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# National Certificate of Educational Achievement Online (NCEA Online) External Digital Assessment 2017 Trials and Pilots

## User Experience Evaluation Report

### June 2018

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## GLOSSARY

<i>2017 EDA Trials &amp; Pilots</i>	NCEA: External Digital Assessment Trials and Pilots Project 2017
<i>API</i>	Application Programme Interface
<i>BYOD</i>	Bring Your Own Device – school policy for student access to digital devices (e.g. laptops, Chromebooks, iPads etc)
<i>CMT</i>	Co-Managed Trials
<i>DAT</i>	Digital Assessment Transformation
<i>EDA</i>	External Digital Assessment
<i>eQA</i>	NZQA qualifications information management system
<i>IAM</i>	Identity and Access Management
<i>NCEA</i>	National Certificate of Educational Achievement
<i>NCEA Online</i>	NCEA Online: Transforming Assessment for Learners
<i>N4L</i>	Network for Learning
<i>NZQA</i>	New Zealand Qualifications Authority
<i>STEM</i>	Science Technology Engineering and Mathematics

## Overview

This document outlines the major user experience evaluation findings arising from surveys of participants in the 2017 NCEA Online Levels 1 and 2 Digital Trials and Pilots. A range of learners, teachers, Principal's Nominees (PNs), markers and Examination Centre Managers (ECMs) provided feedback to surveys, contributed to progress meetings for Co-Managed Trials (CMT), and participated in focus groups to inform this report.

The document also outlines the findings from the psychometric evaluation of the results from the Level 1 English Pilot. Psychometric analysis for other Pilot subjects is not included because of the limited sample size.

Digital Trials were designed for schools to use as practice assessments and were marked by teachers. Student results did not count towards NCEA, but could be used as evidence towards a derived grade if needed and undertaken under the correct conditions.

Co-Managed Trials (CMT) were a new development for 2017. They were designed to enable NZQA to work closely with a small group of schools to identify further areas of development, refinement and implementation of systems and processes associated with external digital assessment. CMT assessments were marked by NZQA markers. CMT Trial subjects were also available to schools which were not part of the CMT initiative.

Digital Pilots were designed to be used in place of the paper-based end of year external examinations. The student results from the Pilots counted towards NCEA and were marked by NZQA markers. The rigour of the Digital Pilots was expected to be consistent with that of paper-based assessments in every way.

More details, including the following evaluative documents, are available on the NZQA website at: <http://www.nzqa.govt.nz/about-us/future-state/previous-digital-trials-and-pilots/>

### NCEA Online Trials and Pilots Dashboard

#### Survey reports:

Student Survey – Level 1 Digital Trial Examinations 2017

Student Survey – Level 1 and 2 Digital Pilot Examinations 2017

Teacher Survey – Digital Trials 2017

Principal Nominee Survey – Digital Trials and Pilots 2017

Examination Centre Manager / Supervisor Survey – Digital Pilots 2017

Marker Survey – Digital Pilots 2017

#### Psychometric Analysis:

*Psychometric and statistical analysis of the Pilot delivery of English Level 1 externally-assessed achievement standards using digital medium*

## Approach to 2017 Trials and Pilots

A key focus for 2017 Trials and Pilots of externally assessed standards was to significantly increase participation, especially of Māori and Pasifika learners in Science, Technology, Engineering and Mathematics (STEM), through a more active engagement and support model than in 2016. This was effected primarily through the Principal's Nominees seminars and one to one relationships with schools and kura.

In addition, by comparison with 2016, greater emphasis was placed on Trials rather than Pilots, with the following subjects offered to schools:

Type	Subject		
<b>Trial (Level 1)</b>	<ul style="list-style-type: none"> <li>• Art History</li> <li>• Economics</li> <li>• Geography</li> <li>• History</li> <li>• Spanish</li> </ul>	<ul style="list-style-type: none"> <li>• Business Studies</li> <li>• English</li> <li>• Samoan</li> <li>• Media Studies</li> <li>• Science</li> </ul>	<ul style="list-style-type: none"> <li>• Classical Studies</li> <li>• French</li> <li>• Health</li> <li>• Physics</li> <li>• Te Reo Rangatira</li> </ul>
<b>CMT (Level 1)</b>	<ul style="list-style-type: none"> <li>• English</li> </ul>	<ul style="list-style-type: none"> <li>• Media Studies</li> </ul>	<ul style="list-style-type: none"> <li>• Classical Studies</li> </ul>
<b>Pilot (Levels 1 and 2)</b>	<ul style="list-style-type: none"> <li>• English</li> </ul>	<ul style="list-style-type: none"> <li>• Media Studies</li> </ul>	<ul style="list-style-type: none"> <li>• Classical Studies</li> </ul>

Schools had two opportunities to participate in Digital Trial examinations, 11-29 September and 16-27 October, and had control over when they offered them within these two periods. 4,985 students participated in at least one of the Digital Trial Examinations, from 89 schools.

Materials used for the Digital Trial examinations were created from a combination of previous years' examination papers. Schools choosing to complete Digital Trial examinations as a practice examination could use them as evidence for derived grades. The 2017 Digital Trials provided digital assessment that was like the paper based examination but was augmented by use of technologies. The Digital Trial subjects were selected to provide a range of assessment types – short answer, paragraph, some equations (Physics), languages, the use of digital stimulus material, student responses that are not text based (Economics), and open access to the internet (Art History). As with the 2016 Trials and Pilots, the purpose of providing this range of subjects and assessment was to investigate how these forms of assessment work in a digital context and identify issues that will require resolving for the full implementation.

The six Digital Pilot examinations (Levels 1 and 2 English, Media Studies and Classical Studies) were created as digital substitutions for the paper examination, and the results counted towards NCEA. 4,226 students from 54 schools participated in at least one of the Digital Pilot examinations.

The cohort of students who undertook these subjects as a Pilot in 2016 were prioritised for the Level 2 Pilot. Of the students who participated in the Level 2 Digital Pilot examinations in 2017, 651 had participated in the Level 1 Digital Pilot examinations offered in 2016.

In the Trials and Pilots students experienced these tools: text editing; copy and paste within the digital examination; word count in some subjects; spell check in some subjects.

The setup, invigilation and marking of Digital Trials (excluding CMT) was undertaken by schools. Schools exercised free choice over how they used the Digital Trials – whether as a practice examination completed in one sitting, as a classroom activity completed over multiple sessions, or as a revision exercise.

In the three language Trials (French, Samoan and Spanish) and Te Reo Rangitira, candidates had full agency over audio playback. Candidates had the ability to pause, rewind, fast-forward, skip and had unlimited playback of audio.

### ***Approach to gaining feedback from external stakeholders***

The approach to seeking feedback for the user experience evaluation included surveys of participants:

- Teachers and PNs were surveyed at the end of each Trial.
- Students were provided a link to a survey form when submitting their examination responses for both Trials and Pilots.
- ECMs, supervisors and markers received a link to a survey in January 2018.

Focus groups were held at NZQA National Office in March 2018 for students, teachers, PNs and ECMs from eight schools. These sessions provided more in-depth feedback than that elicited from the surveys, and also provided input into NZQA's future planning.

# User experiences

This section gives a high-level overview of the feedback received from students, teachers, Principal's Nominees, Examination Centre Managers / supervisors, and markers.

## *Student experience (Trials)*

### **Overall satisfaction**

Students were positive about completing a Digital Trial examination, with 80% of respondents (755 of 939) agreeing or strongly agreeing it was a positive experience. Levels of satisfaction were higher than they were for the 2016 Trials, when only 64% felt it was a positive experience.<sup>1</sup>

Responses were mixed when students were asked whether they preferred completing the examination digitally or on paper, with 61% (576 of 941) agreeing or strongly agreeing that digital was preferable, and 39% (365 of 941) disagreeing or strongly disagreeing.<sup>2</sup>

Again, responses were analysed separately by Digital Trial subject to determine whether there were any differences depending on the examination the respondents completed digitally. There are clear differences by subject. For Science and Economics, 43% and 44% of respondents respectively agreed or strongly agreed that they preferred completing the examination digitally. In contrast, for Health it was 81%, for English 79% and for Spanish and French 78%.

Students were asked what they liked most about completing the Digital Trial examination and what they disliked most. The answers were free text, and key themes and selected representative quotes are presented by Digital Trial subject in a separate report (*Student Survey – Level 1 Digital Trial Examinations 2017*) available on the NZQA website at: <http://www.nzqa.govt.nz/about-us/future-state/previous-digital-trials-and-pilots/>

The responses show some differences depending on the Digital Trial subject examined. Responses for subjects requiring essay type answers, e.g. English, History, Classics, Business Studies and Language subjects, e.g. French and Spanish were more positive than responses for subjects where graphs and formulas had to be created, e.g. Geography, Economics, Science and Physics.

## *Student experience (Pilots)*

The student survey was designed to measure students' self-reported satisfaction and experience of the Digital Pilot examinations, administered by NZQA during November and December 2017. The survey included establishing whether the students regularly used electronic devices at home and at school.

NZQA received 1,068 survey responses from 1,047 students. Some students sat more than one digital examination and therefore answered the survey more than once. Students logged into 4,498 sessions. This gave a survey response rate of 24%.

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<sup>1</sup> There were some technical and software issues in 2016 that have since been addressed.

<sup>2</sup> This was not a question in the 2016 survey.

## **Overall satisfaction**

Student responses were positive about completing a Digital Pilot examination, with 98% (967 of 990) agreeing or strongly agreeing it was a positive experience. More respondents strongly agreed that it was a positive experience (54%) than agreed (44%). Levels of satisfaction were slightly higher than for the 2016 Digital Trials where 92% felt it was a positive experience.

Student responses were analysed separately by Digital Pilot subject and level to determine whether there were any differences in satisfaction levels depending on the type of subject being examined digitally. There were no significant differences.

Students also indicated a strong preference for completing the examination digitally rather than on paper with 95% (941 of 990) agreeing or strongly agreeing that digital was preferable to paper-based. More respondents strongly agreed that digital was preferable (64%) than agreed (32%).

When asked what they liked most about completing the Digital Pilot examination and what they disliked most, student responses included ease and speed of typing versus writing including editing, and the opportunity to correct mistakes.

*"Since there was a lot of writing in this exam, typing made it physically easier to cope and I was able to go back and get rid of any mistakes I made which made my thought process easier to understand and my writing clearer."*

*"I find it so much faster to do. Also easier because when you get a thought you can quickly type it in to the planning box to save it for later. Typing is good because you can get the thought or quote out onto the screen quicker before you forget it. A good lay out also so you can see the text right next to your writing. The drop boxes of language features is also really good. I enjoyed being able to push the button that skips back and forward through the papers / tests and I could jump from one to the other and easily just pick up where I left off."*

Common themes in response to the question "What did you dislike most about completing the exam digitally" included eye fatigue, battery, network, connectivity and device issues, and general comments along the lines of "Nothing, I really liked the exam".

*"The constant tap tap tapping of the keyboards in the room made it harder to concentrate on writing than if we were to do it on paper"*

*"The school desktop computer annoys me a lot. The keyboard for one and the fact i am not used to it so it takes awhile to get myself used to it. Also i hate the fact i can't turn down the screen brightness. Writing this now, my eyes are quite blurry from the 3 hours staring at this bright screen. Some feedback would be for NZQA to allow chargers to be entered into the exam and especially for the school to provide more charger places for the chargers during the exam. note most of this feedback is for my school - i really like the digital format!"*

## **Student survey feedback**

Respondents provided a range of suggestions in answer to the question "Are there any features or functions that you think future digital assessments should include?". Common feedback themes from respondents included feedback on spell check, the word count function, the ability to highlight texts, and scrolling issues.



*"I think that the digital exams should not be changed, I do think that all future exams should be digital."*

*"I honestly can't think of anything that I think could have been better. Everything worked really well, but it was simple enough to not be too overwhelming. I think the minute you start adding other features it might become too confusing. I really enjoyed the experience overall."*

*"With the planning space, it'd be cool if you could see all your writing at the same time rather than have to scroll through it all in a small box - but apart from that it was good! :)"*

*"I want the digital exam to continue to be an option for all year levels and possibly branch out into the humanities subjects as that would highly increase their chances of getting a better grade if the option was available."*

*"- Adding a highlight function on unfamiliar texts- Adding a control-f/search function on unfamiliar texts without triggering the black screen- I found that there were too many scrolling bars which was slightly confusing- For unfamiliar, even after completing all 3 sections, it showed up yellow, not green"*

### **Student focus group feedback**

All students in the focus group were positive about the Trials and Pilots and stated a clear preference for participating in digital examinations. *"Most people type rather than write because [computers] are used more often"*. Compared to paper-based examinations, digital examinations were *"easier to write"* and *"get [my] thoughts down better"*. They also stated an expectation that digital examinations would get easier and better to use as time goes on.

When asked about how they made the decision to participate in the Trials and Pilots, there was general agreement that students were not consulted about participating in the Digital Trial examinations but were given a choice about whether to participate in either digital or paper-based external examinations. The view was shared that older teachers are less trusting of digital technologies and were therefore less confident than students.

Students asserted that having one's own personal device rather than a shared device during the examination was important, as they felt that their own device could be *"trusted"* i.e. was reliable, and familiar to the user, with the software application operating in the same way every time. However, only two of the focus group students used their own devices during the Trials and Pilots. The view was expressed that all students should use the same devices, so that they have the same examination experience.

Students reported that the sound of typing keyboards during the examinations was intrusive. Not all students used all available software functions (spell check, font size, resizable screen) but all appreciated the ability to have some control over the interface during the examinations. Some students experienced problems logging in due to incorrect information made available at the start of the examination; another reported that the word count 'red line' was *"intimidating"*; and these situations were stressful. Students would prefer to use familiar logins that are used at school every day.

## **Teacher experience (Trials)**

The teacher survey was designed to measure teachers' self-reported experience of managing Digital Trial examinations in their schools. Of the 380 teachers who managed Digital Trial examinations, 77 (20%) completed the online survey.

### **Overall teacher view of participating in the Digital Trials**

47% (35 of 74) of respondents agreed or strongly agreed with the statement that students were more engaged throughout the Digital Trial examinations compared to paper-based examinations. 53% (39 of 74) disagreed or strongly disagreed with this statement.

69% (51 of 74) of respondents agreed or strongly agreed that sitting a Digital Trial examination was a good preparation for NCEA. This is a similar level to 2016 when 66% (31 of 47) of respondents agreed or strongly agreed that sitting a Digital Trial examination was a good preparation for NCEA.

70% (52 of 74) of respondents agreed or strongly agreed with the statement that they would encourage their students to sit the Digital Trial examinations and/or the Digital Pilot examinations in 2018. This is an increase from 2016 when only 50% (28 of 56) agreed or strongly agreed.

70% (51 of 73) of respondents agreed or strongly agreed with the statement that Digital Trial examinations should be extended to Digital Pilots. This is an increase from 2016 when only 55% of respondents (31 of 56) agreed or strongly agreed.

43% (31 of 72) of respondents agreed or strongly agreed that experiencing the 2017 Digital Trial examinations has encouraged them to use more digital tools in their teaching. 57% (41 of 72) disagreed or strongly disagreed.

### **The Digital Trial examination**

71% (55 of 77) of respondents agreed or strongly agreed that overall, the administration of the Digital Trial examinations was easy. This is an increase from 2016 when 66% (35 of 53) agreed or strongly agreed. 65% (49 of 75) of respondents did however report that there were technical problems or other issues that arose during the administration of the assessments. This is slightly lower than in 2016 when 76% (37 of 49) reported experiencing technical problems.

Technical and other issues reported included issues with logging in, scrolling, and passwords.

*“Usernames and passwords were not accepted and needed assistance from NZQA Technical Team. Was locked out of exam and could not mark papers.”*

*“One student on a older computer could not view the whole page of the exam, as her computer would only let her scroll so far. Students who had a better computer were advantaged. Typically students from lower decile families had poorer devices or a ipad / tablet which was a disadvantage.”*

*“The process of distributing passwords and getting students to login was very difficult. I had to send more than 100 individual emails and copy and paste the complex password in an email to each student.”*

### **Marking Digital Trial examinations**

Digital Trials (excluding CMT) were marked by teachers. 76% (55 of 72) of respondents agreed or strongly agreed that overall, the marking process produced fair outcomes for students. This is a similar proportion to 2016 when 73% (36 of 49) respondents agreed or strongly agreed.

73% (51 of 70) of respondents agreed or strongly agreed that the marking instructions provided were easy to follow. This is an increase from 2016 when only 63% of respondents agreed or strongly agreed.

49% (35 of 71) of respondents agreed or strongly agreed that marking online took less time than marking on paper. This is an increase from 2016 when 35% (17 of 49) of respondents agreed or strongly agreed.

23% (23 of 74) of respondents agreed or strongly agreed that students' results in the Digital Trial examinations were negatively affected by their computer literacy. This is a drop from 2016 when 52% (26 of 50) agreed or strongly agreed.

### **Teacher survey feedback**

Many of the respondents gave detailed feedback including feedback they had received from students. Responses included feedback about the communications and support received from NZQA, administration issues, the quality of some of the Digital Trial examinations (e.g. that some questions from past papers were reused), the marking process, and the limitations of using digital examination resources (e.g. difficult to highlight and annotate).

*“Compared to last year, this ran without any issue. Our school will need to think about organising the room differently, offering power points for all students as many computers did not keep their charge for the length of the examination. Chrome books were not as good, compared to 'proper' laptops, for seeing screen and questions. All in all, a positive experience for the students. As a teacher, I had very little information passed on to me and we have a pro-active principal nominee. The staff at the help desk were patient and helpful, despite having to contact them repeatedly. As stated, the marking took me a lot longer. I usually mark one question at a time, to keep consistency high with the added advantage of memorising most answers- and could not do this here. This might be something worth exploring if at all possible for markers? Thank you for this opportunity and looking forward to next year's pilot.”*

*“Marking was awful, couldn't give feedback<sup>3</sup> to students without screen shotting every answer and exporting. Also as we were using these as a Prelim and potential providing to NZQA for derived grades, it was disappointing to see such a recent past paper being used for students. I had personally done the exact exam with students.”*

### **Focus group feedback**

Feedback from the teacher focus group was positive about the Digital Trials and Pilots, noting that their students want to do digital examinations, and that students find working on paper harder than working digitally. One respondent stated that it was difficult to moderate

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<sup>3</sup> As a matter of scope management, current implementation does not allow for free text commentary.

assessments between students' paper and digital responses provided in practice examinations.

There was general agreement that Digital Trials prompted more use of devices and activities in class e.g. quizlet, Moodle, listening activities for languages, Padlet etc. Teachers would like to be able to interact with the Digital Trial examinations more, for example creating notes and highlighting on screen to give feedback to students after the Trial. They would also prefer to have hyperlinks to important information e.g. URLs, NZQA information, emails, rather than information provided on paper.

When asked about student participation in external assessment, one respondent said that, as with all students in the whole cohort, Māori and Pasifika students were more likely to participate in a digital examination, were more engaged, and were perceived to achieve better digitally than on paper. However, it was also reported that Māori and Pasifika students were more likely to do internal than external assessments.

The group expressed concern about how they promote equity of access and noted in general if there were issues with technology (e.g. access, reliability, security etc) schools/students opted out of digital examinations. Further concern about accessibility to digital devices for all students was noted, and that not all digital devices are suitable for assessment in classrooms, e.g. smart phones. The importance of students having opportunities to learn keyboard skills was stated. Students with poor access to digital devices and contexts means that they are also less confident working digitally. This was also true for teachers for whom there is also a range of confidence levels within schools.

### *Principal's Nominees' experience (Trials and Pilots)*

The Principal Nominee survey was designed to measure Principal Nominees' self-reported experience of managing Digital Trial examinations in their schools.

113 unique schools participated in the Digital Trials and / or Pilots in 2017.

Of the 113 Principal's Nominees of schools that participated in Digital Trials or Pilots, 25 (22%) completed the online survey.

#### ***Participating again in 2018***

88% (22 of 25) of the Principal's Nominees who responded to the survey agreed or strongly agreed that they would support their school participating in Digital Trial and/or Pilot examinations in 2018.

#### ***Communications and instructions from NZQA***

88% (22 of 25) of the Principal's Nominees who responded to the survey agreed or strongly agreed that the communications and instructions received about the Digital Trial and Pilot examinations provided sufficient information.

60% (15 of 25) of the Principal's Nominees who responded to the survey agreed or strongly agreed that the communications and instructions received about the Digital Trial and Pilot examinations were easy to understand.

72% (18 of 25) of the Principal's Nominees who responded to the survey agreed or strongly agreed that the communications and instructions received about the Digital Trial and Pilot examinations were well timed.

21 of the 25 Principal's Nominees who responded to the survey said they contacted NZQA for support. 86% (18 of 21) agreed or strongly agreed that the help and support they received from NZQA was useful.

76% (19 of 25) of the Principal's Nominees who responded to the survey agreed or strongly agreed that they were able to confidently support the teachers and students in their school with the information provided by NZQA.

### ***Focus group feedback***

Principal's Nominees participating in the focus group were positive about the 2017 Trials and Pilots stating that the students were keen to take part, and for those students with Special Assessment Conditions (SAC) who require a computer to participate in the examination, the process was great. It was acknowledged that there had been improvements in the Trials and Pilots process from 2016. There was agreement that delivering a Digital Trial before a Pilot provided the best results for students and schools. *"Students could manage without a Trial, but not the system, supervisors, and others."*

When asked about Māori and Pasifika student participation in Digital Trials and Pilots, a view was expressed that internal assessment is favoured over external assessment. It was suggested that digital examinations may help engage all students in external assessment.

Principal's Nominees noted that they required the right information (about Digital Trials and Pilots) at the right time, in a way that can be repackaged for their own students e.g. the ability to sort student lists provided by NZQA.

There was acknowledgement that the set up for digital examinations involves more planning than for paper examinations, e.g. desk placement, the number of students per room, the load on the school network, access to power for devices, the number of rooms needed. Some schools provide backup devices for students in case of emergency such as misplaced or unavailable device. It was noted that more supervisors will be needed as the number of rooms used for External Digital Assessment increases. Engaging tertiary students in supervision could be an answer, assuming that their availability continued to coincide with the timing of NCEA examinations and that this group is more comfortable with digital technologies.

One school's Principal's Nominee reported some negative feedback about the word count alert in the Pilot, which had created stress for some students. This resulted in some parents raising the matter directly with the school after the examinations were completed.

### ***Examination Centre Manager / supervisor experience (Pilots)***

The Examination Centre Manager / supervisor survey was designed to measure Examination Centre Managers' (ECM) and/or supervisors' self-reported experience of invigilating a Digital Pilot examination, including their experience of the dashboard.

Of the 397 ECMs / supervisors who supervised the digital examinations<sup>4</sup>, 92 (23%) completed the online survey. The respondents did not answer all the questions in the survey.

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<sup>4</sup> Data extraction limitations mean that although this count of ECMs/supervisors is considered to be a reasonably accurate figure, it is not necessarily 100% accurate.

Of the 92 respondents, 39 were ECMs and 53 were supervisors. As the response patterns for ECMs and supervisors do not differ in a statistically significant way, the responses are presented together.

57% (47 of 83) of respondents had been an ECM / supervisor for previous examination rounds, and 38% (34 of 89) of respondents had managed or supervised a digital examination in 2016. In 2016, the percentage of respondents who had experience in supervising or managing examination rounds was greater, at 80% (64 of 80).

### ***Overall experience compared to paper-based invigilation***

Respondents were asked to rate the relative difficulty of managing digital versus paper-based examinations. 51% (39 of 76) of respondents found supervising digital examinations somewhat easier or much easier, whereas 49% (37 of 76) of respondents found supervising paper-based examinations somewhat easier or much easier. This is an improvement from 2016 when 78% (46 of 59) of respondents found supervising digital examinations harder than supervising paper-based examinations.

94% (81 of 86) of respondents agreed or strongly agreed that they felt confident managing possible breaches of the rules in the digital examination room. This is an increase from 2016 when 79% (65 of 82) of respondents agreed or strongly agreed.

### ***Support from NZQA, support from schools, room set up***

97% (38 of 39) of respondents agreed or strongly agreed that the support from NZQA for the management of the digital examinations was adequate. This is an increase from 2016 when 85% (51 of 60) of respondents agreed or strongly agreed to a similar statement.

92% (35 of 38) of respondents agreed or strongly agreed that the support from the schools for the management of the digital examinations was adequate.

87% (33 of 38) of respondents agreed or strongly agreed that they found it easy to set up the room to minimise the risk of breaches of the examination rules. This is a similar level to 2016 when 89% (50 of 56) of respondents agreed or strongly agreed.

### ***Operating the supervision dashboard***

During Digital Pilot examinations, ECMs and supervisors have access to a device with a virtual dashboard that provides an overview of student activity.

The dashboard is used to monitor student progress and log students back into the examination if they have been locked out.

94% (84 of 89) of respondents agreed or strongly agreed that the dashboard was easy to operate. This is an increase from 2016 when overall, 52% (43 of 82) of respondents<sup>5</sup> agreed or strongly agreed.

99% (87 of 88) of respondents agreed or strongly agreed that the dashboard was useful in assisting with supervision of the digital examinations. This is an increase from 2016 when 70% (49 of 70) of the respondents agreed or strongly agreed.

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<sup>5</sup> In 2016, there were technical issues that arose during the English Level 1 Digital examination. These were resolved by the time the Media Studies and Classical Studies Level 1 Digital examinations took place.

86% (70 of 81) of respondents agreed or strongly agreed that the dashboard was useful in managing any issues. This is an increase from 2016 when 68% (48 of 71) of respondents agreed or strongly agreed.

85% of respondents agreed or strongly agreed that they found it easy to allocate candidates to rooms using the dashboard. Comments were mainly about technical difficulties with logging into the ECM dashboard.

### **Candidates switching to paper**

41% (36 of 87) of respondents had candidates who switched to paper after starting the examination digitally. This is a decrease from 2016 when 58% (42 of 72) of respondents had candidates who switched to paper after starting the examination digitally.

Of the 36 respondents who had candidates who switched to paper, 39% (14 of 36) agreed or strongly agreed that having candidates switch to paper during the examination made supervision harder, and 19% (9 of 36) agreed or strongly agreed that candidates switching to paper was disturbing to other candidates.

### **Survey feedback**

Feedback about training and guidance provided by NZQA was very positive. Respondents agreed or strongly agreed that the training for Digital Pilot examinations prepared them well (85%) and that the guide notes and materials were useful (85%).

*“The whole operation this year was significantly better than last year due to (a) Better training, (b) A stable fully functional Dashboard, (c) having the service provided on a computer facility that could cope with the workload, particularly at “start up “time. As the usage increases with more students using the Digital facilities, it will be critical to ensure that the processing capacity is increased appropriately to meet the increased demand.”*

*“Training – useful – Manual good. Trained a Supervisor – who got stuck in Wellington day of exam! – used another untrained Supervisor – still worked well”.*

Much of the feedback received discussed room preparation, IT support, and support from NZQA. In 2017 NZQA staff were on site during the digital examination sessions.

*“Having the school, IT and NCEA [NZQA] support staff helped a lot. Sometimes it is only possible to learn by doing with support. The training book didn’t provide this. Digital exams are not easier or harder but quite different. There are good and bad points about all exams.”*

*“The exams won’t run well if the school isn’t really on task. My school didn’t prepare rooms very well or give the candidates their passwords until they entered the exams. This caused confusion and anxiety. Staff handing out the passwords obviously felt they shouldn’t have to and were inclined to be bossy and grumpy, no doubt blaming NZQA rather than their own school.”*

*“The smooth running of digi exams for us was due in a large part to the support of the school ensuring adequate and appropriate space was available along with the supply of power boards and tapping down of power cords. The small number of candidates in each of the exams also played a part in the smooth running - we would struggle to provide power supply to larger numbers, L1 candidates have newer laptops with longer battery life. However, L2 candidates all required a power supply as their machines*

*were older with battery life that would struggle with the full exam period. The school would be challenged to provide all candidates with a power supply in larger session numbers for both power outlets and exam spaces.”*

*“NZQA Helpline was efficient and very good.”*

### **ECM focus group feedback**

Feedback from ECM focus group participants supported the survey feedback. This group also emphasised the importance of the relationship between the Principal’s Nominee (PN) with respect to good communication about and preparation for digital examinations. Those ECMs who were involved early with school preparation, for example observing at a Digital Trial, participating in school meetings etc, reported feeling more supported and positive than those who did not have those opportunities.

Participants reported that attending a Digital Trial was helpful in getting a ‘feel’ for digital examinations and understanding what the student was experiencing. Another indicated the importance of documenting their own (school) processes involved in setting up and managing the digital examination, so that it could be referred to in subsequent years. All participants had school-based IT support technicians who were actively supporting the digital examination sessions preparation and on the day.

Participants reported that the level of digital skills among supervisors varied greatly. Access to a sufficient group of supervisors with sufficient digital skills was noted as important.

Two participants commented that students with Special Assessment Conditions (SAC) in the digital examinations “*felt empowered*” and were “*part of the group, same as everyone*”.

### **Marker experience (Pilots)**

The marker survey was designed to measure markers’ self-reported experience of marking a digital examination, including their experience of the marking tool. The marking application was an online interactive tool which enabled markers to mark student responses.

#### **Overall satisfaction**

Overall, markers were positive about the digital marking process. 94% (59 of 63) of respondents either agreed or strongly agreed that the digital marking process was satisfactory. This is an increase on 2016 when 71% (15 of 21) respondents either agreed or strongly agreed.

83% (53 of 64) of respondents agreed or strongly agreed that the digital marking application had all the tools they needed for marking. This is an increase from 2016 when 71% (15 of 21) of respondents agreed or strongly agreed.

81% (52 of 64) of respondents agreed or strongly agreed that the digital marking interface was easy to use. This is a similar level of positive response to 2016 when 81% (17 of 21) of respondents agreed or strongly agreed.

43% (27 of 63) of respondents experienced technical issues when marking the digital examination. This is a decrease from 2016 when 75% (15 of 20) of respondents experienced technical issues when marking the digital examination. The 27 respondents provided comments about what they experienced. 12 respondents reported issues to do with multiple markers accessing the same script to mark.



*“It seems it was possible to have two markers working on the same script at the same time. Several times I opened a script, only to find the grade button had disappeared and I had no choice but to exit. I then found either someone else had allocated a grade to the paper.”*

Other technical issues reported included problems with grades assigned defaulting to N0 and with font size.

### **The online marking experience**

98% (62 of 63) of respondents agreed or strongly agreed with the statement that their marking of digital assessments produced the same results as it would have for identical assessments completed on paper. This is an increase on 2016 when 83% (15 of 18) of respondents agreed or strongly agreed.

75% (47 of 63) of respondents agreed or strongly agreed that the marking of digital examinations took less time than the paper examination. This is an increase on 2016 when 62% (13 of 21) of respondents agreed or strongly agreed.

### **Survey feedback**

*“Way way simpler than paper marking. No containing, no couriers, no papers to lose etc. Much prefer it.”*

*“It is a process that needed to be double marked - I went back through the ones I had marked the next day and checked that I was happy with the grade awarded and made changes where appropriate. This is an important step in the process and I believe should be done to ensure the integrity of your marking.”*

*“Online marking is a lot faster and therefore I think vulnerable to tired markers :- ) - I needed to have a break every hour between marking papers online because you get into a roll and mistakes I think could happen.”*

*It would be helpful to have ‘No Grade’ as the default and be required to enter N0 manually, to avoid papers being accidentally given a N0.”*

## Psychometric analysis (Level 1 English Pilot)

*Psychometric and statistical analysis of the Pilot delivery of English Level 1 externally-assessed achievement standards using digital medium*

NZQA worked with an external expert to undertake a comparative study of the performance of digital-format students in the Level 1 English Pilot digital examination versus paper-format students in the English Level 1 paper-based examinations.

A total of 45 schools took part in the Digital Level 1 English Pilot. There were no criteria imposed on schools for who to select for participation in the Digital Pilot. The format of the digital and paper-based examinations was identical in all respects apart from the medium.

The purpose of the psychometric and statistical analyses was to investigate whether the medium of examination delivery (digital or paper) gave candidates an equivalent assessment opportunity.

The first analysis was restricted to the 45 participating schools, and compared the performance of the students who took the digital examination to the performance of the students who took the paper-based examination. No attempt was made to account for differences in ability between the two groups. The second analysis compared the performance of the students who sat the digital examination at the 45 participating schools to a matched sample of New Zealand students who sat the paper-based examination and who had the same results in the same set of internally-assessed Level 1 English achievement standards. This was done to attempt to control for any difference in ability between the two groups.

The analyses show higher performance in the digital format than in the paper format, particularly in terms of the relative proportions of candidates gaining credit. The analyses also suggest that this higher performance is probably due to both differences in the characteristics of the candidates sitting the assessment in each of the two formats (digital or paper) and the characteristics of the formats themselves.

Some possible reasons for the higher performance of the digital candidates are that, on average, more confident or able candidates opted for the digital format, on the basis that less confident candidates would be more likely to want to use a testing format that is familiar to them (paper), and that students, particularly those performing near the *not achieved / achieved boundary*, found the digital format more accessible for Level 1 English, which is a relatively writing intensive assessment. In particular they might have found it easier and less time consuming to type rather than hand-write their responses.

Care should be taken in generalising the findings from the analyses too widely at this stage due to the small numbers of candidates and schools participating. However the findings suggest that, in assessments requiring similar skills to Level 1 English, if digital assessment was to be adopted on a large scale, some increase in student achievement might be expected.

## Observed Trials

In this category of Digital Trials, schools were approached directly and invited to participate, based on the school's participation in 2016 Trials and the opportunity for NZQA to observe and access small groups of students in schools.

### *Co-Managed Trials (CMT)*

The CMT initiative was an opportunity to gain further understanding of how NZQA could support students and schools to prepare for external digital assessment.

Level 1 Classical Studies, Level 1 English and Level 1 Media Studies were offered as Digital Trial subjects. The following 13 schools participated in the CMT: Orewa College, Sacred Heart College (Auckland), Epsom Girls' Grammar School, Tolaga Bay Area School, Tamaki College, Palmerston North Boys' High School, Karamu College, Paraparaumu College, King's High School, Cashmere High School, St Hilda's Collegiate School, Hamilton Girls' High School, and Wakatipu High School. A series of short case studies was developed based on the observations of the CMT, and these are available on the NZQA website at: <http://www.nzqa.govt.nz/about-us/future-state/digital-assessment-trials-pilots/cmt-case-studies/>.

Four touchpoint meetings took place between NZQA and key staff and some students at each school. These meetings: set the scene (February/March 2017); prepared staff for delivery of the CMT (May/June 2017); sought feedback about any issues arising from the delivery of the CMT (September/October 2017); and sought feedback from schools as to whether any of the lessons learned from the Trials were implemented during preparation and delivery of Digital Pilot examinations.

In contrast to the other Digital Trials – where set up, invigilation and marking were undertaken by teachers – ECMs and supervisors oversaw the CMT under examination conditions, and completed examinations were marked by NZQA. NZQA staff were present during the CMT to provide support to schools during the examination session.

CMT schools took their own approaches to the Co-Managed Trials, with schools referring to the external digital assessments variously as “mock examinations”, “practice examinations” or “derived grade examinations”. The timing of the examinations varied, with four of these schools holding the examinations in weeks 2 and 3 of Term 3; eight schools holding the examinations in the last three weeks of Term 3; and one school holding the examinations in the first week of Term 4.

As with all Digital Trials, NZQA developed the examination content, and teachers were not able to access the content until after the Trial examination. The completed examination responses were marked by NZQA markers, and students were advised when they could view their marked examination paper online.

### **Marking CMT examinations**

After the Trial examination was completed teachers were provided with access to the unmarked student papers so that they could review the questions and answers and provide formative feedback to students. Schools also use practice examinations to assist in determining the appropriate derived grades for their students.

NZQA markers did not provide formative feedback to students from the Trial. The examination software did not have the functionality to enable any direct feedback to occur, i.e. markers' annotations and corrections cannot currently be made on the students' responses in the way teachers would commonly do when marking their students' paper-based practice examinations. The possibility of an NZQA marker providing feedback was discussed but found not to be possible due to workload and time constraints.

A process was established whereby an online link to the students' completed examinations was sent to Principal's Nominees for distribution to their teaching staff. The link gave teachers access to images of the individual student responses. This process proved to be time-consuming and awkward to manage for teachers, and many teachers did not use it. Those that did commented that it would have been easier and less time consuming if they had marked the student responses themselves.

### *Level 1 Art History Digital Trial*

The key objective for the Level 1 Art History Digital Trial was to demonstrate moves toward innovation in external assessment. Just over 100 students across five schools were expected to complete the Level 1 Art History examination in 2017. Of the three schools invited to take part in this Trial, 29 students from two schools provided feedback on their Art History Digital Trial examination experience.

The Trial was undertaken under examination conditions, but students had full access to the internet, their hard drive and class notes. No anti plagiarism software was used during the Trial. Students had three hours to complete the assessment, and the teachers marked the students' work.

The assessment task for this Trial was structured to make it apparent if students attempted to plagiarise text and present the information as their own response. Three students attempted to present downloaded information as their own work, and the marker was easily able to discern that the responses were not original. This meant that those students did not achieve the standard in the Trial.

For other students, accessing the internet enabled them to apply their research skills appropriately in the development of their own response. This enabled them to create a better response to the assessment task, with eight students achieving Merit, and one student Excellence.

#### **Feedback**

Twenty-nine students and two teachers provided feedback on the Trial. As with feedback from other Trials, students found completing a digital examination positive because of the ability to type and recraft their essays.

*"[I liked] Being able to view the artworks, find other ways to describe them and find background information on the artist or the artwork."*

*"I enjoyed the fact we were allowed access to the internet and it was there to use - very helpful and provided me with key details to incorporate to my essay that I wouldn't have had known otherwise."*

*"We were able to google definitions and remind ourselves what some elements mean."*

Feedback from teachers indicated that students were able to use their research skills to find relevant information about the artworks rather than having to rely on their memory to provide an appropriate response. One teacher surmised that the student results were either as expected or slightly better than a traditional examination, and that the Trial was good practice for the paper examination later in the year.

### *Speech to Text Trial*

A speech to text feature using the Dragon Naturally Speaking (DNS) programme was trialled by three students at Kāpiti College for one external standard during the Level 1 English Digital Trial. The students use DNS within a classroom context and prepared for the Trial by regularly using the DNS programme to ensure it was familiar with their voice, vocabulary and writing style. During the Trial, the invigilation software was switched off so the students' (speech to text) response could be copied into the assessment application without a breach being recorded. Students used noise-cancelling headphones and microphones. Two students were seated in one room, and the third in a separate space. An NZQA observer was present during the Trial, which took one hour to complete.

After completing the assessment, the NZQA observer reported that the process appeared slow and cumbersome, with students reviewing their responses several times for accuracy. Due to the noise from speaking, students needed to be accommodated in smaller spaces, and this could prove challenging for schools should large numbers of students want to use applications of this type in the future.

#### **Feedback**

Students reported that they enjoyed using speech to text, as it enabled the students to 'get the content down' effectively and respond to the assessment questions in a way that better reflected what they knew than if they had to write their responses. They reported the Trial as a very positive experience.

## **Implementing Trials and Pilots 2017**

NZQA embarked on the project to implement Digital Trials and Pilots in 2017 with the aim of maintaining momentum and further developing school engagement with and understanding of readiness for digital examinations. We planned to do this through continuing to offer a broad range of Trials and Pilots and by demonstrating moves towards innovation in external digital assessment. By maintaining good subject coverage for large and small subject cohorts in 2017 NZQA offered schools the opportunity to engage students who were already learning online with an appropriate assessment mode.

At a practical level, we also offered the opportunity for schools and students to develop their understanding of what 'readiness' meant for them. The familiarisation activities allowed teachers and students to gain confidence using some of the tools and features to be encountered in digital examinations, while schools could also use the activities to assess the readiness of their infrastructure for digital examinations.

## Preparation

Student preparation is an important element in determining student achievement in a digital examination. Familiarity with both the device and the examination software are essential elements in ensuring students maximise their opportunities to achieve in a digital examination.

### **Digital technology at home and school**

#### **At home**

92% of student respondents (970 of 1051) reported having more than one device at home. 62% of respondents (653 of 1051) reported having three different types of devices available at home.

#### **At school**

Very few respondents reported never using digital technology to support their learning in class or for homework, with 86% of respondents (898 of 1050) reporting that digital technology is used in class to support their learning very often or quite often. A further 14% (147 of 1020) reported using digital technology in class occasionally.

89% of respondents (923 of 1041) reported that digital technology is used for homework very often or quite often. A further 10% (107 of 1041) reported that digital technology is used for homework occasionally.

73% of respondents (764 of 1040) reported that digital technology is used in internal assessments very often or quite often, 24% (244 of 1040) reported it was used occasionally, and 3% reported it was never used.

*“We use computers all the time, in class and at home so it makes sense that we should be doing our exams online, it is also good that you have kept the option of paper for the people less familiar with a keyboard.”*

### **Familiarisation activities**

NZQA made familiarisation activities available to students who were participating in the Digital Trial and Pilot examinations. The purpose of the familiarisation activities was to provide students with the opportunity to experience the look and feel of a digital examination, including the login and submission process that students would experience, and become acquainted with the different tools that are part of the digital examinations.

While a few student respondents reported completing the Trial examination without accessing the familiarisation activities, most of those who responded did access the activities as part of their preparation. Student survey data from the Digital Trials tells us that 73% of respondents (712 of 972) agreed or strongly agreed that they found the familiarisation activities useful in their preparation for their digital examination. 19% of respondents (184 of 972) said that they did not know the familiarisation activities existed.

74% of students who responded to the Digital Pilot survey (752 of 1011) agreed or strongly agreed that they found the familiarisation activities useful in their preparation for their Digital Pilot examination. However, 21% of students (213 of 1011) said that they did not know the familiarisation activities existed.

Students reported that the familiarisation activities were very useful in showing what to expect when logging on and navigating through the various screens. Overall, students were positive about this aspect of preparation.

The Pilot student survey data indicated that 1,898 of the students who participated in the Level 1 Digital Pilot examinations also participated in the Level 1 Digital Trial examinations held in September and October. 37 of the schools which participated in the Pilots also participated in the Digital Trials.

Feedback from the student focus group was that Digital Trial examinations were viewed as part of their preparation for the Pilot examinations, and the group felt that the Trials were helpful preparation e.g. logging in, working with screens etc. These students reported that Trials were implemented in test rather than examination conditions and were therefore more relaxed.

Most students in the group were not aware of any online familiarisation activities other than the Trial examinations. They expressed preference for video clips to help them to become familiar with the software application and were comfortable using the NZQA website to get information they needed.

Teachers' responses showed 85% (63 of 74) agreed or strongly agreed that the familiarisation activities provided by NZQA prepared their students for the Digital Trial examinations. This is an increase from 2016, when 63% (31 of 49) of respondents agreed or strongly agreed.

36% (28 of 77) of teachers who responded set aside less than one hour for students to familiarise themselves with the materials NZQA provided to help students prepare for the Digital Trial examination, and 45% (35 of 77) set aside one to two hours. The remaining 18% (14 of 77) of respondents set aside two or more hours.

In the CMT schools most teachers, either individually or as a group, completed the student familiarisation activities to ensure they were comfortable with them. Familiarisation activities were introduced to students in the following ways:

- In class, with encouragement to interact with the familiarisation activities in class and at home.
- By projecting the activities onto a screen and working through them as a whole class activity.
- Individually, by providing students with the link, password and logon so that they could complete the activities in their own time.
- At a time determined by teachers, with some teachers providing access early in the year and others providing access closer to the Digital Trial examination.

The teachers focus group affirmed that familiarisation activities were useful preparation for students and gave them confidence. It was also noted that teachers need time to engage with familiarisation activities.

## ***Examination software functionality***

### ***Ease of use***

The student survey included questions about how easy they found the examination software application to use.

98% of respondents (968 of 992) found it very easy or easy to navigate through the Digital Pilot examination.

97% of respondents (963 of 991) found entering their responses to the Digital Pilot very easy or easy.

92% of respondents (914 of 989) agreed or strongly agreed that completing the digital examination took less time than they would have expected had it been paper-based.

### **Students with Special Assessment Conditions (SAC)**

The following features were available to all students: variable font size, resizable screen and extra time. This supported the participation of some students with SAC. A total of 481 students with SAC participated in Digital Trials and Pilots in 2017, compared with 244 in 2016.

### **Spell check**

Information about spell check functionality was made available directly to schools, in the FAQs, in the *EmailLink* circular sent to Principal's Nominees, in the familiarisation activity for the subjects listed below, and on the NZQA website.

Spell check was available for all candidates in certain subjects. This function did not automatically check candidate responses as typed, but the candidate had control over the spell check function and could select the passage and/or words they wanted spell checked. Spell check was available in the following subjects:

<b>Spell check availability by subject</b>		
<ul style="list-style-type: none"><li>• Art History</li><li>• Economics</li><li>• Geography</li><li>• History</li></ul>	<ul style="list-style-type: none"><li>• Business Studies</li><li>• English (Trial and Pilot)</li><li>• Media Studies (Trial and Pilot)</li></ul>	<ul style="list-style-type: none"><li>• Classical Studies (Trial and Pilot)</li><li>• Health</li></ul>

To ensure students had the best experience possible in the digital examination, spell check was not available in French, Samoan, Spanish, Te Reo Rangatira, Physics and Science. This was due to the required use of scientific language and the language (other than English) which candidates used to respond to questions in these subjects.

Student feedback about spell check was received in the survey.

*"I wonder about the spellcheck on digital exams for English exams, as it may set people doing the exams digitally at an advantage over people doing their English exam on paper. For other subjects where spelling does not matter as much, I believe the spellcheck is a good idea though."*

*"didn't realise there was spell check until the end. should just have words spelt wrong underlined straight away rather than having to press a button."*

*"I would love if the digital exams gave a red line indication (like microsoft word/google docs) whenever you spelt a word wrong, especially when you are rushed to write more than 1 exams in the time limit and may not have time to look for typos."*



## **Word count**

Essay questions in both paper-based and digital examinations have guidance about the expected length of a response. The word count guidance for digital examinations (550 words) was derived from page length estimates of students' previous paper based examinations (three handwritten pages).

The word count functionality was communicated to schools through the assessment specifications and was present in the familiarisation activities. The word count of an essay was calculated in the bar at the top of the text box in which students typed their response. When students reached 500 words, the text turned red and a red frame appeared around the text box. Students were still able to continue typing and all work submitted was considered for assessment. While the settings in the familiarisation activities were the same as those in the actual digital examinations, most students did not write a full essay during familiarisation, and therefore did not encounter the red frame until the Pilot examination.

Many of the students interviewed in the CMT commented that while they had known about the word count functionality prior to the Digital Trial examination they had not encountered it in the familiarisation activities. These students recommended that if a word count is used in the future, the settings for the word count in the familiarisation activities should be set at a level that is roughly equivalent to a paragraph.

Survey feedback from students was mixed:

*"I also found that it was hard to stick to the word count due to the ease of writing and how much I could write in the time given."*

*"The fact that a red border is shown when you type over the recommended word count, if a word count is recommended there shouldn't be something, such as the red border, that will cause you to panic, especially during an exam, as I am already stressed as it. If I exceed the RECOMMENDED word count, that is my choice, and the red is really annoying when you're typing away and that irritating colour, which can be associated with the word STOP, it can be a bit off putting, but other than that I had no difficulty or other dislikes. Maybe changing the colour would be help, but it was truly off putting."*

Feedback was also received from the Principal's Nominees focus group noting that some students were unhappy about the word count alert, as it was unexpected if they had not encountered it in the Trial examinations and created some confusion. Students were not clear whether to stop writing as the word count suggested, and as we understand some students were instructed to do, or continue writing despite the word count alert. After the first indications of confusion in the Digital Pilots, NZQA re-confirmed that the word count was for guidance only, and all student work would be saved and marked. Individual student work was checked on request where a student had been told to stop writing.

## **Examination management**

### **Student entries**

The process for Digital Trial entries was reliant on the school completing a spreadsheet and sending it to NZQA. This proved very labour intensive for school staff.

For the 2017 Digital Pilots the SMS vendors made changes to their school software, adding functionality which enabled schools to indicate which students they were entering for digitally-assessed standards. This information streamlined the entry process<sup>6</sup> for the Pilots for both schools and NZQA.

### ***Logins and passwords***

NZQA provided schools with student logins and passwords for the Digital Trials in an Excel spreadsheet. Many teachers and ECMs printed the spreadsheet and then cut the rows into individual strips for students which increased the workload for ECMs, especially those at schools with large numbers of students entered for Trials. Students who were doing more than one Digital Trial examination were provided with a different password for each Trial.

Each school organised its own method of delivering logins and passwords to students, e.g. providing them early on individual paper strips to students or printing the information in the spreadsheets on to cards for students. The information provided by NZQA was arranged in columns with the student name, National Student Number (NSN) and password listed. When the spreadsheet was cut into strips the headings were lost and students were left with a strip of paper with no indication of which was their username and password. This affected some students' ability to log on and access the examination.

Some of the CMT schools provided the logins and passwords to their students prior to the Trial and had to develop a system for providing the same information for those students who had misplaced their login and password on the day.

### ***Examination set up***

79% (59 of 75) of teachers who responded agreed or strongly agreed that they were provided with enough information to administer the Digital Trial examination, the same proportion as in 2016.

68% (52 of 77) of teachers agreed or strongly agreed that it was easy to set up a digital examination room, a similar proportion to 2016 when 65% (35 of 54) of respondents agreed or strongly agreed.

54% of respondents (280 of 516) reported using a school-provided device to complete their Digital Pilot examination, and 46% of respondents (236 of 516) reported using their own device.

27% of respondents (258 of 940) reported they used a desktop computer to complete their Digital Pilot examination, and 72% (677 of 940) reported they used a laptop. Only five respondents (< 1%) reported they used a tablet.

9% of student respondents (95 of 1022) reported experiencing network problems and 7% (74 of 1022) reported experiencing device problems when accessing or completing the Digital Pilot examination.

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<sup>6</sup> By contrast, in 2016 participating students included those with a manual process registration rather than pre-registration through their school's SMS. In the *NCEA Online Trials and Pilots Dashboard*, the greater number of students in 2016 Pilots shown as logged-in participants compared to registered participants is due to this 2016 process.

The CMT provided insight into the challenges facing secondary schools as they transition to External Digital Assessment (EDA). These included:

- Ensuring that hardware, software (browser) and school infrastructure are compatible.
- Managing the variable quality of devices used – even where these are identical devices.
- Managing the variability of wi-fi across the school campus.
- Managing the variability of access to digital technology within the context of the classroom.
- Ensuring students are familiar with the device.
- Providing charging facilities for those students who use laptops.
- The confidence of the teacher in preparing their students for a digital examination.

Most CMT schools took a cautious approach and entered only some of their student cohort (one to three classes) and this enabled the Trial to be much more manageable with respect to set up and management. Two of the schools that took this approach have indicated their intent to participate in 2018 Trial examinations so that they can implement learning from the 2017 Trials. The other CMT schools reported having increased confidence to expand their student cohort for 2018 Digital Trial examinations.

### ***Examination supervision***

Two methods of supervision were observed to be very effective and are shown in the following diagrams:

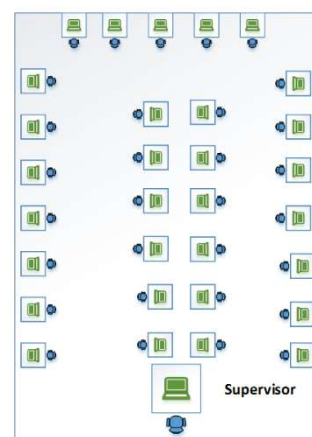
The supervisor's computer was set up at the back of the room and each student's desk faced the front.

This afforded the supervisors a good view of the students and their screens while minimising the students' ability to screen peek. This was a common set-up for schools where the students were using laptops.



Students were seated at desks facing the wall around three sides of the room and two rows of desks facing each other in the middle of the room. All desks were sufficiently spaced to minimise screen peeking.

The supervisor was set up at the front of the room. This was a common set up for the schools that used desktop computers.



## Challenges encountered during 2017 Pilots

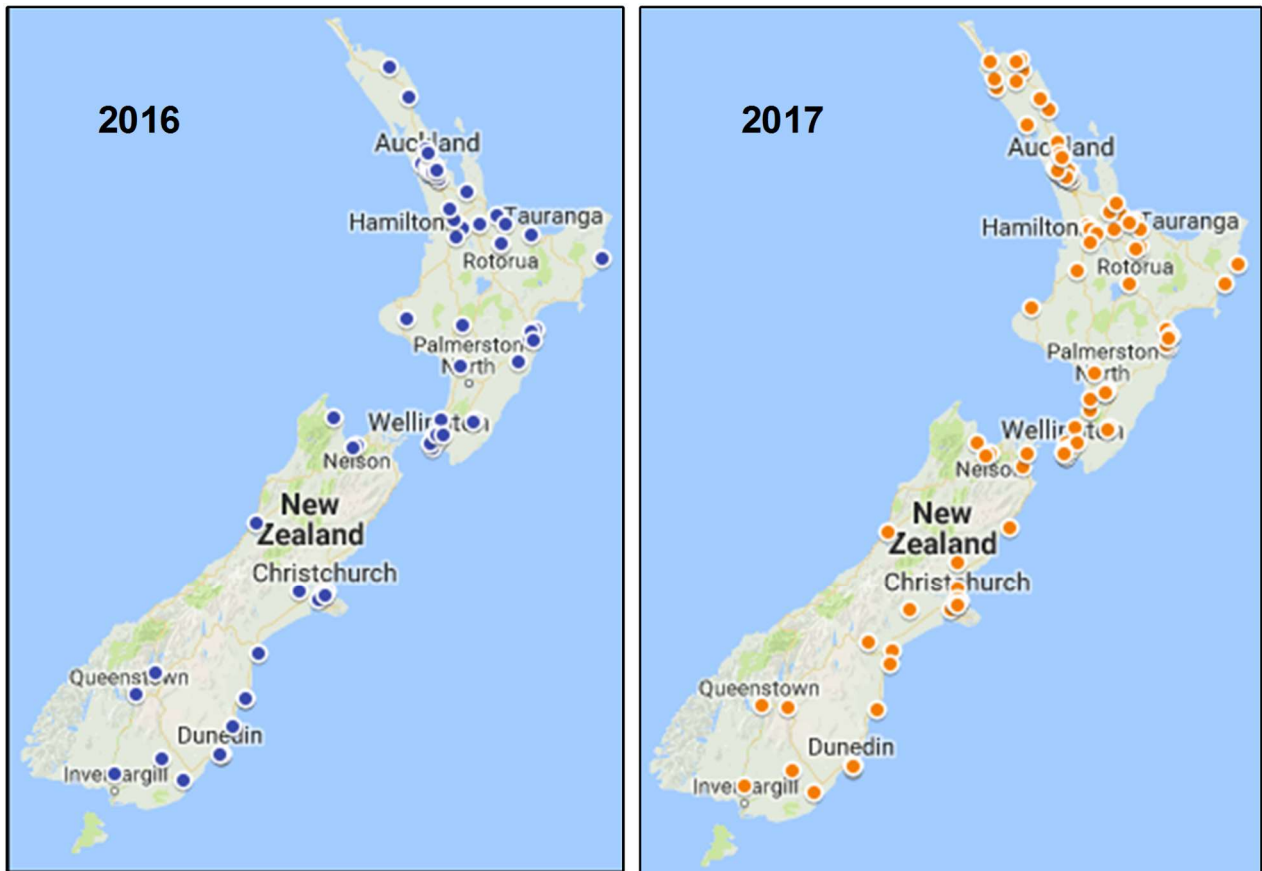
The following table summarises the challenges encountered, support provided to schools and resolutions put in place during the 2017 Pilots.

Date and Examination	Challenge	Resolution
10 November 2017 L2 Media Studies	Learners entered for multiple Pilots were unable to log on due to a software bug in the examination platform.	<p>NZQA helpdesk was contacted. A workaround was available by 9:39am. A total of 76% of entered students completed the digital examination.</p> <p>After the examination, the software was updated to prevent this issue in other digital examinations and there were no further issues of this type.</p>
13 November 2017 L1 English	Some supervisors were confused about the URLs (e.g. handwritten incorrectly on the board for students) or the examination start codes (e.g. not passed on to supervisors).	<p>On-site help or NZQA help desk provided the correct information to schools.</p> <p>85% of entered students completed the digital examination.</p> <p>Additional communications were sent to ECMs and supervisors on 14 and 15 November to confirm processes for digital examinations and provide guidance about how best to ensure the correct URL was available.</p>
21 November 2017 L2 English	<p>One school had provided the test version of the examination URL to students.</p> <p>All standards were available to all students. However due to a combination of NZQA human error and only partially automated entry processes, 69 students in seven schools had a mismatch between the standards on the student printout, and the standards allocated in the examination software.</p>	<p>NZQA help desk was contacted and the correct URL was provided. 26% of the school's entered students completed the digital examination and the remainder switched to paper.</p> <p>When contacted NZQA help desk advised that the mismatch was in error, but did not affect the students access to the correct standards. After the examination, all Pilot entries were re-checked for accuracy, and the issue did not arise again.</p> <p>Overall 82% of entered students completed the digital examination.</p>
23 November L2 Classical Studies	No reported issues	
30 November	No reported issues	

Date and Examination	Challenge	Resolution
L1 Classical Studies		
1 December L1 Media Studies	No reported issues	
Post examination	<p>On results publication day nine papers were reported as unmarked. An NZQA investigation revealed that the digital examination marking process was not reconciled in the same way as paper examinations.</p> <p>After results publication, some students contacted NZQA to query why no marks were given for some examination responses.</p> <p>An investigation revealed some answers in unmarked examinations for 258 students had been automatically recorded by the system as marked due to a software flaw.</p>	<p>The examination papers were identified and marked within one week, and the results made available to students.</p> <p>A clear reconciliation process for digital examinations will be put into place for 2018.</p> <p>The affected examination papers were identified and re-marked, and student records were updated accordingly.</p> <p>The software flaw was identified and fixed. New controls have also been put in place for 2018 to manage unexpected outcomes.</p>

# Trials and Pilots at a glance

## Location of participating schools



## Participation by schools/students in Trials and Pilots 2016 and 2017

Number of unique schools<sup>7</sup> in Trials and Pilots:

Participation	Unique schools		% increase
	2016 <sup>8</sup>	2017	
Trials	60	97	62%
Pilots	46	54	17%
Trials and Pilots	85	113	33%

<sup>7</sup> Unique school counts are schools which participated in one or more Trial and/or Pilot subject examination.

<sup>8</sup> The number of schools that participated in 2016 Trials and Pilots may vary from that previously published due to changes in school count between registration and login for a Trial/Pilot.

Number of unique students<sup>9</sup> in Trials and Pilots:

Participation	Unique students		% increase
	2016 <sup>10</sup>	2017	
Trials	3039	6199	104%
Pilots	1626	4226	160%
Trials and Pilots	4444	8462	90%

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<sup>9</sup> Unique student counts are students who participated in one or more Trial and/or Pilot subject examination.

<sup>10</sup> In 2016 the system used by students doing the Samoan and Spanish Trials meant we were unable to identify uniqueness in relation to student participation in the other 2016 Trials and Pilots.