ministry of Education. (2017b). *School rolls*. Retrieved from http://www.educationcounts.govt.nz/statistics/schooling/student-numbers/6028

Ministry of Education. (2017c). *Te Kotahitanga*. Retrieved from http://tekotahitanga.tki.org.nz/

Ministry of Education. (2018). *Secondary Tertiary Alignment Resource (STAR)*. Retrieved from http://www.education.govt.nz/ministry-of-education/specific-initiatives/star/

Ministry of Pacific Island Affairs. (2014). *Pacific adolescent career pathways: Final report. A report on future labour market opportunities and education pathways for Pacific peoples*. Retrieved from http://www.mpp.govt.nz/assets/Uploads/PIA7877Pacific-Adolescent-Career-PathwaysWeb.pdf

Mohatt, G., & Erickson, F. (1981). Cultural differences in teaching styles in an Odawa school: A sociolinguistic approach. In H. Trueba, G. Guthrie, & K. Au (Eds.), *Culture and the bilingual classroom: Studies in classroom ethnography* (pp. 105–119). Rowley, MA: Newbury House.

Monitor. (n.d.). In *Oxford English dictionary online*. Retrieved from https://en.oxforddictionaries.com/definition/monitor

Montenegro, E., & Jankowski, N. A. (2017). *Equity and assessment: Moving towards culturally responsive assessment* (Occasional Paper No. 29). Retrieved from University of Illinois at Urbana-Champaign, National Institute for Learning Outcomes Assessment website: http://learningoutcomesassessment.org/documents/OccasionalPaper29.pdf

Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research, 40*(2), 120–123. Retrieved from https://journals.lww.com/nursingresearchonline/Citation/1991/03000/Approaches_to_Qualitative_Quantitative.14.aspx

Murphy, E., & Dingwall, R. (2001). The ethics of ethnography. In P. Atkinson, A. Coffey, S. Delamont, J. Lofland, & L. Lofland (Eds.), *Handbook of ethnography* (pp. 339–351). London, England: Sage.

National Commission on Excellence in Education. (1983). *A Nation at risk: The imperative for educational reform. A report to the nation and the Secretary of Education*. Washington, DC: United States Department of Education.

New Zealand Qualifications Authority. (2001). *Learning and assessment: A guide to assessment for the National Qualifications Framework*. Wellington, New Zealand: Author.

New Zealand Qualifications Authority. (2011). *Changes to University Entrance for 2014*. Retrieved from https://web.archive.org/web/20111109105020/http://www.nzqa.govt.nz/about-us/news/quals-review-guidelines-update-2/

New Zealand Qualifications Authority. (2012a). *How NCEA works*. Retrieved from http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/understanding-ncea/how-ncea-works/

New Zealand Qualifications Authority. (2012b). *Statement of intent 2012/13-2014/15*. Wellington, New Zealand: Author

New Zealand Qualifications Authority. (2012c). *Te rautaki Māori a te Mana Tohu Mātauranga o Aotearoa: The Māori strategic plan for the New Zealand Qualifications Authority 2012 - 2017*. Retrieved from http://www.nzqa.govt.nz/assets/About-us/Publications/Strategic-publications/TeRautaki.pdf

New Zealand Qualifications Authority. (2015a). *Assessment tools and approaches*. Retrieved from http://www.nzqa.govt.nz/providers-partners/assessment-and-moderation/assessment-of-standards/generic-resources/assessment-tools-and-approaches/

New Zealand Qualifications Authority. (2015b). *Secondary statistics consolidated data files for 2014*. Retrieved from http://www.nzqa.govt.nz/studying-in-new-zealand/secondary-school-and-ncea/find-information-about-a-school/secondary-school-statistics/consolidated-files/files-2014/

New Zealand Qualifications Authority. (2016a). *Extension of consent to assess for schools*. Retrieved from http://www.nzqa.govt.nz/providers-partners/approval-accreditation-and-registration/secondary-school-consent-to-assess/extension-of-consent-to-assess-for-schools/

New Zealand Qualifications Authority. (2016b). *Secondary statistics consolidated data files: File summary*. Retrieved from http://www.nzqa.govt.nz/assets/Studying-in-NZ/Secondary-school-and-NCEA/stats-reports/NZQA-Secondary-Statistics-Consolidated-Data-Files-Short-Guide.pdf

New Zealand Qualifications Authority. (2016c). *Standards*. Retrieved from http://www.nzqa.govt.nz/qualifications-standards/standards/

New Zealand Qualifications Authority. (2017a). *Annual report on NCEA and New Zealand Scholarship data and statistics (2016)*. Retrieved from http://www.nzqa.govt.nz/assets/About-us/Publications/stats-reports/ncea-annualreport-2016.pdf

New Zealand Qualifications Authority. (2017b). *External moderation*. Retrieved from http://www.nzqa.govt.nz/providers-partners/assessment-and-moderation/managing-national-assessment-in-schools/secondary-moderation/external-moderation/

New Zealand Qualifications Authority. (2017c). *Gathering evidence of achievement*. Retrieved from http://www.nzqa.govt.nz/providers-partners/assessment-and-moderation/assessment-of-standards/generic-resources/gathering-evidence-of-achievement/

New Zealand Qualifications Authority. (2017d). *History of NCEA*. Retrieved from http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/understanding-ncea/history-of-ncea/

Nicaise, I., Esping-Andersen, G., Pont, B., & Tunstall, P. (2005). *Equity in education thematic review: Sweden country note*. Retrieved from OECD website: http://www.oecd.org/education/innovation-education/35892546.pdf

Nieto, S. (2005). Cultural difference and educational change in a sociopolitical context. In A. Hargreaves (Ed.), *Extending educational change: International handbook of educational change* (Vol. 2, pp. 138–159). Dordrecht, Netherlands: Springer.

Nieto, S., & Bode, P. (2012). *Affirming diversity: The sociopolitical context of multicultural education* (6th ed.). Boston, MA: Pearson.

Nusche, D., Laveault, D., MacBeath, J., & Santiago, P. (2012). *OECD reviews of evaluation and assessment in education: New Zealand 2011*. doi:10.1787/9789264116917-en

Oakes, J. (2005). *Keeping track: How schools structure inequality* (2nd ed.). New Haven, CT: Yale University Press.

Office of the Auditor-General. (2016). *Education for Māori: Using information to improve Māori educational success*. Retrieved from http://www.oag.govt.nz/2016/education-for-maori/docs/maori-education.pdf

Onwuegbuzie, A. J., & Collins, K. M. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report, 12*(2), 281–316. Retrieved from http://nsuworks.nova.edu/tqr/vol12/iss2/9

Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools, 13*(1), 48–63. Retrieved from https://www.researchgate.net/profile/R_Johnson3/publication/228340166_The_Validity_Issues_in_Mixed_Research/links/53d69ace0cf220632f3dba1f.pdf

Onwuegbuzie, A. J., & Leech, N. L. (2004). Enhancing the interpretation of significant findings: The role of mixed methods research. *The Qualitative Report, 9*(4), 770–792. Retrieved from https://nsuworks.nova.edu/tqr/vol9/iss4/10/

Organisation for Economic Co-operation and Development. (1999a). *Classifying educational programmes: Manual for ISCED-97 implementation in OECD countries* (1999 ed.). Retrieved from http://www.oecd.org/edu/1841854.pdf

Organisation for Economic Co-operation and Development. (1999b). *Government reform: Of roles and functions of government and public administration. New Zealand – country paper*. Retrieved from https://web.archive.org/web/20090521094458/http://www.oecd.org/dataoecd/48/39/1910905.pdf

Organisation for Economic Co-operation and Development. (2000). *From initial education to working life: Making transitions work*. doi:10.1787/9789264181816-en

Organisation for Economic Co-operation and Development. (2002). *Education at a glance 2002: OECD indicators*. doi:10.1787/eag-2002-en

Organisation for Economic Co-operation and Development. (2004a). *Career guidance and public policy: Bridging the gap*. Retrieved from http://www.oecd.org/edu/innovation-education/34050171.pdf

Organisation for Economic Co-operation and Development. (2004b). *OECD handbook for internationally comparative education statistics: Concepts, standards, definitions and classifications*. doi:10.1787/9789264104112-en

Organisation for Economic Co-operation and Development. (2004c). *The role of national qualifications systems in promoting lifelong learning: Background report for New Zealand*. Retrieved from http://www.oecd.org/dataoecd/22/23/33774156.pdf

Organisation for Economic Co-operation and Development. (2007a). *PISA 2006: Science competencies for tomorrow's world: Volume 1: Analysis*. doi:10.1787/9789264040014-en

Organisation for Economic Co-operation and Development. (2007b). *Qualifications systems: Bridges to lifelong learning*. doi:10.1787/9789264013681-en

Organisation for Economic Co-operation and Development. (2009). *Vocational education and training in Chile: Strengths, challenges and policy options*. Retrieved from http://www.oecd.org/edu/skills-beyond-school/45164564.pdf

Organisation for Economic Co-operation and Development. (2010a). *Closing the gap for immigrant students: Policies, practice and performance*. doi:10.1787/9789264130852-en

Organisation for Economic Co-operation and Development. (2010b). *PISA 2009 results: Overcoming social background: Equity in learning opportunities and outcomes* (Vol. II). doi:10.1787/9789264091504-en

Organisation for Economic Co-operation and Development. (2012a). *Education at a glance 2012: OECD indicators*. doi:10.1787/eag-2012-en

Organisation for Economic Co-operation and Development. (2012b). *Equity and quality in education: Supporting disadvantaged students and schools*. doi:10.1787/9789264130852-en

Organisation for Economic Co-operation and Development. (2013a). Features of student assessment frameworks in primary and upper secondary education (Annex 4.A2). In *Synergies for better learning: An international perspective on evaluation and assessment* (pp. I-XLVII). doi:10.1787/9789264190658-8-en

Organisation for Economic Co-operation and Development. (2013b). *PISA 2012 results: Excellence through equity: Preliminary version - giving every student the chance to succeed* (Vol. II). doi:10.1787/9789264201132-en

Organisation for Economic Co-operation and Development. (2015). *Helping immigrant students to succeed at school – and beyond*. Retrieved from https://www.oecd.org/education/Helping-immigrant-students-to-succeed-at-school-and-beyond.pdf

Organisation for Economic Co-operation and Development. (2016a). Annex 3: Sources, methods and technical notes. In *Education at a glance 2016: OECD indicators*. doi:10.1787/eag-2016-37-en

Organisation for Economic Co-operation and Development. (2016b). *Education at a glance 2016: OECD indicators*. doi:10.187/eag-2016-en

Organisation for Economic Co-operation and Development. (2016c). *PISA 2015 results: Excellence and equity in education* (Vol. I). doi:10.1787/9789264266490-en

Organisation for Economic Co-operation and Development. (2017). *Glossary of statistical terms: Educational attainment*. Retrieved from https://stats.oecd.org/glossary/detail.asp?ID=742

Organisation for Economic Co-operation and Development. (2018). *About PISA*. Retrieved from http://www.oecd.org/pisa/aboutpisa/

Organisation for Economic Co-operation and Development, European Union, & United Nations Educational Scientific and Cultural Organisation – Institute for Statistics. (2015). *ISCED 2011 operational manual: Guidelines for classifying national education programmes and related qualifications*. doi:10.1787/9789264228368-en

Parker, B., & Walters, S. (2008). Competency based training and national qualifications frameworks: Insights from South Africa. *Asia Pacific Education Review, 9*(1), 70–79. Retrieved from http://link.springer.com/article/10.1007/BF03025827

Perna, L. W., & Titus, M. A. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *The Journal of Higher Education, 76*(5), 485–518. doi:10.1080/00221546.2005.11772296

Peske, H. G., & Haycock, K. (2006). *Teaching inequality: How poor and minority students are shortchanged on teacher quality: A report and recommendations by the Education Trust*. Retrieved from Education Trust website: https://edtrust.org/resource/teaching-inequality-how-poor-and-minority-students-are-shortchanged-on-teacher-quality/

Peterson, E. R., Rubie-Davies, C., Osborne, D., & Sibley, C. (2016). Teachers' explicit expectations and implicit prejudiced attitudes to educational achievement: Relations with student achievement and the ethnic achievement gap. *Learning and Instruction, 42*, 123–140. Retrieved from https://doi.org/10.1016/j.learninstruc.2016.01.010

Philips, D. (2000). Curriculum and assessment policy in New Zealand: Ten years of reforms. *Educational Review, 52*(2), 143–153. doi:10.1080/713664034

Philips, D. (2003). Lessons from New Zealand's National Qualifications Framework. *Journal of Education and Work, 16*(3), 289–304. doi:10.1080/1363908032000099458

Philpott, D., Nesbit, W., Cahill, M., & Jeffery, G. (2004). Educational assessment of first nations students: A review of the literature. In W. Nesbit (Ed.), *Cultural diversity and education: Interface issues* (pp. 77-102). St John's, NL: Memorial University.

Polesel, J. (2008). Democratising the curriculum or training the children of the poor: School-based vocational training in Australia. *Journal of Education Policy, 23*(6), 615–632. doi:10.1080/02680930802054420

Powell, A. G., Farrar, E., & Cohen, D. K. (1985). *The shopping mall high school: Winners and losers in the educational marketplace*. Boston, MA: Houghton Mifflin.

Poynton, T. A., & Lapan, R. T. (2017). Aspirations, achievement, and school counselors' impact on the college transition. *Journal of Counseling & Development, 95*(4), 369–377. doi:10.1002/jcad.12152

Prior, L. (2008). Repositioning documents in social research. *Sociology, 42*(5), 821–836. doi:10.1177/0038038508094564

Privacy Act, No. 28. (1993). Retrieved from http://www.legislation.govt.nz/act/public/1993/0028/latest/DLM296639.html

Punch, K. (2009). *Introduction to research methods in education*. London, England: Sage.

Raffe, D. (2003). Pathways linking education and work: A review of concepts, research, and policy debates. *Journal of Youth Studies, 6*(1), 3–19. doi:10.1080/1367626032000068136

Raffe, D. (2009). *Can national qualifications frameworks be used to change education and training systems?* (CES Briefings, No. 48). Retrieved from University of Edinburgh, Centre for Educational Sociology website: http://www.ces.ed.ac.uk/PDF%20Files/Brief048.pdf

Raffe, D. (2011). The role of learning outcomes in National Qualifications Frameworks. In S. Bohlinger & G. Münchhausen (Eds.), *Validierung von Lernergebnissen: Recognition and validation of prior learning* (pp. 87-104). Bielefeld, Germany: Bertelsmann.

Raffe, D. (2013). What is the evidence for the impact of National Qualifications Frameworks? *Comparative Education, 49*(2), 143–162. doi:10.1080/03050068.2012.686260

Ready, D. D., & Wright, D. L. (2011). Accuracy and inaccuracy in teachers' perceptions of young children's cognitive abilities: The role of child background and classroom context. *American Educational Research Journal, 48*(2), 335–360. doi:10.3102/0002831210374874

Retelsdorf, J., Schwartz, K., & Asbrock, F. (2015). "Michael can't read!" Teachers' gender stereotypes and boys' reading self-concept. *Journal of Educational Psychology, 107*(1), 186. doi:10.1037/a0037107

Robinson, V. M., Ward, L., & Timperley, H. S. (2003). The difficulties of school governance: A layperson's job? *Educational Management Administration & Leadership, 31*(3), 263–281. doi:10.1177/0263211X03031003004

Rubie-Davies, C., Peterson, E., Flint, A., Garrett, L., Mc Donald, L., Watson, P., & O'Neill, H. (2012). Ethnicity and teacher expectations in New Zealand. *Procedia – Social and Behavioral Sciences, 69*, 256–261. doi:10.1016/j.sbspro.2012.11.407

Sahlberg, P. (2007). *Secondary education in OECD countries: Common challenges, differing solutions*. Retrieved from http://www.etf.europa.eu/webatt.nsf/0/C12578310056925BC12573850034415B/$file/NOTE78HD6G.pdf

Sandelowski, M. (2001). Real qualitative researchers do not count: The use of numbers in qualitative research. *Research in Nursing & Health, 24*(3), 230–240. doi:10.1002/nur.1025

Saravia-Shore, M. (2008). Diverse teaching strategies for diverse learners. In R. W. Cole (Ed.), *Educating everybody's children: Diverse teaching strategies for diverse learners* (2nd ed., pp. 41–97). Alexandria, VA: Association for Supervision and Curriculum Development.

Sauvageot, C. (2008). A tool for international comparison: The International Standard Classification of Education [ISCED]. In A. Charras & C. Sauvageot (Eds.), *Education & formations: International comparisons* (Vol. 78, pp. 211-221). Retrieved from https://cache.media.enseignementsup-recherche.gouv.fr/file/Publications/75/6/EDUC&FORM_EN_41756.pdf#page=210

Scheel, M., & Gonzalez, J. (2007). An investigation of a model of academic motivation for school counseling. *Professional School Counseling, 11*(1), 49–56. doi:10.5330/PSC.n.2010-11.49

Scott, J. (1990). *A matter of record: Documentary sources in social research*. Cambridge, England: Polity.

Shavit, Y., & Müller, W. (2000). Vocational secondary education, tracking, and social stratification. In M. T. Hallinan (Ed.), *Handbook of the sociology of education* (pp. 437-452). New York, NY: Springer.

Shulruf, B., Hattie, J., & Tumen, S. (2010a). New Zealand's standard-based assessment for secondary schools (NCEA): Implications for policy makers. *Asia Pacific Journal of Education, 30*(2), 141–165. doi:10.1080/02188791003721598

Shulruf, B., Hattie, J., & Tumen, S. (2010b). Quality measures in a modular qualification system and its impact on students at risk. *Higher Education Quarterly, 64*(3), 313–330. doi:10.1111/j.1468-2273.2010.00461.x/full

Shulruf, B., Keuskamp, D., & Timperley, H. (2006). *Coursetaking or subject choice?* (Unpublished Technical Report #7). University of Auckland, Starpath Project, New Zealand.

Slavin, R. E. (1987). Ability grouping and student achievement in elementary schools: A best-evidence synthesis. *Review of Educational Research, 57*(3), 293–336. doi:10.3102/00346543057003293

Slavin, R. E. (1990). Achievement effects of ability grouping in secondary schools: A best-evidence synthesis. *Review of Educational Research, 60*(3), 471–499. doi:10.3102/00346543060003471

Slee, J. (2010). A systemic approach to culturally responsive assessment practices and evaluation. *Higher Education Quarterly, 64*(3), 246–260. doi:10.1111/j.1468-2273.2010.00464.x

Slee, J., & Keenan, B. (2009). Reviewing culturally responsive assessment policies relating to Indigenous tertiary education in very remote communities of the Northern Territory of Australia. In L. Meyer, S. Davidson, H. Anderson, R. Fletcher, P. Johnston, & M. Rees (Eds.), *Tertiary assessment and higher education student outcomes: Policy, practice and research* (pp. 245–256). Wellington, New Zealand: Ako Aotearoa.

Sleeter, C. E. (1991). Introduction: Multicultural education and empowerment. In C. E. Sleeter (Ed.), *Empowerment through multicultural education* (pp. 1-23). Albany, NY: State University of New York.

Sleeter, C. E., & Grant, C. A. (1987). An analysis of multicultural education in the United States. *Harvard Educational Review, 57*(4), 421–445. doi:10.17763/haer.57.4.v810xr0v3224x316

Smithers, A. (1997). *The New Zealand qualifications framework*. Auckland, New Zealand: Education Forum.

Souto-Manning, M. (2010). *Freire, teaching, and learning: Culture circles across contexts*. New York, NY: Lang.

State Services Commission. (2013). *Better public services: Boosting skills and employment*. Retrieved from https://www.ssc.govt.nz/bps-boosting-skills-employment

Stobart, G. (2005). Fairness in multicultural assessment systems. *Assessment in Education: Principles, Policy & Practice, 12*(3), 275–287. doi:10.1080/09695940500337249

Stobart, G., & Eggen, T. (2012). High-stakes testing – Value, fairness and consequences. *Assessment in Education: Principles, Policy & Practice, 19*(1), 1–6. doi:10.1080/0969594X.2012.639191

Strand. (2015). In *Merriam-Webster's online dictionary*. Retrieved from http://www.merriam-webster.com/dictionary/strand

Strathdee, R. (2003). The qualifications framework in New Zealand: Reproducing existing inequalities or disrupting the positional conflict for credentials. *Journal of Education and Work, 16*(2), 147-164. doi:10.1080/136390803100844785

Strathdee, R. (2009). The implementation and impact of the New Zealand National Qualifications Framework. In S. Allais, D. Raffe, R. Strathdee, L. Wheelahan, & M. Young (Eds.), *Learning from the first qualifications frameworks* (Employment working paper No. 45, pp. 65–89). Retrieved from International Labour Organization website: http://www.ilo.org/skills/pubs/WCM_041902/lang--en/index.htm

Strathdee, R. (2011). The implementation, evolution and impact of New Zealand's national qualifications framework. *Journal of Education and Work, 24*(3–4), 303–321. doi:10.1080/13639080.2011.584688

Sweet, R. (2013). Apprenticeship, pathways and career guidance: A cautionary tale. In L. Deitmet, U. Hauschildt, F. Rauner, & H. Zelloth (Eds.), *The architecture of innovative apprenticeship* (pp. 51–68). doi: 10.1007/978-94-007-5398-3

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.

Tashakkori, A., & Teddlie, C. (2003). Preface. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. ix-xv). Thousand Oaks, CA: Sage.

Teddlie, C., & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in the social and behavioral sciences. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 3–50). Thousand Oaks, CA: Sage.

Teddlie, C., & Tashakkori, A. (2006). A general typology of research designs featuring mixed methods. *Research in the Schools, 13*(1), 12–28. Retrieved from http://www.msera.org/docs/rits-v13n1-complete.pdf#page=19

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Thousand Oaks, CA: Sage.

Teddlie, C., & Tashakkori, A. (2011). Mixed methods research: Contemporary issues in an emerging field. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 285–299). Thousand Oaks, CA: Sage.

Thompson, N. (2016). *Anti-discriminatory practice: Equality, diversity and social justice* (6th ed.). London, England: Palgrave.

Thompson, N., & Thompson, S. (2008). *The social work companion*. Basingstoke, England: Palgrave Macmillan.

Tierney, R. D. (2013). Fairness in classroom assessment. In J. McMillan (Ed.), *Sage handbook of research on classroom assessment*. Thousand Oaks, CA: Sage.

Tierney, R. D. (2016). Fairness in educational assessment. In M. A. Peters (Ed.), *Encyclopedia of educational philosophy and theory* (pp. 125–144). doi:10.1007/978-981-287-532-7_400-1

Timperley, H. S. (1994). *The challenge for Tomorrow's Schools: Learning to be responsive* (Unpublished doctoral thesis). University of Auckland, New Zealand.

Tobias, R. (2004). Lifelong learning policies and discourses: Critical reflections from Aotearoa, New Zealand. *International Journal of Lifelong Education, 23*(6), 569–588. doi:10.1080/026037042000311488

Tuck, R. (2007). *An introductory guide to national qualifications frameworks: Conceptual and practical issues for policy makers*. Retrieved from International Labour Organization website: http://www.ilo.org/wcmsp5/groups/public/@ed_emp/@ifp_skills/documents/instructionalmaterial/wcms_103623.pdf

Turner, H., Rubie-Davies, C. M., & Webber, M. (2015). Teacher expectations, ethnicity and the achievement gap. *New Zealand Journal of Educational Studies, 50*(1), 55–69. doi:10.1007/s40841-015-0004-1

Turner, T. R., Irving, S. E., Li, M., & Yuan, J. (2010). *Availability of NCEA standards: Impact on success rate*. Retrieved from University of Auckland, Starpath Project website: http://www.education.auckland.ac.nz/webdav/site/education/shared/about/research/docs/starpath/2010-08-18-avail-ncea.pdf

United Nations, Department of Economic and Social Affairs, Population Division. (2016). *International migration report 2015*. Retrieved from http://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2015.pdf

United Nations Educational, Scientific and Cultural Organisation. (1997). *International Standard Classification of Education ISCED 1997*. Retrieved from http://www.unesco.org/education/nfsunesco/doc/isced_1997.htm

United Nations Educational, Scientific and Cultural Organisation – Institute for Statistics. (2006). *Participation in formal technical and vocational education and training programmes worldwide: An initial statistical study*. Retrieved from http://unesdoc.unesco.org/images/0014/001496/149652e.pdf

United Nations Educational, Scientific and Cultural Organisation – Institute for Statistics. (2012). *International Standard Classification of Education ISCED 2011*. doi:10.15220/978-92-9189-123-8-en

United Nations Educational, Scientific and Cultural Organisation – Institute for Statistics. (2014). *ISCED fields of education and training 2013 (ISCED-F 2013): Manual to accompany the International Standard Classification of Education 2011*. doi:10.15220/978-92-9189-150-4-en

United Nations Educational, Scientific and Cultural Organisation – Institute for Statistics. (2016). *ISCED mappings*. Retrieved from http://uis.unesco.org/en/isced-mappings

United Nations Educational, Scientific and Cultural Organisation – Institute for Statistics. (2017). *International student mobility in tertiary education*. Retrieved from http://data.uis.unesco.org/#

United States Department of Education, National Centre for Education Statistics. (2015). *Digest of Education Statistics*. Retrieved from https://nces.ed.gov/programs/digest/index.asp

University of Auckland. (2015). *University of Auckland human participants ethics committee (UAHPEC): Applicants' reference manual*. Retrieved from https://www.auckland.ac.nz/en/about/research/re-ethics/re-uahpec.html

University of Auckland. (2016). *How your rank score is calculated*. Retrieved from https://www.auckland.ac.nz/en/about/admission-and-enrolment/ae-undergraduate-students/ae-entry-requirements/ae-domestic-students/ae-national-certificate-of-educational-achievement.html#34845f321a5a4ffa09fe222501890a70

Vidovich, L. (2007). Removing policy from its pedestal: Some theoretical framings and practical possibilities. *Educational Review, 59*(3), 285–298. doi:10.1080/00131910701427231

Villegas, A. M., & Lucas, T. (2002). *Educating culturally responsive teachers: A coherent approach*. Albany: State University of New York.

Wang, Y. (2012). *Education in a changing world: Flexibility, skills, and employability*. Retrieved from World Bank website: https://openknowledge.worldbank.org/bitstream/handle/10986/27092/691040WP00PUBL0ability0WEB050110120.pdf?sequence=1&isAllowed=y

Watterson, B. (1986, April 14). *Fairness* [Cartoon]. In *Calvin and Hobbes*. Kansas City, MO: Andrews McMeel Syndication.

Webber, M., McKinley, E., & Rubie-Davies, C. M. (2016). Making it personal: Academic counseling with Māori students and their families. *Contemporary Educational Psychology, 47*, 51–60. doi:10.1016/j.cedpsych.2016.03.001

Witcher, S. (2013). *Inclusive equality: A vision for social justice*. Bristol, England: Policy Press.

Wlodkowski, R. J., & Ginsberg, M. G. (1995). *Diversity and motivation: Culturally responsive teaching* (1st ed.). San Francisco, CA: Jossey-Bass.

Wylie, C. (2012). *Vital connections: Why we need more than self-managing schools*. Wellington, New Zealand: NZCER.

Wylie, C., & Hipkins, R. (2006). *Growing independence: Competent learners @14*. Wellington, New Zealand: Ministry of Education.

Yates, A., & Johnston, M. (2017). The impact of school-based assessment for qualifications on teachers' conceptions of assessment. *Assessment in Education: Principles, Policy & Practice*, 1–17. doi:10.1080/0969594X.2017.1295020

Young-Jones, A. D., Burt, T. D., Dixon, S., & Hawthorne, M. J. (2013). Academic advising: Does it really impact student success? *Quality Assurance in Education, 21*(1), 7-19. doi:10.1108/09684881311293034

Young, M. (2007). Qualifications Frameworks: Some conceptual issues. *European Journal of Education, 42*(4), 445–457. doi:10.1111/j.1465-3435.2007.00323.x

Young, M., & Allais, S. (2009). Conceptualizing the role of qualifications in education reform. In S. Allais, D. Raffe, & M. Young (Eds.), *Researching NQFs: Some conceptual issues* (Employment Working Paper No. 44, pp. 5–22). Retrieved from International Labour Organization website: http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_119307.pdf

Yuan, J., Turner, T. R., & Irving, E. (2010). *Factors influencing University Entrance success rate*. Retrieved from University of Auckland, Starpath Project website: http://www.education.auckland.ac.nz/en/about/research/starpath-home/starpath-research/Factors_UE_Rate.html