



RĀRANGI KŌRERO

NZQA/MOE Fortnightly Operational Meeting

Te Wāhi:	Teams meeting Click here to join the meeting	
Te Rā Te Wā:	Thursday 11 August 2022	
Members	<p>NZQA</p> <p>Melissa Mead (Project Manager)</p> <p>Mary Jane Parker (Project Lead)</p> <p>Natasha Ropata</p> <p>NZQA – optional (depending on agenda items)</p> <p>Kevin Hoar (NAF)</p> <p>Rowena Kingi</p> <p>Ani Crawford</p> <p>Phillipa Junger</p> <p>Susan Henry</p>	<p>MOE</p> <p>Michael Clark (Acting Project Lead and PM)</p> <p>Vacancy (Project Coordinator)</p> <p>Elana McNeill (Senior Adviser)</p> <p>Crystalea Wilson Connell (Workstream Lead)</p> <p>MOE – optional (depending on agenda items)</p> <p>Miriam Bookman (Acting Senior Manager)</p>
Visiting Attendees		
Apologies	<p>Roimata Baker</p> <p>Nadja Weijs</p>	

Topic	Lead	Paper
<p>Welcome</p> <ul style="list-style-type: none"> ○ Apologies ○ Confirm agenda ○ Actions from meeting on 28/07/22: <ul style="list-style-type: none"> ○ Melissa around numbers of braille users at assessment events + timeline for (translation) request around braille use ○ Michael/Nadja to follow up with Miriam/ĀM team around: Translation requested by Whakatane high school from EM Numeracy into Te Reo Māori (for 1 student) - not wanting to use Pāngarau. Concerns: wanting to encourage Pāngarau, not EM numeracy translations. - Michael to follow up with Nadja. AC agrees encouraging Pāngarau, but outcomes are slightly different so they may have a case for translation. Do we need a policy/decision paper? ○ [REDACTED] ○ [REDACTED] 	Melissa/Nadja	

<ul style="list-style-type: none"> ○ [Redacted] ○ [Redacted] ○ [Redacted] ○ [Redacted] ○ MM follow up on costings of translations would prefer both are available for braille translation rather than one assessment, but would need to apply a specific lead-in time for requests ○ [Redacted] <ul style="list-style-type: none"> ○ [Redacted] ○ [Redacted] 		
<p>Decisions</p> <ul style="list-style-type: none"> ■ [Redacted] <p>[Redacted]</p>		
<p>Weekly topics</p> <ul style="list-style-type: none"> • [Redacted] • Operational Policy Tracker (EMcN) - no updates 11/8 MM follow up on costings of translations would prefer both are available for braille translation rather than one assessment, but would need to apply a specific lead-in time for requests, chance of getting a request for every assessment low. <ul style="list-style-type: none"> ○ IGSE and Braille • [Redacted] <p>Other Topics</p> <ul style="list-style-type: none"> • [Redacted] 	<p>NZQA NZQA</p>	

<div style="background-color: black; width: 100%; height: 100%; min-height: 150px;"></div> <ul style="list-style-type: none"> • Pāngarau review – update? • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> <p>Upcoming deliverables</p> <ul style="list-style-type: none"> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> • <div style="background-color: black; width: 100%; height: 100%; min-height: 100px;"></div> 	<p>NZQA NZQA</p>	
<p>Risks</p>	<p>NZQA</p>	
<p>Close</p> <ul style="list-style-type: none"> ○ Confirm actions coming from this meeting ○ Decisions made during this meeting 		
<p>Upcoming</p>		



NZQA/MOE Planning 2023 hui – Minutes

18th January 2023, 9am

Attendees

Kevin Hoar - NAF for Numeracy (Canterbury)

Kat Grooby - Senior Advisor LitNum

Genevieve Slack - Project Coordinator Literacy & Numeracy (WLG)

Monique Warder - NCEA.Ed

Mandy McGirr - Principal Advisor LitNum

Aleeshea Reid - Principal Advisor LitNum

Melissa Mead - Project Manager Literacy & Numeracy (WLG)

MaryJane Parker - Workstream Lead Literacy & Numeracy (AKL)

Karen Chow - LAL Numeracy

Jaydon-Lee Walker - Project Manager TRMP

Kate Puanaki? - Senior Comms Advisor NZQA Maori

Te Aotako Pewhairangi - Project Coordinator Kura Auraki

Joanna Martin - Agile Team Lead LitNum

Hui started with introductions and scene setting by Mandy McGirr.

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]

[Redacted]

[Comms & Engagement Plan LitNum 2023 spreadsheet](#) is where to track all items including:

- documents to be reviewed for feedback, approved, or released externally (regarding assessment) and/or
- external communications tasks

The Comms & Engagement spreadsheet currently has two worksheets:

- **Tracker for Comms List Releases** – to track progress in handling/releasing items
- **Details** – gives more details on what each item involves

[Redacted]

External Communications Planned for 2023

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[REDACTED]

Other points made regarding specific Items listed in the Comms & Engagement Spreadsheet:

- **TRMP technical/logistical release tips** for releasing portfolio based assessments - 13th March open and close on 15th September for There has been little uptake on portfolios and work is being done with Tai Huki on this.
- Melissa Mead noted we should not include comms about portfolio assessment/TRMP to schools that are not offering it within EM.
- **Action: Karen to share with Mandy McGirr about any details to add to the FAQ's with feedback from schools.**
- There was discussion about how to manage translations into Te Reo Māori. The process for this is still to be confirmed and Mandy McGirr will follow up with
- [REDACTED]
- [REDACTED]

Next steps/actions

[REDACTED]

(meeting closed 11.15am)



RĀRANGI KŌRERO

NZQA/MOE Fortnightly Operational Meeting

Te Wāhi:	Teams meeting Click here to join the meeting	
Te Rā Te Wā:	Thu 23 rd March 2023	
Members	<p>NZQA</p> <p>Melissa Mead (Project Manager)</p> <p>Jaydon-Lee Walker (Project Manager)</p> <p>Mary Jane Parker (Project Lead)</p> <p>Genevieve Slack (Project Coordinator)</p> <p>NZQA – optional (depending on agenda items)</p> <p>Natasha Ropata (Team Lead, Ngā Poutoko Aromatawai Māori)</p> <p>Kevin Hoar (National Assessment Facilitator, Numeracy)</p> <p>Ani Crawford (National Assessment Facilitator, Pāngarau)</p> <p>Susan Henry (National Assessment Facilitator, Literacy)</p> <p>Roimata Baker (National Assessment Facilitator, Te Reo Matatini)</p>	<p>MOE</p> <p>Aleeshea Reid (Project Lead/Product Owner LitNum)</p> <p>Nadja Weijs (Project Manager LitNum)</p> <p>MOE – optional (depending on agenda items)</p> <p>Mandy McGirr (Senior Adviser LitNum)</p> <p>Sarah-Grace Breen (Senior Adviser LitNum)</p> <p>Miriam Bookman (Acting Senior Manager)</p> <p>Karen Chow (Learning Area Lead Numeracy)</p> <p>Leah James-Lynch (Lead Advisor)</p> <p>Pura Hope (Manager Relationships Kura Māori)</p> <p>Elizabeth Collins (Senior Communications Adviser)</p>
Visiting Attendees		
Apologies		

Topic	Lead	Paper
<p>Welcome</p> <ul style="list-style-type: none"> • Apologies • Confirm agenda ○ Actions from previous meeting, Wed 22 Feb 2023 <ul style="list-style-type: none"> ○ [Redacted] ○ [Redacted] 	Melissa/Nadja	

- [Redacted]
 - [Redacted]
 - **Nadja** – follow up with what is available regarding quality assurance (for text written in Te Reo Māori) and translations (for translations from English into Te Reo Māori) --> **will be picked up by KMIT +NPAM team**
 - [Redacted]
 - [Redacted]
 - [Redacted]
 - [Redacted]

- **2022 actions**

- [Redacted]
- MOE will lead a policy piece on translations on the back of the one request of a Pāngarau translation request. Timing: tbc, but not urgent/won't be immediate. **MOE-TBC** can update group when there is news. **follow up**

Decisions

- **To be made**

- 1) What is process of working out who will be responsible (NZQA or MOE) for text:
 - Written in Te Reo Māori (preference)
 - Translated from English to Te Reo Māori

And what are the circumstances in which to use each of the above.

Note: --> **will be picked up by KMIT +NPAM team**

- **Decision since last meeting**

[Redacted]

<p>[Redacted]</p>		
<p>Weekly topics</p> <ul style="list-style-type: none"> • <u>Communications + engagement tracker 2023</u> [Redacted] • <u>CAA development, incl feedback given and how used</u> <ul style="list-style-type: none"> ○ Next deliverable + attached actions and decisions <ul style="list-style-type: none"> ▪ EM: Review 1st Draft in AM – 11-18 April ▪ MM: TBC ○ le aligning review Pacifica and Ākonga Māori teams MOE/NZQA ○ Timing of 2nd assessment event and results release. Release date depends whether results are release along with other NCEA subject results • <u>Platforms</u> <ul style="list-style-type: none"> ○ [Redacted] • <u>Operational Policy</u> <ul style="list-style-type: none"> ○ From 2022 - MOE- would there be any room for amendments, brail available, different approach for hearing impaired learner. Sac guidance is updated on the nzqa.education website. • <u>Risks/Issues</u> <ul style="list-style-type: none"> ○ [Redacted] 		
<p>Agenda</p> <ol style="list-style-type: none"> 1. Introductions 2. Weekly topics 3. Evaluation Report Discussion on main points review 4. SAC (Reading definition) 5. Results Release Date 6. CI Māori and Niuean translations 7. 2024 Assessments – number of events, timing 8. Use of Spell Check 9. Similar meeting as this one for TRMP? 		
<p>Upcoming deliverables</p> <ul style="list-style-type: none"> • Māori Medium/TRMP? 		

<ul style="list-style-type: none"> • 6 April 2023 (note Easter days) – NZQA delivers EM - CAA draft to MOE • 11-18 April 2023 (note Easter days) - MOE First review EM - CAA in Assessment Master • 5-15 May 2023 - MOE Reviews Second Proof CAA in Assessment <p>Upcoming 2023 Comms</p> <p>[REDACTED]</p>		
<p>Risks</p> <ul style="list-style-type: none"> • [REDACTED] <p>Issues</p>	<p>NZQA</p>	
<p>Close</p> <ul style="list-style-type: none"> ○ Confirm actions coming from this meeting ○ Decisions made during this meeting 		
<p>Upcoming</p>		



Assessment by portfolio for NCEA achievement standards and the new Te Reo Matatini me te Pāngarau | Literacy and Numeracy co-requisite

FINAL REPORT

[Redacted]

[Redacted]

[Redacted]

[Redacted]

January 2023

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

ACKNOWLEDGEMENT

With thanks to [REDACTED] for his attention to detail and methodical approach. Shawn supported this research paper through a systematic search of literature, establishing the NVivo systems and entering our coding templates.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	5
INTRODUCTION	8
RESEARCH QUESTIONS.....	8
METHOD OF THE LITERATURE SEARCH	10
QUESTION ONE.....	13
THE DIVERSITY AND COMPLEXITY OF PORTFOLIOS	14
PORTFOLIOS SERVE MULTIPLE ASSESSMENT FUNCTIONS	15
RESOURCE IMPLICATIONS OF PORTFOLIO ASSESSMENT	16
RELIABILITY OF PORTFOLIO ASSESSMENT.....	17
IMPACT ON STUDENTS	20
QUESTION TWO.....	22
TOWARDS EQUITABILITY	22
<i>Improved performance in writing</i>	<i>23</i>
<i>Authentic contexts, purposes and audiences for writing.....</i>	<i>23</i>
IMPROVING TEACHING AND SYSTEMS.....	25
TWENTY-FIRST CENTURY TEACHING AND APPROACHES TO ASSESSMENT	25
SUMMARY OF IMPLICATIONS AND CONSIDERATIONS FOR NCEA ASSESSMENT.....	26
QUESTION THREE	28
KURA IN THE NCEA TE REO MATATINI AND PĀNGARAU CO-REQUISITE TRIAL.....	28
QUESTION FOUR.....	30
RISKS OF PORTFOLIO ASSESSMENT.....	30
<i>Technical issues.....</i>	<i>32</i>
<i>Time.....</i>	<i>32</i>
<i>Teacher professional capabilities.....</i>	<i>33</i>

<i>Assessment dependability</i>	34
<i>Clarity of, and familiarity with, requirements</i>	35
BENEFITS OF PORTFOLIO ASSESSMENT	35
<i>Alignment with contemporary learning and assessment</i>	35
<i>Assessment principles</i>	37
<i>Improved achievement outcomes for students</i>	40
<i>Pedagogical implications</i>	42
<i>Responsiveness to cultural values and priorities</i>	44
QUESTION FIVE	46
STUDENT DIVERSITY AND INCLUSIVE ASSESSMENT	47
CONCLUSIONS AND RECOMMENDATIONS	49
REFERENCES	52
APPENDIX ONE: THE REVIEW TEMPLATE	59

Executive summary

The primary purpose of this literature review was to examine the assessment of the new Te Reo Matatini me te Pāngarau | Literacy and Numeracy co-requisite in secondary schools using portfolios. The secondary purpose was to examine portfolio assessment for NCEA achievement standards. The following statements reflect the main findings from the review.

1. Portfolios can be presented in many formats and serve multiple purposes but are essentially designed to be “a performance assessment showing a clear picture of the development of the learner over time” (Chuang, 2010, p. 214). They may be paper-based or digitally based; these are referred to as portfolios and e-portfolios. An e-portfolio is “a dynamic website with databases of student program-related experiences that offer flexible, socially networked, and indexed repositories of e-learning evidence” (Ghany & Alzouebi, 2019, p. 181). The report refers to ‘portfolios’ in a generic sense and where necessary, refers to ‘e-portfolios’ if a particular distinction is important.
2. Portfolios are generally *not* widely used internationally as externally set summative assessments in secondary schools. Two examples of trials included in this report investigated the use of e-portfolios in higher education where learning and assessment were closely aligned with industry competencies and the portfolios served both formative and summative functions.
3. Most of the literature investigated portfolio assessment in the *context of literacy* of professional programmes within higher education and secondary education. There is limited research on portfolio assessments for numeracy at the secondary school level.
4. Unit standards requiring a pass/fail decision are better suited for assessing portfolios than achievement standards which require complex distinctions between levels of achievement. A comparative judgement approach has been shown to support the reliability and manageability of portfolio assessment (Tarricone & Newhouse, 2017) and aligns well with the pass/fail nature of unit standards.
5. Portfolio assessments have *high validity* but there are cautions around their reliability. The literature offers a range of strategies for enhancing reliability, such as specific teacher and assessor training, ongoing checks on inter-marker consistency, and moderation of assessor judgements.
6. It should be noted that “validity is an essential of any measurement, and reliability is a necessary or qualifying condition for validity. Put differently, if scores are unreliable, it

is impossible to make or support valid, authentic, and accurate inferences” (Amrein-Beardsley, 2014, p. 133).

7. Students tend to prefer traditional forms of assessment that they are familiar with and tend to score better on these than on less familiar but more authentic portfolio assessments that include narratives about their achievement and progress. This points to the need for training, practice and time for both teachers and students to gain an understanding of, and familiarity with, portfolio assessment. One study noted that portfolio assessment is rarely used by teachers in the several high schools they observed in Serang City (Indonesia) because “most teachers do not understand the implementation of the portfolio assessment technique” (Ikawati et al. 2022, p. 35).
8. Multiple understandings, definitions and uses of portfolios exist and emphasise the importance of a shared understanding of the elements of portfolio assessment for all stakeholders, including policymakers, assessment agencies, kaiako/teachers, ākonga/ students, whānau/ parents, assessors, and moderators.
9. A good understanding of the content and purpose of portfolio assessments is essential when connecting assessment to expectations for 21st century learning.
10. Consistent with one of the seven principles outlined in the OECD project *The Nature of Learning*, portfolio assessment should be able to encourage ‘horizontal connectedness’ between students’ knowledge, the curriculum, the community and the wider world for contemporary living. Dumont, Istance and Benavides (2010) identify that for 21st century learners who need to develop self-regulated and meta-cognitive skills, it is also necessary to provide support for them in regulating emotions and motivations during the learning (and feasibly the assessment) process.
11. Students with complex needs and/or priority learner groups require a variety of assessment approaches to demonstrate their knowledge, skills and competencies. Systems need to be designed to empower all students and balance assessment approaches and tasks.
12. If externally set and marked portfolios or e-portfolios are implemented, consideration needs be given to students’ engagement in the learning, achievement and assesment of the complex skills required for contemporary living.
13. Portfolio assessment is potentially fairer, more inclusive and more valid for diverse students’ learning and achievement in Aotearoa New Zealand.

14. Unit standard assessments of the Te Reo Matatini me te Pāngarau | Literacy & Numeracy co-requisite, with two possible grades – Achieved/Not Achieved – can be assessed by e-portfolios. While there is limited literature on numeracy, the literature did highlight key principles for ensuring the success of this assessment approach.
15. Portfolio assessment of NCEA achievement standard subjects also has high validity and is consistent with 21st century learning principles. However, to achieve adequately high levels of reliability requires extensive resourcing, including teacher professional development, assessor training, student support, clear criteria and guidelines for assessment artefacts, and an investment in IT infrastructure at national and school levels.
16. The successful implementation of e-portfolios is dependent on an alignment between policy, practice and research in pedagogy and assessment; and stakeholders’ belief in its worth.
17. Results from an evaluation of kura that trialled portfolio assessment during the introduction of NCEA Te Reo Matatini me te Pāngarau indicated positive responses to the concept. However, when ākonga/students were given a choice of assessment by portfolio or Common Assessment Activities (CAAs), they all opted for the latter.
18. Kaiako/teachers in another Aotearoa New Zealand-based evaluation requested a ‘*Best Practice Portfolio Framework*’ so they might have clear understandings of what constitutes evidence to enable ākonga/students to demonstrate learning.
19. While there have been positive signals about the use of portfolios being a more authentic and equitable method for assessing the Te Reo Matatini me te Pāngarau co-requisite, there is a lack of clarity about whether externally set and marked portfolios are fit for purpose.

Introduction

The purpose of this report is to provide responses to five research questions posed by the Ministry of Education (Ministry) to support their decision-making around the assessment of the new Te Reo Matatini me te Pāngarau | Literacy & Numeracy co-requisite. These standards “assess learners on important foundational skills that will help them succeed in NCEA, further learning, life, and work” (Ministry of Education, 2022a). All students will be required to achieve them to be awarded an NCEA qualification at any level. They will be unit standards graded as Achieved/Not Achieved. A secondary purpose of this review is “to provide insights, where applicable, into the suitability of assessment by portfolios across NCEA achievement standard subjects” (Ministry of Education, 2022b, Procurement Brief).

Research questions

The following five questions explored the benefits and risks of portfolio assessment in the context of NCEA.

1. What does the literature say about the robustness and equitability of externally set and marked assessments by portfolio for senior secondary learners?
2. What does the literature say about the robustness and equitability of externally set and marked assessments by portfolio of literacy and numeracy?
3. What does the literature say about the robustness and equitability of externally set and marked assessments by portfolio of Te Reo Matatini and Pāngarau?
4. Beyond the operational concerns shared by the Ministry and NZQA (e.g., scalability, lack of sector capability to support equitable and robust portfolio-based assessments), what other risks and benefits might arise from allowing learners to complete the literacy and/or numeracy co-requisite assessments by portfolio?
5. Which groups of learners might benefit from assessment by portfolio? Are there other methods of external assessment that we should consider for these groups of learners?

Note, Question 5 includes learners with complex or overlapping support needs or disabilities who need ongoing support. Special assessment conditions can sometimes accommodate these learners but the Ministry indicated that the ‘assessment environment’ of the new co-requisite assessments may, in itself, present an insurmountable barrier for a very small number of learners. Logistical issues have also been raised by providers who represent a larger, more homogenous group of learners – foundation tertiary students.

The report is structured into eight sections. Following this introduction are: (i) the methods used to source relevant literature sources, (ii) accounts of how the literature answers each of the five research question in turn, and (iii) the conclusions and recommendations that were drawn for the literature review.

Method of the literature search

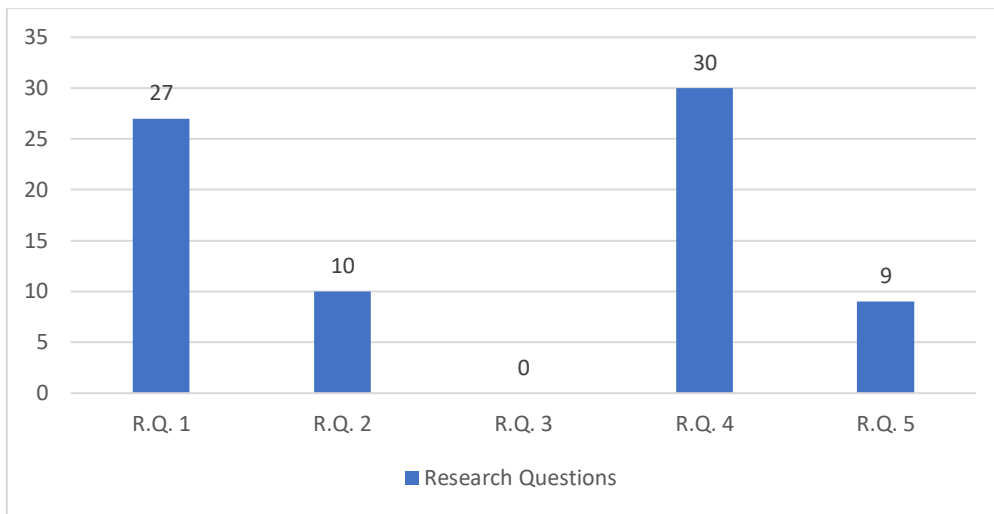
The review was informed by a total of 66 literature sources. When an article was cited a seminal piece, the original article was sourced, reviewed and cited, and included in the review. Thus, all research information is from primary sources. The inclusion/exclusion criteria for the searches were presented in Milestone One report. The literature search was conducted in several phases.

Massey University's search tool *Discover* was used to simultaneously search ERIC, Education Source, Education Research Complete and APA PsycInfo for relevant articles. This rendered 55 articles to be reviewed with the template (Appendix 1) and then loaded into NVivo. Five articles were excluded as they were considered to be weak or not useful. The remaining 50 articles included three chapters from one book (Klenowski, 2002). Each chapter was relevant to this review and was reviewed independently. Figures 1–4 display the composition of the literature sourced: (i) to answer each research question, (ii) by education sector, (iii) date of publication and countries represented, respectively. *Note*, the Klenowski chapters are shown as a single entry in these figures. We then turned attention to Scopus and Web of Science to see if there were any further relevant articles. This identified a further three articles, which were reviewed but not loaded into NVivo. To answer the third research question, a further three Aotearoa New Zealand unpublished reports specific to this question were identified (Evaluation Associates, 2022; Isaac-Sharland, 2022; NCEA Change Hub, 2022) and a further five articles or related documents. A total of 66 relevant sources of literature were used in this review (see the References for the full list). To supplement Question 3, one of the team conducted an in-depth interview with an NZQA staff member to gain further insights from the recent pilot of the literacy and numeracy unit standards.

Figure 1 shows that the majority of articles (56–67 percent) mainly answered questions 1 and 19–21 percent answered questions 2 and 5. As none of the published literature addressed question 3, in phase 3 of locating relevant literature we sourced three unpublished Aotearoa New Zealand-based reports to address this question and one of the team conducted an in-depth interview with an NZQA staff member to gain further insights from the recent pilot of the literacy and numeracy unit standards.

Figure 1

Number of articles coded to each research question (n=48)



Of the 47 articles represented in Figure 2 (one article did not have an education sector focus) 51 percent related to secondary schools (n=24) and 43 percent related to higher education (n=20). The higher education articles also addressed other aspects of certain research questions or included transition from secondary school to higher education.

Figure 2

Number of articles by education sector focus (n=47)

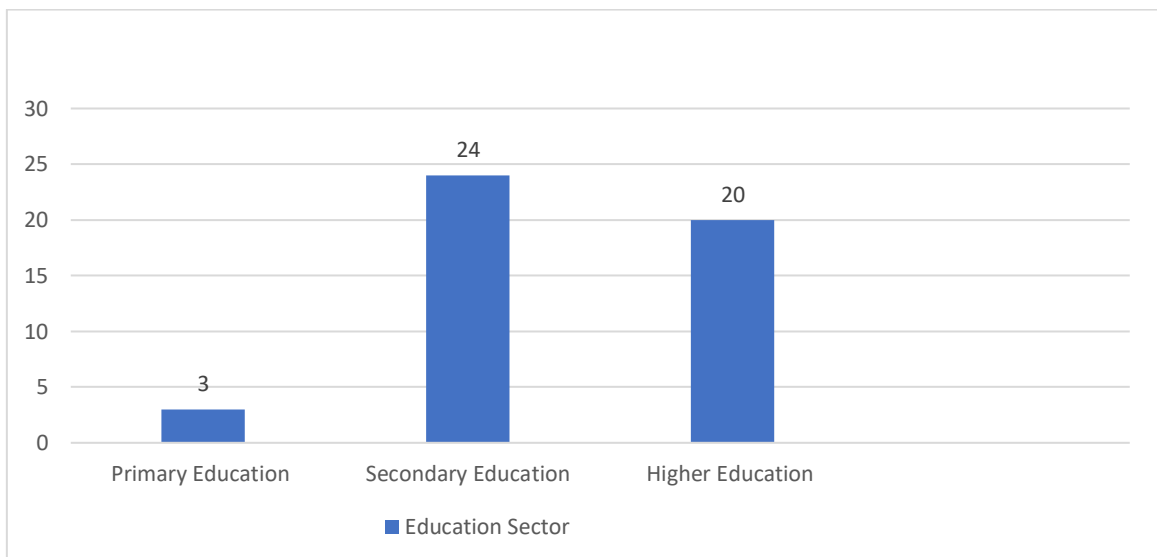


Figure 3 shows the year that the articles were published. The 2010–2014 period and 2018 were particularly productive for research into assessment by portfolio as distinct from portfolios serving a broader learning context.

Figure 3

Number of articles by publication date (n=48)

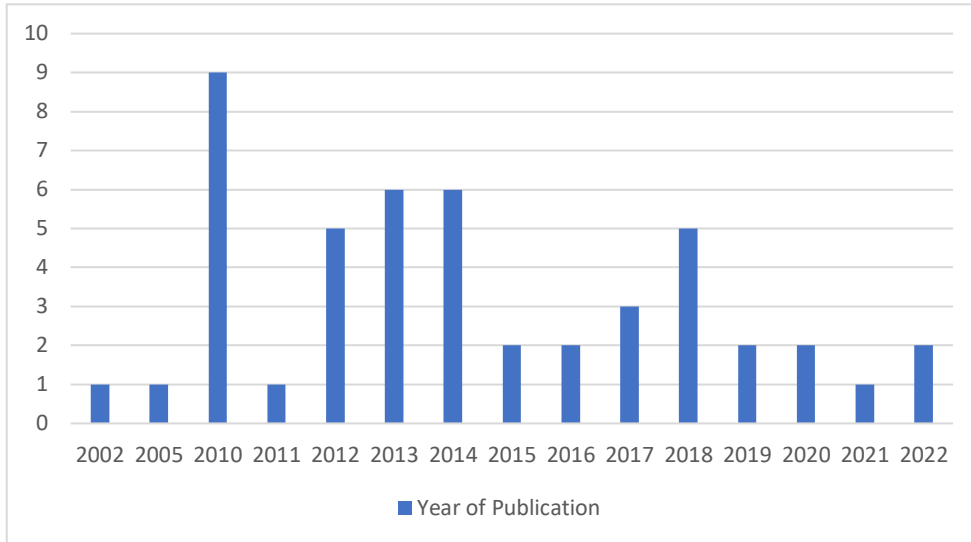
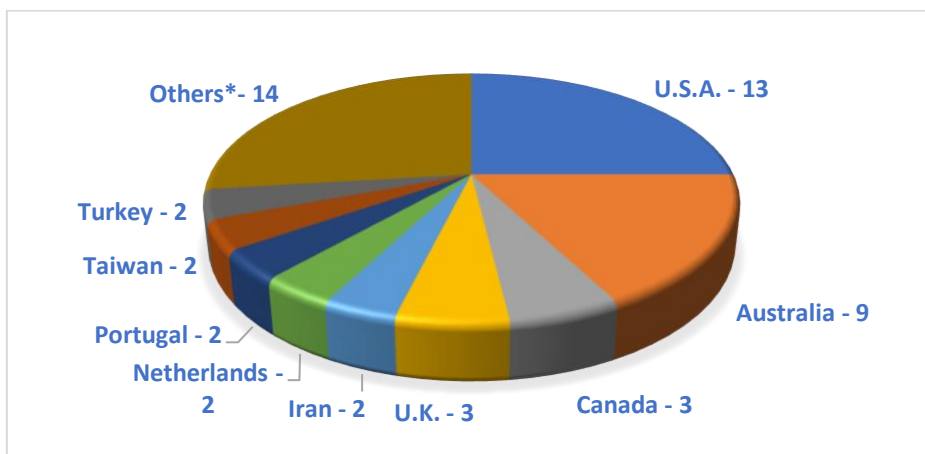


Figure 4 shows that the articles covered 52 countries (some were multi-authored papers with collaborations across countries) with 27 percent conducted in the U.S. and 17 percent in Australia.

Figure 4

Number of articles by country



* Austria, Brunei, Chile, China, Czech Republic, Germany, Hong Kong, Israel, Malaysia, Pakistan, Poland, Spain, Thailand, U.A.E.

Question one

What does the literature say about the robustness and equitability of externally set and marked assessments by portfolio for senior secondary learners?

It became evident from reviewing the literature that we needed to consider the multiple features of portfolios; namely, their roles, functions, definitions, understandings, and purposes. Therefore, this section also explores the nature of assessment by portfolio enabling questions 1–5 to be placed in context.

There is no doubt that portfolios play a valuable role in students' learning and assessment. However, portfolio assessment demands more student and teacher time than other forms of assessment (Nehring & Szczesiul, 2015; Offerdahl & Impey, 2012) and requires specialist teacher training (Black et al., 2010; Burner, 2014; Klenowski, 2002; Newhouse 2011, 2014). It enables a greater alignment with 21st century learning than external standardised examinations and other forms of assessment (Nehring & Szczesiul, 2015). For example, Duvall and Pasque (2013) argue that “students must learn how to *apply* what they learn in those [maths, science] subjects to deal with real world challenges, rather than simply ‘reproduce’ the information on tests” (p. 72).

Portfolio assessment also provides a natural process for encouraging students to develop their self-reflection and self-assessment skills (Baturay & Daloglu, 2010; Fuglík & Tocháček, 2019; Pereira De Eça, 2005). Students in secondary schools (Pereira De Eça, 2005) and higher education (Clarke & Boud, 2018) saw portfolio assessments as authentic and valid. However, one needs to consider the reliability able to be achieved through their use. Amrein-Beardsley (2014) argues that “validity is an essential of any measurement, and reliability is a necessary or qualifying condition for validity. Put differently, if scores are unreliable, it is impossible to make or support valid, authentic, and accurate inferences” (p. 133).

Many writers refer to the issue of reliability, which Williams et al. (2014) describes as the “elephant of traditional assessment [that] remains in the room” (p. 622). Portfolio assessment is an approach that enables space for students to deliberate more on their learning and re-work aspects of it. Baturay and Daloglu (2010) identify the practical features of portfolios that “capitalize on students' natural tendency to save work and to take a second look and think about how they could improve their work” (p. 414).

The diversity and complexity of portfolios

Portfolios are defined and described in many ways. Meeus, Van Looy and Vam Petegem (2006) found 49 different descriptions of portfolios and at least 28 different classifications that ranged from being basic repositories of work through to evidence-based, reflective accounts of professional expertise and work. Chuang (2010) claims that portfolios “are often used as a performance assessment showing a clear picture of the development of the learner over time” (p. 214).

Baturay and Daloglu (2010) describe portfolios as a technique that “reflects student performance and provides accurate information about student competency in various domains of learning” (p. 413) for the purposes of (i) documentation (collection of work), (ii) assessment (students select work for assessment based on criteria provided), and (iii) showcasing their work (students select only their best work for inclusion in their portfolios).

Ghany and Alzouebi (2019) identify five different purposes of portfolio assessment: (i) summative assessment; (ii) certifying competence and selecting candidates; (iii) promotion; (iv) teaching and learning support; and (v) professional growth. Jones (2012) argues that portfolios “provide evidence of a wider range of personal and intellectual abilities and skills than some other conventional forms of assessment, support the integration of learning from other parts of the curriculum and achieve a close integration of learning and assessment” (p. 413). Portfolios are typically used for individual students but can also be used for teamwork or team-based portfolios of 3–6 members (Sever, 2015).

A more sophisticated approach to portfolio assessment can be achieved through electronic portfolios (e-portfolios), where “information is collected, saved, and stored electronically, possibly using a variety of multimedia formats” (Chuang, 2010, p. 214). Ghany and Alzouebi (2019) explain that e-portfolios have the potential to be “a dynamic website with databases of student program-related experiences that offer flexible, socially networked, and indexed repositories of e-learning evidence” (p. 181). Portfolios need to be purposeful and can include evidence of learning outcomes, skills or competencies (Williams et al., 2014), and be product-orientation and process-orientation to ensure that both the learning itself and the outcomes can be represented (Klampfer & Köhler, 2013).

Müller et al. (2017) state that “compared to paper-based portfolios, [e-portfolios] provide students with means to document their experiences and achievements within the

world and with the means of their preferred media domain, contributing to the development of desired media competences at the same time” (p. 480).

E-portfolios would enable students and their teachers to: (i) show learning progress and achievement in Te Reo Matatini me te Pāngarau | Literacy & Numeracy over time, and (ii) make decisions together about what artefacts are included in the final portfolio to be assessed. In this way, e-portfolio assessment would be intentional, focused, and documented in a systematic way. Although more aligned to curriculum, as distinct from assessment, Cicchino, Efstathion and Giarrusso (2019) introduce the idea of ‘ePortfolio makingness’ “which is linked to the idea that composing in a different space and using different materials might help students understand composing differently and perhaps more meaningfully” (p. 14). As identified by Hubert and Lewis (2014) from a higher education perspective, when e-portfolios are used “as spaces for learners to shape and share the connected stories of their academic lives and when used for assessment, [they] can play a central role in closing the loop for institutions, faculty, and learners” (p. 62).

There is an understanding of e-portfolios within the New Zealand context (e.g. <https://elearning.tki.org.nz/Teaching/Assessment/e-Portfolios>) through the Ministry of Education, although these are not necessarily linked to summative or external assessment.

Portfolios serve multiple assessment functions

Some researchers take the position that summative and formative assessments are complementary, and that portfolios can serve both purposes by enabling students to move towards *future learning* (Clarke & Boud, 2018; Pospíšilová, 2017; Ziegler & Moeller, 2012). For example, Parkes et al. (2013) note that an e-portfolio is effective when the pedagogy is aligned with the e-portfolio process, and that in the higher education arena at least, an e-portfolio enables “students to begin to capture and illuminate the often elusive, ethereal, and context-specific complexities of knowledge” (p. 99). Klenowski (2022) also identifies the importance of ‘portfolio pedagogy’ and we elaborate on this later in the report (see p. 43). It is not surprising then, that as Pospíšilová (2017) observed, no two portfolios are the same, and there is no ‘normative description’ of what a portfolio would look like. The new Te Reo Matatini me te Pāngarau | Literacy & Numeracy standards would enable some flexibility by allowing students choice about what evidence can be included in their portfolio (from a selection of nominated assessment tasks with the same criteria).

Clarke and Boud (2017) argue that portfolios may “neglect to focus on fostering learning” (p. 480) if they are mainly used for summative purposes and are marked or graded without a clear analysis of the rationale for that mark. This means that if portfolio assessments were only used for summative purposes, they would not be suitable for the purposes of the Ministry or NZQA. However, Clarke and Boud (2017) argue that “contemporary portfolios can be refocused towards learning development while ultimately serving the need for summative assessment” (p. 480), as was the case in medical and veterinary education. Bok et al. (2013) noted that “assessments that were designed as formative learning experiences were increasingly perceived as summative by students” (p. 1); that is, students themselves determine how ‘high stakes’ their assessments are and may approach assessment tasks as summative exercises.

Resource implications of portfolio assessment

The most relevant study in this review of large-scale external portfolio assessment was conducted by the National Council for Vocational Qualifications in England, Wales and Northern Ireland (Wolf, 1998). Wolf (1998) warned that there are “major financial and organisational costs associated with large-scale portfolio assessment” (p. 442). Wolf also found that “if assessment is to be entirely portfolio based, comparable across assessment centres, and reliably delivered, then there has to be some method of developing and disseminating the standards to which it takes place” (p. 442). Wolf was evaluating paper-based portfolios and found them to be unmanageable and took longer to mark than traditional assessments (a key consideration for NZQA and the Ministry when introducing portfolios; more markers and substantive training would be needed). The success of portfolios largely depended on students having support and advice from teachers about what evidence to include in their portfolio and a clear understanding of the assessment criteria.

In another study, Klenowski (2010) mapped the progress from the use of Records of Achievement (RoA) to portfolios and then e-portfolios in England. Like RoA, portfolio assessment enables students to discuss their evidence of achievements and thereby develop their self-assessment and self-reflection skills. Klenowski (2010) also points out the importance of clear criteria to guide, improve and assess students’ learning.

A common point made across the literature was that for portfolios to be effective, “teachers need first to be informed via specialized training of how much work, time and which

skills are required to create e-portfolios, before mandating their usage” (Ghany & Alzouebi, 2019, p. 187). This was also mentioned by Mundia (2010) and Pereira De Eça (2005). Pereira De Eça (2005) states that in her trial of portfolio assessment, in-service teacher training included five one-day meetings and five online discussions with teachers. In Aotearoa New Zealand, the Ministry would need to develop and roll out training for teachers and markers to maximise the potential of e-portfolios. This training would need to include supporting teachers in strategies on how to upskill students in the development, maintenance and use of e-portfolios.

It is imperative that the introduction of portfolio assessments be accompanied by a clear understanding of its purpose and what counts as evidence (Offerdahl & Impey, 2012). Pereira De Eça (2005) carried out an investigation of the external assessment of portfolios in art in secondary schools in Portugal that involved 104 students and 44 art teachers in five schools. Acceptable evidence included teacher reports or notes, student artefacts of their work (e.g. folder, exhibition), final products (visual), students’ self-assessment reports, and investigations/reports and data related to critical inquiry. Wolf also included developmental records that were both visual and written. Pereira De Eça found that the assessment portfolios were “motivational and foster[ed]... constructive learning, dialogue and cooperation between students and teachers. The new assessment procedures develop[ed] ... communities of assessors enabling some increased consistency of examination results and positive professional development opportunities” (p. 214). These are relevant points for the Ministry and NZQA, given that the intended portfolio assessment is to be external and summative. Again, as noted above, training assessors and markers is as important as training teachers.

Reliability of portfolio assessment

Along with issues of the manageability of portfolio assessment (Williams, 2012; Wolf, 1998), studies have questioned the reliability of assessor judgements (Wolf, 1998) when marked by the students’ own teachers (Newhouse, 2014; Perie, 2020). This suggests that independent, skilled assessors are likely to be more reliable (and less biased) than students’ own teachers. Therefore, NZQA needs to employ skilled assessors (most of whom will be teachers) who do not assess their own students.

Stobart and Gipps (2010) cautions that reliability issues in portfolio assessment must be managed and addressed before the portfolios are submitted for assessment, arguing that in

high stakes assessment, “portfolio assessments remain vulnerable to reliability problems relating to sample, standardization, and scoring” (p. 205). NZQA and the Ministry need to address these issues and enhance reliability by considering the roles of pre-moderation, teacher training, assessor training, specific and clear criteria for marking, and post-moderation checks.

The literature gave several insights into the reliability or consistency of marking portfolios. External assessors are able to check the fairness and consistency of internal marking, that is, by students’ own teacher and “assessors can reach a considerable degree of consensus through the use of standardisation and moderation procedures” (Pereira De Eça, 2005, p. 215). Consensus between markers can be achieved by using “communities of assessors” (Pereira De Eça, 2005, p. 215). While “it is even more difficult to achieve reliability and consistency between multiple assessors” (Williams et al., 2014, p. 620), clear, well-understood marking criteria can mitigate assessors’ differing interpretations and grading of portfolios that arise from loosely defined criteria. Brownstein and Horvath (2016) describe a process where assessors code and mark a series of portfolios (in science secondary school assessment), and were required to reach 90 percent inter-rater reliability before commencing the grading, and then later during the marking process conducted random reliability checks that reached a 90 percent or greater agreement.

Reliability and validity issues are not specific to e-portfolios but are related to all assessment occasions and types of assessment. Reliability and validity may be compromised by having a single examination or a single external assessment (Bok et al., 2013). Comprehensive assessment requires the use of a range of types of assessment. This means that portfolios might be used in combination with other traditional assessments and CAAs. McKnight (2020) outlined how a combination could include a final portfolio (weighted 70 percent) and a 2-hour examination (30 percent) in a “fictional curriculum document to be implemented in 2023” in Victoria, Australia (p. 59).

Newhouse and Tarricone (2014) explored portfolio assessment for Australian secondary school students in visual art and design. They conclude that a robust marking process includes: (i) comparable judgements between contexts, (ii) independent and objective assessors, and (iii) the management of the work of large groups of students spread across wide jurisdictions. One student in Pereira De Eça’s (2005) Portuguese trial of external portfolio assessment with secondary school students in art said they had multiple and ongoing discussions with their teacher about the assessment criteria and what should be included in the

portfolio; “by talking about it we better understood the instructions” (p. 212). This suggests that students can become more ‘assessment literate’ through this process.

Baturay and Daloğlu (2010) undertook a study in Turkey of an online primary school English course by comparing English as a Foreign Language (EFL) students who were assessed in the traditional way (by online pre- and post-test, and face-to-face achievement test) with those who kept an e-portfolio (including the online pre- and post-test, and face-to-face achievement test; but also three drafts of the writing task and a self-assessment form). They believe that portfolio assessment requires a paradigm shift in the respective roles of teachers, students and the assessment criteria. They concluded that e-portfolio assessment (i) was important for these learners; (ii) was suitable for promoting self-assessment; (iii) was practical and useful; (iv) enabled students to organise their artefacts in different ways, and (iv) was not constrained by time. Students were very satisfied with e-portfolios and wanted to keep them for their ongoing learning. Although students in both groups made significant gains in their achievement, students in the traditional assessment group scored higher, and expressed higher satisfaction than the e-portfolio group. However, a *t-test* showed a significant difference between the two groups was not evident. When students’ static, outcome skills are assessed on a single occasion rather than progressively over time as with an e-portfolio, the results may differ. As Baturay and Daloğlu note in this study it was the students’ first experience in keeping an e-portfolio for assessment and different results may occur once they are familiar with a new form of assessment.

Ultimately the e-portfolio enables longitudinal observation and assessment of students’ progress, and “assesses students’ progress or their proficiency level which cannot easily be examined through traditional paper pencil test” (Saeed, Tahir, & Latif, 2018, p. 118). In contrast, Saeed et al. state that one-off tests can rely on students’ “rote memorization and decision is taken on the basis of final written test” (p. 118). Singh et al. (2015) noted that when portfolio assessment was introduced into secondary schools in Malaysia for ESL students, the teachers were better able to document their students’ individual growth.

Kissel et al. (2014) also identified the benefits of e-portfolios in the school context including the opportunities to present text, knowledge, and ideas in new ways, while also developing and using technology skills in the process, and being able to distribute the work to a broader audience.

While e-portfolio assessments of unit standards in literacy and numeracy in Aotearoa New Zealand would be graded as Achieved/Not Achieved (Pass/Fail), hypothetically teachers could potentially advise students on their portfolios submitted for assessment. Teachers have the skills and knowledge of the assessment criteria to identify student portfolios that are likely to fail to meet the unit standards, and can then provide good formative feedback to enhance the students' portfolio and the likelihood of achieving passing grade.

Impact on students

Albir and Pavani (2018) explored the portfolio assessment of 2nd-year students in a Bachelor of Arts course in translation teaching (Spanish into Italian). They found that the students scored higher, on average, on a series of one-dimensional assessments (such as tests of certain aspects) than on multidimensional assessments (such as portfolios). They explain that “this may be due to the fact that the multidimensional assessment takes into account more aspects and it is more difficult to gain high marks in all of them” (p. 39). However, the reason Pereira De Eça (2005) gives for Portuguese students doing less well on portfolio assessments in art is because they “were unfamiliar with the new assessment requirements, their previous learning in art was underpinned by a formalist approach, and because of that they could not perform well in the majority of tasks” (p. 212). One school in their study reported that students were very motivated and engaged with portfolio assessment because their teachers had already used this approach within their school, making the transition much easier for teachers and students when portfolio assessment became external. Therefore, “previous experience seemed to be a key factor for the success of the new assessment instrument in this case. In general, students considered that the new assessment instrument was valid” (Pereira De Eça, 2005, p. 213).

Using a weblog-based electronic portfolio (WBEP), a Taiwanese study of 31 student teachers in training found that there needs to be clear dialogue between learners and teachers about how an e-portfolio is developed (Chuang, 2010). Portfolios were assessed on a scale of three levels: a Level 1 portfolio was mainly a scrapbook of ideas and work where students mainly did the portfolio on their own to help them remember what they had covered, with many focusing on “good-looking blogs at the expense of less-professional portfolios”; a Level 2 portfolio included curriculum assignments where students connected their work to stipulated standards and focused on learning goals; and Level 3 portfolios showcased strong work and included reflections about their work where students were also usually willing to leave

feedback on other student teachers' blogs, and to initiate dialogue and discussions. While these were not collaborative assessments, Level 3 students actively used peer review to enhance the quality and depth of their portfolios.

Another study, based in a UK university, involving four business students noted that the portfolio assessment included students matching work-based experiences to predetermined learning outcomes, alongside a written critique of the link. These were designed to both verify claims and provide a reflective narrative, but the students and teachers had different views of the role and function of the portfolio and it became a "predominantly monologic process" (p. 522); essentially there was minimal dialogue between teacher and student (Pokorny, 2013), which seems to be key to effective portfolio assessments.

When portfolio assessment was implemented in Poland, Czura (2013) found that students in a lower-secondary school needed specific training and support when moving to this new form of assessment as there was a shift from a culture of testing to a culture of assessment. The students criticised portfolios largely because of the time it took to prepare them and because they needed to engage differently with this form of assessment. Czura (2013) advises that "the process of introducing assessment methods different from traditional tests has to be preceded by far-reaching changes in the classroom" (p. 213). This means that NCEA students would need time to learn, develop and maintain their portfolios in class, and teachers would need explicit training in how to support their students to present their portfolios for assessment. Ideally, these would be e-portfolios to enhance the manageability and access for teachers, students, and markers.

Question two

What does the literature say about the robustness and equitability of externally set and marked portfolio assessments of literacy and numeracy?

Robustness and equitability of assessment are interconnected and encompass ideas of effectiveness, appropriateness and fairness for all. Ten articles within this review addressed this question to varying degrees in relation to the portfolio assessment of literacy.

Commonly, these studies used portfolios in English-language courses (e.g. Baturay & Daloglu, 2010; Burner, 2014; Pourdana & Tavassoli, 2022) and many centred on writing (Behizadeh & Lynch, 2017; Burner, 2014; Pourdana & Tavassoli, 2022). Hence, writing portfolios became the focus for the studies reviewed in this section. Burner (2014) describes a writing portfolio as having nine characteristics:

collection of texts, range of performances, delayed evaluation promoting time for revision, selection of texts, student-centered control, reflection and self-assessment, growth along specific parameters (e.g., spelling), and development over time which provides evidence of progress. (p.140)

There were no studies that specifically explored portfolio assessment in numeracy, apart from Black et al.'s (2010) study of the development of portfolios in maths and English for Year 9 secondary school students in the UK. Mathematics teachers struggled to create suitable tasks for portfolio assessment partly because they could not “see ... the mathematical commonalities across different tasks” (p. 224). This suggests portfolio assessments of numeracy need to be carefully designed tasks.

Towards equitability

Equity is a key reason for alternative forms of assessments, such as portfolios, being adopted on the premises that: (i) there is greater interconnectedness with pedagogical approaches that use formative assessment; (ii) better assessment information supports better understandings of what learners know and can do, and (iii) there is greater student agency in the assessment processes (Behizadeh & Lynch, 2017). Towards such ends, Burner (2014) suggests a number of benefits of using portfolios to assess writing, including: (i) authenticity and the opportunity for cross-curricula integration; (ii) the learner-centred nature of the

assessment and the promotion of learner autonomy; (iii) the role of reflection and the development of self-reflection skills; and (iv) the enhancement of writing performance.

Improved performance in writing

While this review was intended to explore external, summative portfolio assessment, the studies found that the formative assessment of writing portfolios promotes improved writing skills. Burner (2014) attributes this to the learning students are afforded by processes of seeking and responding to feedback on their writing which, in turn, increases their motivation to succeed. In their study of EFL students in a teacher-preparation course, Pourdana and Tavassoli (2022) found that active engagement with writing portfolios improved to a moderate level students' higher-level writing skills, such as developing and organising ideas for specific genres, and improved more noticeably the development of lower-level skills, such as sentence structure, word choice, grammar and the mechanics of writing in both narrative and descriptive writing tasks.

Through their active engagement in the writing process, the student-teachers improved their ability to understand and respond to feedback productively through observation, modelling and discussion during the writing process and were, therefore, able to use the writing they produced as a resource for their ongoing learning. They also developed an increasingly critical perspective of the scope and nature of the feedback they received from teachers. The wide range of teacher feedback and perceived mismatches between teachers' feedback and students' self-assessments impacts on students' willingness to engage with feedback (Pourdana & Tavassoli, 2022) and to use it to make subsequent improvements to their writing. This means that students are more likely to understand and act on lower-level, less complex feedback.

Authentic contexts, purposes and audiences for writing

Baturay and Daloğlu (2010) similarly found that portfolio assessment supports learners to develop writing skills, problem-solving and creativity in authentic contexts. Behizadeh and Lynch (2017) note that the assessment of students' writing portfolios is based on "their ability to negotiate meaning over a sustained writing process" (p. 37), including considerations of the audience, genre and purpose of their writing. Portfolios allow the assessment of a variety of writing genres generated in authentic contexts over time. That is, writing portfolios can be collated from what students have created over time in response to genuine purposes and authentic experiences. Pourdana and Tavassoli (2022) note that the authenticity and practicality

of portfolio assessment for writing “simulates the students’ natural practice to save a written assignment and to take a second look at it before submission” (p. 15). The opportunity for students to self-select writing topics is important for equitability (Perie, 2020) as students’ unequal access to experiences and their prior knowledge influences the effectiveness of their writing. Perie (2020) concludes that “allowing students some freedom in the [choice of the] topic would ultimately increase the fairness of the task” (p. 38). This has important implications for the equitability of NCEA assessments for priority learner groups who have been disadvantaged by traditional assessment practices. Portfolio assessments of writing and potentially reading, speaking and numeracy, where students can choose the experiences (topics) they write and speak about, the situations they investigate mathematically, and the texts they respond to, afford students opportunities to draw on their diverse funds of knowledge. With regards mathematics, Jones and colleagues argue for the use of comparative judgement to assess mathematics problem-solving; an important aspect of knowing and doing mathematics which is difficult to assess in a traditional exam. Unit standards are well suited to e-portfolio assessment and comparative judgements, as an approach, enhance the reliability and manageability of portfolio assessment (Tarricone, & Newhouse, 2017) and align well with the achieved/not achieved, pass/fail nature of unit standards.

Writing portfolios also offer students opportunities to receive formative feedback that enable students to reflect on the collection and selection of written texts to be included in the portfolio for summative assessment. In addition to improved literacy skills, Meyer et al. (2010) report gains in self-regulated learning skills for grade 4–6 students using e-portfolios. Another study also showed that classroom-based portfolios in a secondary school Spanish class increased the self-regulated learning of students (Ziegler & Moeller, 2012). The process of collecting, reflecting on and selecting writing works for a portfolio supports the development of students’ independence, self-assessment, and critical thinking skills, and promotes student agency by actively monitoring and dynamically engaging with their works in progress.

The creation of assessment portfolios can support connected, multidimensional learning across multiple fields beyond that which is being assessed. In the context of an undergraduate university science course, Offerdahl and Impey (2012) found that students’ writing improved as well as their higher-order thinking skills of interpretation, evaluation and synthesis of information; they were better able to communicate scientifically and to critically evaluate scientific evidence. Importantly, Offerdahl and Impey (2012) note that portfolio assessment requires students to actively engage with course content where usually “the role of

students in these courses is passive; students absorb transmitted information and demonstrate mastery of the content by relaying that same information back to the instructor” (p. 24). Portfolio assessment can also improve students’ language development as well as social skills, reflexivity and the ability to understand diverse cultures and the world around them (Jones, 2012). Portfolios provide evidence of connected learning, that is “qualitative data about each child’s achievement and potential and enable all children to tell a positive story of their learning to travel with them as a ‘companion’” (Jones, 2012, p. 412). Taking a broad view of literacy learning as encompassing multiple literacies, Chuang (2010) argues that e-portfolios also expand opportunities for students to develop multimedia-literacy skills; as students compile an e-portfolio, they also learn to use digital tools.

Improving teaching and systems

Portfolio assessment can potentially improve teaching and learning, and strengthen the robustness of assessment decisions. For instance, Meyer et al. (2010) found that the consistent use of e-portfolios supports improvements in teachers’ strategies for developing students’ self-regulated learning skills in writing. Advances in technology allow for accountability and learning-oriented purposes of assessment to be addressed simultaneously (Behizadeh & Lynch, 2017) and a wide range of stakeholders can access portfolios to analyse and respond to students’ work, including kaiako, ākonga and whānau who can respond to feedback from different perspectives, and education leaders and policymakers who can use them to evaluate system-level performance. Such access “to the full body of a student’s work ... can then be analysed and discussed to generate better supports for teachers and students” (Behizadeh and Lynch, 2017, p. 35).

The positive impacts of assessment on instruction, or “positive washback” (Behizadeh and Lynch, 2017, p. 35) are a key driver for using alternative assessment methods, such as portfolios, and are linked to more culturally inclusive and equitable pedagogical approaches. See page 39 of this report for a more detailed overview of the ‘positive washback’ effect.

Twenty-first century teaching and approaches to assessment

The misalignment of 21st century teaching and learning with narrowly conceived ideas of assessment has implications for equity. Poor assessment practices underpinned by narrow and outdated thinking have “encouraged low-level instructional practices that disparately affect students from the most disadvantaged communities and schools” (Behizadeh & Lynch, 2017,

p. 25). This is important for the Aotearoa New Zealand context where identified priority groups of learners with additional needs are over-represented in special education, and Māori learners are over-represented in stand-downs, and exclusions (Bourke, Butler & O’Neill, 2021).

Formative assessment processes in an online primary English language course involving ongoing teacher feedback for learners made portfolios a stronger alternative to standardised assessment (Baturay & Daloğlu, 2010). Gorlewski (2010) points out that literacy assessment for compliance purposes is a passive activity for kaiako and ākonga compared with the active processes of self-assessment and formative assessment of portfolio assessment. The argument can be made that portfolio assessment can also promote the role of kaiako in formative processes with the potential to improve learning for under-served ākonga. It could be that for students to “take charge of their own literacy” (Gorlewski, 2010, p. 100), the responsibility for learning is shifted from teachers to students. However, improving the learning of under-served ākonga is very important for addressing inequitable achievement. Therefore, portfolio assessment, with the potential for teachers and learners to be more actively involved in the assessment process, has the potential to support improvements in teaching and learning, particularly for priority learners.

Portfolio assessment in writing has the potential to “properly highlight students’ strengths and voices rather than expose their weaknesses” (Pourdana & Tavassoli, 2022, p. 16). It is “inclusive, in that it allows all children possibilities to show what they know, however modest that knowledge might be, and what they can do, however limited” (Jones, 2012, p. 402). Portfolios offer opportunities for students to revise, edit, and improve their writing multiple times over an extended period free from the anxiety and time constraints of examinations (Burner, 2014). Second-language-learning students found writing portfolio assessments were low-stress and enjoyable (Pourdana & Tavassoli, 2022).

Summary of implications and considerations for NCEA assessment

Although the studies reviewed in this section were limited to writing portfolio assessments, they can inform decisions around the adoption and use of portfolios for NCEA numeracy and literacy unit standards.

There is evidence that portfolio assessment in writing affords increased assessment equitability, particularly for groups of priority learners. It provides the opportunity for students to choose authentic topics, contexts and purposes for writing, allowing them (the students) to

draw on rich and diverse funds of knowledge. A similar affordance is possible in reading and numeracy where students can have the opportunity to choose which texts to read and respond to in NCEA unit standards.

There is a documented disconnect between traditional assessment approaches and the skills and competencies that align with 21st century learning. External exam-type assessments position students and teachers as passive recipients of the assessment process. In contrast, teachers' and students' active involvement in portfolio development, choice of literacy texts or genre, and formative assessment, create a feedback loop that can promote both student and teacher learning.

Portfolios afford expanded opportunities to align assessment with what is expected and valued in 21st century society and to promote educational innovations (Jones et al., 2015). There is limited scope to directly apply the findings of this review to system-wide, external NCEA summative assessments of NCEA-level literacy and numeracy in Aotearoa New Zealand. Nevertheless, the studies point out important findings and issues that will inform the design of robust, equitable assessment approaches and areas for further research. There is potential to design and develop research-informed e-portfolio literacy assessments.

Question three

What does the literature say about the robustness and equitability of externally set and marked assessments by portfolio of Te Reo Matatini and Pāngarau?

As expected, there is a paucity of literature that discusses the robustness and equitability of externally set and marked assessments by portfolio for Te Reo Matatini and Pāngarau. While this review has examined a spread of international literature (Figure 4), there was also no evidence of relevant literature in international indigenous contexts. Despite this, a modest body of local literature has been drawn upon to inform a response to this part of the review.

Recent piloting of the new NCEA Te Reo Matatini me te Pāngarau co-requisite has provided insights into readiness and resourcing issues faced by kaiako, ākonga, and whānau from Māori-medium kura and schools that provide te reo Māori education. While ākonga are given the opportunity to demonstrate achievement of the Te Reo Matatini me te Pāngarau co-requisite either by completing a CAA or submitting a portfolio, at both assessment rounds of the second pilot (Round One: June/July 2022; Round Two: September 2022), all ākonga opted to demonstrate achievement using the CAA. This preference to complete the co-requisite through the CAA rather than by portfolio is likely due to a lack of resources and understanding for both kaiako and ākonga about how to best capture and present learning through portfolios (Evaluation Associates, 2022). Therefore, while ākonga made the decision to use CAA, it was likely due to poor understanding and resourcing, from both kaiako and ākonga of how to present learning, and be assessed, through portfolios.

Kura in the NCEA Te Reo Matatini and Pāngarau co-requisite trial

Portfolios have been proposed as an alternative, and more authentic and equitable method of assessment for the NCEA Te Reo Matatini me te Pāngarau co-requisite. The report by Evaluation Associates (2022) notes that despite the fact that no portfolios were received during either of the assessment rounds of the 2022 trial, there have been positive responses from kura about the opportunities for ākonga to complete the co-requisite by portfolio. Isaac-Sharland (2022) reiterates this interest in portfolios when she reports that kaiako were requesting a *Best Practice Portfolio Framework* so that they might have clear understandings of what “evidence could be considered appropriate and how evidence should be best

demonstrated to showcase ākonga development” (p. 6). NZQA has also indicated a commitment to develop resources to support the use of portfolios by ākonga in kura. Such resources are being created “to assist kaiako and ākonga to understand how learning can best be captured and presented using portfolios” (Evaluation Associates, 2022, p. 67).

While there has been positive response to the use of portfolios as a more authentic and more equitable method of assessment of the Te Reo Matatini me te Pāngarau co-requisite, there is a lack of clarity over whether externally set and marked portfolio assessments are fit for purpose. Isaac-Sharland (2022) states that a range of key stakeholder opinions exist on whether the NCEA CAA and portfolios are fit for purpose. She further asserts that these stakeholders believe the processes to administer CAAs and portfolios are not straightforward. This is reiterated by experts in the field of assessment when commenting about the use of portfolios; the complexity required when undertaking and using portfolios effectively involves time and resource “to grow and build capability” (Evaluation Associates, 2022, p. 68) across the sector. To achieve this would require teacher professional development, assessor training, student support and a clear framework for demonstrating learning.

It is difficult to review the literature on the robustness and equitability of externally set and marked assessments by portfolio of Te Reo Matatini me te Pāngarau when there is little to draw on. While further work is needed to support the assessment of the NCEA Te Reo Matatini me te Pāngarau co-requisite via portfolios in kura and schools so that the sector can be better informed about its potential and possibilities, this review of the literature highlights that it is critical that any assessment approach designed for te reo matatini me te pāngarau is aligned to the ‘*He Raukura Mō Te Mōkōpuna*’ strategy. This would ensure better coherence and responsiveness given the Ministry of Education (2022, p. 5) highlight that there needs to be “a mātauranga and kaupapa Māori understanding of te reo matatini and pāngarau across the curriculum”.

Question four

Beyond the operational concerns shared by the Ministry and NZQA (e.g., scalability, lack of sector capability to support equitable and robust portfolio-based assessments), what other risks and benefits might arise from allowing learners to complete the literacy and/or numeracy co-requisite assessments by portfolio?

The literature reviewed highlights some logistical challenges when introducing literacy and/or numeracy co-requisite assessments by portfolio, although some literature (e.g., Burner, 2014; Gilliland et al., 2018; Newhouse, 2011) claims that e-portfolios offer students considerable benefits. This section examines actual and potential risks and benefits of using portfolios for summative assessment purposes. Risks are examined in relation to five generic categories: (i) technical issues; (ii) time; (iii) teacher professional capabilities; (iv) assessment dependability; and (v) clarity of and familiarity with requirements.

The section on benefits examines: (i) the alignment of assessment by portfolio with contemporary theories of learning and assessment; (ii) assessment principles; (iii) improved achievement outcomes for students; (iv) pedagogical implications; (v) responsiveness to cultural values and priorities; and (vi) implications for Aotearoa New Zealand.

Risks of portfolio assessment

According to Klenowski (2002), most research into portfolio assessment has identified issues associated with: (i) inadequate alignment between policy; (ii) curriculum and/or pedagogical practices; (iii) insufficient allocation of time and resources to professional learning and phased-in implementation; (iv) conceptual ambiguity, and (v) practical and technical problems.

At the professional level, risks associated with portfolio implementation largely relate to technical issues and a lack of a shared understanding about the expectations, requirements, and assessment of portfolios. These uncertainties result in teachers being inconsistent in implementing the assessments such as variation in: (i) the amount of time they allocate for learning and assessment tasks; (ii) attention given to, or not attending to all components of the expected tasks; and (iii) whether to allow students to complete tasks at home (Newhouse, 2011, 2014). We examine these risks in more detail.

Several studies examined for this literature review foregrounded frustrations and breakdowns with computer hardware and software, and internet connections (e.g., Ghany & Alzouebi, 2019; Newhouse, 2011; Williams, 2012). Some of the difficulties were associated with inadequate IT infrastructure in some schools, while for other schools, teachers required IT support and professional development beyond the current capacity of the school (Ghany & Alzouebi, 2019).

In his study of an applied IT course in Western Australian secondary schools, in which greater authenticity in summative performance assessment was investigated, Newhouse (2011) found issues of non-submission and incomplete portfolios amongst the 115 students involved. Students were expected to “collate evidence of their investigation, design, production and evaluation processes undertaken into a *Design Process Document* for which students had five hours of class time” (Newhouse, 2011, p. 394). As part of this study, a student survey revealed that 42 percent of the 110 respondents had little or no experience with digital portfolios. This meant that “the resulting digital files needed a reasonable amount of checking, reformatting and renaming to ensure consistency for uploading to the online repository” (Newhouse, 2011, p. 401).

Another study where Newhouse (2014) investigated the digital representation of 150 secondary school students’ practical work in design and visual arts courses highlighted various technical issues encountered. As Newhouse (2014) notes, “the external digitization was too cumbersome, time-consuming and labour-intensive and the more limited technical skills of many students may make it difficult for them to represent their artwork digitally.” (p. 218). To achieve online submission, “clear technical specifications are needed to inform the digitization process (e.g., backdrop, lighting, camera quality, file formats and size) to support technical and functional feasibility (Newhouse, 2014, p. 218). Furthermore, the “structure and size of a digital portfolio are critical to allow assessors to make consistent judgements, as are the structure and clarity of the assessment criteria” (Newhouse, 2014, p. 219). Across these studies, Newhouse argues that students, teachers and assessors require digital technologies in their wider life and workplace, wherein it is worth the investment of time, resources and professional learning to improve these systems.

In Aotearoa New Zealand, Hunia et al. (2020) reported on a survey by the charitable Trust, Whai Maia. Of their 2,684 respondents, half of the students (50%) reported limited or no access to devices other than a smartphone, meaning reduced opportunities to access

learning. Access varied somewhat by rural/urban location but more so by socio-economic status (SES), according to a representative sample of 67 primary and secondary schools in an ERO (2020) survey. In the lower SES schools (deciles 1–3), 53 percent of Māori students, 52 percent of European students, and 61 percent of Pacific students reported being able to access digital learning from home. In the higher SES schools (deciles 4–10), the percentage of students was similar for Māori (52), higher for European (60) and lower for Pacific students (52) (ERO, 2020, p. 10). These digital learning access issues are problematic if Aotearoa New Zealand seriously considers using e-portfolios in NCEA assessments.

Technical issues

Access to IT, particularly high-speed with sufficient bandwidth, can be an issue for rural schools (e.g., Newhouse, 2011, 2014). Ready access to IT technical support for teachers and students was found to be critical for successfully constructing and uploading e-portfolios. Where internet capacity is limited, Newhouse (2014) found that schools could adapt by saving information to school servers, USB drives and the like. However, for high-stakes, national summative assessment, investment in IT infrastructure and professional learning is critical to a successful implementation (Ghany & Alzouebi, 2019).

Time

Students sometimes consider portfolio assessment to be too demanding (of time and writing skills), but these concerns lessen with clearer guidelines (Burner, 2014). Time is needed to understand the portfolio requirements, the assessment criteria, the basis on which to select samples of work to include in the portfolio, and what and how to narrate the portfolio for ease of assessor understanding (Burner, 2014).

Similarly, teachers need professional development to have a shared understanding of what is expected in terms of content, presentation, and conditions under which the portfolios are constructed (Burner, 2014; Newhouse, 2011, 2014). Nevertheless, the increased teacher workloads need to be acknowledged (Klenowski, 2002), including initial professional development and time to prepare assessment tasks, time involved in assessing portfolio components, administrative demands, careful planning and time management in lesson and unit preparation.

Teacher professional capabilities

Klenowski's (2002) analysis of the high-stakes portfolio assessments for national vocational qualification of students aged 16–19 across England, Wales and Northern Ireland, revealed that “teachers complained that the assessment requirements were difficult” (p. 77). She subsequently argues that “when portfolios are implemented the prevailing understanding of the nature and purpose of assessment sometimes militates against their success” (p. 79). Yet the training of teachers or assessors to grade portfolios consistently is complex because the tasks vary, as do the conditions under which the learning occurs, and the evidence is generated. Extended tasks that incorporate problem-solving can be open to different interpretations and possibilities, and tasks of varying degrees of difficulty across portfolios make it more difficult to devise common or generic assessment criteria. Similarly, teachers vary in the amount and types of assistance they provide to students (Burner, 2014; Klenowski, 2002; Newhouse, 2011, 2014).

A key issue in the implementation of portfolios is an underappreciation of the associated assessment understandings teachers and assessors require and ‘portfolio pedagogy’. Klenowski (2002) explains that the necessary teacher capabilities are “dialogic and interactive learning, scaffolding, collaboration, reflection and meaningful learning tasks and contexts” (p. 83) and that teachers need additional knowledge and skills in explicitly teaching students the “importance of critical self-evaluation, dialogic learning and reflection in the portfolio process” (p. 83). In addition, the provision of sufficient time and opportunity to apply those strategies is critical and accordingly, space needs to be made in the curriculum. Deliberate teaching and modelling of skills in planning, reflecting, revising, editing, and selecting artefacts is required first for teachers and subsequently, support for teachers to facilitate development of these skills with their students (Burner, 2014; Klenowski, 2002). A further issue with e-portfolio implementation is the roll-out of IT professional development (Ghany & Alzouebi, 2019). Not surprisingly, meeting teacher professional development needs prior to and alongside implementation of e-portfolios has been a key issue internationally (Ghany & Alzouebi, 2019; Klenowski, 2002; Newhouse, 2014). This is why Klenowski (2002) argues the importance of aligning educational policies and processes to create “opportunities to access appropriate materials and development of competence with the intended changes before schools, teachers or students” (p. 82) are evaluated by e-portfolios in high-stakes assessments.

Assessment dependability

Portfolios are complex to assess, difficult to standardise and time-consuming to score (Perie, 2020). Scores are generally higher when the portfolio is assessed as a whole, rather than as individual components within it (Klenowski, 2002) and there are concerns about reliability when teachers score the portfolios of their own students (Perie, 2020). Analytic scoring is time-consuming, though deemed more valuable for formative purposes when specific feedback may be useful for student learning (Klenowski, 2002). As discussed elsewhere in this report, jurisdictions that have trialled or implemented portfolio assessments for summative and high-stakes purposes have continued with traditional assessments, such as examinations as sources of credible and publicly legitimate assessments or quality assurance (e.g., Newhouse, 2011, 2014).

Newhouse (2011, 2014) found that high levels of reliability and efficiency across assessors could be reached using comparative pairs techniques. In support of this view, Klenowski (2002) argues that holistic assessment is more appropriate for summative assessment purposes because they are more efficient and derive an overall grade for the portfolio by weighing up all relevant criteria.

Assessment dependability is a major consideration if Aotearoa New Zealand adopts the use of e-portfolios in NCEA. Unit standards would be less problematic because most submissions would be quickly assessed with holistic scoring approaches as either meeting the standard or not. Adoption of a comparative pairs scoring approach in which students' submissions are compared against 'passing' exemplars would be relatively quick and easy (Newhouse, 2011). Time and assessment efficiencies would be further enhanced if students and schools are provided with standard templates to complete. However, this would need to be balanced with the opportunities afforded by the adaptability of e-portfolios to varying contextual situations. Scoring dilemmas occur for e-portfolios that have missing information, where some material meets the standards and some does not (e-portfolios on the cusp of pass/fail or a particular grade level), where different weightings are given implicitly or explicitly to a range of analytical criteria. Assessment of achievement standards would be time-consuming and necessitate considerable scorer training, validity and reliability checking, especially in more complex problem-solving, application or evaluative tasks in literacy and numeracy.

Clarity of, and familiarity with, requirements

A major issue and obstacle to the implementation of portfolios has been consistent, clear and shared understandings of the requirements. Although Klenowski (2002) referred to research in UK tertiary vocational qualifications, the issues are relevant to the Aotearoa New Zealand secondary school sector. The issue was tightly regulated national standards that contained detailed specifications that created the perception of reliable and valid assessments but resulted in “hunters and gatherers of evidence, where students felt under enormous pressure and became demotivated” (Klenowski, 2002, p. 89). Furthermore, the tightly defined specifications undermined responsive and contextually relevant professional judgement and resulted in distorted assessments where assessors weighted certain criteria differently. A significant word of caution was noted by Klenowski (2002):

the growth of educational accountability policies and politicians’ demands for precise measures constrain the widespread implementation of portfolios for assessment purposes ... To capitalise on the benefits of portfolios there is a need to learn from these early experiences and to create a view of assessment that positions the portfolio as central. This requires policy-match to purpose and paradigm. (p. 88–89)

Benefits of portfolio assessment

Although Burner’s (2014) study primarily investigated formative uses of portfolio assessment in second and foreign language writing contexts, his analysis of peer-reviewed literature from 1998–2013 unearthed 37 relevant articles. Various themes were examined which spanned notions and principles of assessment, contributions to learners and learning, and the process and product dimensions of portfolios. Similar themes were evident across the literature reviewed in 2022 by the authors of this report, where we found that portfolio assessment offers potential benefits in relation to alignment with contemporary theories of learning and assessment, assessment principles, improved achievement outcomes for students, pedagogical implications, responsiveness to cultural values and priorities, and implications for Aotearoa New Zealand. We turn now to examine each of these themes.

Alignment with contemporary learning and assessment

Contemporary learning is based on social cultural theory (Vygotsky, 1978, 1981), and constructivist learning theory, which views learning as actively and culturally constructed by

learners (Burner, 2014). This view of learning acknowledges dynamic interactions between learner and teacher, and amongst learners, in which instructions and learning conversations build on previous and current utterances and understandings. The direction, content, and pace of learning are flexible, influenced by all parties in the interaction and cannot be tightly planned. Consequently, “assessment types such as PA, where students can interact with their text multiple times, with their teacher, and/or their peers, can truly function formatively” (Burner, 2014, p. 140). This interactive process is evident in a Portuguese study cited by Burner (2014) in which “content analysis of the portfolios revealed that there is interaction at various levels: interpersonal, intrapersonal and intertextual” (p. 143). Such interactions were not only people-related but were evident across “integrated assessment, teaching and learning with the curriculum” (p. 143). Central to these people- and system-type interactions are the learner. Hence, portfolios are argued to be learner-centred (Burner, 2014) not only in the learning process described above, but also by promoting learner autonomy (in selecting and crafting items to include), reflection, and responsibility. With respect to learner autonomy, other reviewed literature (e.g., Klenowski, 2010) posits that learners need scaffolding and coaching on the selection, crafting and presentation of artefacts in portfolios. However, when learners have the requisite skills and understand the criteria or standards against which their portfolios will be assessed, they can achieve the levels of learner autonomy that Burner (2014) claims.

Reflective processes necessitated in portfolio construction reveal not only students’ learning of the subject matter but also their writing and assessment processes (Gilliland et al., 2018) through the phases of planning, evaluating, and monitoring their learning (Burner, 2014; Meyer et al., 2010). Furthermore, portfolio assessment creates opportunities for self- and peer-assessment that result in deeper collective learning as students reflect on the work of their peers and themselves. The process arguably integrates learning and assessment, whereby creating the reflection deepens the learning (Gilliland et al., 2018). In this way, “the portfolio demonstrates growth as well as final achievement” (Singer, 2013, p. 179), although it is acknowledged that demonstration of achievement is more important than growth for summative assessment purposes.

Engaging with formative feedback from teachers and peers to improve learning is built into NCEA systems with formative tasks and resubmission opportunities in currently offered internal assessments. Potentially, such individual and peer learning could also be incorporated into e-portfolios for summative assessment purposes if one component of the accompanying reflective or annotative piece required students to reflect on (and demonstrate) their learning

growth, and what or who contributed to the growth. To do so would enable greater alignment with the aspirations of the New Zealand Curriculum to develop lifelong learners. However, e-portfolios for summative purposes also need to contain sufficient evidence of competence to meet the standards and provide assurances that the student submitting the e-portfolio has generated the evidence. Comprehensive assessment necessitates a range of evidence, so the e-portfolio guidelines should stipulate the types of evidence expected in order to triangulate or validate the authenticity of the student's evidence, along with systems of auditing by external moderators.

Assessment principles

Williams (2012) argues that 'easy to measure' types of assessment continue to be used for accountability purposes, but these traditional assessments no longer align with what is taught, valued or needed in society. Consistent with earlier work by Cisco et al. (2009) assessments should:

engage students in the use of technological tools and digital resources and the application of a deep understanding of subject knowledge to solve complex, real-world tasks and create new ideas, content and knowledge. (p.1)

However, while the validity of contemporary assessments is rarely questioned (Black et al., 2010; Klenowski, 2002; Williams, 2012), the challenge for broader acceptance is the need for reliability, comparability, and fairness (Williams, 2012). Demonstrating learning through complex performances largely relies on expert judgements but ways to do so efficiently, fairly and consistently have rarely been researched in the secondary school context for summative purposes. Thus, Williams (2012) established a three-year study with secondary school students in the subject of engineering, involving eight schools and 94 students. While the study also involved digital examinations, relevant to this current literature review is the investigation of the feasibility of assessing performance in digital formats via portfolios in a standards-referenced curriculum. A limitation of the study was its small-scale nature; there is a significant difference between what is achievable with 94 students and the 40,000 that could be involved if Aotearoa New Zealand adopted e-portfolios for NCEA senior assessments. On one hand, the number of assessors trained and used would have to be dramatically increased, which would require more effort to establish consistency and moderation. This is a conundrum for consistency which restricts variation and responsiveness to local contexts; the very features

inherent in e-portfolios for learners to showcase their strengths. Nowhere have e-portfolios been used, beyond a trial, on a national scale for external summative assessment purposes.

Williams' (2012) study used a combination of comparative-pairs marking and analytic scoring. In the comparative-pairs marking, assessors made judgements by comparing the work of pairs of students and selecting the better of the two. The process continued with multiple pairs of work to ascertain the highest performers. Alongside the comparative-pairs analysis, the study also used standards-referenced judgements with holistic and analytic scoring. It used the work of Kimbell et al. (2007) who developed a feasibility framework to ascertain the usability of digital portfolios (and digital examinations) for summative assessment purposes. Kimbell et al.'s (2007) framework comprises four dimensions:

- i. manageability – digital forms of assessment doable in typical classrooms
- ii. technical – using existing technologies adapted for assessment purposes
- iii. functional – reliable, valid and comparable to other forms of assessment
- iv. pedagogical – able to support and enhance students' learning experiences.

Apart from the technical issue of internet speed and computers freezing for some students uploading work (which was responded to by using USB drive back-up), the other three dimensions were deemed by Williams (2012) to be successfully achieved. Manageability was achieved through well-equipped computer labs. At a functional level, consistency of expert judgements was increased by using a scoring key and associated guidance, although results differed between teachers and assessors. This suggests that pre-training assessors is critically important. However, the comparative-pairs method yielded higher correlations (0.927 after 11 rounds of pairs). Despite the technical difficulties that arose, Williams (2012) recommends that:

Analytical marking with Rasch modelling be used initially rather than the comparative pairs method. This method of marking currently has public confidence and has been shown through this research to generate scores that are adequately reliable, which would increase more rigorous examiner training. (p. 202)

With respect to assessment principles, portfolio assessment may have greater validity than traditional examinations. For example, Newhouse (2011) argues that portfolios have greater validity because they more accurately represent the learning that has occurred; that is, there is closer alignment between the course content, goals and assessment. Furthermore, given that validity is about representation of the learning, more examples of the learning can be

captured over time and accompanied by contextual information than is possible in examinations. Multiple examples gathered over time and in different situations also increase reliability (consistency) of judgements made (Burner, 2014; Newhouse, 2011).

According to Black et al. (2010), teachers' understanding of the validity, reliability and value of summative assessment is enhanced through using portfolio assessments, particularly when teachers develop their own tasks for assessment. In the NCEA context, teachers' assessment understanding could be readily enhanced by using e-portfolios for internal assessment purposes. This enhancement would come from continual reflection on how what is being taught is evident in student learning, and how the evidence may be displayed in portfolios; that is, by repeatedly connecting teaching, learning, assessment, and curriculum requirements. Students similarly deepen their understandings of what learning is required and how to demonstrate evidence of the learning (Black et al., 2010) in authentic ways (Perie, 2020). In contrast to the espoused curriculum and sometimes artificial or more abstract items in traditional examinations, portfolios are based on the learning activities the student has experienced.

Moreover, portfolio assessment captures the process and the product of learning, where students' self-reflections or annotations/narrations on their learning reveal understandings about how they learn and their understandings of the content (ideas/concepts). Aside from the obvious formative value of this approach for students and teachers, there are benefits for summative assessments in ascertaining student approaches to learning for predicting their preparedness for lifelong learning – a goal of the NZC and one of the purposes of attaining qualification – and likely success in future learning endeavours. Learning is arguably deepened and achievement is increased by the process of constructing portfolios as students are required to revise and edit their contributions, and in doing so, develop their abilities in self-awareness and self-reflection, and refine their conceptual understandings (Burner, 2014). Hung (2012) completed a study involving student-teachers in a university-based EFL programme and concluded that:

e-portfolio assessments generate positive washback effects on learning, including building a community of practice, facilitating peer learning, enhancing learning of content knowledge, promoting professional development, and cultivating critical thinking. However, e-portfolio assessments also bring some negative washback effects,

such as learning anxiety deriving from larger audiences, and resistance to technology. (p. 21).

Improved achievement outcomes for students

Burner (2014) argues that portfolio use enhances student performance, based on a review of experimental studies and various studies using effect sizes. Burner (2014) deduced that the performance improvements were likely due to students seeking feedback and subsequently revising their work and learning in response to the feedback. This is relevant for internal assessments of a formative nature, but less so for e-portfolios used for external summative purposes where learning growth is not valued. These feedback and revision processes motivate learners to improve and with more time to revise or edit their work, there is an increased likelihood they will perform better. Student reflection on their work is required in the creation of samples, thinking about how to demonstrate learning, and on what basis to select samples for their portfolios. This selection process requires students to be more critical thinkers in the comparison of samples against other evidence of learning, and in relation to the assessment criteria. Burner (2014) argues that student anxiety is reduced with portfolio assessment compared with time-constrained assessments, such as traditional external, end-of-year examinations.

A year-long study by Meyer et al. (2010) conducted in three Canadian provinces, involving 14 teachers and 296 grade 4–6 students with a pre-test/post-test design, claimed that the use of digital portfolios had positive “impacts on student metacognitive abilities, literacy achievement, as well as approaches to teaching and integrating technologies in the classroom” (p. 89). Furthermore, they argued that “students who used [e-portfolios] in medium or high implementation classrooms demonstrated learning gains on a standardized literacy measure” (p. 89).

How learning gains are achieved through portfolio use is explained by Ching et al. (2016). In a study of masters’ degree students in educational technology, who were guided in the construction of their portfolios by a TPACK (Technological Pedagogical Content Knowledge) framework, the authors deduced that:

when creating an ePortfolio, students not only collect artefacts that showcase their learning and development, but also engage in reflective reasoning of their learning growth. Through reflection, students can connect, synthesize and evaluate their

interrelated knowledge, skills, and experiences in a comprehensive way. In addition, reflection can help students integrate their learning experiences into their existing knowledge base and encourage personal and meaningful connections to their learning. (Ching et al., 2016, p. 108)

In ideal learning situations, the creation of e-portfolios enables students to integrate learning experiences in ways that are personally meaningful and deepens their current understandings. However, Ching et al. (2016) acknowledge that, in reality, most reflections are superficial and low quality. Learners require guidance and scaffolding by teachers with relevant knowledge and skills, both of whom can be assisted by using a guiding framework. To that end, Ching et al. (2016) focused their study on enhancing students' and teachers' knowledge and practice with e-portfolios. The TPACK was used to enhance student teachers' conceptual understandings about educational technology, because a guiding framework assists learners in linking experiences and viewing the experiences from difference perspectives. Study participants were given guiding questions as prompts for their reflection, to assist their selection of artefacts and construct the accompanying narration about why the artefacts were selected and how they demonstrated mastery of standards. They found that "with proper guidance, students valued the opportunity for reflection and engaged in critical reflective examination of their learning growth, connecting theories with practices, and realizing their achievement of important competencies" (p. 117). The authors concluded that to elicit specific reflections on conceptual or content knowledge, particularly in relation to specified standards, teachers and students require explicit guidelines, frameworks and/or reflection prompts.

This finding is particularly interesting given that the study participants were masters' students in educational technology who were learning to become teachers. In other words, these participants were interested in learning about and applying educational technology as future teachers. However, even with pertinent guidance some of them struggled to write relevant reflective papers to accompany their e-portfolios. The implications of the study are that considerable professional development would need to accompany a discipline-specific (literacy or numeracy) framework for teachers, to enable them to appropriately inform and guide senior secondary school students in constructing e-portfolios.

On another important aspect of enhancing student performance, Wetcho and Na-Songkhla (2018), in a quasi-experimental study in senior high school use of e-portfolios, found that e-portfolios increased students' skills and sense of self-efficacy when they were allocated

to small, social-support groups. Caution is required, however, in generalising from this study which was conducted in the context of career development with only 80 senior students, half of whom were provided with socio-emotional, informative, and instrumental (skills development) social support. Nevertheless, this positive consequential impact of e-portfolio use for student populations who struggle to believe in themselves as learners may be worthy of further research in Aotearoa New Zealand.

Pedagogical implications

Black et al. (2010) argue that portfolio assessments are easier for aspects of learning in which teachers have more experience, knowledge, and confidence. Their study found that teachers with more professional experience and deeper knowledge of their subject area were more flexible in their teaching and more responsive to student questions, uncertainties, or incomplete conceptual understandings. These teachers could draw from their experience to provide a wider range of assessment task options for students to demonstrate their learning. This responsive and facilitative approach was more effective for portfolio assessments than traditional assessments; one that came naturally to some teachers but required others to adjust their teaching styles and strategies (Black et al., 2010; Burner, 2014; Meyer et al., 2010).

However, it is not only curriculum and pedagogical content knowledge that teachers require for portfolio assessment; they also require technological knowledge and confidence. Gilliland et al. (2018) argue that educators need to be comfortable embedding multimodalities into their teaching. These skills require sustained professional development for teachers to learn, develop and implement assessment by portfolio (Abbott et al., 2021; Ching et al., 2016).

In a study of Portfolio-Based Language Assessment (PBLA), a small-scale Canadian study undertaken by Abbott et al. (2021) interviewed 26 second language adult learners and their instructors about their understanding of PBLA. From the teachers' perspectives, the benefits of PBLA were improved teacher knowledge about assessment and improved lesson planning, largely due to the associated professional development that accompanied the implementation of PBLAs. Clarity of expectations about the language skills to be assessed, assessment criteria, and assessment decisions influenced how teachers allocated time and support to students in compiling portfolios. While the study has applicability to this research literature review in terms of literacy and with regards to the importance of accompanying relevant professional learning for teachers, the study is limited by several factors: the small

number of participants; the second language setting; involving adult learners; and the physical portfolios not being primarily for summative evaluation purposes. Nevertheless, there may be implications for the potential value of e-portfolios for assessing literacy standards in NCEA for English-language learners or students who switch between te reo Māori immersion and English-learning settings.

There is another element beyond professional learning that is critical in pedagogical practice; teacher and student beliefs. In this case, their beliefs about the merits of portfolios with respect to learning, achievement and particularly as a dependable tool for assessment. Klenowski (2002) argues that the power of historical beliefs and mismatches between policy purposes and paradigms restricted the use of portfolios across four nations. She maintains that belief in the value of “portfolio pedagogy is pivotal” (p. 71) to its effective implementation. Belief in portfolio pedagogy involves (i) an understanding of how curriculum learning is constructed, (ii) having broader beliefs about assessment beyond psychometric paradigms, and (iii) a belief that context influences learning. So, rather than covering curriculum, teachers need to understand the inter-relatedness of concepts to guide students in the way they structure and provide an accompanying commentary to their portfolios. Teachers also need to understand assessment beyond normative or psychometric measures because a psychometric belief holds uppermost aspects like “standard test content, pre-determined standards, standardized administration, objective items, machine scoring and no self-evaluation” (Klenowski, 2002, p. 72). These assessments do not enable more open-ended types of assessment or learning demonstrated in different ways. Finally, understanding that context influences learning incorporates classroom-setting realities wherein learning topics and how learning occurs differ from classroom to classroom through dynamic dialogic learning amongst teachers and students, and responsiveness to students’ culture, their backgrounds, interests and learning needs.

It is important to realise that (i) classroom learning is not standard across the country, (ii) schools and classrooms may teach from the same curriculum but deliver it in different ways, (iii) the active participation of students in learning is valued, and (iv) student self-evaluations are important for deepening their awareness of their own learning. Such an understanding appreciates the shortcomings of standardised assessment approaches, in contrast to the greater validity of more flexible and responsive approaches to assessment. Accordingly, Klenowski (2002) argues that while portfolios offer opportunities for greater alignment between contemporary approaches to learning, teaching, curriculum and assessment, their effectiveness will be limited by teachers’ beliefs and the system context if tensions between former

curriculum, psychometric and pedagogical approaches are not resolved. Successful portfolio assessment requires students and teachers to learn about critical evaluation, dialogic learning, and reflection in the portfolio process. It also requires policy makers and educational assessment authorities to balance the demands of efficient and fair assessment processes with the demands for 21st century learners to display a diverse range of skills and learning.

Responsiveness to cultural values and priorities

In a review of literature, Burner (2014) argued that portfolios are useful for fostering “intercultural awareness in foreign language contexts” (p. 140) despite only three of the 37 peer-reviewed publications between 1998–2013 being related to intercultural awareness. Although the potential benefits are appealing, the evidence is limited. When students are given license to compile evidence of learning in their portfolios, the content, the process of learning and particularly the accompanying narratives, provide opportunities for them to express cultural values in meaningful ways, and therefore move closer to educational and assessment equity (Behizadeh & Lynch, 2017). In other words, the greater autonomy and flexibility accorded to students, the more opportunity there is for them to include material that is related to their cultural identity and expressed in ways that are meaningful for them. Perhaps the responsiveness to the local community and curriculum context could be better harnessed in e-portfolios for internal assessment purposes until there is further research on this potential, particularly in the context of Aotearoa New Zealand.

However, the potential benefits of assessment by portfolio are highly dependent on: (i) students’ knowledge of, and commitment to, the portfolio process (Meyer et al., 2010); (ii) teachers with understanding and provision of practical support for students in the portfolio processes (such as regular dedicated time for portfolio curations); (iii) the development of students’ skills in critical reflection and self-assessment; and (iv) coaching them through the various phases of “planning, reflecting, revising, editing, and selecting” samples (Burner, 2014, p. 146) to optimise the presentation and crafting of an accompanying commentary/narration explicating the learning and achievements.

With respect to technical issues, Newhouse (2011) recommends that “an online portfolio management system would be needed to support a well-structured and tightly controlled system for consistency and verification. In addition, some type of signed affidavit with spot checks on a sample of students would be needed to ensure all teachers implemented

the portfolio according to the required conditions” (p. 401). If Aotearoa New Zealand is to adopt an e-portfolio approach to NCEA literacy and/or numeracy standards, it would seem prudent to trial it with internal assessment components first to resolve any technical challenges.

Question five

Which groups of learners might benefit from assessment by portfolio? Are there other methods of external assessment that we should consider for these groups of learners?

There was minimal published research of using assessment by portfolios for summative or external assessments of students with complex needs or disabilities, although one article noted that portfolios allowed for differentiated learning and outcomes (Jones, 2012). Some literature referred to the importance of documenting learning progress in portfolios to provide formative assessment and feedback. Williams et al. (2014) state that “(1) assessment methods should be inclusive and equitable (2) systems of student support should reflect the social model” (p. 617). Portfolios are strongly linked to learning and enabled students to be seen “as active subjects rather than objects for passive reception of information (Pereira De Eça, 2005, p. 217).

While not in scope for this review, the literature had multiple examples of portfolio assessment being used successfully with students learning English as another language (or referred to as English as a Foreign Language, EFL), because “the outcomes of language proficiency can be assessed effectively, and the observable behaviours gathered through it provide evidence of students’ acquisition of skills” (Baturay & Daloğlu, 2010, p. 414). Portfolio assessments showcase students’ development and growth of multiple skills better than could be accomplished with multiple single-skill assessments. EFL learners may be accommodated by adjusting the conditions of assessment, such as (i) additional time; (ii) an alternative location (such as a quiet room), or (iii) a support person as a reader-writer support (Brand et al., 2012). Although differentiated opportunities may enhance an EFL learner’s ability to perform on a test, Jones (2012) strongly argues that:

portfolios offer an opportunity for every child to engage and achieve, however, modestly. Portfolios allow for children to organise successfully their own stories of learning in their own way in their own time, drawing on their full range of learning experiences. (p. 404)

Student diversity and inclusive assessment

Mundia (2010) argues that “portfolio assessment is important and valuable to all learners but more so for those with special needs and the gifted students” (p. 125) as teachers and learners can use them diagnostically or formatively and they incorporate observations of learning, interviews with students, work samples and discussions. As noted in other studies, teachers need training in the use of portfolios for these to be effectively used.

Within a higher education context, Williams et al. (2014) explored which assessment methods were more inclusive and equitable, arguing that non-conventional students need a variety of assessment approaches to adequately demonstrate their knowledge, skills and competencies, and to do this “systems should be designed to empower all students and meet the diversity of needs” (p. 618).

Russell and Devall (2016) explored “the notion of equity for [tertiary] students with diverse backgrounds—including those who are not native speakers of English” (p. 480) using the edTPA (formerly the Teacher Performance Assessment) – a portfolio assessment and a national framework of teacher readiness and teacher performance in the U.S. Although student teachers were supported to explore their professional knowledge through portfolio assessments, a combination of local, state, and nationally endorsed assessments in conjunction with teacher educators’ assessments were still needed to support them to meet the broad range of professional competencies and expectations required. The study showed that mentor teachers were not fully familiar with the edTPA which impacted on how well the process worked. As noted in previous sections of this report, sustained professional development is critically important for robust portfolio assessments.

Williams et al. (2014) call for assessment to be inclusive and not just ‘add-ons’ for specific groups of learners; this perpetuates ‘differences’ among learners and risks discrimination and stigma, and reinforcing a medical model of disability. Williams et al. (2014) conclude that:

practices such as examinations unfairly disadvantage an increasing proportion of students, contravene the spirit of equality legislation and must be considered no longer fit for purpose. The opportunities provided through eAssessment methods for a more inclusive, personalised and dialogic engagement with students’ progress can enhance teaching and assessment practices in support of all students’ learning. (p. 622)

E-portfolios are also potentially advantageous for transient learners as their work can be stored on a central online platform and accessed by teachers in all schools when URLs are provided. When students move from one school to another school, gaps are created in their learning because of variations in teachers' sequencing of topics, the localisation of curriculum and the context within each school. In such situations, e-portfolios could demonstrate what students had achieved given the learning focus.

Conclusions and recommendations

Themes across the five research questions foreground the nature, risks, benefits, and gaps for understanding how portfolios generally and e-portfolios specifically would work as external summative assessments for secondary school students. This section identifies a number of conclusions gained from the literature and recommendations for NZQA and the Ministry in relation to implementing externally set and marked e-portfolios assessments for NCEA unit standards in literacy and numeracy, and achievement standards for NCEA subjects.

1. There are advantages for introducing ePortfolios in that student work can be stored in a central online platform, which teachers across schools can access. This is particularly beneficial for teachers of transient students, and for students themselves to retain and maintain their work progress.
2. NZQA needs to provide clear and explicit explanations and elaborations of portfolios and e-portfolios that match its requirements, particularly the role and function of portfolio assessments, and assessment criteria that learners can understand and where possible, co-create. Given the longitudinal nature of constructing a portfolio, the components need to show learning and development of competence over time. Portfolios can be used for both formative and summative purposes.
3. If holistic pass/fail scoring on unit standards is used, it would enable greater validity, reliability, and useability than scores on achievement standards that require sophisticated marking against criteria to differentiate performance levels within the standards. Holistic scoring focuses on higher level elements, that discern the common element or action across the more detailed units and is based on an overall judgement of trained assessors (who judge on the balance of multiple elements). For example, current L1 literacy units 26624 (read texts with understanding), 32403 (read written texts to understand ideas and information), and 7121 (search, select, read and assess texts) could be assessed by students *performing a relevant action on the basis of their understanding of at least three (the number is included in assessment criteria of standards 26624 and 32403) informational texts*. The assessment of it is akin to the overall teacher judgements (OTJ) on which NZQA and NCEA assessors receive moderation training.

The greater the autonomy and flexibility accorded to students, the more opportunity there is for them to include material that is related to their cultural identity and expressed in ways that are meaningful for them. Until there is further research on this potential in Aotearoa, it may be wise to consider implementing portfolios for internal, rather than external summative purposes.

4. Assessment literacy in portfolio assessment is critically important for all stakeholders involved in analysing and responding to portfolios; teachers, students, markers, policymakers, assessment agencies and parents. It is important that the quality and feasibility of portfolios do not undermine the introduction and implementation of national external portfolio assessments. This can be countered by building assessment literacy, trialling portfolio assessment within schools, and providing comprehensive professional development to ensure that teachers (and students) and markers can implement the portfolio assessments effectively and efficiently, and can interpret assessment criteria consistently. Time dedicated to compiling high quality portfolios is critically important and impacts on the work of teachers and students. Students need guidance on how to develop self-assessment and self-reflection skills to include as narratives within the portfolio. The inclusion of such narratives as an assessable component of a portfolio will motivate students to engage in these activities.

5. Before implementing national external portfolio assessments, teacher professional development and explicit training for pre-service teacher education programmes are necessary. There is no New Zealand based research of portfolio or e-portfolio assessment. Therefore, research and design projects should be undertaken where students and teachers actively design portfolio options in a curriculum area and the process is formatively evaluated. Research should also be undertaken to ensure that external summative portfolio assessments align with 21st century learning that encourages and celebrates a broader conceptualisation of learning. Successful portfolio assessment requires students and teachers to learn about and participate in dialogic learning, reflection, and critical evaluation. Policymakers and educational assessment authorities need to balance the demands of efficient, fair, and equitable assessment processes with the demands of 21st century learning to display a diverse range of skills and learning. Challenges of beliefs in the authenticity and robustness of portfolio assessment need to be addressed, along with

manageability, technical, functional, and pedagogic issues, before widespread implementation of e-portfolios for NCEA.

6. Assessment by portfolio needs to meet five principles for assessment; that they are valid, reliable, informative, equitable, and authentic. Generally, portfolios are aligned with classroom learning and therefore have good face validity for learners and teachers. Of particular concern for portfolio assessment is the potential for a lack of reliability or inconsistency in how the evidence presented in the portfolio is interpreted. Clearly stated and exemplified assessment criteria will enhance reliability as will professional development and training, and moderation checks.
7. A robust online platform must be developed to enable e-portfolios to be collated, submitted and assessed. Such a platform will enhance and facilitate the change process for teachers. Additional targeted resourcing will be necessary for kura and under-resourced schools, and priority learner groups.
8. Any NCEA assessment designed for Te Reo Matatini me te Pāngarau must be clearly aligned to the '*Hei Raukura Mō Te Mokopuna*' strategy to ensure coherence and responsiveness via a mātauranga and kaupapa Māori understanding of te reo matatini and pāngarau across the curriculum. All ākonga in one evaluation study regarding the introduction of NCEA Te Reo Matatini me te Pāngarau opted to demonstrate achievement using the CAAs. Therefore, additional learning opportunities for ākonga on how to engage with assessment by portfolio should be provided.

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Appendix One: The review template

Assessment by Portfolio				
APA Reference				
Empirical (E) or Conceptual / Theoretical (C) / Policy (P)			Seminal / Useful / Some use	
Focus of assessment: Formative Summative Ipsative Self-assessment Peer assessment				
Quotes (include page number)				
Ideas				
Use ✓ to indicate		Yes	No	Unclear
Reliability and/ or Validity				
Risks and Benefits				
Literacy				
Numeracy				
Secondary				
Higher Education				
Indigenous				
Complex needs / additional needs				
Research Questions (Indicate with ✓) <i>(please give page numbers and paras for coding related to Research Question e.g. P. 12 para's 2–5)</i>				
1	2	3	4	5
Comment				

NUMERACY FEEDBACK FROM THE MINISTRY OF EDUCATION.

NAF feedback in in **blue/bold**, as well as **DONE**.

Advice from ākonga Māori: We need to ensure that Māori contexts and te reo Māori usage is authentic. Would encourage more explicit Māori/mātauranga Māori contexts, and encourage greater Pacific representation. **This is a work in progress – greater thought will need to go into this for 2023. We will build on including more Mātauranga Māori and Pasifika contexts.**

Please consider removing assessment one and assessment two from the starts of the assessments as this may be confusing for the learner who will only be doing one of these.

I have changed it to 'Term Two Assessment' and 'Term Three Assessment'. The Editor will deal with the final naming of it.

Term Two Assessment

Are we okay with having 0% probability and chance?

Question Number	Comment
Question 1	Advice from Ākonga Māori team: Remove "Heihei," as this isn't a Māori context. DONE
Question 1 Sub-question 1	This question seems to be below the expected level, it asks ākonga to determine the size of a number less than 100. Will keep as it gives ākonga an easy starting point and gives them confidence to continue with the assessment.
Question 1 Sub-question 3	Suggested rephrase "Use calculations and words in the text box to justify your answer." We have used a common statement across all written response questions. "Explain your answer using the information provided", where there is more than one set of information provided, e.g., from an advert, from a written statement, from a diagram, etc. Recommend saying "Justify your answer with calculations and/or short sentences in the text box." We have changed 'justify' to 'explain' across all questions, as we believe that 'justify' is not suitable for students operating under test conditions at upper level 4 / lower level 5. Query: Where ākonga are asked to show calculations, will there be buttons on the Assessment Platform so they can easily insert multiplication/division symbols, or if necessary, do "to the power of"? The "power of" was a particular issue last year. Will check with the Editor.
Question 2 Sub-question 1	Split sentence into two parts, so the two pieces of information are clear: 1 cup of flour weighs 125g. Aloma has a 1.5kg bag of flour. How many cups can she fill from the bag of flour? DONE
Question 2 Sub-question 2	Define "best buy"? added ... for Aloma - ... Need to keep it general so not to steer them in one direction for their answer. (I can imagine that some learners may misinterpret this and say that Blanco Buttons is the best option, because it is the least wasteful) Typo in here 'you' instead of 'your' DONE
Question 3 Sub-question 1	We really like the idea of this question but worry that a learner might put in 8pm to 8am, which simplifies the problem considerably. Could you

	please provide advice on this? Will be changing this to a specific set of times (e.g., goes to sleep at 9.45 pm, wakes up at 7.30 am).
Question 3 Sub-question 2	A little concerned that there are 80 or so teenagers that are sleeping 17+ hours on average. Is there a source for this sample, or can these values be removed? We have truncated the graph to stop at 15 hours (and reduced the total number of students Years 9-13 to 946) This is a confusing graph to read. Can you please put the numbers on the x axis in the middle of the columns? Editor will be sorting this out.
Question 3 Sub-question 3	Who claims that only half of kiwi teenagers get enough sleep? No reference as this is <i>not</i> linked to the MoE. It is a separate claim. The question do you get enough sleep excludes adult learners. What is the purpose of this question? Perhaps you could take it out. If it is left in, somehow accommodate the possibility that a learner will be over 18 years of age in the question. Also, please ensure that the learner knows that it will not be marked. Removing this question sub-part.
Question 4 Sub-question 1	See Q1SQ3 for note re: Assessment Platform. Will check with the Editor.
Question 4 Sub-question 2	Rephrase "Lara needs three notebooks for the course she is doing." Recommend: "Lara needs three notebooks for a course she is doing" DONE In the advertisement, remove the "Bulk buy price" because it isn't a bulk buy. I think it's fine to just have "Buy 1 and get 1 half price" under "\$2.99 each." DONE Recommend changing "Include working to justify your answer" to "Justify your answer with calculations." Gone with the 'explain your answer using the information provided.'
Question 5	There's no context as to what sport Zoi does – made even more confusing by the phrase "On one run..." as this might imply to some ākonga that she is a runner of some sort. Recommended phrasing: Zoi Sadowski-Synnott represented Aotearoa New Zealand at the 2022 Winter Olympics in snowboarding. DONE The snowboarding event was held at Shougang Park in Beijing. Removed During the snowboarding event, Zoi completed a 1260° jump. This means she turned 1260° on her snowboard before landing. Unfortunately, on that 'run', she did not complete the 1260 jump.
Question 5 Sub-question 2	Can we rephrase so that the "run" is defined in some way? We are looking into adding a 'hover' over function to bring up the word 'try' or 'attempt'. Just worried that learners will get confused by the phrasing.
Question 5 Sub-question 3	Rephrase: "Does 40° sound right? Use the measurements and/or the side view to justify your answer." DONE Recommend: "Is 40° a good estimate of the angle? Justify your answer using the diagram." Thank you for the wording!
Question 6	Recommend rephrasing: New question about bus timetable. These are only two options leaving on the morning of 12 October: 1. a direct flight from Rotorua to Christchurch 2. a flight from Rotorua to Auckland and then Auckland to Christchurch. Replacing this whole question – not appropriate to the majority of ākonga sitting the assessment.

Question 6 Sub-question 1	Is this under the assumption that the total travel time (including the transit) is 4hrs 15min? Given that the direct flight is 1hr55min, ākongā might interpret the 4hrs15min as being the amount of time spent in the aircraft. Replacing the question.
Question 6 Sub-question 2	Could you please insert the word 'total' in front of travel time? Replacing the question.
Question 6 Sub-question 3	I wonder if everyone will know what flexi-fare is. This might cause unnecessary confusion. Please add a short definition. Replacing the question.
Question 8	Ākongā who are not familiar with ACC might struggle to understand what it means when "injuries at work cost ACC a total of \$924,020378 in claims" (ie. How does it cost ACC and what is a claim). Will need to define a claim as it is mentioned again in following questions. Reworded to get away from the term 'claim'.
Question 8 Sub-question 2	I worry that ākongā won't pick up "Most injuries are strains and tears to muscles" as a correct solution because of how it is phrased. If it was phrased instead to say, "Muscle injuries are the most common type of ACC claim" DONE
Question 8 Sub-question 3	We need to be mindful that some ākongā sitting this CAA will be moving into some of the industries listed below – they are only dangerous if appropriate risk management does not occur. I would recommend reframing this as "Workers who do a lot of lifting, carrying and moving of heavy objects are more likely to make an ACC claim." DONE I would also question the knowledge younger ākongā would have to respond to this question (such as knowledge on the work that occurs in agriculture, aquaculture, transport, postal and warehouse, electricity, gas, water and waste). Changing question to ask about Forestry.
Question 9	Advice from ākongā Māori: Specify how the kuaka is special to Māori (or which iwi). Will find out from the TMOA Māori staff and add in. The coloured circles would be better differentiated another way from a UDL perspective. Perhaps dashes, dots and a line. Editor is going to change this so it doesn't disadvantage SAC students, particularly colour-blind students.
Question 9 Sub-question 1	The text says Papua New Guinea and the map says New Guinea. Could you please align these? Editor asked to make correct this.
Question 9 Sub-question 2	Assumed that this was addition of the values on the diagram. Seems to be below the expected level. Note that distances need to be sorted. Editor will recreate the maps with correct distances, names, North arrow, change 'staging sites' to 'stopover sites', replace ovals will something more appropriate.
Question 9 Sub-question 3	We assume ākongā do not need to do the actual calculation for this. Please clarify for the learner. Have bolded 'how'. Refer to note in Q1S3. Will check with the Editor.
Question 10 Sub-question 3	The question doesn't match the formula. Recommend rephrase to A general rule for the heat pump output needed to stay warm is given by this formula: Heat pump output = 0.12 * area of room Where the heat pump output is measured in kilowatts (kW) The area of the room is measured in m ²

	Which heat pump output does Charlie need to stay warm? Explain your answer using information from both the formula and the table. DONE
--	--

NUMERACY

Term Three Assessment

Question Number	Comment
Question 1	There is some confusion over some of the fixed cost examples, we suggest adding 'for an estimated number of people'. The amount of words/explanation for one question seems excessive. Can you please see if this can be cut down while retaining clarity? Need these statements to understand the context and the information required. We have added in pictograms for both Fixed costs and Variable costs for UDL. Advice from ākongā Māori: Good authentic context that ākongā Māori can see themselves in. Excellent!
Question 1 Sub-question 1	Recommend rephrasing to: Kahu and Hine know it will cost \$300 to set up the hāngī. Each hāngī pack they make will cost \$8 each. What is the total amount it will cost them to make 500 hāngī packs? Kept the original question – felt that it was just a rewording. Could you please change changeable costs to variable costs? Could you please also add a line to the description of variable costs saying, these are called variable costs? DONE
Question 1 Sub-question 3	Consistency of phrasing from assessment 1? Instead of "Use information from the graph to explain your answer" it would be more consistent to say, "Justify your answer using information from the graph." Changed 'justify' to 'explain' (in line with Assmt 1 wording)
Question 2	Georgia is a Maine Coon kitten. (typo) DONE
Question 2 Sub-question 2	Consistency of how food is referred to. Georgia is fed cat biscuits and meat, using this chart. The table is unnecessarily confusing. Place the words "Weight of kitten (kg)" under the picture of the cat on the scales. Added 'Weight of Georgia'. No unit given. Students will need to use logic about the weight of a kitten to answer Q1 (1). Have the two different feed options in different rows. The pictures confuse the table rather than simplify it, as ākongā need to remember what each picture represents. This chart is on the back of the Royal Canin bag of food for Maine Coon kittens. It was decided that students should have a balance of written information with visual information, and that a good assessment would require students to interpret the visual information. Recommend rephrasing question to "Estimate the amount of cat biscuits and meat Georgia will eat in the next 30 days." Changed to '...Georgia ate in the last month'. Marking team will calculate for 31, 30 and 28 days.
Question 3	In right-most orange box: "Full. After Advanced Driving Course" DONE

Question 3 Sub-question 2	This question is ambiguous. You could add all the costs together to get your full licence as you need to get them all to get your full. Or you could just give the cost of the full license in isolation. There is a clue in the question, but it is not clear enough. Changed the wording from 'total cost' to 'final cost.'
Question 3 Sub-question 3	There is some concern that this item is above the expected level. Could you please simplify it? Suggest making it clear that Waka Kotahi measure the test each time it is taken rather than surveying user's total tests. DONE
Question 4	Directly references ākongā, but all other questions have a protagonist. Altered to remove 'you'.
Question 4 Sub-question 3	Question level of the question. Could identify the solution just by looking at boot size 8. Option C clearly not the solution. As with Q1(1) in the Term Two Assessment, we have included a simplistic question. The examiner felt that students, in general, have problems interpreting graphs, hence this question.
Question 5 Sub-question 1	Unable to comment as the photo is obscuring the text. Altered the image – students need to count up the coloured bars (6) and work out the % charge left (out of 11 bars, which they are told). They then choose with % range is appropriate from the four options.
Question 5 Sub-question 2	The terminology of "range of 270 km". Changed 'range' to 'maximum distance'. Rephrase it to say "The standard <i>Pulse</i> can travel 270 kilometres on a fully charged battery." DONE Unable to comment as the photo is obscuring the text – another reviewer was able to, not sure what happened there.
Question 5 Sub-question 3	We suggest providing some clarity around why an electric vehicle needs fuel. Consistency of word use. DONE Similar sized hybrid car and petrol-only car (as opposed to petrol power) DONE Can the definition of hybrid be made clear in the main body of text, rather than in the table only. DONE I think the level of difficulty in this question is much greater than other questions in this assessment (given the number of values involved and the size of the values). I suppose the IRT data performed by our Psychometrics team will see if that is the case later in the year.
Question 6	Opportunity to include a Pasifika representation by having a trip to a Pacific Island rather than China. We will do that for the 2023 assessments.
Question 6 Sub-question 1	Possibility of having a "virtual ruler" for ākongā to use on their device as part of Assessment Master Platform (reduces barriers to ākongā using the resource). Will check with the Editor to see if it is possible on AM. Unable to read the numbers on the scale. Scale has been removed as it relates to distance, not time.
Question 6 Sub-question 3	Rephrase question to "Is the claim that food is 40% cheaper in Beijing than in Auckland correct? Justify your answer in the text box below."

	Students can think beyond the 5 items listed in the table to give an explanation.
Question 7 Sub-question 1	I like this question, but wonder about the ambiguity such measures as “mid-August” and “late-August” has. Typo for compares prices. DONE
Question 7 Sub-question 2	Justify your answer typo. Rewritten to say: Explain your answer using the information provided. (This is consistent with other questions).
Question 7 Sub-question 3	The line “That could spell the end of retail stores in Aotearoa New Zealand” doesn’t seem necessary, unless you want ākonga to explicitly comment on it (in which case, this needs to be clearer in the question, as I expect most ākonga would respond to “It is clear from the data that by 2031 Kiwis will mostly shop online” only). Development team wanted the original wording to enable ākonga to link the quantitative data to a qualitative response. Answers like; even though the data shows an increase in online shopping, there will still be older shoppers who will prefer the assistance/ability to try on clothing, etc., so retail stores will not disappear. Consistency of statements: Justify your answer using the information from the graph. DONE
Question 8	Could you please make the word ‘run’ clearer in the instructions and provide a definition? DONE
Question 8 Sub-question 2	Since the pieces are not to scale and there are no measurements on it, it is hard to know how many of each piece should be used. The door also adds a complication – do we assume that we are building around the door, or can we choose piece A and cut a rectangle into it? We suggest the question is reframed to remove ambiguity. Parts have been reshaped and the Editor told to keep in proportion.
Question 9	There are plans for the town of Te Puke to get a new sculpture that reflects its status of “Kiwifruit Capital of the World.” DONE
Question 9 Sub-question 2	This seems incredibly hard compared to other questions related to 2D to 3D (and vice-versa). Ākonga will move the cursor over the grey rectangle and there will be 5 options (holes) to drop in an ‘x’ for the answer. We had one of these sorts of questions last year. The Editor will add in instructions of what students need to do.
Question 9 Sub-question 3	Sample to population is out of the boundaries of the standard. The claim of “Over half of Te Puke people support the design of the new sculpture” uses a sample to make an inference about the population. Discussing with the examiner. If so, a new question part will be created.

Lara Beiert

From: Sue Chalmers
Sent: Thursday, 27 October 2022 12:30 PM
To: MaryJane Parker; Kevin Hoar; Susan Henry
Subject: FW: Literacy and Numeracy CAAs

Importance: High

Categories: Contractors Group meeting

Gone. Thanks for your help 😊

From: Sue Chalmers
Sent: Thursday, 27 October 2022 12:28 PM
To: Rob Mill <Rob.Mill@education.govt.nz>
Subject: Literacy and Numeracy CAAs
Importance: High

Kia ora Rob,

As discussed, while we are aware there have been a small number of complaints that the literacy and numeracy common assessment activities were culturally inappropriate, these were very general in nature and we have not received feedback relating to specific questions.

Post-assessment, we review all assessment activities and have identified a small number of contexts that could be more inclusive of ākonga Māori and/or Pacific Island students. We are very wary of making stereotypical judgements about the experiences of young people as we work through this. As mentioned earlier, we will be developing checklists for our cultural inclusivity checks to ensure increased thoroughness and greater consistency in the checks, and to avoid anything falling through a gap.

Numeracy CAA

Question 5 relates to the performance of Zoi Sadowski-Synott at the Winter Olympics. This context was chosen because it was topical and Zoi is a young person achieving on the world stage. However, skiing as a recreational activity, is not an experience that is familiar to all young people, and certainly not in our realm countries.

Question 6 requires ākonga/students to read a bus timetable. This is a context that may not be familiar to ākonga/students in NZ rural communities and in our realm countries. (Question attached).

Literacy – Reading CAA

Question 4 uses a context around purchasing tramping boots. Ākonga Māori and Pasifika students may not be sufficiently familiar with tramping to engage with this question. It may have been better to use football boots instead.

Ngā mihi
Sue

Sue Chalmers
Kaiwhakahaere Matua Aromatawai/Chief Advisor Assessment
Wāhanga Aromatawai/Assessment Division
NZQA
Ph: [REDACTED]
Mob: [REDACTED]

Ahakoā ngaru ana te moana, ka eke tonu nei te waka!

A choppy mountainous ocean can always be navigated by a small canoe!

Lara Beiert

From: Sue Chalmers
Sent: Friday, 16 September 2022 11:39 AM
To: Andrea Gray; Linda Glogau
Subject: FW: [Summary of NZQA/MoE litnum hui]

Miriam has done a good job. I recommend we send a single response. I have made some comments on the text below, conscious that this is a formal record.

Ngā mihi
Sue

From: Miriam Bookman <Miriam.Bookman@education.govt.nz>
Sent: Friday, 16 September 2022 10:17 AM
To: Andrea Gray <Andrea.Gray@nzqa.govt.nz>; Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>; Linda Glogau <Linda.Glogau@nzqa.govt.nz>; Rob Mill <Rob.Mill@education.govt.nz>; Bill Dieckermann <Bill.Dieckermann@education.govt.nz>; Karen Chow <Karen.Chow@education.govt.nz>; Margaret Franken <Margaret.Franken@education.govt.nz>
Subject: [Summary of NZQA/MoE litnum hui]

Mōrena tātou

Please see below a capture of the discussion yesterday. Great to connect with you all.

Feel free to respond with any clarifications/questions if I haven't got something right.

1. Assessment design/Levelling of assessments
 - a. Both agencies agreed that the standards are stable for next year, noting that changes might occur for the following year. In particular, NZQA raised some issues around te reo matatini that the Ministry should may want to consider for 2024.
 - b. MoE discussed concerns around the content of the assessment while acknowledging the rigor and processes that NZQA have undertaken. Concerns primarily centre on readability as well as inclusive assessment design.

Comments around inclusive assessment design continue to be general and vague. I am still unclear what the issue is, or even what their expectations are. We may not need to make a comment here, but rather address this when we meet.
 - c. To seek assurance in the assessment levelling and design, Sue and Miriam will work to develop a process to seek assurance on the assessment design and for our concerns on the assessment design to be addressed. This will include the LALs. Sue and Miriam to set up meeting in the next couple of weeks.

This may simply be an issue of wording and interpretation, but my experience when the Ministry requires their concerns to be addressed is that they expect us to agree to them all, and agree to their solution for addressing them. We sort of tried to address this in terms of roles and responsibilities/accountabilities. I would prefer a different word that commits us to discussing their concerns, but allows us to disagree if we have a strong reason, supported by evidence, for doing so.
2. Individualised information for learners
 - a. NZQA is exploring options with NZCER on what could be provided in 2023. This is likely to look similar to what was provided for the LiNDET tool and include itemised feedback for learners (although the audience would primarily be the teacher)

I am uncertain what the expectation is relating to itemised feedback. This may be a casual rather than considered use of the work itemised. At this stage, I recommend deleting “itemised”. It is too early to put a label on the nature of the feedback we will be able to provide.

- b. NZQA has high confidence for the delivery of this information for 2023.
- c. NZQA and the Ministry will work together on associated guidance for this information to make sure that it is used in the right way (in accordance with existing tools and teaching and learning information)
- d. Miriam to include this info at a high level in the context section of the A3 to the Minister.

3. Special Assessment Conditions

- a. There was discussion on the SAC, and in particular schools’ interpretation of the process. MoE/NZQA will look into potential case studies to learn what has worked well in this space.
- b. NZQA will communicate SAC position/any updated information and MoE to confirm in time for November TODs. This includes how the information will be communicated.

I recommend we include a third bullet point that captures the points we made about where responsibility for this lies. We still do not have agreement on this and it keeps getting batted backwards and forwards. I find it unsatisfactory, as does Paul Smith. The Ministry pushes it back to us to make a decision, but then fails to accept the decision without providing guidance about what they expect.

4. Road Map for policy issues

- a. Both agencies recognised upcoming policy issues. In particular, the group indicated they would like to make decisions on realm nations sooner rather than later.
Clarity about what decisions need to be made would be helpful – what is the scope of decisions on realm nations?
- b. Linda and Miriam to work through qual implications of ‘transitional year’

Ngā mihi

Miriam

Miriam Bookman (she/her) | Senior Manager (Acting) Secondary Tertiary, Pathways and Transitions
Te Poutāhū (Curriculum Centre)

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From: [Andrea Gray](#)
To: [Sue Chalmers](#); [Linda Glogau](#)
Subject: FW: Literacy and Numeracy CAAs and other issues
Date: Tuesday, 13 September 2022 10:32:51 AM
Attachments: [image001.jpg](#)
[Literacy and numeracy guidance for CAA writers.docx](#)

FYI & I am seeking help to respond

From: Rob Mill <Rob.Mill@education.govt.nz>
Sent: Tuesday, 13 September 2022 10:25 AM
To: Andrea Gray <Andrea.Gray@nzqa.govt.nz>
Cc: Miriam Bookman <miriam.bookman@education.govt.nz>; James Gavey <james.gavey@education.govt.nz>
Subject: Literacy and Numeracy CAAs and other issues

Kia ora Andrea

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] I will ask Elise to help organise this, I think an hour and half will be needed initially.

I am also conscious that if changes are required then now maybe a crucial time to land a few things before it's too late for the assessments next year and in anticipation of the inevitable scrutiny in this space.

Key matters we would like to discuss:

1. Levelling of the assessments. You may be aware that some of our experts have concerns, particularly when it comes to readability. I've attached a paper that our Literacy and Numeracy Leads have drafted on this. I'd like to have a discussion on how we come to a resolution here. As you know, it's crucial we have strong assurance on the levelling of the standards/assessments. As part of this I would like to add cultural inclusion to this discussion and the criteria you use considering our focus on Māori, Pacific and learners with disabilities.
2. Return of scripts and/or ways to provide individual learners with more information about their assessment results. Do we have any more progress on what can be achieved next year? What would happen if the Minister requested this?
3. Roadmap for firming up SAC settings for next year (I understand that there is work going on behind the scenes across Sue/Miriam but could be worth getting on the table as well).
4. Confirming road map of lit/num policy issues going forward. We tabled these a couple of months ago but perhaps we can revisit our roadmap/timeline for this.
5. Support both organisations are and could provide teachers/kaiako to support ākongā (in both EM and MM settings)

Suggest we ask Sue/Miriam to prepare/add anything to the agenda.

Ngā mihi

Rob

Rob Mill | Group Manager (Acting)
TP-Te Poutāhū (Curriculum Centre)

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Analysis of challenges and proposed guidelines for the design and marking of the Literacy and Numeracy CAAs

Introduction

The results for NCEA Literacy and Numeracy Assessment 1, 2022 have recently been released. We have been asked on numerous occasions if we are surprised by these results. We are shocked by them, and while this requires us to reflect on the nature of our support for teachers and learners, we have also reflected on the possible effects of the way in which the CAAs are written, designed and marked.

What follows is a detailed analysis of what we as experts in literacy and numeracy perceive to be challenges to comprehension of text, accessing meaning, and communicating meaning in written form that present in the CAAs and which might undermine students' success in achieving the NCEA Literacy and Numeracy standards.

We would like to discuss this analysis, and also the possibility of a set of guidelines for the process of writing, designing and marking the CAAs.

Literacy – Reading

- 1. Texts need to be chosen carefully and within a narrow range that represents the “standard”.** and allows us to assess whether or not the students have met that standard. The standard is approximately aligned with upper level 4, lower level 5 in the NZC, when students are around 12-14 years old or in years 9 and 10.

Using two complementary ways of assessing text difficulty (readability analyses, and vocabulary levels analysis), we can see that there are issues in terms of readability levels and vocabulary difficulty. The assumptions that underpin these analyses are:

- readers need to have an understanding of around 95% of running words in a text if comprehension is not to be impeded by a lack of fluency.
- low frequency words need to be minimised, especially if they are not essential for meaning (i.e. they can be substituted with easier words).
- AWL words ([Academic word list words](#)) are important in considering text difficulty; they are deemed to be words necessary for successful tertiary learning, and many students in years 9 and 10 are unlikely to have an expansive knowledge and deep command of these words.

In the most recent Reading CAA,

- 4 out of 8 texts are at a reading age of around 14-15 (grade 10, equivalent to year 11)
- 6 out of 8 texts have a threshold of low frequency words sitting above 5% (range between 8.35%-21.95%).
- 2 out of 8 texts have instances of AWL words in addition to high numbers of low frequency words. These are likely to compound the comprehension challenges

- 2. To ensure a greater degree of reliability, the texts should have similar reading age/vocabulary level profiles over versions of the assessments.**

As the two tables in the [Appendix](#): show, the texts planned for the next CAA are less difficult. This raises issues of reliability.

3. The selection of target words for vocabulary questions and the words/options for multichoice answers need to be assessed for complexity and difficulty using readability analyses, and vocabulary levels analysis.

4. Words that fall within the first 2000 words and perhaps some AWL words should be the focus for assessing vocabulary knowledge.

The significant learning unpacking the standard states: “Successful comprehension depends on understanding **most** [emphasis added] of the meanings of the words in the text”. In a number of questions, the writer has selected a low frequency word to assess: e.g. fuse, durable, aspirational; the writer has also chosen low frequency words in the list of options to choose from in multichoice questions e.g. blend, amoral.

In some questions, low frequency idiomatic phrases have been selected to evaluate vocabulary/word knowledge e.g. “fly under the radar”?

Low frequency words/phrases (other than topic specific or technical words) have far less utility – they are by their very nature not likely to feature often in a learner’s encounters with text. Why then test them?

5. Always select easier words for multichoice vocabulary items than the word you are testing.

As mentioned above, in some cases the words in the list of options to choose from in multichoice questions are more difficult than the target word. In this case, you are in effect testing knowledge of words in addition to/other than the target word. This is not good language assessment practice.

6. Keep the questions as simple as possible. Replace more complex words with simpler ones where possible.

1 a) What situation do Wei and Radha have in common that may ~~prevent~~ stop them from participating in Ditch the Car Week?

7. Check for related to structural complexity that might not be accounted for in vocabulary level or readability measures. For example, the text on tramping boots contains a large number of complex collocations e.g.

Shock absorbing upper layer

The breathable material

Personalised cushioning

Endurance athlete

A multi day tramp

Dual density rubber

8. Manage the demands of “situational interest”

While in teaching and learning we strive to make texts interesting, motivating, and relatable, in assessment we need to heed the long-established research in the area of “situational interest” and its effect on comprehension (see for example, Ivanov, 2010, Schraw, 1998). Situational interest (also called “seductive details”) can distract and unfairly disadvantage poorer readers who struggle to comprehend connected text.

9. Control for contexts, topics and text forms so that they are as widely experienced as possible.

Use the following guiding questions in choosing contexts, topics and text forms:

- Ask yourself how many students [in a large south Auckland school] will have experience of this context/topic/text form? Substitute [] with different profiles e.g. refugee students, ELLs, Māori students on the west coast, students in realm countries.

A number of reading topics in the most recent CAA are likely to be out of the range of experience of many students, e.g. choosing tramping boots, the social equality sector.

- Ask yourself if the text represents experience from the students' point of view.

For example while the "pot luck" (in *The importance of kai* text) may be experienced by students, they are not likely to be bringing the kai which is the point of view of the narrator – their caregivers/whanau/parents are. A similar but more familiar content would be a shared lunch at school.

- Ask yourself if this context/topic/text falls within the purview of "foundational"

Two texts in the recent CAA are science topics/texts. In the text, *What's that bug*, almost 22% of words are low frequency words/topic specific words that students may well not be familiar with e.g. ovipositor, if they have not studied this topic. The low frequency words also include scientific names for insects. This text has a reading age of 14-15 years. Arguably this is the realm of subject Science – not Literacy.

10. Reduce the number of texts that students need to read

While we only have anecdotal data about the time it takes most students to sit the CAA, our experience suggests to us that concentrating on and close reading of eight texts (as in Assessment 1, 2022) in an hour presents cognitive load challenges. Attention is interrupted as students stop one text and start to read a new text. This adds to the already existent cognitive load of reading on screen as opposed to on paper (Clinton, 2017).

We are recommending that there are fewer texts – the specifications say a minimum of four texts.

Literacy – Writing

In the area of writing, we are less able to suggest guidelines as we have not had direct experience of/or opportunities to observe the process of setting the tasks/questions, selecting the input or stimulus material, formulating the marking rubric and allocating marks or judgments to students' scripts.

11. Our first guideline would be to include Ministry of Education experts in the setting and marking process either directly or as observers.

The comments and the queries below are made in response to the small amount of information we have had about the process. Therefore, they may not be an accurate representation of the process or issues as they are gleaned from a second hand "report".

Writing the questions/items

The first part of the process is developing the CAA is to write the questions/items. We are not aware of how this is done, and how those items are checked.

- What guidelines do writers work with in terms of e.g. text types, text forms for tasks, and readability controls, content controls, etc., for input/stimulus material?
- How are items written and validated?

Marking the items

The second part of the process is marking. This process has partially been shared by the NZQA who say they used the Angoff method. However, given the brief explanation, it is difficult to understand fully. I myself have searched for, found, and read the “manual” outlining the Angoff method. (See Assessment Strategies Inc., 2014).

The pass/fail decision (“cut score”) is derived using the Angoff Method.

The Angoff method is based on “the concept of the borderline or minimally competent candidate. . . . The minimally competent candidate . . . performs at a level ‘on the borderline’ between acceptable and unacceptable performance” (p.2). A percentage is assigned to each item as each rater asks themselves: “Given 100 minimally competent candidates, how many will answer this item correctly?” (See Assessment Strategies Inc., 2014, p.2). The average rating is negotiated and calculated for each item. In the manual, each item has an equal weighting. The average rating is then calculated for the total examination.

The NZQA outline the marking process as follows:

“We had a 3-day panel meeting, post bench marking, to train markers and ensure marker reliability. This included group marking of sample scripts, before moving on to independent marking with close monitoring by the check markers. . . . Markers did not decide whether a student did or did not achieve. They scored each piece of writing for each of the 4 performance criteria of Outcome 1, then marked the proof reading questions (Outcome 2).”

- What rubric was used? Can we have a copy?
- How were the two texts scored i.e. how many marks were allocated to each of the 4 pcs?
- How were the language conventions questions scored i.e. how many marks were allocated to this section and parts of it?

Setting the standard

“Scores were aggregated for each of the 4 pcs (Outcome 1) across the two pieces of writing, and for Outcome 2”.

- Again, what marks were allocated to each of the 4 pcs and the language conventions section? Was the latter of lesser weight?

“Minimum scores were set for each of the four pcs in Outcome 1, for Outcome 2, and for an overall score. This was to confirm there was a minimum of evidence for each outcome and sufficient evidence overall to meet all the requirements of the standard.”

- This seems to be somewhat like a process of establishing “cut scores”, but it’s not clear. Given I don’t have the information about how the two texts and the responses related to outcome 2 were scored, I can’t interpret this. Can I see what the minimum evidence for each outcome looks like from actual samples?
- “Minimum/sufficient evidence” – does this refer to the “percentage of minimally competent candidates who are likely to answer this item correctly” (Assessment Strategies Inc., 2014,

p.2)? or does it not refer to the Angoff method? If it does not, how is this level of evidence established?

- Meeting the overall requirements of the standard would be affected by the weighting of the different outcomes (scores assigned to each outcome or pc.) as the scores are aggregated. I need to know if/how scores are weighted. (See my questions above about scoring).

A major advantage of the Angoff method claimed by Assessment Strategies Inc. (2014, p.4) is that “the determined pass mark is based on the content of the examination and not on group performance”. What this means however is that the tasks themselves and the stimulus material must be thoroughly scrutinised in terms of their validity, reliability and appropriateness – and in essence be exposed to similar guidelines as suggested for the reading CAAs.

Numeracy

US32406: Use mathematics and statistics to meet the numeracy demands of a range of situations requires learners to apply mathematical and statistical skills to multiple contexts. For the assessment, learners need to:

1. **Read** and decode a context sufficiently to translate a meaningful situation to a mathematical/statistical one
2. **Write** a short response to explain the reasonableness of a mathematical/statistical calculation in context.

This means that learners will need a certain level of literacy to access the standard; however, the level of literacy required in the numeracy standard should be below foundational literacy as this is assessed in *US32403: Read written texts to understand ideas and information* and *US32405: Write texts to communicate ideas and information*. Beyond this, it is unclear how much literacy is required of learners so they can access the numeracy standard.

An analysis of readability and vocabulary of the two available Numeracy CAAs shows that the 2022 Numeracy CAA was less readable and had more academic and low frequency words than the 2021 edition (see analysis below for details). It is recommended that NZQA takes the following guidelines from the **Literacy – Reading** section and applies them to the development of the Numeracy CAA:

1. **Words and phrases need to be chosen carefully.** To enable learners to access the contexts they are reading, low frequency words and AWL words should be minimised. For the 2022 Numeracy CAA, this sits at 25.38% of the text. Readers need to understand around 95% of running words in a text if comprehension is not to be impeded by a lack of fluency. The purpose of this standard is not to assess breadth of vocabulary, but to set up a context sufficiently so learners can formulate mathematical and statistical approaches, use mathematics and statistics and explain the reasonableness of a solution.
2. **To ensure a greater degree of reliability, the assessments should have similar reading age/vocabulary level profiles over versions of the assessments.** To ensure that the standard is credible, robust, and reflective of the standard owned by the Ministry of Education, there must be a consistent level of literacy across each numeracy assessment. This means that while assessment items may differ, the expected level of literacy a learner would need to access the questions is the same for any numeracy Common Assessment Activity (CAA).

Note that while POLLY can be used in the Numeracy assessment, this does not mitigate issues of vocabulary familiarity. If a learner does not know what is meant by the phrase “ancestral home” POLLY will not provide further clarity.

3. The selection of words/phrases for multichoice answers need to be assessed for complexity and difficulty

A clear example of this is Q8: Accidents in the workplace. The numeracy focus of this question is the interpretation of a graph showing different types of injuries. The way in which injuries are classified and labelled on the graph e.g. *muscle injury from lifting, carrying, or putting down objects* is different from that in the question e.g. *most injuries are strains and tears to muscles*. Students must understand that *strains and tears to muscles* is synonymous with *muscle injury*.... Not knowing this could lead to the wrong answer, masking the fact that the student can in fact read and interpret frequency information in the graph.

4. Keep the questions as simple as possible. Replace more complex words with simpler ones where possible.

Q3: Enough Sleep refers to *a sample of Year 9 to 13 students*. While this is statistically correct, the standard does not require learners to understand or know what sampling, or sample to population means – the *Unpacking Numeracy* document explicitly states that sampling and sample to population inference fall outside the benchmark. A more appropriate term could be “a group of Year 9 to 13 students.”

In sector engagements, the level of literacy in the numeracy standard has been questioned. While the Ministry of Education believes that literacy is required to access the numeracy standard, the level of literacy expected should be consistent and appropriately managed by NZQA to ensure the credibility of the standard.

Further investigation needs to be completed on the contexts that are used in the Numeracy CAAs. While there is the expectation that learners can transfer their mathematical and statistical skills in a range of contexts both familiar and unfamiliar (e.g. reading a bus timetable is a skill that can be transferred to reading ferry, train, or flight timetables or work timetables), some contexts are likely to cause greater cognitive challenges than others. The **Literacy – Reading** mentions “situational interest” as its eighth point, and it is pertinent to the Numeracy CAA too. ***Situational interest (also called “seductive details”) can distract and unfairly disadvantage poorer readers who struggle to comprehend connected text.***

The situations that learners can be assessed in should be *meaningful*. This is defined in the standard as “a situation that is relevant to the learner’s, everyday life, learning, participatory citizenship, or work.” Contexts such as Q8: Accidents in the workplace are complex, with many adults struggling to understand the language and functions of ACC. For secondary school learners to understand this context seems to be beyond the purview of what is expected at a foundational level in numeracy or indeed of literacy. The point ***Control for contexts, topics and text forms so that they are as widely experienced as possible*** is appropriate to consider in the development of the Numeracy CAA as well as for Literacy – Reading.

The writing aspect of this CAA has proven to be challenging for learners, with Process Idea 3 (also referred to as Outcome 3) an area that learners have performed poorly in for the 2021 and 2022 Numeracy CAA. A request was put to NZQA in March 2022 to release some examples of a good response for Process Idea 3 to help teachers to understand how they might support their learners in this respect. While NZQA acknowledge that this may be useful to teachers, no further detail about this has been released to the Ministry.

On a more mathematical note, there are issues of consistency in how units are presented and how large numbers are written. Some examples:

- In Q9: Kūaka, large numbers are written with a space in between, such as “12 200” in (c). In contrast, Q8: Accidents in the workplace writes large numbers with a comma in between, such as “924,020,378”.

- In Q8: Accidents in the workplace, it is noted that the value 924,020,378 may be given on a calculator in scientific notation, which is outside the scope of CL4.
- In Q10: Sleepout, the following information is provided: *The garage is 3.1 metres wide and 5.5m long.* Both “m” and “metres” are used in the same sentence.

While these may be minor details, consistency within these assessments and between assessments is critical, even in the details.

A final point is around the time learners need for the completion of the Numeracy CAA. On average, learners are expected to take 60 minutes to complete the assessment. The experience of schools has been that the majority (over 75%) of learners take over 60 minutes. It is our understanding that NZQA are aware of this issue. The MoE strongly recommends reducing the number of assessment items rather than extending the time allowance. The benefits of reducing the number of assessment items means that:

1. The assessment can be completed in 60 minutes on average. From a logistical perspective, 60 minutes is significantly more manageable to schools and for learners who may be sitting their first official assessment. The logistics must be considered as schools are being asked to manage this aspect, including invigilation, which has typically been the responsibility of external invigilators contracted by NZQA.
2. The quality of questions is higher. By reducing the number of assessment items, it allows more time to refine and edit the questions that will be produced.

No assessment can cover all the Content Ideas of the standard, nor is it expected to, as long as each Content Idea is covered at least once across 2 – 3 assessments. Further, any learner who has not shown mastery of each Process Idea (also called an outcome) when provided 7 – 8 opportunities are unlikely to do so even when provided with 10 opportunities as is currently the case.

Process pertaining to both Literacy and Numeracy

Observation of marking

The Ministry of Education requested that the Learning Area Leads for Literacy and Numeracy be present at the marking meetings for the first assessment event to listen to the discussions that were being held. The request was sent to NZQA via the Literacy and Numeracy Project Manager prior to the first assessment event in June 2022.

It was not until August 2022 that either Learning Area Lead met with someone at NZQA to discuss how the marking was undertaken, and any points of interest that could contribute to the work in strengthening literacy and numeracy through strong teaching and learning programmes.

The request to observe the marking in the second assessment event has now been put forward, but there are concerns that this will not eventuate.

Resource development

The Ministry of Education has developed a range of resources to support literacy and numeracy opportunities in teaching and learning programmes across the curriculum. The sector has appreciated these resources, and the Ministry will continue to support teachers with capability development.

In the sector engagements over the August TODs (Teacher Only Days), further resources specifically about the nature of the assessment and the types of items used in the CAAs were requested to support learners as they engage in this new method of assessment. There are concerns that teachers will use these resources to teach to the test but given the range of concepts that the standards cover, this concern seems unfounded. To ensure that literacy and numeracy is strengthened across the curriculum, further resource support from NZQA needs to be provided.

Feedback to learners

In engagements with the sector, one request has been that learners are provided with feedback on their performance in the Common Assessment Activities (CAAs).

Teachers and educators recognise that feedback is an integral part of the teaching and learning process and is the most important teacher practice in improving student learning (Hattie & Timperley, 2007; Wisniewski, Zierer, & Hattie, 2020). It is also consistent with our Effective Practices – one of the keystones of our teaching and learning support.

When the topic of providing learners with feedback on their performance in the CAA has previously been broached with NZQA, the response has been that the CAAs are a summative assessment, the following response was provided: *The CAAs are summative assessments that learners should be entered for when they are ready to be assessed. Teachers need to use the range of diagnostic tools available to them, along with the professional judgement and knowledge of their learners, to determine that individual learners are likely to be successful.*

The same email also noted *It is not appropriate to provide individual feedback on external assessments, because the markers do not know the students.*

Other comments made in public forums recently have included the response that *the technology is not able to do this at this stage;* and that *the NZQA want to preserve the items for an item bank.*

There are a few points to note here:

1. External assessments have historically been summative; however, as has been pointed out frequently with the digital first approach, this is a new way of assessing. This new way of assessing can be an opportunity to use the CAAs to support the teaching and learning narrative, rather than only being summative. While there may be concern that teachers use iterations of the CAA as a practice run or a gauge of where learners are in their learning, the reality is that this is unlikely given the logistical challenges the CAA presents and the focus on wellbeing given the current challenges that COVID has presented.
2. Teachers and learners are seeking to identify strengths and weaknesses according to the CAA. Even a return of script or a breakdown of achievement in each outcome would be helpful for learners to understand areas that they need to improve in. It is highly unlikely that this feedback would mean that learners would then be taught to the test, as the standards cover too much content to allow for this. Instead, the feedback could provide guidance in how learners can meet the standard and motivation for them to do so.
3. Diagnostic tools such as e-asTTle and PaCT appear to be able to act as a good guide for learners and their teachers (though this as yet has not been established empirically through the analysis of correlational data). However, if a learner who exhibits readiness using these tools still does not meet the standard, a lack of feedback from the CAA can be incredibly disheartening for learners and their teachers, who have no way of knowing how they can improve and what to focus their learning on.
4. Transparency in the process of marking the assessment present a significant risk to teacher buy-in. The purpose of this standard is to strengthen literacy and numeracy, so the credential learners receive is credible, robust and reflects the standard. Without even some feedback (with the return of scripts considered minimum feedback), this can be called into question.

On balance, providing feedback is advantageous for learners, their teachers, and the vision of a literate and numerate nation. It is likely that further resources will be needed for this to occur, but the risk of providing a grade-only response to learners and their teachers is significant. Given that this is a high-stakes assessment as learners cannot be awarded with an NCEA qualification without the corequisites, feedback is critical in providing good teaching and learning programmes.

Conclusion

We have shared with you, our detailed analyses of what we as experts in literacy and numeracy perceive to be challenges to comprehension of text, accessing meaning, and communicating meaning in written form that might undermine students' success in achieving the standards.

We feel it is essential we raise and discuss the concerns around the CAAs as well as work together to agree on a set of guidelines that give us confidence that the standards are assessed in a fair, reliable and valid way.

References

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Clinton, V. (2019). Reading from paper compared to screens: A systematic review and meta-analysis. *Journal of Research in Reading*, 42, 288–325. <https://doi.org/10.1111/1467-9817.12269>.

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Ivanov, I. V., (2010). *Predictors of recall and reading time for seductive and non-seductive text segments*. Masters of Educational Psychology, University of Nevada. UNLV Theses/Dissertations/Professional Papers/Capstones. Paper 768.

Schraw, G. (1998). Processing and recall differences among seductive details. *Journal of Educational Psychology*, 90, 3–12.

Wisniewski, B., Zierer, K., & Hattie, J. (2020). The power of feedback revisited: A meta-analysis of educational feedback research, *Frontiers in Psychology*, 10. doi: 10.3389/fpsyg.2019.03087

Appendix

Analyses of CAA Reading texts using:

TEXT READABILITY CONSENSUS CALCULATOR www.ReadabilityFormulas.com

LEXICAL TUTOR VOCABULARY PROFILER [VP HOME \(lextutor.ca\)](http://VP_HOME (lextutor.ca))

READING ASSESSMENT 1, 2022

Text number	Readability	Vocabulary	
Ditch the car	Grade Level: 6 Reading Level: fairly easy to read. Age of Reader: 10-11 yrs. olds (Fifth and Sixth graders)	1-1000 10001-2000 AWL Low	87.29% 5.93% 3.39% 3.39%
The importance of kai	Grade Level: 6 Reading Level: fairly easy to read. Age of Reader: 10-11 yrs. olds (Fifth and Sixth graders)	1-1000 10001-2000 AWL Low	68.10% 11.07% .76% 19.47%
Adopt a dog	Grade Level: 6 Reading Level: fairly easy to read. Age of Reader: 10-11 yrs. olds (Fifth and Sixth graders)	1-1000 10001-2000 AWL Low	84.00% 6.50% .66% 8.79%
Tramping boots	Grade Level: 10 Reading Level: standard / average. Age of Reader: 14-15 yrs. old (Ninth to Tenth graders, years 10-11)	1-1000 10001-2000 AWL Low	66.67% 7.69% 4.17% 21.47%
	Grade Level: 10 Reading Level: fairly difficult to read. Age of Reader: 14-15 yrs. old (Ninth to Tenth graders, years 10-11)	1-1000 10001-2000 AWL Low	71.03% 9.23% 2.56% 17.18%
	Grade Level: 10 Reading Level: fairly difficult to read. Age of Reader: 14-15 yrs. old (Ninth to Tenth graders, years 10-11)	1-1000 10001-2000 AWL Low	83.27% 3.24% 5.14% 8.38%
What's that bug?	Grade Level: 10 Reading Level: fairly difficult to read. Age of Reader: 14-15 yrs. old (Ninth to Tenth graders, years 10-11)	1-1000 10001-2000 AWL Low	66.3% 9.98% 1.25% 21.95%
	Grade Level: 6 Reading Level: fairly easy to read. Age of Reader: 10-11 yrs. olds (Fifth and Sixth graders)	1-1000 10001-2000 AWL Low	72.77% 14.55% 2.82% 9.86%

READING ASSESSMENT 2, 2022 (DRAFT TEXTS)

Text number	Readability	Vocabulary	
	Grade Level: 8 Reading Level: fairly easy to read. Age of Reader: 12-14 yrs. old (Seventh and Eighth graders)	1-1000 10001-2000 AWL Low	89.86% 3.15% 2.70% 4.28%
	Grade Level: 7 Reading Level: fairly easy to read. Age of Reader: 11-13 yrs. old (Sixth and Seventh graders)	1-1000 10001-2000 AWL Low	76.45% 4.99% 1.66% 16.90%
	Grade Level: 10 Reading Level: fairly difficult to read. Age of Reader: 14-15 yrs. old (Ninth to Tenth graders)	1-1000 10001-2000 AWL Low	81.23% 4.53% 4.53% 9.71%
	Grade Level: 8 Reading Level: standard / average. Age of Reader: 12-14 yrs. old (Seventh and Eighth graders)	1-1000 10001-2000 AWL Low	78.91% 5.3% 3.75% 12.24%
	Grade Level: 7 Reading Level: fairly easy to read. Age of Reader: 11-13 yrs. old (Sixth and Seventh graders)	1-1000 10001-2000 AWL Low	73.93% 2.73% 4.85% 19.09%
	Grade Level: 9 Reading Level: standard / average. Age of Reader: 13-15 yrs. old (Eighth and Ninth graders)	1-1000 10001-2000 AWL Low	78.86% 6.10% 2.85% 12.20%
	Grade Level: 10 Reading Level: standard / average. Age of Reader: 14-15 yrs. old (Ninth to Tenth graders)	1-1000 10001-2000 AWL Low	81.19% 5.64% 2.82% 10.34%
	Grade Level: 7 Reading Level: fairly easy to read. Age of Reader: 11-13 yrs. old (Sixth and Seventh graders)	1-1000 10001-2000 AWL Low	71.86% 8.20% 1.09% 18.85%

NUMERACY ASSESSMENT

Text	Readability	Vocabulary	
2021	Grade Level: 4 Reading Level: Easy to read. Age of Reader: 8 to 9-year-olds	1-1000 10001-2000 AWL Low	77.57% 6.00% 2.00% 14.43%
2022 First event	Grade Level: 6 Reading Level: Fairly easy to read. Reader's Age: 10-11 yrs. olds (Fifth and Sixth graders)	1-1000 10001-2000 AWL Low	60.98% 13.64% 5.49% 19.89%

Kia ora

Thank you for your email regarding the availability of portfolio assessments for the new literacy and numeracy co-requisite standards in English-medium settings.

Change 1 of the NCEA Change Programme is [Make NCEA more accessible](#). Consistent with this, the Common Assessment Activities (CAAs) for Literacy and Numeracy | Te Reo Matatini me te Pāngarau have been designed to enable schools, kura and other NCEA providers to meet the accessibility needs of their learners more easily. For example, there is no time limit for the CAAs, so long as each can be completed within a single session.

Schools, kura, and other NCEA providers also decide:

- who supervises the CAAs
- what day(s) CAAs are held on during [the assessment week](#)
- whether their whole cohort of learners undertakes the assessment at the same time, at different times on the same day, or across multiple days within the specified week
- the room configuration for the assessments
- whether learners are eligible for Special Assessment Conditions (SAC).

As you may be aware, during last year's pilot only CAAs were offered ~~to English-medium settings for literacy and numeracy~~, while both portfolios and CAAs were available ~~in Māori-medium settings for te reo matatini me te pāngarau~~. The reasons for this are many; in particular, NZQA has previously told us that portfolio-based assessments cannot be scaled for English medium, or universal access, without significant new investments. Cultural appropriateness and the current unsuitability of CAAs for assessing oracy (which is part of te reo matatini, the Māori-medium standard) also informed the decision to make portfolios available only to ~~wharekura for te reo matatini me te pāngarau~~.

To ensure we are making evidence-based decisions for English-medium settings, the Ministry recently commissioned a report from a team of researchers at Massey University on the potential benefits of extending the availability of portfolio assessments to other groups and contexts. In their report the researchers identified a number of reasons why portfolio assessments for literacy and numeracy might be difficult or risky to implement. For example, there are concerns about the reliability of this form of assessment ~~when not implemented with extensive support~~. The researchers also note workload issues for learners and teachers, and the manageability of this form of assessment at scale, both for NZQA and schools, kura and providers. While the report also concludes that there are many potential benefits to portfolio assessments, it underlines the need for significant resourcing, and sophisticated digital infrastructure, as well as time and funding for teachers to develop the necessary skillset to support this kind of assessment.

If you are interested in checking for any updates from the Ministry about the 2023 transitional year assessments, or plans for when the co-requisite becomes mandatory from 2024, please visit [this page](#) on NCEA.education.

Ngā mihi nui,

Rob Mill

Lara Beiert

From: Sue Chalmers
Sent: Thursday, 23 June 2022 9:59 AM
To: Catherine Floratos
Cc: Miriam Bookman; Linda Glogau
Subject: RE: PPTA request feedback

Mōrena Catherine,

Thank you for this extensive feedback. Linda Glogau is meeting with PPTA today and there is insufficient time to amend our initial advice to this extent prior to her meeting. She will need to respond to the request with the original version I sent Miriam some time ago.

However, your advice will be useful and valuable for teachers. As it goes well beyond responding to the original request, I recommend the Ministry team considers developing a new teacher support document to add to the kete of teaching and learning resources that are available for teachers, incorporating material from our response and what you have shared with me below.

I am very happy to contribute to that, but do not feel it is my place to communicate many of the Ministry's messages included in your email below.

Ngā mihi
Sue

Sue Chalmers
Kaiwhakahaere Matua Aromatawai/Chief Advisor Assessment
Wāhanga Aromatawai/Assessment Division
NZQA
Ph: [REDACTED]
Mob: [REDACTED]

Ahakoā ngaru ana te moana, ka eke tonu nei te waka!
A choppy mountainous ocean can always be navigated by a small canoe!

From: Catherine Floratos <Catherine.Floratos@education.govt.nz>
Sent: Wednesday, 22 June 2022 1:14 PM
To: Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>
Subject: PPTA request feedback

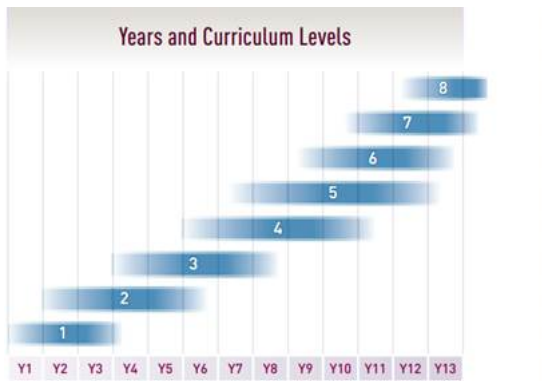
Kia ora Sue,

Below is our feedback on NZQA's response to the PPTA request. Please let me know if you require anything further.

- We agree with not providing a list of texts, but instead the guidance around selecting appropriate texts
- Could you please include some links to the Literacy, Communication and Maths strategy? The NZQA response refers (and provides a link) to the Literacy Learning Progressions (LLPs). The messaging about LLPs that was current at the beginning of June is, "The Literacy & Communications and Maths Strategy has identified that, as part of The New Zealand Curriculum refresh, we will replace the Learning Progression Framework and the Literacy Learning Progressions for reading and writing with one progression that shows

the sequence of learning for literacy and communication”. If “Please note” was added to the start, then this could cover off that these things will be changing in the future.

- Could you also please include the following point about the common practice model? (This is part of the Literacy, Communication and Maths strategy): “In addition, a common practice model will be introduced as part of the implementation of the strategy. It will create greater coherence and consistency in teaching, assessment and learning practices across the education system and be supported by clear, coherent, evidence-informed guidance”.
 - With the hyperlink provided to the doc that takes you to the old reading and writing standards, our advice is to provide some context before the link to acknowledge that the content is old, but includes some relevant content and guidance. We also suggest providing a page number that will take teachers to Levels 4/5 of the curriculum. Our understanding is that there are some schools, teachers and media see the co-reqs as National Standards by a different name and this link could potentially reinforce that impression.
 - We suggest including a statement that will guide teachers to the Literacy Learning Progressions to see examples of what is listed at the bottom of the doc
 - We suggest including some advice for teachers to work with their school librarian to select appropriate texts. The National Library has also just recently published a reading for pleasure report: ‘Reading for Pleasure, For the Collective Good of Aotearoa New Zealand’ that is available at <https://natlib.govt.nz/files/collaboarative-projects/reading-for-pleasure-literature-review-23-sept-2021.pdf>
- . While it is focused on ‘pleasure’ rather than on reading for an assessment, it does include some content that is relevant to selecting texts:
- “There is some evidence to suggest that as they move into adolescence reading for pleasure declines (Medina & McGregor, 2019; Ministry of Education, 2017). Our research suggests perceptions of young people’s reading may vary according to who is asked, what they are asked, where they are asked and who is doing the asking. We think not enough is yet known about the reading of school-aged children and tamariki outside of school. An important question for future reading policy and practice is whether outcomes could be more equitable, and participation enhanced if schooling is better informed by and aligned with children and tamariki’s development outside of school (Bourke et al., 2018)” (p.3)
 - “Cummings et al. (2018) claim that understanding children’s out-of-school literacy practices may help educators find ways to motivate and engage them in reading.” (p. 17)
 - “Different forms of print media are associated with different outcomes for readers. For example, Jerrim & Moss (2019) through examining PISA results found that reading novels was associated with 10 months academic progress compared with reading non-fiction, magazines, newspapers, or comics.” P.17
 - “Books provided to children and tamariki may stigmatize or exclude some identities, including Pacific and Māori cultural identities...”(p. 34).
- It could be worth including in this document that existing texts teachers use would also likely be appropriate for preparing students for the reading assessment
 - The way that “Literacy Today” is referenced, with a space between it and the rest of the content, gives the impression that everything else that comes before it has been adapted from this overseas content. This isn’t true – because it includes the Reading and Writing Standards and Literacy Learning Progression content – our preference is to refer to alternative New Zealand content instead, such as the documents and quotes included above. This gives a uniquely NZ view on the selection of texts, including references to School Journals and the need to reflect Māori and Pacific cultural identities.
 - We suggest avoiding mentioned Level 4 being linked to a particular year, because students may be engaging with or meeting the reading demands of the NZ Curriculum Level 4 from year 6 to year 11, as per the year and curriculum level diagram I’ve included below. The italicised statement(*By the end of year 8, students will read, respond to, and think critically about texts in order to meet the reading demands of the New Zealand Curriculum at level 4*) could reflect the diversity of student’s progression and say something like this (partly taken from <https://ncea.education.govt.nz/understanding-how-ncea-requirements-are-changing>) : “The literacy co-requisite standards are aligned with Level 4 of the curriculum. Some learners may be ready to achieve their reading co-requisite in Years 9 or 10 but for others it may be in Year 11 or beyond.” There would need to be an intro to the year 8 section, but that could just be “By the end of year 8, students will read, respond to and think critically about texts in order to meet the demands of the New Zealand Curriculum.”



- If you wished to include some further research, you could include the following:
 - <https://assets.education.govt.nz/public/Documents/Ministry/Changes-in-education/Teaching-Reading-for-Understanding-in-Years-4-8-A-Literature-Review.pdf> Is a literature review that was commissioned to inform the development of the Literacy & Communication and Maths Strategy and includes information on selecting texts for engagement in the 'Engaging with Texts' section from page 26. This includes this content in relation to School Journals: "PIRLs data (Chamberlain, 2019) show that, compared with many other countries, New Zealand teachers are more likely to use a reading series (particularly, School Journals and Ready to Reads) as a basis for their instructional programme. Students whose teachers reported used a reading series as the basis for their reading programme tended to have lower reading scores than their peers whose teachers used both children's books and reading series as the basis. A reading series is developed for the specific purpose of teaching reading at different levels of development which is both an advantage and disadvantage. Using other texts as well as an instructional series has the advantage of including vocabulary that is not regulated or restricted to the ability level of the reader and likewise provide exposure a wider variety of text structures and features".
 - <https://www.educationcounts.govt.nz/publications/series/PISA/pisa-2018/pisa-2018-reading-in-new-zealand - PISA 2018>: This Ministry 'Reading in New Zealand – reading achievement and experiences of 15 year olds' report states: "Performance in reading was strongly associated with the length of texts in English classes – generally as the length of text increased so too did reading scores. Students whose longest texts were between 100 and 500 pages reported the highest average score (541 points). Even after accounting for gender and socio-economic background, students whose longest text in the last year was at least 100 pages scored on average 58 points higher than students who were assigned shorter texts" (p.62).

And finally, in the upcoming Education Gazette there will be an article about a new draft initiative which includes a digital catalogue which offers recommendations for NZ books and accompanying resources for students in year 7 and up. I am clarifying if I am able to send you a link to the article to include and will do so if that is okay.

Ngā mihi,
Catherine

Catherine Floratos she/her | Lead Secondary Adviser
TP-Te Poutāhū (Curriculum Centre)

DDI [REDACTED]
National Office Mātauranga House

[education.govt.nz](https://www.education.govt.nz)

He mea tārai e mātou te mātauranga kia rangatira ai, kia mana taurite ai ōna huanga
We shape an education system that delivers equitable and excellent outcomes

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Lara Beiert

From: Elana McNeill <Elana.McNeill@education.govt.nz>
Sent: Friday, 22 July 2022 11:07 AM
To: Sue Chalmers
Cc: Melissa Mead; MaryJane Parker; Phillipa Junger
Subject: RE: Proposed Adjustments to US32406

Kia ora Sue,

I have checked with our team and we agree that it would be best to activate it after the second assessment event.

[REDACTED]

Many thanks,

Elana

Elana McNeill | Senior Advisor
Te Poutāhū (Curriculum Centre)
DDI [REDACTED]

From: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Sent: Friday, 22 July 2022 9:19 am
To: sue.chalmers <sue.chalmers@nzqa.govt.nz>; Elana McNeill <Elana.McNeill@education.govt.nz>
Cc: Melissa Mead <Melissa.Mead@nzqa.govt.nz>; NZQA - Mary Jane Parker <maryjane.parker@nzqa.govt.nz>
Subject: RE: Proposed Adjustments to US32406

Thanks Sue, agree to all.

[REDACTED]

Ngā mihi
Phillipa

From: Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>
Sent: Friday, 22 July 2022 7:57 AM
To: Elana McNeill <elana.mcneill@education.govt.nz>; Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Cc: Melissa Mead <Melissa.Mead@nzqa.govt.nz>; MaryJane Parker <MaryJane.Parker@nzqa.govt.nz>
Subject: RE: Proposed Adjustments to US32406

Mōrena Elana,

Phillipa has talked to me about the timeframe her team need to get this ready for replacing version 1. I have proposed listing version 2 after the second assessment event has been completed, ready for 2023.

This is to avoid any potential confusion for pilot schools. No matter how you communicate it, they will worry that they have to do something different for students entered in the next assessment event.

Also, we avoid late changes to external assessment activities because there is a higher risk of error. Checking the September assessment activity against the new version and then making any necessary amendments would put the development process under considerable pressure.

It will also make it more straightforward for quality assuring and recording student results, which will minimise the risk of any potential error.

We can start preparing comms, but I recommend holding off releasing them until after the second event has concluded, with a clear message that it is for assessment from 2023. And still with the message that the changes will not impact their teaching and learning.

Ngā mihi
Sue

From: Elana McNeill <Elana.McNeill@education.govt.nz>
Sent: Thursday, 21 July 2022 4:37 PM
To: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Cc: Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>
Subject: RE: Proposed Adjustments to US32406

Kia ora Phillipa,

Thank you for that,

I have attached the tracked changes.

We will just need to align comms from NZQA and MOE to the pilot participants before the changes become live, and we will need to update the standard on our website. If you could let me know a date when the standard will be ready at NZQA, we can align here. We are moving into our next sprint which ends on Aug 5, so if possible we could aim for sometime before this date. We will be in touch with Melissa and Mary Jane about comms to pilot participants.

Many thanks,

Elana

Elana McNeill | Senior Advisor
Te Poutāhū (Curriculum Centre)
DDI [REDACTED]

From: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Sent: Thursday, 21 July 2022 8:20 am
To: Elana McNeill <Elana.McNeill@education.govt.nz>
Cc: sue.chalmers <sue.chalmers@nzqa.govt.nz>
Subject: RE: Proposed Adjustments to US32406

Mōrena

Kapai – we have set up the US review application.

Please send me a tracked change of the unit standard Word Doc, with the changes you require.

Version 1 attached, in case you need this.

Ngā mihi
Phillipa

From: Elana McNeill <Elana.McNeill@education.govt.nz>
Sent: Monday, 18 July 2022 3:30 PM
To: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Subject: FW: Proposed Adjustments to US32406

Kia ora Phillipa,

Now that the assessment event for litnum is finished we can go about actioning the minor changes to the numeracy standard as outlined in the memo attached. This has been approved by MOE and NZQA as below.

Are you happy to organise this at NZQA and coordinate with me so that we can organise at MOE as well?

Ngā mihi,

Elana

Elana McNeill | Senior Advisor
Te Poutāhū (Curriculum Centre)

DDI [REDACTED]

From: Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>

Sent: Monday, 23 May 2022 2:58 pm

To: Richard D'Ath <Richard.DAth@education.govt.nz>; Karen Chow <Karen.Chow@education.govt.nz>

Cc: Kevin Hoar <Kevin.Hoar@nzqa.govt.nz>; Miriam Bookman <Miriam.Bookman@education.govt.nz>; Elana McNeill <Elana.McNeill@education.govt.nz>

Subject: RE: Proposed Adjustments to US32406

I also support these changes.

Re timing – if the changes can be actioned before the end of next week, then I favour doing this asap. The important message in the communication to the sector is “This will have no impact on teaching and learning programmes, or on ākonga preparation for assessment”.

If it will take longer, then I feel it would be wise to delay actioning the changes until after the first assessment event. It would be potentially confusing for pilot schools with entries in the first assessment to take the messages on board correctly while they are about to engage with the assessment.

Ngā mihi

Sue

Sue Chalmers

Kaiwhakahaere Matua Aromatawai/Chief Advisor Assessment

Wāhanga Aromatawai/Assessment Division

NZQA

Ph: [REDACTED]

Mob: [REDACTED]

Ahakoā ngaru ana te moana, ka eke tonu nei te waka!

A choppy mountainous ocean can always be navigated by a small canoe!

From: Richard D'Ath <Richard.DAth@education.govt.nz>

Sent: Friday, 20 May 2022 3:45 PM

To: Karen Chow <Karen.Chow@education.govt.nz>; Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>

Cc: Kevin Hoar <Kevin.Hoar@nzqa.govt.nz>; Miriam Bookman <miriam.bookman@education.govt.nz>; Elana McNeill <elana.mcneill@education.govt.nz>

Subject: Re: Proposed Adjustments to US32406

Kia ora koutou,

I'm supportive of the changes - they seem very sensible! - pending confirmation of when the appropriate time to action them would be (based on NZQA advice).

Cheers,
Richard

From: Karen Chow <Karen.Chow@education.govt.nz>
Sent: Friday, May 20, 2022 3:24:34 PM
To: Sue.Chalmers <Sue.Chalmers@nzqa.govt.nz>; Richard D'Ath <Richard.DAth@education.govt.nz>
Cc: kevin.hoar@nzqa.govt.nz <Kevin.Hoar@nzqa.govt.nz>; Miriam Bookman <Miriam.Bookman@education.govt.nz>; Elana McNeill <Elana.McNeill@education.govt.nz>
Subject: Proposed Adjustments to US32406

Kia ora Richard kōrua ko Sue,

Please find attached a memo with three proposed adjustments to *US32406: Use mathematics and statistics to meet the numeracy demands of a range of situations*.

Ngā mihi

Karen

Karen Chow | Learning Area Lead | ELSA Secondary Tertiary Operations and Integration
DDI [REDACTED]
National Office Mataranga House

education.govt.nz

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From: [MaryJane Parker](#)
To: [Michael Clark](#)
Subject: RE: Requests for translation of English Medium assessments into Te Reo
Date: Friday, 12 August 2022 2:52:00 PM
Attachments: [image001.png](#)

[REDACTED]

From: Michael Clark <Michael.Clark@education.govt.nz>
Sent: Friday, 12 August 2022 2:44 PM
To: MaryJane Parker <MaryJane.Parker@nzqa.govt.nz>
Subject: FW: Requests for translation of English Medium assessments into Te Reo

[REDACTED]

[REDACTED]

[REDACTED]

Michael Clark | Project Manager
Te Poutāhū (Curriculum)

DDI [REDACTED] | Mobile [REDACTED]
National Office Mātauranga House

[REDACTED]

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[Te Mahau](#)



From: Michael Clark
Sent: Friday, 12 August 2022 2:42 pm
To: NZQA - Mary Jane Parker <maryjane.parker@nzqa.govt.nz>; Melissa Mead <melissa.mead@nzqa.govt.nz>
Cc: Miriam Bookman <Miriam.Bookman@education.govt.nz>; Nadja Weijs <Nadja.Weijs@education.govt.nz>; Crystalea Wilson Connell <Crystalea.WilsonConnell@education.govt.nz>; Elana McNeill <Elana.McNeill@education.govt.nz>; Kevin.Hoar@nzqa.govt.nz; Sue Chalmers <sue.chalmers@nzqa.govt.nz>

Subject: Requests for translation of English Medium assessments into Te Reo

Hi Melissa, Mary,

I discussed the matter raised following the request from Whakatane High regarding whether NZQA should continue to accede to requests for translation of English Medium assessments into Te Reo.

It is our understanding that currently NZQA rules specify that NZQA will translate papers unless there are specific exclusions.

Picking up on the point that Kevin Hoare made regarding numeracy and pāngarau, these two standards are different and are not direct translations of each other. The teaching and assessments to the standard are distinct also.

If NZQA do want to consider a change of policy regarding translation of the standards, we advise that:

- MOE would be reluctant for the policy to change without first thoroughly traversing the

policy issues

- NZQA should lead drafting of a short paper on the issue for the NCEA Programme Oversight (3 weekly) that we contribute to

NZQA would in the interim need to continue accommodating translation requests until a firm decision to the change the rule was approved by the NCEA Programme Oversight Group.

Regards,

Michael

Michael Clark | Project Manager

Te Poutāhū (Curriculum)

DDI [REDACTED] | Mobile [REDACTED]

National Office Mātauranga House

Michael.clark@education.govt.nz

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Te Mahau



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Lara Beiert

From: Miriam Bookman <Miriam.Bookman@education.govt.nz>
Sent: Tuesday, 29 November 2022 11:55 AM
To: Sue Chalmers
Cc: Phillipa Junger
Subject: RE: US 32406 request for information

Thanks Sue for following up – my apologies for not getting to this. I'll get back to you this week.

Ngā mihi

Miriam

Miriam Bookman (she/her) | Senior Manager (Acting) Secondary Tertiary, Pathways and Transitions
Te Poutāhū (Curriculum Centre)

DDI [REDACTED] | Mobile [REDACTED]

From: Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>
Sent: Friday, 25 November 2022 11:46 am
To: Miriam Bookman <Miriam.Bookman@education.govt.nz>
Cc: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Subject: FW: US 32406 request for information

Mōrena Miriam,

[REDACTED]

We are doing some end of year housekeeping. I do not recall receiving a response from the Ministry to the email I sent about 6 weeks ago. It would be good to have an understanding of your thinking as we undertake our review and evaluation of the 2022 assessments and possible impacts on the standards.

I look forward to hearing from you. Have a great weekend.

Ngā mihi
Sue

From: Sue Chalmers
Sent: Tuesday, 18 October 2022 5:19 PM
To: Miriam Bookman <miriam.bookman@education.govt.nz>; Elana McNeill <elana.mcneill@education.govt.nz>
Cc: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>; Linda Glogau <Linda.Glogau@nzqa.govt.nz>
Subject: FW: US 32406 request for information

Kia ora korua,

Phillipa has drawn this advice to my attention. We agree that there is an opportunity to address inconsistencies in the standard and previously approved those documented in the May memo. At the time our Approvals and Accreditation team evaluated and accepted the early recommendations, they also made

further recommendations for change. The rationale for these recommendations was also to address inconsistencies in the standard.

The September memo presents the Ministry's response to NZQA's recommendations. While we think implementing the recommendations would provide greater clarity for teachers and improve the standard, we can accept the Ministry's advice not to make the changes at this time, with one notable exception.

Paragraph 8 of the September memo refers to Outcome 1, in which it states "*mathematical and/or statistical approaches*", and is also reflected in the purpose statement. This is inconsistent with the title of the standard and the wording in Outcomes 2 and 3, and all other aspects of the standard. As the final sentence in paragraph 8 states "*The standard refers to both mathematics and statistics, not mathematics and/or statistics*", we do not understand why the Ministry would not make this change when the intent is clearly to assess both.

Paragraph 15 of the September memo suggests the reluctance for change may be because the recommendation has not come from the Standard Writing Group. However, it has come from the assessment development and marking teams, who have implemented the assessment and suggested this change is important. As the assessment activities are developed and marked externally, NZQA assessment developers can focus on the "*and*" of the "*and/or*" option, and develop assessments items that elicit evidence for both mathematical and statistical approaches.

However, during the time until the standard is reviewed, we are concerned about the potential for the existing wording to mislead teachers and their students into thinking only one of mathematical or statistical approaches is sufficient to meet the requirements of outcome 1.

Ngā mihi
Sue

Sue Chalmers
Kaiwhakahaere Matua Aromatawai/Chief Advisor Assessment
Wāhanga Aromatawai/Assessment Division
NZQA
Ph: [REDACTED]
Mob: [REDACTED]

Ahakoā ngaru ana te moana, ka eke tonu nei te waka!
A choppy mountainous ocean can always be navigated by a small canoe!

From: Elana McNeill <Elana.McNeill@education.govt.nz>
Sent: Thursday, 29 September 2022 1:03 PM
To: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Cc: Karen Chow <Karen.Chow@education.govt.nz>; Kevin Hoar <Kevin.Hoar@nzqa.govt.nz>
Subject: RE: US 32406 request for information

Kia ora Phillipa,

We would still need to make the changes in the previous advice as Sue and Richard had already approved it, and get Sue and Miriam across the advice not to make the more recent suggested changes.

Both memos are attached for your reference.

Are you happy to support the September advice so we can progress to Miriam and Sue?

The changes from the May advice are also provided in an attached amendment of the standard.

Ngā mihi,

Elana

Elana McNeill | Senior Advisor
Te Poutāhū (Curriculum Centre)

DDI [REDACTED]

From: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Sent: Tuesday, 27 September 2022 12:57 pm
To: Elana McNeill <Elana.McNeill@education.govt.nz>
Cc: Karen Chow <Karen.Chow@education.govt.nz>; Kevin Hoar <Kevin.Hoar@nzqa.govt.nz>
Subject: RE: US 32406 request for information

Mōrena Elana,
Thanks for this, I will attach the memo onto the case file.
Given the decision not to update now, I suggest we withdraw the application to review, just a technicality at my end.
Are you OK with that?

Ngā mihi
Phillipa

From: Elana McNeill <Elana.McNeill@education.govt.nz>
Sent: Tuesday, 27 September 2022 9:11 AM
To: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Cc: Karen Chow <Karen.Chow@education.govt.nz>; Kevin Hoar <Kevin.Hoar@nzqa.govt.nz>
Subject: RE: US 32406 request for information

Mōrena Phillipa,

[REDACTED]

We are in the process of reviewing it, we are thinking we might advise not making any additional changes at this stage, and to wait until the next review. The changes that we sent through were based on text found within the purpose statement, whereas the changes that NZQA has suggested were about consistency, but we are not sure which to prioritise over the others and do not want to interfere with the intention of the standards writers. Karen Chow has written a piece of advice (attached) to that effect that we have sent to Kevin Hoar, and we will progress it through approvals and at NZQA.

Thank you for following up on it,

Ngā mihi,

Elana

Elana McNeill | Senior Advisor
Te Poutāhū (Curriculum Centre)

DDI [REDACTED]

From: Phillipa Junger <Phillipa.Junger@nzqa.govt.nz>
Sent: Tuesday, 27 September 2022 8:47 am

To: Elana McNeill <Elana.McNeill@education.govt.nz>
Subject: RE: US 32406 request for information

Mōrena Elana
Hope you have a nice long weekend and that daylight savings hasn't thrown off your body clock too much.
Just checking in, how is this US review is going and when we can expect it back to us?
Ngā mihi
Phillipa

From: Phillipa Junger
Sent: Friday, 22 July 2022 2:38 PM
To: Elana McNeill <elana.mcneill@education.govt.nz>
Subject: US 32406 request for information

Kia ora Elana
The initial evaluation of this application is complete. Further information is required and this has been tracked and annotated on the unit standard document for your consideration.
Please refer to attached documents and feel free to contact me, if anything is required or you would like to discuss.
Ngā mihi
Phillipa

Phillipa Junger ([she/her](#))
Team Leader Transitional ITOs and Qualifications
Approvals and Accreditation
Quality Assurance Division
New Zealand Qualifications Authority
Mana Tohu Mātauranga o Aotearoa

125 The Terrace PO Box 160 Wellington 6140	 +64 4 463 3293  0800 697 296  Phillipa.Junger@nzqa.govt.nz  http://www.nzqa.govt.nz	
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Te manu ka kai i te miro, nōnā te ngahere. Te manu ka kai i te mātauranga, nōnā te ao
The bird that partakes of the berry, his is the forest. The bird that partakes of knowledge, his is the world.

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From: [Sue Chalmers](#)
To: [Jonathan Teppett](#)
Subject: FW: Various litnum matters
Date: Monday, 15 May 2023 1:20:18 PM
Attachments: [image001.png](#)
[200522 Memo for US32406.docx](#)

From: Miriam Bookman <Miriam.Bookman@education.govt.nz>
Sent: Thursday, December 8, 2022 4:59 PM
To: Sue Chalmers <Sue.Chalmers@nzqa.govt.nz>
Subject: Various litnum matters

Kia ora Sue

[Redacted]

[Redacted]

Numeracy standard

Thanks for picking this up again. In terms of your email, I may have my wires crossed a bit (and a little tricky to follow up with Elana having left), but I think the advice not to make the changes now was a hangover from the May advice. I think it's timely to make changes for next year.

We've made some clarifications in the attached memo to differentiate the title of the standard itself from the individual process ideas (outcomes) that make up the standard.

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Ngā mihi

Miriam

Miriam Bookman (she/her) | Senior Manager (Acting) Secondary Tertiary, Pathways and Transitions
Te Poutāhū (Curriculum Centre)

DDI [Redacted] | Mobile [Redacted]
National Office Mātauranga House
education.govt.nz

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