Manaiakalani Evaluation Programme

Milestone 2 Report – Executive Summary

UniServices Task number: 31863.001

Auckland UniServices Limited

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The University of Auckland

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Date: 15 July 2013

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Acknowledgements

We warmly acknowledge the substantial contribution that different groups in the Manaiakalani innovation are making to this ongoing evaluation project. We hope that this evaluation provides useful input to the Manaiakalani Education Trust's continual development of the teaching of e learning in primary and secondary schools.

We especially acknowledge the students, teachers and Principals at the schools with whom we worked for their time and contribution to our interviews and for allowing us to carry out classroom observations. Your time and helpful assistance is greatly appreciated.

As part of the Manaiakalani innovation community, due mention is afforded to Pat Snedden, Dorothy and Russell Burt, and Fiona Grant, for their ongoing communication, organisation and assistance with the project.

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Executive Summary

This is the first of our milestone reports on the evaluation of the Manaiakalani Project. This report is a summary of a detailed report from Auckland UniServices Limited prepared by the Woolf Fisher Research Centre. Details of each of the sections summarised here are contained in the Full Report (Jesson, McNaughton, & Wilson, 2013).

In this report we provide preliminary evidence, our conclusions from that evidence, and recommendations. The purpose of the evaluation over three years is to determine the effects of the Manaiakalani initiative by analysing the variability in implementation across classrooms and schools, and using the analyses of variability to make judgments of what the innovation adds to student outcomes. It is complemented by, and complements, three other research focused projects and together these will enable us to provide detailed feedback to our partners to help the further redesign and development of the innovation.

The three evaluation questions to which this preliminary report contributes are:

1. What are the patterns of Valued Student Outcomes (including achievement, critical literacy and engagement) for different student groups (Māori, Pasifika; male and female) over three years across year levels; at class, school and cluster levels?

2. What are the patterns of classroom teaching (including use of Netbooks within the Literacy Cycle) over three years across year levels; at class, school and cluster levels?

3. How do the variations in classroom teaching relate to Valued Student Outcomes?

Valued Student Outcomes: Achievement in Reading, Maths and Writing Years 4 – Years 13

Overall Achievement: Levels and Gains 2012 - 2013 (Primary Schools)

At the cluster level: We have examined the achievement patterns in reading, maths and writing for the cluster as a whole. In reading and maths (only an incomplete analysis for writing[1]) the gains from beginning to end of 2012 and Term 1 2013 show on average that nationally expected gains were made. Because this is not an accelerating pattern this means that levels at Term 1 and Term 4, 2012 and Term 1, 2013 on average remained significantly below nationally expected levels over this time.

At the school level: The patterns for schools are not consistent and there is a complex interaction between schools and year levels with some year levels at some schools making accelerated gains or with high scores. In reading, three schools made marked gains against the expected gains during the school year but dropped against expected gains over summer. One school had the opposite pattern and was above expected levels Term 1 in each year. For maths two schools showed the gain and loss pattern. We only have the summer pattern in writing. Continued analyses in 2013 will add to our understanding of writing achievement over the school year.

At the year level: The patterns for years are not consistent and vary by school. Overall, there were no changes in curriculum levels between cohorts between 2012 and 2013 (e.g., comparing Year 5 in 2012 and Year 5 in 2013) which is consistent with the overall cluster and school patterns. In reading, by 2013 the curriculum levels from Year 4 upwards were: 2B, 2P, 2A 3B, 3A; i.e., one sub level gain for one chronological year. The same pattern is apparent for maths in 2013, but one sub level below reading: below /2B, 2P, 3B/3P, 2A/3B, 3P. It appears (but we have yet to confirm this with complete longitudinal and cross sectional data) that there is a similar pattern for writing but two sub levels below reading, so that by the end of Year 8 the overall curriculum level was 2A/3B.

At the class level: The patterns for classrooms provide evidence that students in some classes made very impressive gains over the school year (see Figures 1-3). In maths, the majority of classes (n = 22 classes out of 37 classes) made more than expected gains over 2012, and in reading this was 13 classes. Looking at writing levels in Term 4, 2012, eight classes were close to or above national levels. Our conclusion is that there are pockets of very promising practices in which high gains are

[1] Note that due to changes to the e-asTTle tool in Term 2, 2012, many schools did not administer writing tests in the first half of the year. Additionally, normative data for e-asTTle writing are only available for Term 3, 2012.

being achieved. The challenge is to understand, and spread these practices to gain greater consistency across schools and for the cluster overall.

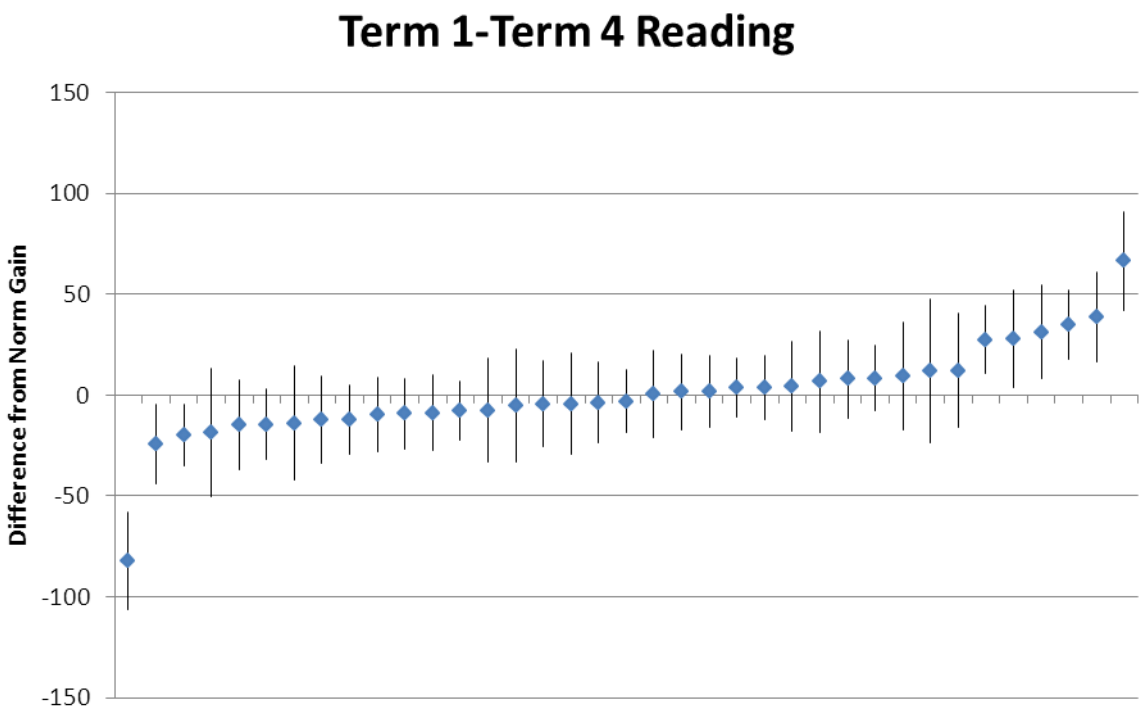

Figure 1. Classroom comparisons of gains across Term 1-Term 4 2012 in reading.

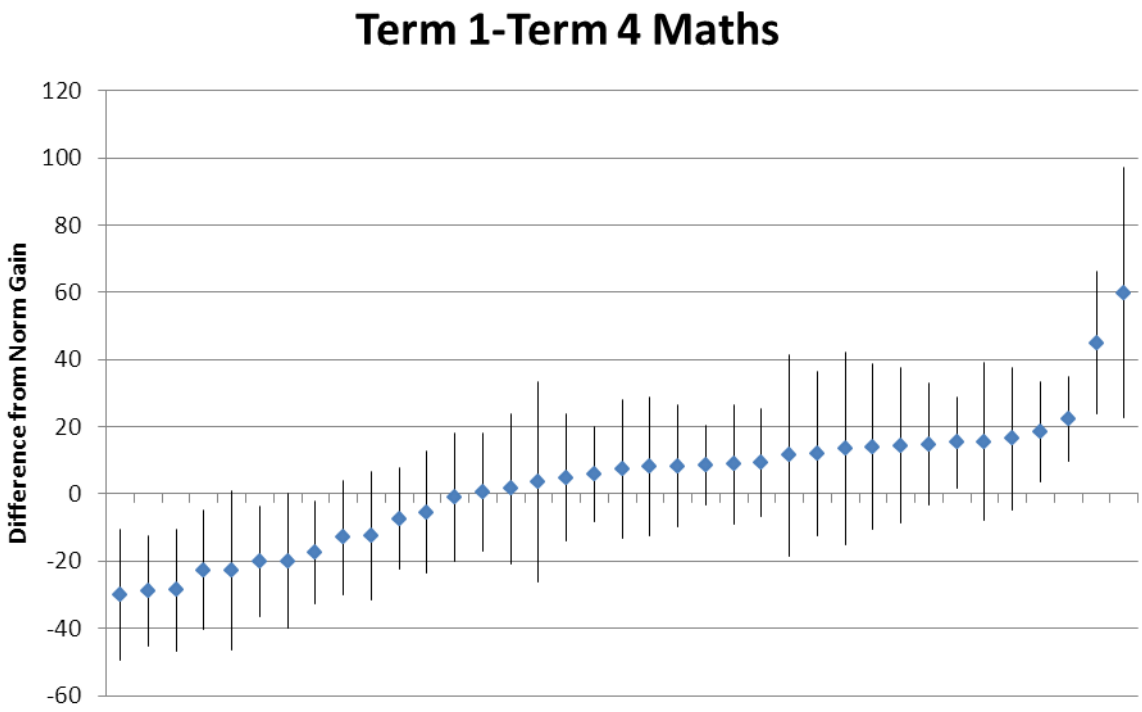

Figure 2. Classroom comparisons of gains across Term 1-Term 4 2012 in mathematics.

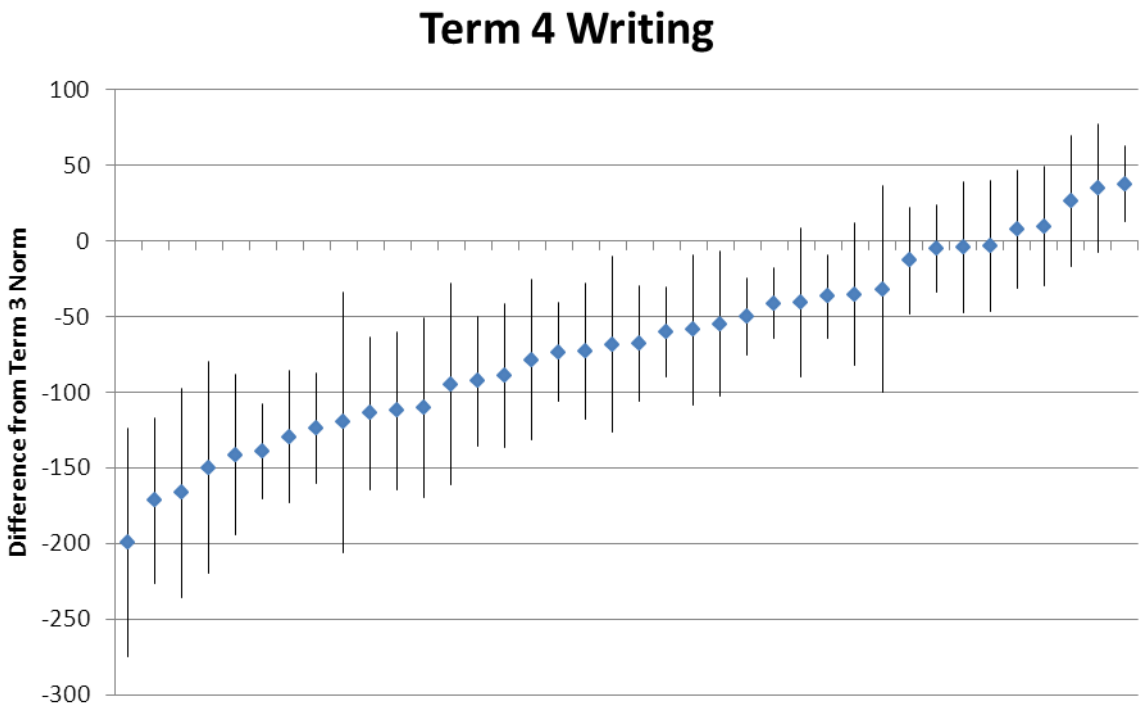

Figure 3. Classroom comparisons of difference from Term 3 norm for Term 4 e-asTTle writing.

Summer Patterns

The general picture looking at scores within 2012 and from end of 2012 to beginning of 2013 is that there is a substantial brake on what gains are occurring during the school year. In reading, for most year levels, the 'drop' relative to expected gains over summer is significant, up to one half of the expected gains (in e-asTTle scores). This means that around half of the gains made during the school year (relative to national gains) are 'lost'. These drops are pronounced at Year 6 to Year 7 and Year 7 to Year 8. However, in maths the patterns of gains over summer are more like expected gains. We don't have the expected gains for summer for writing to compare against, but the pattern here looks different from the pattern for reading. The majority of year levels maintain the rate of gain or increase. One hypothesis for this is that this may reflect the increased opportunities to write outside of school which continue over summer. We are currently testing this.

Transition from Year 8 - Year 9

In reading, the 98 Year 8 students for whom we have data left the Manaiakalani schools, on average, at curriculum Level 3A, notably with a majority (55%) at Level 4 or above. Those that went on to

Tamaki College in 2013 (*n* = 32) left Year 8 with a Level of 4B (59% at Level 4 or above) and arrived in 2013 at Level 3A (reflecting the summer drop above) with 50% at Level 4 or above. Only a third of the Year 8 students went on to Tamaki College (*n* = 61 went elsewhere), and the students that left the cluster had a lower leaving Level of 3A (52% at Level 4 or above). The patterns for maths were identical but generally at one sub level lower. The overall cohort, including those students from outside Manaiakalani schools, arrived on average at Level 3A. The patterns for writing were similar too, but generally two sub levels below reading with smaller percentages at Level 4 and above (only a quarter- 27%). The total cohort arrived at Year 9 with an average Level of 2A.

The Cohort Entering Tamaki College

In reading, the students (*n* = 101) entering Tamaki College in 2013 had a wide range of curriculum levels (average Level 3P), and were in three 'groups'. One third were at Level 2 or below (*n* =37). There was a middle band of students (*n* = 33) at Level 3. A further third (*n* = 31) were at Level 4 or above. A positive finding is that half of the high level group were from Manaiakalani schools. In addition, data supplied by Tamaki College indicates that starting in 2012 and continuing in 2013 (which is confirmed by our analyses) there has been a marked increase in students entering with higher curriculum levels. This means in 2013 that overall there was one sub level shift, so that on average students were one curriculum level or less below expected levels and almost a third of students were at expected levels. The pattern also indicates a substantial challenge catering for the range and especially the very low group, who have reading skills and knowledge which are not sufficient to engage effectively in reading in subject areas at expected levels without intensive support. The level of the challenge is such that they need to make up four full curriculum levels by Level 2 NCEA for the school to meet the 85% pass rate. This pattern is exaggerated for maths and even more so for writing. For example in writing 63% (almost two thirds) of students were at Level 2 and below.

Year 9 - Year 10

We have e-asTTle reading scores for Year 10 students from 2012 (*n* = 83) and 2013 (*n* = 100). The comparisons of cohorts shows that the group entering Year 10 in 2013 was significantly lower in curriculum level (average of Level 3P/3A) than the previous year (average Level 4B/4P). This is inconsistent with the increasing levels of Year 9 students supplied by Tamaki College although cohorts can vary in composition over years and the Year 10 group when they were Year 9 in 2012 overall had lower percentages at Level 3 and above (65.9%) than the previous group of Year 9 in 2011 (77%).

Overall NCEA

We are interested in the NCEA Level 2 data, as achievement levels of 85% (consistent with the public service goals) are a major goal for the Manaiakalani cluster. Note that the public service goal is 85% of 18 year olds so is not just the percentage of those participating. Our analyses of the Level 2 (and other levels) are ongoing. We are examining specific standards especially those in English, maths and science (biology) that have high literacy content and have historically posed barriers. The overall pass rates in 2012 for Level 2 showed a marked change for all students. Tamaki College students' pass rate was less than 20% different from the national pass rates for 2012. Broken down, the patterns reflect a major increase for Pasifika students who were close to only 10% different from national pass rates, with a pass rate of 59% (Māori pass rate 29%). A noticeable upward shift also occurred with Māori students in UE pass rates (from about 35% lower in 2012 to around 20% lower in 2013). More needs to be done in these analyses because participation rates don't show what percentage of the cohort who entered in Year 9 actually passed and we know in some schools the differential 'drop out' at or after Year 11 / NCEA Level 1 can be quite marked. The analyses of other levels are less positive. At Level 1, pass rates have been declining since 2008 and are particularly low for Māori students.

NCEA: Pilot Class Students

In 2011 a group of Year 10 students in Tamaki College were in a 'pilot class' and had Netbooks. These students (n = 48) sat NCEA Level 1 in 2012. Their pass rates in Level 1 were significantly different from all the other students in the same year; their pass rates were more than double the others (pilot class pass rates = 42% and non-pilot class pass rates = 10%). We don't know how similar these students were at the beginning of Year 9 or at the beginning of Year 11 but as a group this is a very promising finding, especially given that pass rates at Level 1 have been declining.

In summary, while there is little evidence for acceleration and higher levels over time associated with Manaiakalani schools at an aggregated level (cluster, school) there are pockets of substantial achievement. What evidence we have suggests that Manaiakalani may be associated with important educational outcomes from these pockets; for example in the group of NCEA Level 1 students or in the classrooms with above nationally expected gains.

Classroom Pedagogy and Student Learning

Classroom observations were carried out with 27 teachers in 8 schools which produced a total of 135 observation blocks (of 3 minute intervals). Interviews were carried out with teachers and with children in each class. This was a 'light' sample to provide a basis for understanding the properties of the pedagogical framework and how the digital environments of classrooms are being designed to

promote Manaiakalani goals. Here we summarise the general themes in the classroom observations and the interviews.

General Features of the Classroom Pedagogy

Lessons observed ranged in length. In order to ensure that each analysed lesson were comparable with one another, only the first five blocks in each lesson were used, that is the first 30 minutes of each lesson observed.

Teachers spent nearly a third (30%) of their teaching time in conferences or extended discussions with students. They spent comparatively little time in any behaviour management or lecturing or whole class modelling sessions. Large amounts of teacher time were also spent in short answer question and answer (Q&A) sessions or 'roving', moving around the class, supporting students in their learning activities. Students in these extended discussions spent time talking and listening and reading and writing. The shape of this was varied. In total our database contains 36 permutations of the combinations of ways of interacting.

In approximately half of the blocks, teachers were observed giving oral feedback to students. This feedback was overwhelmingly evaluative ("nice job"). However approximately 20% of the feedback was descriptive ("you have included an effective summary"). Approximately 25% of the feedback also gave students 'feed forward', or some 'generative' feedback for what to do next time. 18% of the oral feedback observed was 'connected', in that it built on learning that teachers had seen via Google sites or the dashboard.

Teachers made expectation statements in 83% of the observed blocks. The expectations ranged in focus from self-managing skills, to timing, to independent decision making. Examples of expectation statements include expectations that students live up to their best, "don't lose focus, I know what you are capable of", or tackle challenging tasks, "that's not easy. Try your best". Some were simply expectations of work rate, "in ten minutes, I expect that done."

Less common were explicit statements that students take responsibility for their learning. These occurred in 40% of observed blocks. When making responsibility statements, teachers asked students to monitor their learning, "where are you up to? What should you be doing?" or to make a strategic choice about how to go about the process of learning, "take a risk. The more risks we take, the more we learn".

In the vast majority of observed blocks (75%), researchers could discern a clear or explicit learning focus. A large proportion of this was a focus on practising or using taught skills (e.g., using new vocabulary to create a word web). In a third of observed blocks the teaching focus was to develop a

strategy. There were relatively few instances of blocks were teachers were concerned that students should activate their prior knowledge. There were few blocks where any teaching was focussed on developing students' critical thinking or critical literacy skills, for example to evaluate the accuracy or bias in found information.

Qualitative analyses revealed a number of opportunities for digital pedagogy being taken up by teachers. Typically students were both 'consumers' and 'producers' of knowledge. Students were seen creating a variety of digital learning objects (DLOs) to share their learning, reprocessing content in multiple forms. Sharing via blogs served to record the process of learning, thereby functioning as an e-portfolio. This tendency to 'creation' was less apparent in secondary classes and in maths classes.

Teachers produced a number of DLOs themselves, which afforded efficiencies in terms of time. In the main, these were electronic worksheets or templates that students copied and then completed. In the classes where this was especially evident teachers had created collections of curriculum resources in a repository or site. In these 'efficient' classes teachers were able to use these sites to minimise procedural interactions with students, leaving time instead to focus on learning. Teachers also made use of 'games' and 'apps' which gave students immediate feedback on practice activities – again potentially freeing teacher and student time from lower-level 'marking', providing opportunities for teachers to focus on higher order feedback.

In most classes, particularly beyond Year 5, opportunities for agency and autonomy were evident. Learners in both primary and secondary classes were encouraged to make decisions regarding the tools they used, the choice of modes, and the ability to multitask and switch between information tools, apps and content. In many cases feedback and learning were differentiated to student need, using the affordances of the dashboard. There were occasional instances of undifferentiated lessons and feedback to whole classes, using the dashboard or a Google Doc as a 'whiteboard'.

Collaborative activities were common in primary classrooms. No collaboration was witnessed in secondary classes.

Less common were instances of teaching or talk about how the independent set activities supported learning meta-cognitively. Also less common was a critical literacy perspective or focus on explicit strategies for information literacy. Where scaffolds or instruction were present for collecting, evaluating or using information, these were only seen in Year 7/8 classes.

Student Engagement

We have identified four forms of engagement from the research literature. These are 'behavioural' (indicated by being on task and participation in class), 'affective' (indicated by such things as shared

goals and enjoyment), 'cognitive' (and specifically working on complex and challenging tasks), and 'active pursuit'. The latter draws attention to attributes of learners that are goals for Manaiakalani, that is, independence and agency which is porous (not constrained by classrooms and school walls).

Behavioural engagement: the evidence is that the classrooms are associated with high behavioural engagement. In less than 1% of the intervals observed were there any teacher comments to manage behaviour. In only two lessons did the observers note off-task behaviour occurring. These are very high rates compared with other studies of New Zealand classrooms. Overall, we confirmed predictions that the e-learning classrooms were associated with high levels of behavioural engagement, possibly sufficiently high to overcome what has previous been described as a generalised drop in engagement over the transition to secondary school.

Affective engagement: We don't have direct measures of this form of engagement from the classroom observations. One check on this is through student interviews looking for statements which indicate shared goals. At the primary and secondary school level most students' goals were very general subject goals, sometimes based on a response to having evidence about their own performance, or longer distant aspirational goals. Overall, the students were aware of and had beliefs consistent with the Manaiakalani goals. We are collecting further evidence from student surveys.

Cognitive engagement: we detected variability in the dimension of cognitive engagement when considered in terms of features of complexity and the 'depth' of processing assumed to be required. The observations revealed two distinct functions of activities that students who were not with the teacher participated in. These were activities that were part of the Learn-Create-Share and those that were functioning as practice activities (e.g., via Google Doc work sheets, or maths games). Both could be could be challenging and extending or could be more formulaic and raised questions of appropriateness for students' level of skills and knowledge.

Active Pursuit: The evidence for active pursuit comes from a number of sources. In the interviews we asked students about the learning they did at home. Students reported both set tasks and recreational learning. The majority of both primary and secondary students reported homework. In addition to these set tasks, in the primary school group (n = 27) sixteen reported some sort of recreational reading, usually in book form, "I read books in my free time", fifteen students reported engaging in recreational maths activities, "go on the computer and do work at home. We have an iMac at home. I do Maths-Whizz, Xtra Maths and my maths questions". Five students also reported recreational writing, "make up stories. Writing in netbook. I tell mum to check it". One third of the twelve secondary students reported interest in actively pursuing learning: "If in class I don't understand a word teacher says I Google it"; "I just Google things I don't know"; "I want to keep working on my geography to get it to a level I'm happy with"; and, "it's interesting, I want to learn more about it."

These data suggest there is a notable group of students across the schools and at both primary and secondary who are engaged in the sense of actively pursuing school / academic related activities.

Information Literacy and Critical Literacy

A specific focus in our evaluation of the Manaiakalani initiative on Valued Student Outcomes is 'information literacy' and 'critical literacy'. These are important and related literacies for reading and writing in an online environment. To be information literate a person must be able to recognise when information is needed and have the ability to locate, evaluate, and use the needed information effectively. A critically literate person is able to examine the power relationships inherent in language use, to recognize that language is not neutral and to confront their own values in the production and reception of language. These are important to consider because they relate to goal of Manaiakalani to prepare digital citizens and to have students who are innovators and critically aware. In addition, the New Zealand curriculum has goals for learners to be creative, energetic and enterprising and who become confident, knowledgeable, and aware citizens.

Taken together, the classroom observations and teacher and student interviews suggest that relatively little explicit attention was paid to information literacy and almost no attention was paid to critical literacy. This is not to say that students were not provided with rich opportunities to develop these literacies through practice- they were- but it is to say that students and teachers seldom articulated these as a deliberate instructional focus and teachers only occasionally taught these directly.

Critical literacy was coded as the main teaching focus in only one observation block. There was at least one instance of deliberate teaching to develop students' information literacy in four of the 27 observed lessons at different year levels. For example, some of the teachers warned students about plagiarism from internet sources or the reliance on Wikipedia.

Recommendations

The following recommendations arise from our analysis of student achievement combined with observations, and interviews with teachers and students:

1. Capitalise on the strong articulation and shared vision of Manaiakalani.

Teachers articulated high enthusiasm for and fidelity to the goals of Manaiakalani. They articulated digital access to resources and curriculum and engagement as goals. In large measure we saw evidence that teachers were operationalising these goals, implementing digital pedagogies and engaging their students in learning. This provides some indication that given shared vision, teachers in general have the means to implement this in their classes. For acceleration of student achievement and matched distributions to become a feature of the programme, this should be incorporated into the vision for Manaiakalani students.

2. Develop a theory of action that translates digital affordances into increased outcomes for students.

Like 1:1 interventions internationally, Manaiakalani seems to have precipitated a shift in classroom dynamics. The challenge now is to understand the conditions under which this leads to improvements, not only in the learning experience, but in outcomes for learners. This theory of action would capitalise on evidence of effective practice, act to reduce the variability in instructional effects across classrooms, and focus on increasing all teachers' use of those aspects associated with very effective classrooms. This means gaining greater consistency and coherence within AND between schools on what counts as effective practices. Further specific descriptions of pedagogy will follow from other research projects to support this.

3. Capitalise and leverage from high levels of engagement and student 'independence'.

Our observations confirmed general on-task behaviour and 'streamlining' of classes suggests that teachers' focus on developing 'independence' are being realised. Interviews with students suggested that much of this may be independent completion of 'set' activities. We suggest therefore that there is the potential to extend teachers' understanding and teaching for 'independence' and autonomy, to disentangle the related but distinct concepts underlying notions of autonomy, self-regulation, cognitive engagement, and metacognition, and the relationship of these to increased outcomes, of various sorts, for students. We suggest also that more design go into the activities that students are engaging with when not with the teacher to increase levels of cognitive engagement, especially those

that have the function of practice. This might include an audit (looking for evidence for the effectiveness of) off the shelf programmes in literacy and in maths.

4. Capitalise on affordances in 'efficiency'.

Within the observation data there are strong indications that the classroom 'shape' can become more streamlined, making teaching and learning more efficient by reducing the need for teachers to direct students or explain 'what to do'. If the digital pedagogies reduce these transactional time costs for teachers, there is opportunity for teachers to make increasingly conscious decisions around 'best use of teacher time'. There is potential for teachers spend time almost exclusively on learning conversations focused on extending students' thinking. Thus, it is possible to minimise teacher involvement in 'practice' and lower level activities. Teacher preparation time could also be used to focus on resources and activities aimed to deepening students' learning by creating tasks and scaffolds to support higher level thinking, synthesis and evaluation, rather than practice.

5. Inquire into and provide instruction to capitalise on increased access to resources: information literacy and critical literacy.

Students in most Manaiakalani classrooms are regularly provided with repeated opportunities to access texts and practice information skills. We observed a lack of deliberate instruction to develop students' information literacy, but a relatively high number of tasks involving information literacy. We recommend consideration of students' information literacies, critical literacy, and text choices using this lens.

6. Develop pedagogies which support the increased provision of 'creation' by developing students' knowledge of how valued texts work.

Students need to be critically literate consumers AND effective producers of multi-modal texts (as envisaged in the "Learn" and "Create" components of Manaiakalani pedagogy). Students need to develop control of the specialised academic literacy of the different disciplines for access to educational, employment, and social resources that will otherwise be denied them. It will also be important to develop students' knowledge of language forms across modes. We recommend that teachers inquire into their own and their students' knowledge language features for all modes.