

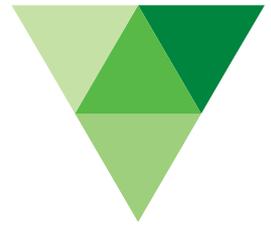
NCEA | Taumata Mātauranga ā-Motu Kua Taea

# NCEA Review 2018

## Themes in NCEA literature

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1. A brief history of NCEA
- ▶ **2. Themes in NCEA literature**
3. Purpose and outcome statements for NCEA
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NZQA requires each qualification registered on the New Zealand Qualifications Framework to be regularly reviewed so that the qualification remains useful and relevant and continues to meet the needs of the learners, industry and stakeholders for which it was developed. NCEA is scheduled to be reviewed by December 2018.

This paper provides an overview of the themes in the body of NCEA | Taumata Mātauranga ā-Motu Kua Taea<sup>1</sup> research literature that has accumulated since 2002-2004 when NCEA was introduced.

## Focusing question

What does the literature tell us about the strengths of NCEA and the challenges facing it?

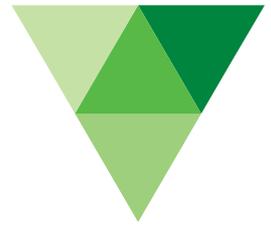
## Introduction

The purpose of this paper is to inform decision making during the review process, by alerting the review team to issues that might need to be taken into account.

The databases that were searched for this review are: A+ Education, Academic OneFile, Education Research Complete, ERIC, National Library of NZ catalogue (research articles only) and NZCER journals. The available literature can be broadly classified into the following:

1. **Larger studies/programmes of research:** The Appendix provides a brief overview of the larger programmes of research that have a specific focus on NCEA, or to which NCEA practices have made an important contribution (eg, ERO reviews).
2. **Smaller discrete studies:** NCEA is a popular focus for teachers and school leaders undertaking personal inquiries, often as a part of postgraduate studies. These smaller projects tend to reflect the personal interests of the individual doing the research.
3. **Media commentary:** NCEA tends to appear in the media when there is a specific and localised issue or when more general concerns about secondary education are running high. It was not possible to systematically analyse the vast collection of media commentary for this paper, but a sample of commentaries from across the decade was added to the database, as determined by what came up in the databases searched.

<sup>1</sup> Taumata Mātauranga ā-Motu Kua Taea is the Māori name for NCEA. "NCEA" is inclusive of both Māori and English medium.



The following areas were identified as important gaps where there is little research or where such research has been a minor focus rather than the main subject of the larger programmes of work:

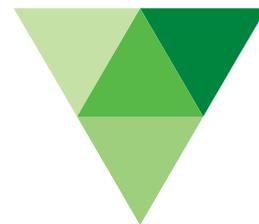
- When teacher educators investigate NCEA, they tend to do so in the context of their subject specialisation or with a view towards the practices of classroom teachers. We found no papers with an explicit focus on challenges for preservice teacher learning.
- Research of transitions almost always focuses on the school-university transition. We found very little research about transition to other types of tertiary learning options and contexts.
- Apart from the NZCER National Surveys, there is very little systematic data about public perceptions of NCEA, including those of parents. (There is, however, a large amount of media commentary to fill this void.) The voices of employers or those with industry perspectives are also missing in the research record.
- Students' own voices are rarely systematically documented. There is some data in the Competent Learners and Learning Curves studies and in the student motivation study (see Appendix). All these data were gathered in the early years of NCEA, so they do not capture students' thoughts about more recent changes in practices.
- Similarly, parent/whānau voices are largely absent, apart from the NZCER surveys.

## Theme 1: Supporting achievement gains

A number of studies have used NCEA achievement data to test the effectiveness of interventions designed to raise achievement, often with a specific focus on learning gains for Māori and Pasifika students. These studies sometimes respond to earlier studies that have revealed problematic trends in achievement and/or problematic patterns in teaching and learning.

In the media (eg, recent analysis and commentary in the New Zealand Herald), concerns have been expressed about patterns of achievement in low decile schools/kura. At the population level, students from these schools/kura attempt fewer externally assessed achievement standards, are less successful in gaining these when attempted and choose more “vocational” subjects. Those who see these data patterns as problematic tend to claim that courses where students gain most of their credits from internally assessed standards are not as useful for judging actual learning gains as are results from externally assessed achievement standards. The assumption is that because the latter are mostly assessed by examinations the judgements are more believable.

Some research is focused on critical analysis of school practices that do or don't support learning gains for Māori and Pasifika students. If academic potential is not recognised early enough, and students do not understand the full implications of NCEA course choices or receive clear guidance about the best course choices, they can inadvertently close off pathways to further learning. This became a main focus for the Starpath Project programme of research in its later years, and led to the design and testing of better systems to provide academic guidance and support so that students make more appropriate and constructive NCEA choices.



A clear theme in the literature is that stronger pastoral oversight of students' NCEA-related courses, progress and well-being does help lift achievement. These insights were originally initiated by the Starpath research, but the findings have also been a feature of ERO reports on best practice in secondary schools/kura. The use of culturally responsive pedagogy has also been reported to lift NCEA achievement, eg, data gathered in the Te Kōtahitanga initiative. Learning gains were also reported in the Sport in Education initiative when teachers worked together to support at risk students. Teachers in this project also designed integrated courses of learning and assessment that proved to be highly successful in supporting their target students to lift their achievement and expectations.

The literacy research conducted by the Woolf Fischer Research Centre has reported that students participating in English, maths and biology classes in low decile schools/kura have fewer opportunities to read longer, more complex subject-area texts that they will face in NCEA assessments and may not be given sufficient instruction about the language features of such texts. Several other projects have reported that practices, such as explicit coaching in academic writing or coaching in information processes and research skills, help lift achievement and better prepare students for the transition to tertiary study.

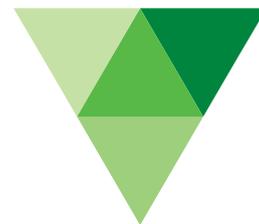
A retrospective analysis carried out in the Competent Learners study identified factors that allowed some students who showed low cognitive competency (but a more positive attitude) at age 8 to go on to achieve an NCEA level 2 or 3 award. These factors included making reading/writing gains in the intervening years, showing increased persistence in learning and a lift in self perceptions of learning success and being in more positive learning environments.

There appears to be a gap in the research literature related to innovation in the assessment practices used for documenting individual achievement towards internally assessed standards. No larger studies were found, although the search did identify two smaller studies, both completed by PE teachers. In the arts, in particular drama and music, some research has explored strategies and challenges for assessing group performances. The lack of equivalent research, in what have traditionally been regarded as “core” curriculum subjects, suggests that innovation in internal assessment is not yet being researched in these subjects (and perhaps is not actually happening).

## **Theme 2: Problematic relationships between NCEA and NZC**

Across the decade since NCEA's inception, the NZCER National Survey of Secondary Schools (see Appendix) has documented the ongoing teacher perception that NCEA drives curriculum thinking rather than vice versa. This is not necessarily a result of NCEA but an ongoing teacher practice, because prior to NCEA, senior curriculum was strongly influenced by examination prescriptions.

“Big picture” curriculum thinking seems to be a somewhat neglected area for systematic research. A number of smaller studies take a specific learning area or subject as the focus of an NCEA study but, as already noted, such studies vary widely according to the interests of the educator/researcher, and they do not constitute a systematic programme of work.



The Learning Curves study conducted between 2002 and 2004 (see Appendix) documented the impact of the introduction of NCEA on teachers' thinking around curriculum in six medium-sized schools/kura. The teachers in the study made immediate use of NCEA's flexibility to differentiate courses in English and mathematics so that more students could experience NCEA success. However, a hardening of perceptions towards academic and vocational differences, both related to students' abilities and to the comparative worth of their achievements, had been documented by the end of the study. A cluster analysis of students' course choices highlighted the less demanding course combinations typically taken by Māori and Pasifika students. Their combinations did not necessarily keep learning pathways open (the Starpath research also reported at some length on this issue). Similar curriculum practices were reported in a wider range of schools/kura during the longitudinal Competent Learners study.

The recently published book *NCEA in Context*<sup>2</sup> draws together a number of smaller studies to discuss the impact of NCEA on the curriculum that students actually experience. The potential for lack of coherence in an overall programme of learning is one issue raised by this analysis. The use of multiple assessment standards (achievement and/or unit standards) to assess one course of learning does not guarantee internal coherence in a course or subject, even if these standards are drawn from the same domain. Nor do school timetabling and guidance practices necessarily help achieve overall coherence across a year's course of study or longitudinally for students on a specific type of pathway.

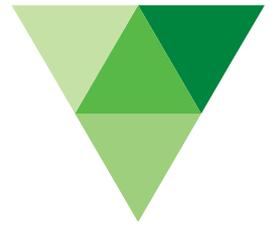
ERO identified continuing academic/vocational binary thinking as an impediment to more meaningful implementation of the Vocational Pathways initiative.

Initiatives with a focus on using NCEA to support integration across senior secondary curriculum subjects have appeared in the last few years. These initiatives potentially provide one type of solution to the coherence challenge, but it is either too early for them to have been assessed (eg, the new Agribusiness courses) or the research focus of the initiative lies elsewhere (eg, the Sport in Education project that focused on lifting achievement and engagement). ERO studies and some policy documents (eg, the new Environmental Education for Sustainability Strategy and Action Plan) are now capturing rich anecdotes of more coherent curriculum thinking and practice, but again these have not been produced to research an aspect of NCEA-NZC relationships per se.

One clear theme in the literature is that many teachers appear to be reluctant to explicitly address future-focused learning goals such as "citizenship", despite the strong signals in the front of the NZC that this is of overarching importance across all the curriculum learning areas. Compared with more traditional assessment foci in the same subject area, fewer students are assessed against achievement standards that require demonstrations of action competence (eg, critical action in health/PE, social action in social studies, interacting with others in languages). Areas of learning that require students to address contested issues can be misunderstood and misrepresented in the media so teachers' reluctance is seen by some curriculum commentators as understandable.

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<sup>2</sup> Hipkins, R., Johnston, M., & Sheehan, M. (2016). *NCEA in Context*. Wellington: NZCER Press.



There is some subject-specific evidence that making changes to the focus of what is assessed by achievement standards can “wash back” to change the curriculum that students experience. One example is the addition of a focus on assessing historical thinking to history inquiry standards (this change was made as part of the NZC-NCEA alignment). Another example is the change in emphasis in what is assessed in learning languages from the traditional formal grammar-translation approach to a focus on using language for more authentic communication purposes. A third example is the change of emphasis to statistical reasoning and inquiry instead of predominantly focusing on the computational practices of statistics. The latter two changes took place earlier in the first decade of the century as discussed in the RAMP reviews for languages and mathematics and statistics respectively.

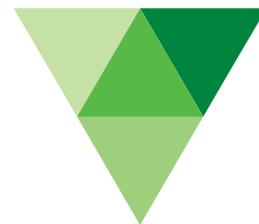
When moderation of NCEA assessment judgements is used as a curriculum learning opportunity, it can help address the challenges that arise with curriculum innovation. However, this is another area where there is little research to report. (The issue is discussed in *NCEA in Context*.)

### **Theme 3: Transitions and pathways**

There is quite a lot of literature and some media commentary in the area of transitions from school to further study. Most of the research relates to university study rather than other tertiary courses.

The composition and attainment of University Entrance has been a focus of media commentary and some research studies. Around 14% of students who gain level 3 NCEA do not also gain University Entrance. The proportion is higher for Māori students. Researchers have reported this most commonly happens if students do not satisfy the requirement of gaining a minimum of 14 credits in three university approved subjects. Some students who fail to satisfy the credit combination requirement also fail to meet the literacy requirement. Nevertheless, recently reported feedback from NZQA’s third review of University Entrance found widespread support for the continued alignment of University Entrance with NCEA level 3. However, there are ongoing concerns about how the literacy and numeracy requirements are managed.

Even when students do gain University Entrance, some appear to be inadequately prepared for the demands of university study. A recent Teaching and Learning Research Initiative (TLRI) study found a need for students to be better prepared for the academic literacy demands of university/wānanga, including having more practice in extended academic writing. Some recent media commentary blames NCEA for not fostering a strong work ethic, combined with the consequences of making poor subject choices. Indeed there is some evidence to suggest that subject combinations in the final year of school can impact success in the first year of university. For example, one small study (in one university/wānanga only) found that students did better in biology if they had also taken chemistry in their final year of school. However, larger studies have reported that a student’s overall grades are the most important predictor of success in the first year of university.



## Theme 4: Barriers and enablers of ongoing change

Potential barriers can also be enablers, depending on how they are addressed. A number of potential barriers/enablers flagged in the research literature concern issues of “hearts and minds”. In other words, the potential barrier/enabler is a deeply held assumption that impacts how people feel, as well as how they think about issues. This is true for members of the wider community who have an interest in education, as well as for principals, teachers, students and parents.

Continuing academic/vocational binary thinking is a specific example that has already been raised in this paper. Holding vocational learning in lower esteem: creates challenges for fully implementing the technology curriculum (RAMP review), hampers full implementation of the Vocational Pathways initiative (ERO review) and can act to consolidate lower expectations for students on “alternative” pathways (Learning Curves).

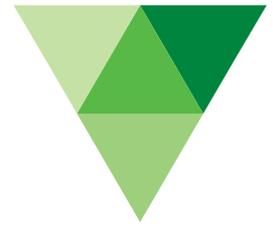
Tacit assumptions about the nature of progress and purposes for learning constitute an intertwined “hearts and minds” issue with practical implications for the ongoing evolution of NCEA. When purposes for learning are narrowed to credit accumulation and progress is seen as the incremental addition of more and more separate pieces of learning, visionary NZC signals about purposes for learning are lost and workloads for both students and teachers risk becoming unmanageable because of over-assessment.

Almost a decade ago, the need to tighten requirements for progression at curriculum levels 6–8 and within NCEA achievement standards, was raised in the report called *Directions for Assessment in New Zealand*.<sup>3</sup> The DANZ report, which was developed to inform a systematic redevelopment of the MOE national assessment strategy, also recommended the development of more meaningful discrimination between the criteria for Achieve, Merit and Excellence within each standard. However, despite the nature of progress becoming an important recent focus of other MOE policy work (eg, the “capabilities” work in the National Monitoring Study of Student Achievement (NMSSA), the development of the digital technologies curriculum, the building of the new curriculum tool to support collaborative ways of working for Communities of Learning | Kāhui Ako), this remains another important gap in the NCEA literature. Shaping new ways of conceptualising progress has become more urgent as new types of curriculum courses (eg, Agribusiness) and plans for integrated assessments become more common.

The final section of *NCEA in Context* raises teachers’ lack of robust epistemic thinking as a current barrier to using NCEA to innovate the curriculum in ways that present students with coherent, intellectually demanding programmes of study. Broadly defined, epistemic thinking is thinking about how we know what we know, and hence on what basis knowledge might be trusted. This focus can be found in some parts of NCEA (eg, the emphasis on historical thinking in history achievement standards) but is not strongly present in some subjects where it should be. For example, the achievement standards across all the science subjects should incorporate an epistemic element because the Nature of Science strand is the “overarching” one in NZC. But one recent stocktake reported that mostly they don’t or do so in superficial ways.

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<sup>3</sup> Absolum, M., Flockton, L., Hattie, J., Hipkins, R., & Reid, I. (2009) *Directions for Assessment in New Zealand*. Wellington: Ministry of Education. Available at: <http://assessment.tki.org.nz/Assessment-in-the-classroom/Assessment-position-papers>

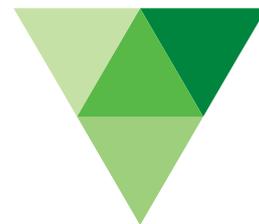


As *NCEA in Context* points out, this is a cross-sector issue with implications for the undergraduate learning of prospective teachers, as well as for preservice and in-service teacher learning. In this emergent area of research, the literature suggests the following as benefits of supporting teachers to become more robust epistemic thinkers:

- They can then help students to become stronger epistemic thinkers, which in turn builds stronger overall foundations for subsequent achievement at higher curriculum/ NCEA levels and in work.
- Teachers need to make wise choices when confronted with the complex combination of both curriculum and assessment flexibility. Epistemic thinking can help teachers keep the integrity of the separate discipline areas when building integrated courses, or when deciding which standards to keep and which to discard when over-assessment has become an issue.
- It can be difficult to juggle tensions between delivering a body of prescribed “content” and addressing equity challenges for some students. If teachers (at both secondary and tertiary levels) have a robust and clear sense of the really key intellectual foundations of their discipline area, this challenge is easier to address.

Finally, high teacher workloads are a potential barrier that has received considerable research attention. Most recently, the Secondary Teacher Workload Working Group recommended the following steps to ameliorate high workloads:

- reducing the number of credits students seek to gain at level 1, instead focusing strongly on NCEA assessment in years 12 and 13
- production of a wider range of resources to support NCEA levels 2 and 3, with a focus on integrated units of work, where possible
- developing a communications programme around risks of over-assessment, with an emphasis on quality of evidence, not quantity
- clearer exemplification of grade boundaries and the introduction of web-based moderation.



## Appendix: Larger programmes of NCEA research

**Review and Maintenance Programme (RAMP):** Funded by MOE, there are five reports, each providing an overview of the literature concerning NCEA in the context of a learning area of NZC. In order of development the learning areas are: science, mathematics and statistics, health and PE, technology, and languages. A consistent theme is that there are tensions between traditional understandings of the curriculum, and hence of what should be assessed and how, and the more recent signals of “21st century” learning imperatives. These signals are clearest in the front part of NZC and play out somewhat differently in each of the five learning area contexts. Publications are located at:

<https://ncea.tki.org.nz/What-s-new/RAMP-literature-reports>

**Starpath:** Based at Auckland University, this programme of research began as a study of pathways to tertiary study for Māori and Pasifika students in low decile schools/kura in Auckland and Northland. Given the clear finding that students often found pathways blocked if they had made poor course (and associated NCEA) choices, the programme focused in the later years on supporting schools/kura to develop more rigorous data tracking and advice and guidance programmes. The final Phase 2 report acknowledges that the ultimate goal of Starpath has not yet been realised and efforts must continue to ensure that more Māori, Pasifika and low income students continue on to tertiary education. Publications are located at:

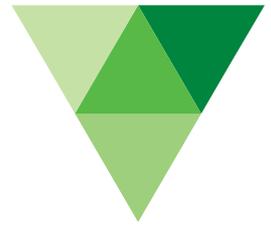
<http://www.education.auckland.ac.nz/en/about/research/starpath-home/starpath-publications.html>

**Literacy across the curriculum:** This programme of work, carried out by the Woolf Fischer Research Centre at Auckland University, is closely aligned with the Starpath work. The focus is on the literacy demands of NCEA assessments, and students’ opportunities to develop their literacy skills to meet those demands. A clear theme is that teachers need help and support to develop specific pedagogies that support the development of stronger literacy practices. Publications are located from the web page of the principal researcher on this project:

<https://unidirectory.auckland.ac.nz/people/aj-wilson>

**National Survey of Secondary Schools:** Carried out every three years by NZCER, this time series (2003, 2006, 2009, 2012, 2015) captures perceptions of NCEA from principals, teachers, Board of Trustee members and a sub-sample of parents. The series documents a steady increase in support for NCEA across the decade, the continuing dominance of NCEA over teachers’ curriculum thinking and responses to topical issues at different time points (eg, the introduction of endorsement, teacher reaction to the NZC-NCEA alignment exercise and the introduction of Best Practice Workshops). The most recent report confirms the tensions reported in the RAMP series and links these to decile-related differences in perceptions. Publications are located at:

<http://www.nzcer.org.nz/research/national-survey>



**Learning Curves:** Carried out by NZCER, this three-year study (2002–2004) provided early insights into teachers’ curriculum thinking. Three reports were issued. The research documented the immediate use of NCEA’s flexibility to differentiate courses in English and maths. However, along with that change came a hardening of academic/vocational distinctions, both in teacher thinking and school timetabling/course allocation practices. Just six schools/kura were involved in Learning Curves, but the main findings were substantively confirmed in the much wider range of schools/kura attended by students in the Competent Learners longitudinal study (Competent Learners @ 16). Links to all three Learning Curves reports are at:

<http://www.nzcer.org.nz/research/publications/shaping-our-futures-meeting-secondary-students-learning-needs-time-evolving-qu>

Competent Learners publications are located at:

<http://www.nzcer.org.nz/research/competent-children-competent-learners>

**Student motivation:** This was another early series, carried out by researchers at Victoria University of Wellington. The research reported a lack of motivation for more able students in the early years of NCEA. This finding was an important consideration for the subsequent design of endorsement of certificates, and later, of courses. A summary of the study series can be found here:

<https://www.educationcounts.govt.nz/publications/schooling/29247>

**Studies funded by the Teaching and Learning Research Initiative (TLRI):** While not a programme of work as such, TLRI has funded four different substantive studies with a focus on an aspect of NCEA. Each study was at least two years long and, importantly, involved a partnership between secondary teachers and tertiary researchers. Two studies addressed the challenges teachers face when implementing new NCEA assessment foci in specific subject areas (history, social studies). One complemented other Woolf Fischer research concerning teachers’ literacy support practices, and one had a focus on academic transitions from school/kura to university/wānanga. Research summaries are located at:

<http://www.tlri.org.nz/tlri-research/research-completed>

**ERO evaluations:** NCEA is a thread through ERO’s recent reports set in secondary school contexts. They have flagged important concerns such as the impact of NCEA work pressures on students’ well-being and the way in which continuing academic/vocational thinking can act as an impediment to the meaningful implementation of the Vocational Pathways initiative. Publications are located at:

<http://www.ero.govt.nz/publications/>

**Tertiary Sector Performance Analysis:** This unit of MOE draws on NCEA data to address questions related to secondary-tertiary transition and performance. The various reports can be found, along with TEC reports, at:

<https://www.educationcounts.govt.nz/publications/80898>