MASTER OF CONTEMPORARY EDUCATION

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HOW CAN THE CREATION AND IMPLEMENTATION OF A DIGITAL PLAY FRAMEWORK DEVELOP THE DIGITAL FLUENCY AND CAPABILITIES IN A PLAY-BASED LEARNING ENVIRONMENT?

Áine Connaughton

ENHANCING HIGHER ORDER THINKING SKILLS THROUGH PROBLEM BASED LEARNING

Bridget Wylie

USING SKILLS DEVELOPMENT TO RAISE SELF-EFFICACY AND ACHIEVEMENT

Carolyn Milne

PLACE-BASED LEARNING - IMPROVING KNOWLEDGE CONSTRUCTION THROUGH REAL-WORLD LEARNING EXPERIENCES IN THE LOCAL COMMUNITY

Claire Defire

IMPROVING ORAL LANGUAGE IN YEAR 2 USING PROJECT-BASED LEARNING

Heather Lindsay

CONNECTING THE DOTS: GROWING TRANSDISCIPLINARY PROJECT-BASED INQUIRY TEACHING AND LEARNING

Jacqueline Stenson

IMPROVING STUDENT ENGAGEMENT IN A YEAR 12 ECONOMICS CLASS USING PROJECT-BASED LEARNING

Joanne Ellis-Smith

DISCOVERING HOW SELF-DETERMINED LEARNING ENABLES CONFIDENCE WHEN DESIGNING DIGITAL LEARNING

Jocelyn Tuia

PERSONALISED LEARNING USING DIGITAL TECHNOLOGIES IN A YEAR 7 / 8 FOOD TECH CLASS

Natalie Makeef

FROM PARTICIPATION TO ENGAGEMENT

Michael Bucksmith

DEVELOPING DIGITAL SKILLS AND CAPABILITIES THROUGH PROJECT-BASED LEARNING

Bex Thompson

USING PERSONALISED LEARNING TO DEVELOP SELF-REGULATED LEARNING STRATEGIES IN ĀKONGA

Scott Charles Lemon

TOWARDS SELF-REGULATION FOR ENVIRONMENTAL SUSTAINABILITY

Sumandana

FOSTERING SELF-REGULATION IN LEARNERS

Tina Maclean

SHIFTING THE BALANCE FROM ASSESSMENT TO LEARNING IN SENIOR SECONDARY SCHOOL

Tracy Bowker

DEVELOPING COLLABORATION SKILLS THROUGH PROJECT-BASED LEARNING IN A YEAR 7 AND 8 TONGAN BILINGUAL CLASS

Vasiti Latu

INCREASING STUDENT ENGAGEMENT THROUGH PERSONALISED LEARNING

Guy Blanchard

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Contemporary
Education

Executive Summary C9P

How can the creation and implementation of a Digital Play Framework develop the digital fluency and capabilities in a play-based learning environment?

Áine Connaughton

I identified a problem where digital technologies are not effectively incorporated to support engaging learning opportunities in a child-led play-based environment, resulting in students lacking digital fluency and capabilities. I aimed to create a junior school environment where digital technologies are integrated throughout the day, focusing on increasing digital play during play-based learning. This project aimed to evaluate how the digital fluency and capabilities of students during child-initiated play support the development of critical thinking of year 0/1 students at a primary school in Auckland. I had five main goals, including developing a digital play framework, implementing a module of digital play for learning, conducting iterative cycles to evaluate progress, assessing student knowledge construction, and creating a junior school digital play framework and associated resources for teachers.

Throughout the project, I followed the four-step cycle of action research to identify a specific research goal, conduct a literature review, collect data and evaluate the effectiveness of my changes. The first step in my project was to obtain ethics approval and permission from my principal. Once this was approved, I sought informed consent from parents for their children to participate in data collection. The next step was to engage in research. My literature review aimed to explore the potential of digital play in promoting critical thinking within a play-based learning environment. Given that digital technologies are an integral part of children's daily lives, it is essential to incorporate them into pedagogies. Critical thinking is a metacognitive process that involves several sub-skills and enhances the likelihood of arriving at a logical conclusion or solution to a problem. It is a crucial requirement for responsible human activity and a cornerstone of 21st-century learning. My literature review draws on theories of traditional play, including Vygotsky and Hutt's theories of child development and play, to provide supporting evidence. It also examines the evolution of epistemic play into ludic play and how digital play supports children's development. The review argues that using contemporary digital cultures provides children with play grounded in enriched everyday real-life experiences. My goal was to provide evidence that "converged play" enhances children's imagination, critical thinking and problem-solving skills.

This project examines the Digital Play Framework developed by Bird (2015) based on Hutt and Edwards' research. The framework is designed to track the development of critical and creative thinking in students as they progress from epistemic to ludic play while engaging with digital media. The study emphasises the importance of teacher support and knowledge in creating an environment that allows students to explore, manipulate and interact with both concrete and digital materials to conceptualise their world. I identified six key drivers supporting digital play development when integrated into daily practice. These drivers include peer-initiated play, adult-initiated play-inquiry, adult involvement in

imaginary play situations, digital placeholders to support imaginary play, virtual pivots to support imaginary play and meta-imaginary play. I believe these can be used to provide practical guidance for educators seeking to integrate digital play into their pedagogies. The literature review shows that digital play can enhance critical thinking skills and that teachers should incorporate it into pedagogies to promote students' digital fluency and capabilities.

Once I had completed my research, I began to implement my project. This project was undertaken in my year 0/1 class with 15 children. Cycle 1 of the project involved assessing the children's digital capabilities and introducing them to basic skills such as taking photos and sharing them. Cycle 2 involved developing and introducing a Digital Play Framework, focusing on stop-motion animation, and observing the children's progress in creating their animations. Cycles 3 and 4 introduced green screening and Bee-bots, respectively. I developed Digital Play Frameworks to track how the children transitioned from epistemic to ludic play. This framework became a deliverable artefact of the project as it became an excellent resource for teachers to track and assess the development of critical thinking in their play environments. I developed and presented digital play workshops throughout each cycle to help the staff upskill. These workshops provided hands-on experience with the devices, step-by-step instructions and concrete resources to help the staff feel more confident implementing digital play in their classrooms.

I used qualitative and quantitative data collection methods, including observations, surveys and assessments of digital capabilities. Throughout the iterative cycles of my project, I analysed the data and adjusted as needed. I also sought feedback and advice from my team and academyEX collaborative group. I analysed the qualitative and quantitative data to evaluate the effectiveness of my changes and reflected on my research goals.

I used cross-tabulation for quantitative data analysis and Thematic Analysis developed by Braun & Clark for qualitative data analysis. The Digital Play Framework allowed for the collection of teacher observations, which tracked the development of children's digital capabilities and assessed the impact of integrating digital play during child-led play on levels of critical thinking. These observations were used as the primary source of qualitative data collection. Using thematic analysis to analyse these observations led to the identification of five critical themes related to digital play. The observations showed that children's play style transitioned from exploratory play to symbolic and innovative play and that purposeful and intentional play activities were needed to promote engagement.

Additionally, parent surveys in cycle 1 revealed that children's digital play at home was primarily passive and unsupervised, highlighting the need for more intentional approaches to digital play in both home and classroom environments. The increase in quality and quantity of digital work shared with parents on the children's e-portfolio Seesaw was a good indicator of the success of my project. Parents felt more connected to their children's learning and stated at the end of cycle four that they could see rapid improvement in their children's progression and the quality of digital content they were creating.

My data findings show a connection between the level of digital capabilities and ludic play. The results show a strong correlation between the two data types, suggesting that children with higher digital capabilities are more likely to engage in ludic play. This may be because digital technologies offer many imaginative and creative play opportunities, such as virtual reality games and interactive media. Furthermore, the findings suggest that their level of digital skills influences the rate at which children progress from epistemic to ludic play. Children with higher levels of digital capabilities appear to transition to ludic play faster, suggesting that digital technologies may facilitate the development of imaginative and creative play behaviours. These findings have significant implications for educators and parents who are seeking to promote the development of play skills in children. Providing children with access to digital technologies and supporting their development of digital skills may enhance their

imaginative and creative play capacity. Using a digital play framework aligns with the New Zealand Digital Technologies Curriculum. This curriculum emphasises the development of digital literacy and computational thinking skills, which are essential for success in the modern world. The project's results showed that the introduction of digital play positively impacted the children's critical thinking skills.

Overall, I aimed to highlight the importance of digital play in promoting critical thinking and argue for the integration of digital play into play-based learning environments. The supporting evidence suggests that incorporating digital technologies into pedagogies can enhance children's learning experiences and better prepare them for the demands of the 21st Century.

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Master of
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Education

Executive Summary C9P

Enhancing Higher Order Thinking Skills Through Problem Based Learning

Bridget Wylie

My research project aimed to explore the benefits of using Problem Based Learning (PBL) in a primary school. I wanted to investigate if PBL could increase Higher Order Thinking Skills (HOTS) in students in NZ primary schools. Argwal (2018) discusses how crucial it is to develop Higher Order Thinking in students and the importance of teachers having strategies to do so.

I had noticed in my class that some students were not demonstrating the use of HOTS, and this was especially noticeable during reading lessons as they could answer simple recall questions and locate information stated directly in the text. Still, many appeared to struggle when I asked them more profound questions. After researching different approaches that could assist with critical thinking, I decided to investigate if Problem-Based Learning (PBL) would assist with increasing the HOTS of the students in my class. Yew and Goh (2016) describe PBL as a constructive approach that allows students to actively learn in the context of authentic problems that allow students to work collaboratively in a self-directed way. One aspect of PBL that appealed to me was using problems from authentic contexts. As my students were part of Garden to Table (GTT), a programme where the students work in either the garden or kitchen each week, I felt that GTT would be a great source of "wicked" problems for the students to work with.

I decided to focus on three skills that I felt the students needed the most that would enhance their Higher Order Thinking Skills. The skills I selected were collaboration, communication, and creativity. I liked that an essential aspect of PBL is working in teams, which provided a more significant opportunity for students to use the skills regularly. I selected communication alongside collaboration and creativity because I think they go hand in hand. Without well-developed communication skills, they would not be able to work through the PBL process or explain their thinking or understand the importance of listening to others I hoped that as the students used PBL, they would develop an understanding of HOTS and the PBL process. I also anticipated that the project would allow me to expand the GTT programme within the school as problems would be taken from that context. I also set out to create unit plans from the problems the students tackled that could be used by other teachers interested in PBL.

Based on my research about PBL, I knew that my role as a teacher would be different. Hung et al. (2007) identified that the students become the initiators of their learning, researchers, and solvers of problems rather than just listening to information passed on by the teacher. This meant I needed to show the students a different way of learning and provide opportunities to use HOTS with a genuine purpose in the classroom. The first activity was to determine if any students had prior knowledge of the approach. I did not want to start from scratch if students had previously used PBL with other teachers and were familiar with the stages and expected outcomes. I started by interviewing each student (22 total) to discover their current knowledge and understanding of PBL, critical thinking and how they felt about working collaboratively in groups. As it turned out, there was not any prior knowledge about PBL; many guessed it had something to do with problems which they based on the title, but some were not that close with their predictions, and some suggested it was something to do with "numbers" or "for

people whose parents cannot afford to send them to school". I thought it was essential to work through the stages first with the students and explain how PBL worked as a starting point, so the students knew what to expect over the coming months. I also started by breaking down Critical Thinking, collaboration, creativity and communication into smaller chunks.

I chose to use Action Research and carried out two cycles of PBL with my class, which comprised students who ranged in age from year 3 through year 5. There was a wide range of abilities within the classroom. I began the project once the Ethics forms had been returned by all the parents in the classroom. The data was collected by interviewing each student before PBL began, and then they were interviewed again after the second cycle. There was also a survey handed out to the students between the cycles that allowed me to assess the progress students were making in using the skills and their current understanding of the stages of PBL.

At the end of the second cycle, the two data sets were analysed using qualitative methods, and the data was coded and put into themes. I had purposely asked many of the same questions to enable me to compare the answers directly. This allowed me to see differences in their knowledge of critical thinking and what their understanding of PBL had become.

Seibert (2015) described how PBL could enhance collaboration and communication as they work in small groups. My data demonstrated increased use of critical thinking in the classroom and that most students could also give examples of collaboration, creativity, and communication. They were also becoming more comfortable working in teams and demonstrating collaboration skills across the different curriculum areas. Many of the students were very keen on the digital aspects of PBL. They enjoyed using the devices for research, collaboration, and recording, as well as creating and sharing their presentations that included their research and solutions. There were quite a few comments on how they enjoyed using different devices during the different stages of PBL. However, the reliance on technology did have limitations and complications. The students only wanted to use the tools they were familiar with and were reluctant to try new things, and time was needed to introduce them to new tools.

If I continue with this project, it would be interesting to test how much of an impact technology has on the acquisition and use of HOTS in relation to PBL. This made me wonder if PBL would be as popular without electronic tools. Using PBL also offered greater opportunities for hands-on activities and group work, which allows all students to be involved I observed many students expressing interest and excitement about what was being investigated, and as the cycles moved on, there was a definite change in all students being included and the groups working together and all students being given a job which gave all students the feeling of being part of a team and not missing out or feeling excluded.

In conclusion, my results show that a teacher can explicitly teach the skills and see an improvement in the critical thinking skills of the students. I also found that with limited experience, a teacher can use a problem-based learning approach, and even if they didn't intend to, they will end up creating a more constructivist environment. This should engage and motivate the students and start to equip them with self-management and collaboration skills.

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Contemporary
Education

Executive Summary C9P

Using Skills Development to Raise Self-Efficacy and Achievement

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Metacognition is an awareness of the cognitive processes required to learn (Biggs, 1988). The *New Zealand Curriculum Framework* (Ministry of Education, 2007) identifies Learning to Learn (metacognition) as a principle and a key consideration of curriculum delivery in kura across Aotearoa, New Zealand. However, direct instruction in metacognitive processes is often overlooked in favour of teaching and assessing content via the achievement objectives of each learning area; this means that many students are not developing the skills that will enable them to become confident, independent learners.

A lack of metacognitive and cognitive awareness coupled with poor organisational skills among the secondary students of a small, isolated, rural composite school was contributing to deficit thinking by students around their self-efficacy and achievement. A change initiative was designed to address these issues. It adopted the Universal Design for Learning framework (CAST, 2018) to develop metacognitive, cognitive and organisational skills among the Kura's Year 9 students. While raising student achievement and self-efficacy lay at the heart of this project, the goal was to create a resource hub for teacher use to enable other practitioners to teach these skills to all students. Improved skills development, particularly metacognitive skills, would benefit all future students; beyond this Kura, our wider Kāhui Āko will also benefit from a programme that seeks to raise self-efficacy and achievement as similar challenges exist across the region's schools.

The Kura is small, meaning that potential participants were limited in number. It was decided that the participants would be the Year 9 cohort. Accordingly, all thirteen students were invited to participate in the project. The aim was to implement a skills-based teaching and learning programme in the years before NCEA, thus enabling them to practice and develop the skills. Such a project would begin to address the lack of metacognitive and cognitive skills; it was believed that failure to establish good organisational skills amongst the participants also contributed to low levels of achievement and self-efficacy; therefore, these would be addressed, too. All current and future students stood to gain from this initiative, which would initially be implemented in Social Science. The hope was that students would transfer the skills they were being taught in Social Science and apply them in all subjects. In small Kura, the ability to engage in independent study is vital as distance learning options such as Te Aho o Te Kura Pounamu (The Correspondence School) and He Kōtuinga Āko Ā-Ipurangi (The Virtual Learning Network) is widely utilised to support curriculum offerings which are typically restricted by the availability of on-site staff to teach a rich curriculum.

Using Action Research (Cohen et al., 2018; Mc Niff & Whitehead, 2002) approach focusing on Stringer and Aragon's (2021) cyclical 'look, think and act' model; this was selected for its ease of use and similarities to the Teaching as Inquiry approach adopted in the *New Zealand Curriculum Framework*

(Ministry of Education, 2007). The project was implemented in two iterative cycles carried out in terms three and four of 2022. The iterative cycles introduced basic metacognitive, cognitive, and organisational skills, initially using Costa's *16 Habits of* Mind (Costa & Kallick, 2000), emphasising habits that supported Bandura's (1977) self-efficacy: managing impulsivity, persisting and thinking about your thinking. Both qualitative and quantitative data were gathered. A combination of participant surveys and analyses of achievement drawn specifically from e-AsTTle Reading and Writing and Social Science assessments were used to evaluate the project.

The gathered data were analysed using an approach based on Braun and Clarke's (2021) thematic analysis. Three clear themes emerged from the data. Attendance impacts skills development: poor attendance reduces students' ability to form beliefs around self-efficacy and thereby limits achievement. The ability to be organised influences students' development of metacognitive skills and perceptions of self-efficacy. Direct instruction in skills development has a limited impact on student self-efficacy in the short term. Contemporary literature demonstrates clear links between skills development, self-efficacy, and achievement. The data analysis delivered one initially surprising finding not envisaged in the literature: direct instruction in skills development has a limited impact on self-efficacy. However, it is believed that this was a likely finding as the project was not implemented school-wide; therefore, students were consistently exposed to metacognitive, cognitive, and organisational growth in one subject area.

It was concluded that skills development is not the only way to raise self-efficacy and student achievement. Developing these so-called 'soft skills' can contribute significantly to student perceptions of self-efficacy and achievement. Further research and more comprehensive implementation are required to confirm the findings of this change initiative. The project must be implemented across all subjects for a single cohort of students. This project has refocused the teacher on a central principle of the curriculum – metacognition. In presenting the findings of this project to colleagues within and beyond the Kura, it is hoped that other practitioners will view skills development as a means of raising student achievement rather than a continual focus on the acquisition of content.

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About the author

Carolyn Milne teaches in the secondary department of a composite school on the South Island's West Coast. With over twenty years of experience teaching secondary students in various settings, Carolyn is interested in online learning and Social Sciences. Carolyn has a Master of Contemporary Education.

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Executive Summary C9P

Place-Based Learning - Improving knowledge construction through real-world learning experiences in the local community

Claire Defire

This change project aimed to answer the question:

How can place-based learning pedagogy using real-world experiences help to develop knowledge construction for my year 3/4/5 students?

The project goals were to develop a unit plan framework for place-based learning in the local community, supporting implementation and evaluation of knowledge construction, using action research comprising three iterative cycles. The project ran over terms 3 and 4 in 2022 with my year 4/5 students and in term 1 of 2023 with year 3/4 middle school syndicate participants. The project provides authentic, hands-on, real-world learning opportunities in the local community that are relatable and meaningful to the participants, connecting them with the community in which the school resides. The primary beneficiaries are the students, the teachers in the syndicate, the students' families, and community members.

My identified problem is that the students do not know how to construct knowledge from their learning because they have not formed connections relating the learning to the real world. My project set out to prove that Place Based Learning helps students to build Knowledge Construction. The issues I want to address are determining whether knowledge construction has improved through the support of place-based learning and how place-based learning can help create a network of collaborative home-school-community partnerships and expertise in the local community. The project was implemented with two groups of participants of varying ages: the middle school syndicate teachers, a teacher aide, family members, and a range of local community members and organisations.

The implementation of my project had three iterative cycles where the students progressively gained more control over their learning; they were expected to identify problems in the community they wanted to address. Maguth, B. M., & Hilburn, J. (2011) suggest that when students are aware of community issues, they find ways to solve solutions to improve their communities. I wanted students to form a sense of place, so I incorporated the concept of Tūrangawaewae and the Kaupapa Māori principles of whakapapa, pepeha, and kaitiakitanga. Penetito, W. (2009) suggests that place-based education is multidisciplinary and taught through collaboration between teachers and community experts. It is experiential and often contains learning with a service expectation. Place-based education allows Māori students to be themselves and that their connections to the land and the people are a fundamental need, but he insists that it benefits all students. He continues that the concepts of pepeha, whakapapa, tūrangawaewae and kaitiakitanga are brought together through Māori knowledge and traditions.

Iteration 1 explored the local community; experiences were authentic and student-driven. In iteration 2, students needed to identify problems in the community that they wanted to address. McMillan, S. G., & Binns, T. (2011) suggest local projects provide opportunities for collaboration between the

classroom, organisations, and community members when finding a solution to a local problem. It was designed to test knowledge construction, which was occurring by applying their learning to new situations and finding solutions for problems within the community. In iteration 3, students were developing skills and experiencing structured real-world learning trips supported by in-class learning.

To implement my place-based learning change project, I used the Action Research methodology, which uses iterative cycles to manage and progress my research. Cohen et al. (2018) suggest Action Research methodology as a small-scale intervention that occurs in real-time using authentic, real-world contexts. I used a mixed method research data collection where I am using action research. Still, I am analysing the qualitative (observational) data using the Braun & Clarke (2022) method and using a statistical analysis for the quantitative (assessment) data. Assessment of knowledge construction will be completed through the quantitative termly reading, writing and mathematics data, and supporting rubric data from the ITL Research 21st Century Learning Knowledge Construction Rubric, Dig Comp 2.1 rubrics and T3 Framework rubrics to assess knowledge construction. The qualitative teacher observations data of knowledge construction assessed the following criteria: changes in behaviour, engagement in the learning, and evidence of students making connections from what they were learning and applying it to other contexts. After analysing the data, the results show that the participants have increased their knowledge construction in their learning. Sobel, D. (2014) suggests that when students experience place-based learning, they will have an improved understanding of the texts they are reading, their writing will develop, and they will become more effective in making connections and synthesising complex ideas and confidently discussing them. The data supported this, showing improvement in core subjects for both participant groups, the most significant shift being reading.

Smith, G. A. (2005) suggests students show a disconnect when the topics they are learning about fall outside their lived experiences; they need a relationship with the topic or place of learning. Place-based learning can be used in all contexts and age groups by tailoring the learning to the needs of the students. The first group of participants demonstrated responsibility in student-led learning exploration. What I learned from my second group of participants is that each student cohort will have its own set of needs that are unique to them. It was not possible to replicate the first group learning and do it with the second group as they were not ready for that responsibility; instead, they engaged in place-based learning using a context that meets their needs – a scaffolded approach, allowing the development of their skills readying them for more student-led responsibility and control of their learning.

The new learning I have taken from this is that Te Atatū has a diverse environment and array of community resources ready to utilise. I could implement place-based learning with any group of students across any year level, and each class would experience something unique that suits their learning needs. This will be true in other communities. You need to find valuable learning resources; by talking to your families and community members and utilising their wealth of knowledge, you will gain home-school-community solid partnerships to support your implementations. The change in my teaching practice has been informed by the Māori community members who have broadened my understanding of place, Tūrangawaewae and the Kaupapa Māori principles. Because of the success of the project implementation, the middle syndicate will continue implementing place-based learning to build knowledge construction by working with the Te Atatū Marae Coalition, focusing on improving the waterways in our community.

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Although born over the shore, Claire has grown up and resided in West Auckland and would often explore Te Atatū and the other West Auckland suburbs she has lived in. Her father is an avid traveller and would often take her on adventures when she was younger, and she has tried to replicate this with her children. She is off backpacking with her father through Asia later this year. Before becoming a teacher, Claire gained a Bachelor of Landscape Architecture; she fell into teaching after being a teacher aide, where she enjoyed helping students make connections in their learning and trained to become a teacher five years ago as it seemed the next logical step. Unsurprisingly, she was drawn to the pedagogy of Place-Based Learning in this project.

Master of
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Education

Executive Summary C9P

Improving Oral Language in Year 2 Using Project-Based Learning

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As a foundation for early literacy and a necessary precursor to reading and writing attainment, oral language has been identified as essential to improving curriculum access and students' learning abilities in later years (Education Review Office, 2017). As a school, we had strategically prioritised oral language as an area for development to strengthen and accelerate learner outcomes, particularly as various impacts of the Covid 19 Pandemic made this an even more pressing issue. In this study, which I carried out in my Year 2 classroom, I implemented a change-based intervention around authentic project-based learning (PBL) to develop oral language skills. In collaboration with the students and other teachers in my hub, I designed a plan for inquiry, looking into the needs and interests of the students at that moment and seeing how they could explore their interests and language further through inquiry topics. To disseminate what we have learnt, I will write a report for my school's Board of Trustees detailing the change-based project's outline and impact, which can be disseminated to Trustees, staff, and other relevant or interested parties, including peers on the academyEX master's course.

Authentic learning experiences can improve language learning (Williamson & Hedges, 2017). Authentic learning comprises four fundamental tenets: real-world problems, enquiry activities that habituate thinking skills and metacognition, discussion amongst a community of learners, and student empowerment through choice (Rule, 2006). To be authentic, project-based learning requires that the project work is meaningful and relevant to the pupils' own experiences in and of the world. Furthermore, where language development is also the goal, project work needs to focus on collaboration, communication, and exploration.

My project involved creating two modules of authentic PBL, including a digital aspect, i.e., green screens. The use of green screens was my innovation based on research that shows that using technology in authentic learning contexts can improve oral language outcomes (Zwahlen, 2017). An essential part of my study was collecting data and implementing the project to evidence impact. Using an action research approach (McNiff & Whitehead, 2005; Pine, 2009), I used quantitative and qualitative data collection tools. Firstly, I used the Junior Oral Screening Tool (JOST): The JOST measures development in vocabulary, pragmatics (social language) and grammar and is a recommended, nationally used assessment tool in New Zealand. Using the JOST scores before and after the PBL modules I taught, I could capture how students could construct oral language effectively at those two consecutive points in time, specifically, to compare the before and after scores. I also devised my mixed methods (qualitative and quantitative) questionnaire, which the pupils completed pre- and post-PBL modules. This questionnaire was a mixture of Likert scale items, analysed using descriptive statistics, and pupils' free-text responses to open questions, which were thematically analysed using Braun and Clarke's (2006) approach. I also completed a weekly reflective journal to provide a more holistic capture of the project, which helped inform the iterative cycles of the action research.

The results suggest that authentic PBL does positively impact oral language. Firstly, every pupil had a higher overall JOST score in the post-test. A notable improvement was in the pupils' free discussion

responses to picture stimuli: in the post-test, all of the pupils increased the length of their response; in other words, they talked more, the most significant improvement being an increase of 177% for one pupil. The complexity of the language being used also increased. Detailed analysis of this language usage data revealed an 800% increase in the correct use of connectives and adjectives. In addition, correct usage of prepositional language improved by 325%, and the use of complete sentences increased by 122%. The questionnaire revealed that pupil attitudes to various aspects of oral language improved. Pupils reported feeling more confident talking to friends at lunchtime and participating in class discussions. Still, the most significant difference was in how the pupils felt about presenting their learning orally to the class, this being notably more positive after the PBL modules. A thematic analysis of the qualitative data revealed four major themes: collaboration, green screen (technology), feelings and talking about learning. Pre-intervention pupil talk focused on feeling nervous or scared, yet in the post-PBL module data capture, this language changed to reveal feeling brave and that it was okay to make mistakes. The talk also revealed increased enthusiasm for collaboration. At the same time, most comments centred on enjoyment of the green screen – its imaginative possibilities and how cool and fun it was. The authentic PBL modules not only positively increased student use of oral language, including correct usage of language conventions, but the children felt more globally confident about expressing themselves in various situations; moreover, they enjoyed the PBL modules and could see the benefits of collaboration.

All studies have limitations, and this study is no exception. This was a very small opportunity sample where it was not appropriate to test for statistical significance; repeating the project with a larger and more representative sample size would allow the data to be analysed in such a way as to provide some indication of how generalisable the results were. The study was conducted in a small, city-centre Catholic school where certain ethnicities were not represented in the class cohort, namely the Pasifika and Maōri cultures. This does not represent New Zealand's multiculturalism overall, and it would be interesting to repeat the study in a more representative context.

In conclusion, the study suggests that authentic PBL is a powerful contemporary pedagogy that can effectively target oral language development. PBL puts the child at the centre of their learning, allowing culturally responsive practice. Furthermore, a mixed methods action research model is a practical data collection approach that works well with expectations of ongoing teacher enquiry and reflectiveness, and which can foster and embed collaborative practice.

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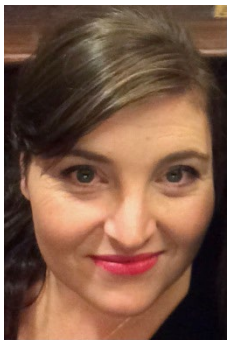
About the author



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Master of
Contemporary
Education

Executive Summary C9P

Connecting the Dots: Growing transdisciplinary project-based inquiry teaching and learning

Jacqueline Stenson

In this project, I led teachers to implement integrated project-based inquiry learning to develop knowledge construction and student agency for all learners, including dyslexic and gifted learners, focusing on developing transdisciplinary inquiry teaching and learning skills in my school's Year 5–6 classrooms.

I aimed to provide opportunities for the teachers to build on their knowledge and skills for planning and teaching inquiry-based learning. I wanted to increase the students' agency over their learning and give all students opportunities to make connections to topics or issues that interest them. I aimed to increase students' success in writing by coaching the teachers to integrate the teaching of writing and the Google Read/Write extension into the project-based inquiry.

The problem I identified in my school was inquiry being taught separately, like reading, writing, and maths. Students identified as benefiting from using the Google Read/Write extension in their writing were not using it in the classroom to write within rich inquiry contexts. I believed that integrated project-based learning in the classroom would allow all students to use their strengths to contribute and write within contexts they could relate to and connect with. My project participants were three of the Year 5-6 teachers and their students in iteration one, which increased to four teachers and their classes in iteration two.

I began the implementation process by interviewing each teacher participant and meeting with them as a project team to discuss and plan the inquiry. I also gathered the students' voices through a pre-project survey. During the first inquiry cycle, I co-taught for two blocks of an hour and a half with each of the three teachers. The teachers and I included connection circles, Google Read/Write for the whole class, and co-construction with students of assessment criteria. We developed a shared Google document for our weekly schedule and planner, which included space for our reflection notes. Students had agency over their choice of topic, research methods, and the form of their meaningful action.

In iteration two, we changed our planner to include more opportunities for group work and information sharing. We planned for the integration of writing in the form of a rainforest book, which informed our overall inquiry focus. Another Year 5-6 teacher and class joined the project, bringing new ideas and inquiry experience. I co-taught for three hours per week in the new class and one and a half hours per week in the existing classes as the teachers took on more responsibility. Students set goals for their transdisciplinary skill development and self-assessed them at the inquiry's end. Students continued to have agency over their choice of topic, research methods, meaningful action, and, in addition, whom they worked with on their inquiry. I administered a post-inquiry student survey and a reflection survey for the teachers. I also accessed the students' summative writing assessments for terms three and four.

Teachers followed an integrated mental health unit of inquiry for the third iteration. I supported them as needed and planned to co-teach two lessons in each of the three original classes and observe the teachers. Unfortunately, the third teacher had to take a leave of absence, so I co-taught several lessons with our school's release teacher, after which she was confident enough to teach the remaining lessons. I observed the two teachers and was delighted that they were using the Walk and Talk tool to get students to share their thinking and a connection circle to connect with each other's ideas on the power of words. One of the teachers was integrating inquiry into their reading program with students involved in passion projects. Students had co-constructed the criteria for the inquiry, brainstormed topics and collaboratively decided on the inquiry steps they would need to follow.

My methodology for my research followed a cycle of action research with three iterative implementation cycles. This model investigates practice to improve outcomes and involves trailing new pedagogy with regular reflection and adjustment at each stage or iteration (McNiff & Whitehead, 2010.) I collected qualitative data through interviews, observations, short answer survey questions, and quantitative data in the form of summative writing assessment data and multiple-choice survey questions.

Students had the chance to write about the rainforest issues they had discussed, considered, and researched during the second iteration of my change project. This led to a significant number of students who had previously felt they could not express their ideas in writing becoming capable of doing so and finding enjoyment in their writing. The persuasive writing was for the real purpose of making a difference for animals and the rainforest environment. According to Vygotsky (1978), writing instruction should always occur in a social setting and serve a useful purpose.

I knew that student agency was necessary for students' learning and that being able to make decisions about their learning within the classroom was important. I didn't know that student agency over their learning is directly connected to their self-efficacy or self-belief about their ability to succeed. Students' self-efficacy in writing increased significantly after the integration of writing within the rainforest inquiry. Students wrote about a topic they had agency over, researched it, and discussed it with their group. The most effective influence on self-efficacy is the interpreted results of previous performance or mastery of the activity or task. Outcomes interpreted as successful raise self-efficacy, and those interpreted as failures lower it (Bandura, 1997). Bandura advocates for teachers to raise confidence and competence through authentic, successful experiences mastering the required task (Bandura et al.).

Project-based inquiry learning provides a rich socio-cultural purpose for learning, opportunities for student agency over their learning, and scaffolding to develop students' self-efficacy. Project-based transdisciplinary learning creates opportunities for students to have agency over their learning, participate in meaningful, purposeful inquiry, and develop skill mastery, which increases their self-efficacy. This is similar to Vicki McIntyre, the principal of Hinds School in South Canterbury, whose change project concentrated on learners, capacities, dispositions, and empowerment (McIntyre, 2020). They learned that the zone of proximal development facilitates the student's transition from adult supervision to guidance to independence, scaffolding their self-efficacy. Student voice was collected as part of this project, leading to their discovery of the power of students' perceptions of their learning and the impact on their learning of how they perceive their agency over decision-making about their learning (McIntyre et al.).

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About the author

I am currently a Learning Support Coordinator. My experience includes teaching and leading transdisciplinary project-based inquiry learning in New Zealand and overseas.

Master of
Contemporary
Education

Executive Summary C9P

Improving Student Engagement in a Year 12 Economics Class Using Project-Based Learning

Joanne Ellis-Smith

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My research aimed to address low student engagement in my Year 12 Economics class in a Decile 1, South Auckland Secondary school with a high Pasifika population. I planned to do this by implementing Project Based Learning (PBL). The study aimed to adapt pedagogical approaches to teaching, fostering 21st Century Skills whilst addressing real-life economic changes and inequalities.

The study aimed to achieve four goals:

1) Engaging students in actively understanding abstract economic theories using PBL.
2) Developing their critical thinking skills by analysing economic theories within the context of real-life problems in their communities.
3) Implementing action research through two iterations in Term One 2023 to generate knowledge and insights to enhance positive changes in my teaching practice.
4) Observing an overall improvement in student engagement in the classroom.

The methodology employed in this study was action research, influenced by John Dewey (1938) and Kurt Lewin's (2009) concepts, which provided a systematic approach involving problem identification, data collection, analysis, action planning, implementation, and evaluation. The study involved five participants selected from a pool of 33 students in my Level 2 Economics class. During the 10-week data collection period, several methods were employed. Observations were made to gather relevant information involving systematically observing and recording data from the class. Additionally, focus group interviews were conducted to obtain more in-depth insights, where students shared their perspectives. Lastly, questionnaires were distributed to gather quantitative and qualitative data from the class. These written surveys included structured questions to collect responses and opinions from participants. This data collection aligned with Term One in 2023 and followed the Three-Dimensional Model of Student Engagement by Fredrick et al. (2004) to evaluate the nature and extent of student engagement throughout the instructional activities.

Thematic Analysis (Braun & Clark, 2006) identified three key themes; firstly, targeted literacy support was identified as a crucial need, leading to improved assessment completion rates and higher achievement grades. Second, involving community speakers enriched students' learning experiences through real-world projects. Lastly, low attendance among Pasifika students was primarily attributed to family commitments, such as childcare, translation, church attendance, and work responsibilities to support their immediate and extended families.

The findings in this report highlight the importance of addressing literacy needs, incorporating community involvement, and understanding the specific challenges faced by Pasifika students to enhance student engagement and attendance.

1) Cognitive Engagement: Implementing PBL improved student engagement by connecting learning to real-world applications and addressing diverse literacy needs. Collaboration, scaffolding, and community involvement were crucial in fostering cognitive engagement and improving grades.
2) Behavioural Engagement: Attendance was influenced by factors such as cultural obligations, financial pressures, and health issues. Flexibility, technology integration, and effective communication were identified as strategies to address high absenteeism and support student engagement.
3) Project-Based Learning: Shifting focus from student-to-student collaboration to student-teacher-community collaboration within PBL enhanced authentic learning experiences, critical thinking, and problem-solving skills.

This paper is significant to ensure academic success and engagement; it is crucial to address this decline. PBL, targeted literacy interventions, community involvement, flexibility, and technology integration emerged as valuable factors to tackle these challenges. PBL, a key component of 21st-century learning, fosters student engagement through practical applications and real-life problem-solving. Targeted literacy interventions further enhance comprehension and engagement, equipping students with analytical and interpretive skills for active participation in the learning process. Community involvement broadens perspectives, and flexibility with technology addresses attendance issues, ultimately promoting student involvement in economics education and designing effective instructional strategies.

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About the author

Joanne is a dedicated educator with 24 years of experience as Head of Commerce at a South Auckland secondary school. She recognises the evolving role of teachers, especially considering the COVID-19 pandemic, and understands the changing dynamics within families and communities. Joanne believes in connecting education to the realities and needs of the local community. She promotes experiential learning by taking students outside the classroom, encouraging higher-order thinking and practical application of knowledge. As Head of Commerce, Joanne shapes the curriculum, designs engaging learning experiences, and fosters partnerships with local businesses and organisations. She aims to create a vibrant learning environment that prepares students to navigate the

complex economic landscape. Joanne is committed to her professional growth, actively seeking development opportunities, and staying current with educational trends. Additionally, she champions community engagement and the relevance of economics education beyond the classroom.

Master of
Contemporary
Education

Executive Summary C9P

Discovering how self-determined learning enables confidence when designing digital learning

Jocelyn Tuia

This research project aimed to enhance digital fluency and confidence among staff members through a heutagogical approach. The goals included developing a professional development program using an inquiry-based framework, conducting workshops on self-determined learning and digital fluency, implementing action research with iterative cycles, and evaluating progress through observations, reflections, and surveys.

The project aims to benefit teachers willing to take on the challenge of having autonomy over their professional learning in their chosen curriculum area. This project focuses on enhancing digital fluency/capabilities through a self-determined way of learning. The benefits of this approach include intrinsic motivation, purposeful learning designs, equipping students with tools for independent learning, and building trust in empowering students to be agentic learners.

This project aimed to address the issue of teacher resistance and lack of confidence in incorporating digital learning into their teaching practice. Although the project had limited participants and faced time constraints and disruptions, it explored how self-determined learning approaches can enhance teachers' confidence in planning and teaching with digital tools. The project is the initial step in encouraging teachers to embrace evolving technologies and empowering students to become innovative, creative and responsible digital content curators (Hase & Kenyon, 2013).

The methodology I implemented was Action Research. Action research encourages self-reflection and collaborative learning (McNiff & Whitehead, 2005). As Gerald Pine (2008) explains:

Action research is a process of concurrently inquiring about problems and taking action to solve them. It is a sustained, intentional, recursive, and dynamic inquiry process in which the teacher takes action– purposefully and ethically in a specific classroom context– to improve teaching/learning. (p. 30).

The methods I used in my action research were:

Survey**:** The surveys I gave the participants were done through Google Forms. The purpose of the surveys was to gauge what digital tools they currently use in their design for learning, to see how confident they are with using digital tools, and to gain an understanding of extra information that proved to be a hindrance or a success for the participants when engaging with digital tools/apps.

Observations**:** Our school is an MLE, and every syndicate across the school organises itself differently, so I needed to understand each participant's working reality and not assume they all work under the same conditions. I reassured the participants that I would work around their timetable and observe on a day that suited them. I also gave teachers the option to video their lessons, and they could do that and share a link with me via Google Drive.

Meetings/Focus group discussions: This was an informal organisation with the research participants. I would check their progress and update them on any changes needed. These meetups were crucial for my leadership practice because I would make my most significant decisions as a leader and designer of this research project to adapt and change it to suit the participants' needs. If these were in place, I would have responded differently, as I would have missed reading the body language, the comments, and the direct feedback from the participants that you cannot pick up from a survey.

Student work: The research participants shared samples of their student work with me at the end of the second iteration. They attached links or took screenshots of their students' work and added them to their T3 Framework self-assessment sheet.

The above methods I used all produced qualitative data that was analysed and used to inform my practice throughout this research so that I could best support the research participants in their journey to developing themselves as self-determined learners.

When analysing my data, I adopted the reflexive thematic analysis (Braun & Clark, 2013), working my way through the six stages of thematic analysis.

Iteration one Teacher Data & Findings
These were the four themes from the analyses of the survey data:

1) The ripple effect of self-efficacy determines how teachers engage with digital tools/apps.
2) How much learner agency is allowed using digital tools/apps?
3) The complexity of planning and teaching with digital tools/apps
4) Teachers' intentions of wanting to grow their knowledge and practice in digital tools/apps.

The themes link to the project's purpose statement and confirm that the purpose of the research was valid. Miller (2016) had similar findings about how current professional development for teachers fails to prepare teachers "how" to teach 21st-century learning to our 21st-century students. She continues to describe that the one-size-fits-all approach to professional development does not consider the individual teacher's learning needs or interests.

Iteration Two Teacher Data & Findings
The second set of data I collated were the participant's reflections after implementing their digital tool into their design for learning. The four themes that came out from the data analysis were:

1) Teachers are intrinsically motivated to learn more and create opportunities to learn more.
2) The positive effects on teacher workload and its impact on teacher practice.
3) We are equipping our students with the necessary tools to grow in their learning and at their own pace.
4) Creating space enables agentic learners to be leaders of learning in class and their learning.

The samples of work that I observed in the first iteration, across the board, showed a shift in practice in the learning the teachers designed. Many of the work samples I had observed in the first iteration were activities that could be substituted with a pen and paper.

The above themes are different from Miller's (2016) themes: communication and collaboration, educator accountability, unified focus, relevance for the classroom, and trusting relationships. (2016, p. 139)

All four of my themes could come under Miller's relevance for the classroom (2016) theme. She explains that this theme concerns the relevance of their professional development and that the new

knowledge they gain is worthy of implementation in their classroom. She defines it as "Teachers must feel a connection between the professional learning and their classroom practice" (p. 151).

This project has allowed me to grow and evolve in my leadership practice. As a servant leader, I usually work in the background to support others, but this project required me to step forward and take a leading role. This pushed me out of my comfort zone and made me realise I could improve my leadership self-efficacy. I have gained valuable experience in heutagogy and digital technologies, and I look forward to continuing this project with the participants and the rest of the staff. I have learned that heutagogy, focusing on learner autonomy, is a practical approach to learning.

To follow on from the learning gained through this project, the following steps would be to carry out this project with the rest of our teaching staff. I am excited to embark on the next chapter of this learning journey on heutagogy and digital learning with our leaders and staff.

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Master of
Contemporary
Education

Executive Summary C9P

Personalised learning using digital technologies in a Year 7 / 8 Food Tech class

Natalie Makeef

In this project, I set out to implement a personalised learning programme to develop a knowledge base sufficient to implement digital technologies within Year 7 and Year 8 Food Technology classes at Kelston Intermediate School. The expected outcomes were to inspire creativity, critical thinking, communication, and student collaboration. The other desired outcome was successfully integrating digital technology into a traditional teacher-focused Food technology class to evolve into a more student-centred classroom.

Food Technology classes are traditionally more teacher-centred rather than student-centred. Traditional one-dimensional teaching and learning, not 21st-century learning—a general lack of digital technologies in the Food Technology space compounds this.

The way I sought to get around this was to substitute digital technologies for paper-based activities within the Food Technology classroom setting. Two of the leading digital technologies I implemented were Google Classroom and Quizziz. I used Google Classroom instead of workbooks. This allowed me, as the teacher and the students, their whanau to view what was happening in real-time. Another digital technology I utilised was Quizziz (a gamification assessment tool) to replace marking responses on paper. This had the added advantage of a higher level of student engagement.

Digital technologies are frequently viewed as the "way of the future" and are an essential aspect of life and education in the 21st century. Teachers are being pushed to extend their use of digital tools as part of their practice as education evolves in the 21st century (Albion et al., 2015). While there are many benefits to digital learning, there are also some challenges and risks for students and schools.
Technologies such as virtual reality, augmented reality, and even artificial intelligence are being introduced into classrooms worldwide, with engineers and educators increasingly realising their potential use in education.

In contrast, educators who grew up before the internet and other digital computing devices were non-existent are known as “digital immigrants” and have had to adapt and learn these technologies. In other words, teachers born in a non-digital world generation have become digital immigrants, creating the digital divide between teachers and students. What are teacher’s attitudes towards digital technologies in the classroom? Ertmeret et al. (2012) believe that teachers’ confidence, attitudes, and beliefs towards digital technologies can be intrinsic barriers to how they perceive the value of digital technologies in the classroom. Zhao et al. (2001) also argued that teachers' attitudes and beliefs towards digital technologies are crucial for their effective use in education.

The role of the teacher is changing due to the fast-paced technological progress in the 21st century's education system and the constantly evolving, increasingly digital world in which we live. Teaching and

learning in the 21st century have become increasingly interactive with digital tools, so teachers must assess their digital fluency and constantly update their skills (Howel, 2013). Technology in the classroom can give rise to various teaching methods, such as project-based learning, place-based education, and personalised learning. These pedagogies foster 21st-century learning abilities while providing real-world situations in which information is produced and applied. Learners and educators must be digitally fluent to prepare for life in an increasingly digital culture. Digital technologies are critical to New Zealand's future economic and social growth. The younger generation must learn digital skills to flourish in a contemporary economy and society and contribute to the larger community and their whanau. Digital fluency combines digital or technical skills, digital literacy, and social competency (Spencer, 2015).

Personalised learning is not just about giving learners more choices. It means engaging learners in a highly interactive process of learning. Personalised learning does not mean individualised learning - for some people, it could mean learning on their own - at home- one-on-one with a peer or tutor. It's learner-led learning within a framework of standards. The goal is to motivate children and parents to become active investors in their education. In Leadbeater's (2005) work, it is argued that for personalised learning to work for all children, school collaboration is the prerequisite. Personalised learning does not mean individualised learning, and it is not cafeteria-style learning: picking your curriculum from a more expansive self-service menu.

This project taught me that students adapt to new technologies and are often better than adults. I have found and learned how to utilise several digital technologies and tools previously not utilised in the food technology environment.

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Ko Tararua te māunga
Ko Ruamahanga te awa
Ko Takitimu te waka
Ko Wairarapa te moana
Ko Ngati Kahungunu-ki-Wairarapa' te iwi
Ko Ngati Moe te hapu
Ko Papawai tōku marae
Ko Natalie Makeef tōku ingoa

Master of
Contemporary
Education

Executive Summary C9P

From participation to engagement

Michael Bucksmith

This project aims to conduct action research related to digital and collaborative learning practices and their role in lifting student engagement in primary classrooms. There is a wealth of contemporary literature related to these areas of teaching and learning, and the project seeks to triangulate the findings and guidance provided within the writing reviewed within this report. Another purpose of the project is to build my understanding and capacity as a school leader and educator in a primary school in Aotearoa, New Zealand, in the 21st Century. Strengthening my 'on the ground' understanding of engaging, future-focused programmes for kaiako and ākonga would significantly increase my competency as a modern school leader. Te Mātaiaho (2023), the MoE document presenting the current curriculum refresh, highlights key kaupapa and direction around how students learn best to prepare them for the future. Key components such as Mātairea emphasise the importance of aspects that have become foundational in the project, such as the spotlight on learner progress, the need for effective pedagogies, and the role of the teachers and staff in bringing these together to nurture the environment of learning, progress and achievement.

There were four goals in this project, which all work towards improved engagement, progress and achievement for ākonga:

1. An increase in engagement in learning where students know their current steps, next steps, what they need to do to progress, and what success looks like at each stage.
2. To see measurable improvements in progress and achievement in reading and writing in all participants over 12 months.
3. To foster an environment of professional learning that spreads across our school as we seek to deliver genuinely student-centred programmes of learning for all students and
   To create tools and resources for students and teachers to use going forward as they implement modified versions of this project in their classes and teams.
4. To nurture a culture and mindset around learning, continual improvement and cultural responsiveness among kaimahi, learners and whānau within the project's context so that change initiatives' implementation is normalised and proactively sought.

Hargreaves (2022) provides a definition of cultural responsiveness that is broad and highly effective in strengthening kaiako's understanding of the need to know as much about our learners as we can and to build genuinely student-centred learning opportunities around this knowledge. What stands out with this definition is the recognition that our funds of knowledge are ever-changing and stem from all our influences, including our ethnicity and the sum of our experiences.

This white paper describes a project in which students engage in problem-based learning. In collaborative groups, students identify a real-world problem they would like to solve and then seek to address it collaboratively. To learn more about the problem, share solutions and present their learning, students will use a suite of digital tools and resources provided by the lead kaiako. Over a school term, students will complete a range of literacy tasks to understand better how to address their problems in the real world. Students develop an initiative to be implemented by themselves. Greater engagement

for learners comes through a more accurate understanding of each student's levels and the next steps regarding the milestones within the Learning Progression Framework. Culturally responsive actions are embedded throughout the initiative so that all students are expected to incorporate their funds of knowledge into their problem-solving approaches. Students regularly give feedback and encouragement to each other to build their sense of self-efficacy and their understanding of what dispositions, skills, and knowledge they need to be effective learners and problem solvers. Lopez-Garrido (2023) discussed Bandura's Self-efficacy theory. The elements described within this theory form the basis of the kaupapa around collaborative learning. It stresses the importance of learners encouraging each other verbally, observing each other, and achieving vicariously through others' successes and (by recognising learners' funds of knowledge) supporting learners to be empowered by their earlier successes.

It is expected that participants will need to show patience with themselves and the iterative process as they are exposed to new approaches to learning and new measures of success in their learning. A successful implementation would be where students grow as reflective learners and collaborators - non-traditional success indicators. There is confidence that learners will be able to show progress in many areas throughout the project. It is likely that even after three iterations, participants will be able to identify several areas where improvement can occur. This would be considered a successful recognition, as fostering a culture of ongoing improvement is one of the project goals.

The learning from the implementation of this project is valuable to educators in New Zealand contexts. The literature review highlights the need for schools to reflect on their programmes' effectiveness in terms of cultural responsiveness and inclusivity, engagement in learning, and progress and achievement in literacy. First, this learning is most useful within our kura and kahui ako as it has been developed based on observations of the teaching and learning culture locally. The principles and approaches identified in the literature and policy were tested.

It will be transferable to educators across New Zealand through action research and the iterative process. Much of the kaupapa has been fed by TKI and Te Mātaiaho resources, so New Zealand schools would be most interested in the findings.

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Master of
Contemporary
Education

Executive Summary C9P

Developing Digital Skills and Capabilities Through Project-Based Learning

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Developing digitally competent students is becoming increasingly important in our 21st-century world. The digital age is advancing constantly, and as educators, we need to develop and adapt teaching practices and approaches that reflect and assimilate new learning for all.

The project was developed with the thought that "Project-Based Learning enhances students' development of digital skills, capabilities and fluency". Effective use of technology as an integrated part of pedagogical processes has seen increased development in lower- and higher-performing students while constructing knowledge within a Project Learning Environment (Kokotsaki et al., 2016; Magnify Learning, 2018). My project aimed to achieve this by developing a framework incorporating skills and competencies from Project Based Learning Approach (PBL) and the incorporation of Developing Digital Literacies Stages and The Digital Competencies Framework DigiComp2.1 (Carreto et al., 2017). PBL is a comprehensive perspective focused on teaching by engaging students in investigation (Blumenfeld et al., 1991). This allows the investigation to be developed alongside the digital skills and capabilities students need in a high-interest project specific to their passions or interests. Student participants in the project were in Years 3 and 5.

The goals of the project were:

1. Formulate a framework incorporating DigiComp2.1 and key aspects of the JISC approach to implement and evaluate knowledge construction through the PBL approach.
2. develop a digital source for resources, materials, and frameworks to be stored for all educators within the school to access.
3. Investigate the impact of the development of digital skills and capabilities through the PBL approach in learning and teaching to create 21st-century learners who are digitally fluent.

The project was constructed around the development of teachers and students in the learning community. It was designed to fit around four short iterative cycles and continue over the following year with the development of further research, professional development, and framework construction. The primary beneficiaries are the students and educators within my team, to potentially broaden out to the broader school community (students and educators).

The problem identified was that students lacked digital skills or capabilities, resulting in a lack of 21st-century skills to problem-solve, think critically, and use digital tools to support their learning experiences best. How can we develop both students' 21st-century skills and digital capabilities and

skills? Developing students who are digitally literate and establishing 21st-century skills with the PBL approach was an essential way to construct skills in a context that connects to our students' passions or interests. Through consultation with my teaching team, it became clear that teachers lacked the knowledge and skills affecting student development. I needed to develop the student's capabilities and skills and those of my colleagues to make this the most effective change.

Innovative environments require an effective and cohesive culture for all: educators and students. Educators will openly communicate, collaborate, reflect, and develop the confidence to try new approaches when this is evolving. For educators and students to thrive in the digital age, they need 21st-century skills and the development of digital fluency. Bell, (2010).

The construction of a framework connected the stages of DigiComp2.1, JISC and the critical elements of the PBL approach. The framework gave the essential skills and capabilities to create learning opportunities that encourage collaboration, engagement and innovation. The framework was used throughout the project to indicate learning, assess outcomes and interpret the next steps for the following cycles. Throughout the project cycles, action research methodology was identified through surveys, observational notes, interviews and indicators from the framework to assess what was achieved and establish evidence. The framework indicates what we should learn to develop as participants in 21st-century society (White, 2013).

The students participated in learning experiences throughout the cycles that required the knowledge development of applications, skills and concepts. The projects addressed a different context in each cycle, and the students developed under the facilitation of PBL. PBL is a student-centred form of instruction based on achieving goals through social interactions and sharing knowledge and understanding. Coco, (2006) as cited by (Kokotsaki, Menzies & Wiggins, 2016). Creating support workshops, new learning experiences, opportunities to inquire and try new ideas, and student-led experiences that are engaging and specific to their interests.

I was unsure of the interaction of PBL and digital learning, and with a lack of research to support the topic, I felt it would be a challenge. The DigiComp2.1 framework was the intriguing component; it allowed me to connect the critical aspects of PBL, digital skills and capabilities into one rubric to frame the learning experiences. After the final cycle, it was clear that the framework and PBL learning criteria supported the development of digital skills. Most students showed increased digital capabilities, indicated in the framework and aligned with the increasing visibility of 21st-century skills, such as problem-solving, innovation and creativity. Reflective thinking and evaluation of one's outcomes were developing. As the literature around my topic was very thin, one-piece stuck with me: the findings of Kokotsaki, Menzies, & Wiggins (2016), who documented that PBL needed to be used in a collaborative and social context. I agree, as the students who chose to work independently struggled to initially develop the critical criteria of PBL. However, the development started when integrated into a group setting, and the thinking patterns showed depth and inquiry.

In conclusion, the changes in my practice are pivotal to my future teaching practice. I can now see the benefits of the collaborative facilitation approach of PBL and its integral part in developing digitally fluent students. The following steps I will work on is developing a complete framework of the digital skills and capabilities of DigiComp2.1 to expand the scale of development. Continuing this project, I want to explore digital capability development as a school-wide focus. The need for change is evident from the findings in my project relating to frameworks, research into approaches and connecting with students' passions and interest in the development of their digital skills and 21st-century skills. The thrust for exploring this further comes from my project findings and my students' excitement to dive deeper independently and become more critical about their learning. The project has opened opportunities for other educators to see a correlation between the PBL approach and developing

digital capabilities and skills. I feel the effectiveness of this project was the alignment of PBL and digital capabilities with the facilitation approach as teachers. This gives students the autonomy to be critical in their learning.

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About the author

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Bex is an experienced teacher born in Wellington and raised in Auckland. She is passionate about creating opportunities for students to develop their knowledge and understanding in an inclusive and innovative environment. After relocating to Warkworth, it became one of her goals to instil, assimilate and inquire into how we can instil 21st-century skills into our students to prepare for life. This passion and curiosity led to questioning how to get Whanau's buy-in when digital skills are not evident in all cultural settings. Creating a rich connection to our Whanau creates a home and school relationship, creating informed practices for all. Outside of the classroom, I am a mother to two boys and enjoy exploring the outdoors and being active.

Master of
Contemporary
Education

Executive Summary C9P

Using personalised learning to develop self-regulated learning strategies in ākonga

Scott Charles Lemon

"We want to do something radically different because that's the only way to have a big impact." (Leadbeater, 2005. Pg. 10).

This project aimed to develop self-regulated learning strategies in Y6-Y8 ākonga by implementing a personalised learning programme grounded in mathematics. To achieve this, I thoroughly reviewed the literature on personalised learning, specifically focusing on the facets that promote self-regulated learning. The main goal of this project involved using an action research approach to trial personalised learning pedagogies in the classroom to find out If they create self-regulated learners. I built on several iterative cycles and reflected and collected data that showed evidence of where I could see this happening. My findings and plan for using what I found were shared amongst colleagues and staff of the local schools I worked in.

In a traditional sense, students' learning is often dictated by the learning needs of the collective, and even differentiation is guilty of not addressing what a student needs at times (Bray & McClaskey, 2013). Personalisation of learning is about tailoring instruction to individual learners' specific needs, preferences, and abilities (The Education Hub, 2018). There is a lack of consensus in the academic literature about what personalisation of learning looks like and even less about how it can lead to students becoming self-regulated learners. By researching both topics, I started to see connections between the two. I hypothesised that personalised learning could indeed help ākonga develop self-regulation strategies. This research was carried out in two North Shore, Auckland schools—one is in primary with 28 Y6 students and an intermediate with 27 Y7/8 students.

This project was designed to see if personalised learning could organically develop self-regulated learning strategies, and if so, how and to what degree of effectiveness. In the initial phase, the focus was to understand the ākonga and gather data about their interests, strengths, and barriers to learning. Their whānau were consulted, and we designed a personalised plan and pathway for them. A task board system was then constructed to give students agency in choosing their learning options, hoping to increase engagement. Before the pilot phase began, ākonga were surveyed and interviewed on their experiences and understanding of self-regulated learning. They were then assessed on an aspect of mathematics. They assigned an athletics learning pathway, which identified all their gaps, alongside a Google website that gave them access to the necessary task boards. Ākonga were then expected to use their personalised learning plan, assessment data and task boards to set goals, plan, learn, evaluate, and reflect.

Zimmerman's Phases and Subprocesses of Self-Regulation (Zimmerman, 2002) were the initial basis of the self-regulated strategies I wanted to observe and collect data on. These were then adapted to include aspects of the online self-regulation survey (Barnard et al., 2009) and questions adapted from

The Education Hub (2020). The main strategies I assessed were Environment structuring, Goal setting, Time management, Help-seeking, Task strategies, and self-evaluation.

The methodology I used for this project was action research. Action research involves teachers carrying out research whilst working to improve methods and solve varying problems in their practice (Reason & Bradbury, 2001). To collect data, I used a few different methods. These included surveys, interviews, observation field notes, quantitative assessment data and student reflection journals.

I took a pragmatic approach to evaluating my data. A pragmatic position refers to an approach that uses both qualitative and quantitative research methods to seek answers to research questions (Willig & Stainton-Rogers, 2008). Analysis of my data consisted of looking for critical themes and comparing responses and quantitative data from before and after the implementation and how this data differed between different groups.

These are the three key findings from my project:

1. Tailoring the learning experience to align with students' interests and passions had limited to no impact on accelerating student agency and developing self-regulated learning strategies.
2. Personalised learning plans/pathways inherently push ākonga towards becoming self-regulated learners but don't necessarily teach them the strategies.
3. Active involvement of a ākonga's whānau in their learning seems to impact their ability to acquire self-regulation learning strategies positively.

Chen (2009) surmised that adding explicit teaching of self-regulated strategies into their personalised learning programme showed increased benefits. Zimmerman (2002) also outlined the importance of self-regulated learning strategies being explicitly taught.

Personalised Learning is an excellent pedagogical system to develop self-regulated learning strategies if ākonga already clearly understands these strategies and how to use them. While this study is just a snapshot of possible outcomes related to this topic, there is evidence of themes also discussed in academic literature. It would be interesting moving forward to conduct another research project that looks at the explicit teaching of self-regulated learning strategies alongside a personalised learning approach and whether this has a much more significant impact on ākonga's ability to learn, develop and utilise these strategies in their learning.

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Scott Lemon is in his 8th year of teaching and has been an intermediate and senior primary school teacher. He is passionate about finding new ways to engage his learners and Identifying ways to remove learning barriers. Personalised learning and self-regulated learning are approaches he has spent time tinkering with for most of his professional career.

Master of
Contemporary
Education

Executive Summary C9P

Towards self-regulation for environmental sustainability

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This change project aimed to explore the implementation and impact of self-regulation strategies on promoting environmental sustainability in a primary school setting. Through the project, we aimed to develop a deeper understanding of how self-regulation skills can be fostered among students and how these skills contribute to sustainable behaviours. According to Sobel (2004), the outcomes of this research could positively impact both students and teachers within our school and contribute to the overall well-being of our local community and environment. The project aimed to provide insights and recommendations for educators to enhance classroom self-regulation practices and promote a sustainable mindset among students.

The main beneficiaries of this project are educators, students, and the broader community. By promoting self-regulation skills for environmental sustainability, educators can empower students to take ownership of their actions and make environmentally responsible decisions. Students will develop a deeper understanding of their role in environmental conservation and develop lifelong skills for sustainable living. According to Martin (2007), emphasising the importance of a task plays a crucial role in motivating individuals. In the case of these students, it was necessary to allocate additional time for them to refine their skills and witness the tangible results of their hard work. The broader community will benefit from the positive impact of environmentally conscious citizens who actively contribute to sustainable practices.

The project addressed the research gap concerning integrating self-regulation skills with environmental sustainability in the primary school context. It aimed to understand the effectiveness of self-regulation strategies in promoting sustainable behaviours and identify any challenges or barriers in implementing these practices. The findings align with existing literature, demonstrating that engaging in active or participatory environmental learning fosters self-efficacy and promotes the adoption of sustainable behaviours (Blatt, 2013; Surjanti et al., 2020).

The project followed an Action Research methodology involving collaboration between the researcher and participants. Multiple methods were employed, including interviews, surveys, and observations. Participants, comprising students and educators, engaged in self-regulation activities and reflected on their experiences. Data collection focused on assessing the impact of self-regulation strategies on environmental sustainability and understanding participants' perspectives.

Data analysis involved thematic coding of interview responses, survey data, and observations. The analysis highlighted the positive impact of self-regulation strategies on promoting sustainable behaviours, such as following rules, thinking before acting and waiting for one's turn. It also revealed areas for improvement, including the need for better planning and considering future consequences. The findings align with the project's purpose of exploring the effectiveness of self-regulation skills for environmental sustainability.

The literature review indicated the importance of self-regulation skills and environmental education in fostering sustainable behaviours. The project's findings confirmed and extended the existing literature, uncovering specific nuances and challenges within the primary school context. Research has demonstrated the positive relationship between nature-based education and the development of pro-environmental behaviours (Duerden & Witt, 2010). The data analysis delivered findings that expanded upon the existing literature, emphasising the need for targeted interventions to enhance planning skills and address distractions.

In conclusion, integrating self-regulation strategies into environmental education can effectively promote sustainable behaviours among students. The similarities and differences between the project's findings and previous studies highlight the contextual factors that influence the implementation and impact of self-regulation practices. To continue this work, further research could explore the long-term sustainability of behaviour change and the role of peer influence in promoting environmentally responsible choices.

This project has advanced the field by providing practical insights and recommendations for educators seeking to integrate self-regulation skills into their teaching practices for environmental sustainability. The project's outcomes can inform educational policies and practices, contributing to the broader goal of fostering a sustainable mindset among future generations. The findings and recommendations of this project are valuable to educators and researchers, policymakers, and other stakeholders interested in promoting environmental sustainability through self-regulation strategies.

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Sumandana: sumandana85@yahoo.com

Sumandana is a primary school teacher with a passion for education and a diverse background. After graduating as a teacher from Fiji, she dedicated ten years of her career to teaching in her home country. Seeking new opportunities, she moved to New Zealand and spent two years teaching in Early Childhood Education (ECE) before transitioning to a Primary School in Auckland. Currently, Sumandana is based in the Ruapehu District, where she continues to inspire and educate young minds. In 2020, she joined academyEX, where she completed a Postgraduate Certificate in digital and collaborative learning. Driven by her enthusiasm for innovative teaching methods, she is pursuing a Master's in Contemporary Education, further enriching her expertise in the field.

Aside from her professional pursuits, Sumandana nurtures other interests. She finds joy in cooking and gardening, exploring her creativity and connection to nature. Inspired by her passion for place-based education, she has chosen this topic to delve deeper into the subject and share her insights. Sumandana's dedication to education, diverse experiences, and ongoing learning journey shape her perspectives and contribute to her ability to engage and inspire students in the classroom.

Master of
Contemporary
Education

Executive Summary C9P

Fostering Self-Regulation in Learners

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Will fostering Self-Regulation Skills through personalised learning improve collaboration and the use of Digital technologies? Finding the answer to this question is the purpose of my Action Research project undertaken with a group of Year 7 students from a small Primary School situated in the Manawatu. The principal goal of this Action Research project was to support students in becoming self-regulated learners. The ability to self-regulate can increase motivation and self-direction. This leads to improved outcomes in student achievement. The ability to manage their own learning will prepare students for any future disruptions to learning and provide them with the skills to learn anywhere and at any time.

Students transitioning from the single-cell classrooms to the Senior Learning hub environment lacked self-regulating skills. This was shown in a reliance on teacher instruction and a lack of risk-taking in learning which also prevented full participation in class activities, including effective communication in collaboration, completion of work and sharing thoughts and ideas with others. My project plan is to explicitly teach self-regulation skills and then provide opportunities for students to practice these using project-based personalised learning, collaboration, and the use of digital technologies. Self-regulating is essential to the learning process (Zimmerman, 2013).

Self-regulation implies that a learner can regulate, monitor, and evaluate their own learning process. To provide learners the opportunity to do this, my Action Research project was based on implementing Zimmerman's Cyclical Phases Model of Self-Regulation. This model is organised in three phases: forethought, performance, and self-reflection. In the forethought phase, students learn to analyse a task, plan by setting goals and develop self-belief using a growth mindset. In the performance phase, students got to execute a project-based task while monitoring the progress towards meeting their learning goals. This was supported by using various learning strategies to support motivation and self-control. In the third phase, students assessed how they performed the task using peer and teacher feedback. This feedback supported self-assessment of the learning process and led them to adjust and improve their performance in the next cycle. This next cycle included collaborative tasks to provide students with practice in using self-regulation skills in a wider context. Self-regulation skills give the learner autonomy in determining the content or approach to further learning (Eggers et al., 2021).

Data was collected through students creating Conceptual Learning Maps, self-assessment surveys and a co-constructed self-regulation rubric. Academic progress was measured using e-Asttle and PAT assessments. To measure progress in students' Self-management competencies and use of learning strategies, the Panorama Social Emotional Learning Survey created by Panorama Education was taken pre- and post-the Action Research Intervention.

In analysing both students' self-assessments, variables in scaled assessment, and teacher observations, it was shown that using Zimmerman's model of self-regulation had improved outcomes for students in terms of academic progress, self-motivation, and collaboration. These findings

supported claims in the literature that fostering Self-regulation skills improves students' learning. The unexpected outcome was an improved classroom culture, with students supporting each other with constructive feedback and the increased leadership skills shown by participants in other areas of the school environment.

I have concluded that self-regulated learners who can self-evaluate their performance against their personal goals experience greater satisfaction in learning. Therefore, it is my opinion that placing greater importance on teaching the learning process will equip learners to be adaptable lifelong learners ready to embrace the future, having greater autonomy in their choice of what to learn, where to learn, and how to learn. This project impacted my learning as I have shifted from being the orchestrator of learning in my class to being a facilitator and coach. The next step in my learning journey will be how to provide students with greater personalised learning opportunities and keep developing their autonomy. Improved self-regulation has given a foundation; the next step is to build on this.

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Ko Takitimu te waka
Ko Tapuae-o-Uenuku te maunga
Ko Te Tai o Marokura te moana
Ko Ngai Tahu te iwi
Ko Mangamanu te marae
Ko Ngati Kuri te hapu
No Te Awahou taku kainga
Ko Tina Maclean ahau.

My ancestral home is Kaikoura. Though I was born in Wellington and raised in a small own In the Manawatu region, I have been involved in education for 25 years plus, having many roles from Teacher Aide to Acting Principal. My current role is Deputy Principal in a school of just over 215 students. My favourite role would have to be that of classroom teacher. I have seen the positive impacts education can have on individual students and in a community, I feel it is a privilege to be a part of that.
Mind Lab has given me the opportunity to embrace the changes that we are facing in education, not with trepidation but with a sense of excitement. I look forward to many more years in the education field, knowing that my learning journey is never complete.

Master of
Contemporary
Education

Executive Summary C9P

Shifting the balance from assessment to learning in senior secondary school

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Senior secondary teachers have largely used an 'assessment first' approach when designing teaching, learning and assessment programmes in senior secondary school. The achievement standards, as part of the NCEA qualification framework, have largely driven the learning programme and have become the 'default' curriculum when they are, in fact, not the curriculum. Current practices risk the notion of using 'assessment as learning' as described by Torrance (2007), where assessment practices dominate a learning experience driven by criteria compliance. As such, it is necessary to explore how the current mindset can be changed to focus on learning first.

The Learning Matrix is a new tool developed in the Review of Achievement Standards within the NCEA Change Programme. The tool serves the purpose of bridging the gap between curriculum and assessment for senior secondary school, aligning with the New Zealand Curriculum (Te Mātaiaho) refresh work currently underway. Teachers consider how to build the Big Ideas and Significant Learning contained in the Learning Matrix into programmes of work at the subject level that not only consider knowledge, competencies, and contexts but, where appropriate, directly include cultural knowledge systems, values and concepts.

The key outcome of this project was to explore the research question: *How does the use of the Learning Matrix shift teacher practice by focusing on rich programmes of learning rather than just on assessment?* The findings from this project will contribute to the wider development (and potential implementation) of this tool to ensure its usefulness and value for a range of education stakeholders, primarily senior secondary school teachers and subsequent developers and writers who may be involved in future iterations of the tool and its use. The project sought to confirm that the Learning Matrix has contributed to shifts in practice that emphasise learning over assessment.

The research question was explored through the experience of nine teachers representing different learning areas. These teachers were directly involved in the piloting of new NCEA materials. The participants were interviewed and surveyed using an action research methodology. The findings from the two data collection cycles were compared to ascertain whether the teachers' experience of using the Learning Matrix had evolved further and what actions they were taking to put learning first.

Thematic analysis of the data was used to describe the findings. The analysis agreed with the premise that teachers were shifting practice through their direct use of the Learning Matrix. While these shifts were varied, all teachers could describe how they used the Learning Matrix to change their practice, what the barriers and challenges were and the subsequent differences they noticed in their students. It has, in some ways, capitalised on the opportunity described by Darr (2019) in reconsidering the heart of our learning programmes by weaving together valuable discipline knowledge with key competencies.

The findings did emphasise the feeling of freedom and flexibility the teachers felt when using the Learning Matrix, even though the Learning Matrix is a confined structure. They also supported the notion of the importance of this tool as while the Curriculum itself is broad, the Learning Matrix was deemed to be important as it provided specificity at the subject level. There was a positive and direct impact on teachers' confidence to use mātauranga Māori in teaching and learning programmes which has been supported by the Learning Matrix through terminology, concepts, and the unpacking of Learning Area whakataukī. This supports the idea of increasing awareness, as described by Teemant (2014) as 'awakening me' as part of his work on coaching methods for teachers of diverse learners.

The Learning Matrix has had a positive impact on the teachers involved in this project. Their programmes have evolved, as has their thinking. There is still a long way to go. Change is not linear, and by using a framework for self-reflection, these early adopters have moved forward, but there are many to follow. This was adequately captured by one teacher who stated they are *"still breaking bad habits"*. The following reflections attempt to capture thinking on whether we can shift the balance from learning to assessment using the Learning Matrix as one tool in the kete; *"Students need to get the credit chasing off their shoulders and leave it at the door"* and *"I have been guilty of using the statement 'we are working on this assessment' but now I make sure I focus more on the teaching and learning and the assessment falls out of this."*

It remains to be seen how the Learning Matrix might evolve further in light of the new curriculum (Te Mātaiaho) refresh work that is currently underway. This important tool needs to be retained and purposefully used in the kete of tools that will be provided to secondary teachers to support the changes ahead.

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Tracy Bowker is a former secondary school teacher with extensive consulting experience in professional learning and development focusing on pedagogy, curriculum, and assessment. She has led multiple initiatives in the development of NCEA Achievement Standards and associated support materials. Projects that encompass curriculum development and resourcing, primarily focusing on effective teaching and learning are key areas of interest.

Master of
Contemporary
Education

Executive Summary C9P

Developing Collaboration Skills through Project-Based Learning in a Year 7 and 8 Tongan Bilingual Class

Vasiti Latu

Through reflection, the '5 Whys' technique, and gathering student and parent feedback, it became evident that my students lacked collaboration skills. As a teacher, I realized that I had not been providing enough opportunities for them to collaborate, as I primarily focused on individual work and tasks. This resulted in some students being too shy to share their ideas, while others tended to dominate group discussions, causing other group members to withdraw from active participation. Parents also expressed concerns about their child's lack of teamwork, citing instances where they were hesitant to share the ball during games or reluctant to collaborate on chores with siblings.

The aim of this project is to address these issues and develop my students' collaboration skills, empowering them to succeed in various aspects of their lives. Project-based learning (PBL) is the chosen approach to foster collaboration skills.

The project goals were:

1. Develop a conceptual framework for implementing and evaluating collaboration through PBL, based on relevant literature.
2. Implement a PBL module with my Year 7 and 8 Tongan Bilingual class over Terms 3 and 4, 2022.
3. Utilize an action research approach consisting of three iterative cycles, progressively granting students more control over their learning.
4. Assess the extent of students' collaboration skills using questionnaires, teacher observation data, and MPL's (2020) Rubric on Collaboration.
5. Create a collection of learning experiences on a website, providing instructions and resources for teachers to design, implement, and evaluate collaboration in a Year 7 and 8 class through PBL.

I conducted an extensive literature review on collaboration and PBL to develop a robust conceptual framework that guided my implementation and evaluation of collaboration through PBL. PBL, as defined by Bell (2010), is a student-led, teacher-facilitated approach where students explore their own questions of interest, engage in supervised research, and create artifacts or products that address the initial question or problem (Blumenfeld, 1991).

To develop students' collaboration skills, I utilized the following models as guides for creating learning experiences:

1. Griffiths et al.'s (2021) Building Blocks of Collaboration
2. Educultural Wheel, adapted from Macfarlane (2004)
3. MPL's (2020) 21st-Century Skills of Collaboration

Using an action research methodology, I implemented three iterative cycles during Terms 3 and 4, 2022, my participants were 14 of the 23 students in my year 7 and 8 Tongan bilingual class.

There were three iterative cycles in the project:

1. Pasifika Designs: Students researched and compared Tongan patterns with those from neighbouring Pasifika islands, culminating in a visually engaging display of their findings.
2. Developing Mathematical Inquiry Communities (DMIC): Students collaborated to solve math problems, actively making substantive decisions as a group and sharing their solutions with the class.
3. Manurewa Development: Students explored a specific development area, examining its past, present, and potential future, and presented their findings to their peers.

Throughout these cycles, I collected both qualitative and quantitative data. I distributed questionnaire forms at the end of each cycle to measure students' collaborative efforts, shared responsibilities, substantive decision-making as a group, and the level of interdependence in their final outcomes or products. Additionally, I conducted teacher observations to gather real-time data and utilized MPL's (2020) Collaboration rubric to assess students' collaboration skills, categorizing data based on their ability to work together, share responsibilities, make substantive group decisions, and produce interdependent outcomes.

At the conclusion of each cycle, I collaborated with my project team and supervisor to discuss areas for improvement in subsequent cycles and conducted an overall evaluation of the project's progress.

By implementing Braun & Clarke's (2022) Thematic Analysis, I analysed the quantitative data from a positivist perspective and the qualitative data from an interpretive perspective. 5 main themes seemed to be emerging: sharing or building off each other's ideas, communicating with one another, making substantive decisions as a group, giving feedback, and sharing responsibilities.

The findings of the analysis demonstrate significant development in the collaboration skills of my Year 7 and 8 students through the implementation of PBL, as assessed using MPL's (2020) collaboration rubric. The students achieved level 5 in collaboration, which indicates their ability to effectively work together, share responsibilities, make substantive decisions as a group, and produce interdependent final outcomes or products.

PBL projects allow students to collaborate and develop collaboration skills (Bell, 2010). I noticed students did not need as much teacher interference to solve problems within their groups when given the choice to pick who they worked with. This reflects Bell's (2010) claim that PBL allows students to develop fundamental skills of respect, negotiation, communication, and collaboration.

PBL encourages students to be disciplined learners and have student agency (Bell, 2010). MPL (2020) also agrees with this; as students share responsibilities, they engage in group tasks and contribute to the final product or outcome. This encourages students to understand and be aware of the critical roles they play in accomplishing their projects. By resolving key issues that will help guide them in their projects, they are making substantive decisions together, and an interdependent product or outcome is evident when all the members of the team contribute, and the work is integrated into a coherent product, thus leading to a successful project outcome (Beers, 2011) and the development of their collaboration skills.

From a cultural perspective, implementing PBL also aligned with the principles of MOE's (n.d) Educultural Wheel. Students developed whanaungatanga as they fulfilled their obligations to their collaborative groups, built relationships, and shared responsibilities. Manaakitanga was established through acts of kindness, encouragement, and celebration of achievements, such as completing final products or presentations. During the project, consultation with parents and whānau demonstrated Kotahitanga as they contributed ideas, provided feedback, and raised queries. When groups faced challenges, my guidance and support reflected rangatiratanga, redirecting them back on track to

project completion. Ultimately, the interconnected aspects of the Educultural Wheel promoted Pūmanawatanga and facilitated the development of my students' collaboration skills.

In conclusion, my project has made a significant difference in my practice by addressing the identified problem of a lack of collaboration among my Year 7 and 8 students in the Tongan bilingual class. Through the implementation of PBL, their collaboration skills have been nurtured and enhanced, positioning them for success in various aspects of their lives.

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Master of
Contemporary
Education

Executive Summary C9P

Increasing Student Engagement Through Personalised Learning

Guy Blanchard

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Today's secondary education landscape is confronted by increasingly disengaged learners. This has been compounded by the Covid-19 pandemic and exacerbated by individual and community anxieties, well-being concerns and an increasing disconnection with an education system that does not appear to serve all learners. The effects of this can be seen across the secondary school sector and is reflected in the lowest retention rate of senior students since 2011 (81% as reported by the MoE in 2022). While some of the causes of this drop in retention are beyond the control of the education sector, schools are not effectively engaging learners.

The problem I have identified is the lack of personalised learning that occurs within the secondary school context and the subsequent lack of student engagement. A traditional approach to teaching, with a one-size-fits-all approach and a philosophy of ongoing summative assessment, is no longer fit for purpose. Our classrooms are increasingly diverse, and the disparity between social, cultural, and economic groups is ever-widening. It is now time to intervene and provide personalised learning opportunities for all learners through which agency, ownership and engagement are realised. This change project, therefore, is focused on designing and developing a package that would support teachers with implementing personalised learning within their classrooms. The goal is to improve learner engagement whilst also shifting the teachers' roles from 'sages-on-the-stage' to facilitators who can nurture, encourage, and guide students in their learning journey.

Through this change project, I implemented an action research approach to address the issue through 'systematic inquiry'. The three iterative cycles were completed using O'Leary's 'Cycles of Research' to investigate the issues through progressive inquiry and ongoing critical reflection and reaction. Each iterative cycle encompassed Broussard et al.'s. (2018) "Core Four" of personalised learning to ensure that flexible path and pace, targeted instruction, peer collaboration, goal setting and reflection were included. This framework was further supported by the principles of Universal Design for Learning to ensure that learning design met the diverse and variable needs of the learners in the classroom. For each iteration, quantitative data, through survey feedback and observed student engagement judgements, was cross-referenced with qualitative data gathered through ongoing discussions and feedback to make real-time adjustments to individual learning programmes and larger unit adjustments between iterations. Alongside this, regularly observed student engagement judgments, using Schlechty's (2011) 'Levels of Engagement,' were made to monitor the levels of perceived engagement over time.

Two classes were involved in this change project. The first iteration involved a year 9 English class that was completing a film study. These students were guided through a personalised visual text reading programme that allowed them to select their own pathway and work at a pace suitable to their level. Students were encouraged to regularly reflect upon their learning and set goals for their subsequent learning and encouraged to co-construct creative outputs in collaboration with peers. The second and third iterations involved a year 10 Project Based Learning class, in which students

developed their creative problem-solving capabilities. These students were invited to identify a problem focus and design solutions to that problem through collaboration. Each iteration was designed to maximise the influence of the needs, interests, aspirations, and cultural backgrounds of students. Pre-course data was collected through surveys and student feedback to ensure the course design was suitable, and mid-unit surveys and interviews were conducted to make real-time adjustments to the program based on individual learner needs.

It was concluded that personalised learning has a positive effect on student engagement, although authentic student engagement in a secondary school context is something to aspire to rather than expect on a regular basis. The student-teacher relationship is key to the success of personalised learning because the learner requires the expertise of the education expert to navigate the academic landscape. As Fullen (2009) notes, personalised learning requires involvement by the educator and at the heart of that relationship, there must be a moral imperative driving the approach. Collaborative peer relationships and interactions are also important for students to learn from one another and develop self-efficacy through observations of successful learning strategies (Lopez-Garrudo, 2020). It was also concluded that targeted teacher instruction was not only necessary but desired by learners and that learners are still 'student-consumers' who are members of a community that shares, creates, and exchanges knowledge (Partington, 2020). Nonetheless, although personalised learning generally improves engagement, and student influence over the pathway, pace and creative output overall proved to be empowering, it was observed that project iterations undergo a mid-project lull. This is observed by Spencer (2023), who recognises the positive impact of student agency through project-based learning but also the negative impact the 'project fatigue' has on learner engagement.

In conclusion, personalised learning has a positive impact on student engagement. Students respond positively to having influence over their learning, and when positive habits are established, learners can articulate not only what they are learning and why but also their next steps and how they will get there. The OECD's Learning Compass for 2023 (OECD, 2019) sees learner agency as a vital stage for student well-being because it "relates to the development of an identity and a sense of belonging." If well-being is defined as having motivation, hope, purpose and a growth mindset, then personalised learning is a vital step to re-engaging learners in secondary school.

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Master of
Contemporary
Education

Executive Summary C9P

Turangawaewae

Sheryl West

The Place-Based Project was a ten-week initiative to improve teaching and learning through a place-based pedagogy. The project focused on enhancing students' understanding of their local environment and community, specifically Turangawaewae (The Place Where I Stand). This approach shifted away from traditional teacher-centred methods to promote collaborative, self-directed learning and culturally responsive practices. The project received support from local Iwi, hapu, experts, and the broader community (Berryman et al., 2018; McEwan, 2015).

The project had three primary goals:

1. Transformation of Teaching Model: The project aimed to shift from a traditional teaching model to one that emphasized collaborative learning and integrated the national and local curricula, aligning with Karamea Area School's charter. The goal was to enhance students' understanding of Turangawaewae and foster a global perspective by connecting them to their local environment (Bolstad, 2004).
2. Establishing Connections: Through involvement with local Iwi, community members, and experts, the project sought to help students explore and understand the significance of Turangawaewae. Active participation and support from these stakeholders were essential for comprehensive learning, and the project also encouraged students to make connections beyond their local context to promote a sense of global citizenship. (Berryman et al., 2018; Bishop, 2003).
3. Empowering Student Ownership: The place-based approach aimed to empower students by connecting the curriculum to their local environment, giving them a sense of relevance and connection to their learning. Students actively participated in their learning process, promoting critical thinking and collaboration.

The project was initiated after observing that most students lacked the ability to recognise their location on a map of New Zealand and understand the significance of Māori names given to local places and landmarks. A place-based learning approach utilising digital technologies was implemented to address these gaps to align with the school's Education Outside the Classroom (EOTC) charter.

The place-based learning approach was applied to a year 3 and 4 class at Karamea Area School over twenty weeks. The project included integrated unit plans covering Science, English, Art (digital), and Social Science. The implementation included two one-hour weekly lessons, with some variations to accommodate community visits and weather conditions.

The project relied on the involvement of local Iwi, community members, and experts, who provided their expertise and resources. Cohen's Action Research Project model involved information gathering, goal setting, and collaborative pedagogy. Students exhibited critical thinking skills, self-directed learning, and the ability to identify connections and relevant information during the project (Butler & Sinclair, 2020; Cohen et al., 2018),

The project's results indicated that technology significantly facilitated knowledge sharing and self-directed learning among students. They developed critical thinking abilities and a better understanding of their local environment. However, challenges were observed in students' limited connection to social aspects of their local environments, suggesting the need for further support in this area (Sobel, 2004).

Challenges in implementing the place-based project included community engagement and involvement, complexity in dealing with various factors, and external influences beyond the project's control.

To enhance place-based Education, the following recommendations were made:

- Emphasise hands-on, real-world learning experiences.
- Integrate multiple pedagogies, such as inquiry-based and collaborative learning.
- Foster collaborative learning among students.
- Establish authentic relationships with whanau, Iwi, and local experts.
- Continuously improve teaching practices and encourage ongoing professional development.

The project's success was attributed to the collaborative efforts of stakeholders, and it was recommended to foster these relationships before starting a place-based project (Berryman et al., 2018; Gruenewald & Smith, 2014; Killion, 2015).

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Master of
Contemporary
Education

Executive Summary C9P

Using Play-Based Learning to Help Develop Self and Co-Regulation Skills in Tamariki Displaying Symptoms of Trauma

Greta Van Zyl

"If the child is unable to adjust to the needs of the school, then the school must adjust to meet the needs of the child." Marjorie Boxall, 1969 educational psychologist

The goal of this project was to use play-based learning to help develop self and co-regulation skills in tamariki displaying symptoms of trauma. I noticed a significant increase in tamariki in my school who were unable to have a successful day at school in their classroom.

According to Tyler-Merrick and Church (2012), over the last ten years, New Zealand early childhood teachers have expressed increasing concern about an increasing number of children exhibiting conduct problems (Tyler-Merrick & Church, 2012). This is also a growing concern in primary schools. It is estimated that, at any point in time, from five to 10 per cent of New Zealand tamariki will display conduct problems severe enough to require intervention (Blissett et al., 2009). Rates for conduct problems are even higher for Māori tamariki, and it is reported that from 15 to 20 per cent of Māori tamariki have conduct problems (Blissett et al., 2009). It is predicted that anywhere from five to ten per cent of New Zealand's tamariki may exhibit behaviour issues serious enough to call for intervention at any one moment (Blissett et al., 2009). The rates of behavioural issues among Māori children are said to be considerably higher, ranging from 15 to 20 per cent of all Māori children.

There were four key goals for the project:

1. Identify the difference between dysregulated tamariki and those who need to be referred to Te Whatu Ora for paediatric assessment.
2. Implement a module of play-based learning with the tamariki over two terms, using daily 1-hour sessions first thing in the morning based on The Te Awa Koru Klub framework.
3. Gain a better understanding of the specific emotional and behavioural challenges of tamariki, and the evaluation of iterations should see the development of successful interventions and support activities.
4. Design a Facebook page that provides professional development, resources for teachers and whanau as well as research, advice, and suggestions for implementing a nurture group in other educational settings.

This project was conducted in a New Zealand U 4, decile one primary school with a small group of students ranging firstly from 5 to 7 years of age and then incorporating what we found throughout the school. Data showed that very few students could self or co-regulate to be successful in the classroom environment. This project investigates the impact of play and how it supports the concept of self and co-regulation in a small group setting. The focus of this research was based on the function that play and playful interactions serve in establishing the emotional framework essential for normal healthy development and how it influences self-regulation in tamariki who are undergoing or have endured traumatic events.

I implemented a module of play-based learning with a selected group of students from the target School over two terms (terms 3 and 4 of 2022) using daily 1-hour sessions first thing in the morning based on a specifically designed framework. The framework has supported the individual programme design based on trauma-informed practice and Whare Tapa Wha (Dury, 2001). We have implemented a framework that includes a consistent structure and regular routines in a holistic approach that provides tamariki with strategies and skills to help them self-regulate and or co-regulate. There has been a full-time kaiako and a part-time psychologist working alongside me while I have provided supervision and a sounding board.

The project followed an Action Research Approach; we implemented two iterative cycles looking at iterative design and evaluation in developing play-based learning experiences for a group of dysregulated tamariki. The tamariki progressively had more control over the progress through the framework of the type of play-based activities they participated in and the stage pace in which they participated and progressed. We used teacher observation, student feedback, and the Boxall profile to evaluate each cycle and meet with the project team and stakeholders to use these evaluations to inform the design of the next cycle.

The data was collected using the Boxall Profile (Boxall & Bennathan, 1998), as well as a questionnaire done alongside the Kaiako. The questionnaire was done in this manner due to either the age or the literacy ability of the tamariki, as many of them find writing and reading very difficult, especially when dysregulated.

The first cohort of tamariki was the reason we decided to investigate trauma-informed practice in the first place; they were unsuccessful in the classroom, getting into trouble, throwing things, packing tantrums, and being violent or verbally aggressive toward the Kaiako or peers. As we developed and looked into TIP more closely, we identified some of the tamariki, which seemed to be more compliant, but how they were actually sitting quietly zoning out and not actually doing or absorbing anything. We decided to work with all tamariki who needed the support to be successful. This was the reason we looked into play and play therapy; it is tamariki's 'work' it is the way they make sense of the world.

Play therapy is recognized as an evidence-based practice by professional organizations for anxiety, disruptive behaviours, and victims of domestic violence. Play therapy research dates back over 100 years, becoming especially more rigorous in the last 25 years. Historically, play therapists have demonstrated a keen interest in studying the effects and process of play therapy. A tradition handed down from the earliest practitioners. Across presenting issues that have been studied, play therapy consistently demonstrates positive effects with few exceptions (Malchiodi, 2020. p. 12.).

In my findings, I have recognised the undeniable need for play-based therapy or what we have called the Koru Klub; in most schools, we are developing into a society where we are perhaps more responsive to our personal needs, and that is filtering down into our schools. By using play-based learning and the Boxall profile as a measure, I have found a way to bridge that gap. The Boxall Profile not only analyses the data but also provides targets, strategies, and success criteria for each individual tamariki. From these, we then choose the goals we want to work on and can link it to the resources that best fit those goals.

First and foremost, having the right Kaiako is the number one tool to success. It is not worth starting a nurture group with a Kaiako you are not 100% sure understand. Wait for the right person!

Trauma manifests in very different ways, and it's our job as Kaiako to understand our tamariki and ensure that we respond to each tamariki as an individual. The complexities of trauma are huge, and we must take the time to understand these as they show themselves. Strategies that are working for one or two tamariki may not work for the rest. Making the time to understand every tamariki and their strengths is paramount if we want to guide them to be successful in their education.

I believe the most powerful change has been that this isn't a programme; we changed the culture and challenged our way of thinking. Tamariki do not come into Koru Klub for a set amount of time to do a set programme; their individual needs are catered for; they may be in or part of the Koru Klub for one term, ten weeks or maybe two years in varying degrees.

The Koru Klub is not just for the trauma tamariki anymore, we have autistic, global developmental delay, and just any child who has had a bad day, come in. They may spend the whole day in there, or they may spend an hour in there; some spend their lunchtime in there as they find it hard to be in the playground some days.

The Koru Klub is a safe space; it is flexible and adaptive to all tamariki needs.

I anticipated that this project would be streamlined and completely operational within 12 months. This has exceeded my expectations, and in fact, it is fully up and running sustainably.

Due to the nature of the project, it will continue to evolve in certain ways to meet the needs of each tamariki as they evolve.

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Master of
Contemporary
Education

Executive Summary C9P

Self-Regulated Learning in Web-based Environments

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The purpose of this change project was to assess the effectiveness of implementing GitHub as a tool to enhance evidence gathering and collation in a Year 13 Computer Science class through project-based learning. The primary goal was to evaluate the impact of utilising GitHub on the student's ability to self-regulate and effectively collect and organise evidence during project-based activities (HQPBL, 2018). The aim was to increase my knowledge base; hence the methodology included a participatory action research approach as I wanted my students to reach virtuous goals (Elliott, 2015) at the highest educational achievement at NCEA, thereby promoting a deeper understanding of the subject matter and fostering a more comprehensive learning experience. I included reflection on the data I collected to gauge the impact of the intervention. I believe this research change project was necessary to develop a conceptual framework to improve the evidence gathering and collation in my Computer Science classes.

The project goals were defined as follows:

1. students would gather and collate substantial evidence of digital technology outcome refinement and improve their self-regulation skills through using GitHub, a purpose-built web-based technology.
2. learners would acquire experience and confidence to independently explore their own learning while effectively managing their projects with sustained motivation as they selected authentic scenarios during project-based learning (HQPBL, 2018); and
3. other digital technology teachers would have access to valuable information on implementing project-based learning to enhance self-regulation in classrooms using GitHub and potentially follow, adapt, and emulate the conceptual framework developed.

During this change project, I conducted a series of activities to achieve the goals. Following an Action Research design, I implemented three iterative cycles, incorporating a web-based technology called GitHub over a 4-month period using four lessons per week to rate its effectiveness to help collate and gather evidence during project-based activities. To introduce the software, I employed a method of teaching adapted from the Gradual Release of Responsibility Instructional Framework. (Fisher & Frey, 2013)

I used teacher observations, questionnaires, and semi-structured interviews to evaluate the iterations and met with my Project Team to discuss the evaluations, which informed the design of the next iteration. In parallel, students progressively had greater control over the software and the direction of their major Computer Science coding project.

This change project prompts further inquiry into the importance of diaries, as the embedded features of Issue Tracking and Version Control tools allowed students to document problem-solving processes and coding solutions in a more detailed and immediate manner, eliminating the need for retrospective

documentation. However, this issue primarily arises due to the current assessment approach in Digital Technologies under NCEA.

Based on the change project activities and analysis, the following conclusions were drawn.

- GitHub has an evolved Version control mechanism: GitHub allows for effective version control, enabling students to track file changes and easily revert to previous versions if needed. This knowledge helped students to actively value the current technical component they were managing and highlighted the need to document the project's progress effectively.
- GitHub has advanced Issue tracking: GitHub offers built-in issue-tracking functionality, enabling students to report and track bugs. Students' resilience and self-efficacy increased as problems were continuously being solved strategically using threaded features of Issue Tracking. This knowledge facilitates effective project management and prioritisation of work items.
- GitHub incorporated Documentation features: GitHub supports the creation and maintenance of project documentation, including readme files, wikis, and markdown documents. Students emphasised the requirement to restate their issues retrospectively in a diary was time-consuming and did not yield significant benefits, causing their motivation to diminish. This aspect has made me question the necessity of maintaining a traditional diary within project documentation.

The findings and insights gained through this change project have significant implications for project-based learning in coding-based practices. They provide valuable knowledge and understanding in the following ways:

GitHub highlighted the criticality of advanced backtracking, allowing for the undoing of technical features within components through the utilisation of industry-standard version control mechanisms. The significance of providing students with appropriate version control tools was underscored, as it enhanced their task-value beliefs, improved organisational skills, and significantly contributed to their overall success in coding-based tasks.

Witnessing the use of GitHub issue tracking, especially errors encountered during coding tasks, provided valuable insights for guidance to highlight the significance and implementation of issue tracking in coding-based activities. Students who invested time in resolving bugs were rewarded with increasing levels of belief in their ability to sustain further actions to solve problems, ultimately fostering a more systematic and effective approach to programming practices.

The knowledge gained throughout this change project has proven valuable, as it was revealed through observation utilising industry-standard tools that may initially seem daunting but offer significant advantages to students who intend to pursue this path. The earlier they acquire proficiency in these mechanisms, the greater their effectiveness will be in making a noteworthy impact in their chosen fields of work. Overall, using GitHub provides valuable knowledge related to version control, collaboration, issue tracking, and documentation. This knowledge enhances productivity, fosters learning and collaboration, and promotes best practices in software development and project management.

By successfully accomplishing the project goals and deriving meaningful insights, I have positioned myself to make informed decisions and take appropriate strategic and instructional actions. The outcomes of this change project can potentially drive positive change and improve my practices within Digital Technology.

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About the author

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Devan Ganess is an assistant teacher of Technology at Sacred Heart College in Auckland. In his role, he provides support to teachers in the department by offering technical and pedagogical tools for professional development. He also takes charge of curriculum content development and implements a vision and future-proofing model to advance Digital Technology learning throughout the college. Devan's main goal is to empower students through project-based learning and establish connections with industry partners to promote software development initiatives using modern tools. With a strong motivation and passion for facilitating personalised learning, he strives to achieve task-value outcomes for students.

Master of
Contemporary
Education

Executive Summary C9P

Careers Mahi – Engaging Junior Students in Career Planning

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The project Career Mahi has engaged Year 9 students, their parents, and teachers in participating in activities that enabled them to create a Career/Vocational Pathway through Collaboration and Talanoa. We sourced lessons and worksheets to identify the students' skills, interests, qualities, and aspirations and help them build confidence to be able to create a career path. This information was captured on a software called Career Central, which will allow the students to review and alter the pathway throughout their high school stay. Before this project, we never engaged Year 9 students in any formal Career Education lessons or instructions. We also never included parents in the career planning process and have never sought Teachers' voices in the career planning process.

Taule'ale'ausumai Violet Tu'uga Stevenson, ERO Director for Evaluation and Review for Pacific Learning, said, "The choice between schooling or working to help their families pay the bills is challenging. Several secondary students were working when their parents had COVID-19 or had lost their jobs because of it, she said. So, some of them have been doing that part-time. Some have stayed out, and that has kind of lifted the attendance issue." (RNZ, 2023). This identified problem was also a driving force for getting our students into Career Planning as soon as possible.

The goal was to engage year nine students in Career Planning. With this came other goals too, which included involving the parents of the students in the Career Planning cycle and finding out from subject teachers if they would use students' Career Pathway information to inform their own practices or lessons.

Through analysis of literature and research, my team and I collaboratively sourced and developed a Careers workbook for the Year 9 students that engaged them in self-reflection and inquiry. I led two PD sessions with Subject teachers of the Year 9 class to collaboratively work through the Careers booklet and make whatever changes were necessary.

Subject teachers delivered the lessons and learning attached to the career's workbook in 1 hr. lesson slots. Four hours in total were delivered by four subject teachers. Students were led to complete an online Bullseye personality test to help develop the Career Pathway. Research by Kumi-Yeboah et al. (2020) showed that 89% of learners reported that using digital technologies advanced their knowledge acquisition in the online learning environment. The learners stated that collaborative online networks help with engagement, participation, and contribution of knowledge.

When we can provide effective online networks, we can support our diverse learners. I used the student survey data and data collected from the software package Career Central to assess the extent to which students engaged in developing and researching their career/pathway options. The data collected from the teacher's survey gave me an indication if the teachers have or will use the results in their future lesson planning.

It is planned to introduce the Career Mahi to all our junior students at this Kura as a regular feature in learning and teaching. By incorporating students' career aspirations into lesson planning, teachers can create a learning environment that is more meaningful, engaging, and tailored to students' individual goals and interests. By engaging junior-level students to plan career pathways, we have encouraged them to have meaningful conversations about their future with whanau and teachers. This information will also help them to make meaningful subject selection choices in the future. Peter Apulu - Master of Professional Practice 2021 research found that "by incorporating talanoa into the career decision-making process, Pacifica high school students can benefit from a culturally responsive and empowering approach. Talanoa encourages dialogue, inclusivity, and collaboration, ensuring that decisions are informed by cultural values, community input, and personal experiences. It supports students in making career choices that align with their identities, aspirations, and the needs of their communities".

Career education encourages students to reflect on their interests, values, strengths, and weaknesses. It helps them gain a better understanding of their own abilities and preferences, enabling them to make more informed decisions about their future pathways. By exploring their own interests and aptitudes, students can align their choices with their passions and goals.

A significant number of young people leave school early, without qualifications. They need programmes in the community to help them make transitions to the working world and to re-engage with further learning, and career guidance needs to be part of such programmes. Career guidance also needs to be a stronger part of programmes within the school designed to prevent early leaving.

This project has led me to believe that Career Education and Career Planning with Junior High School students is necessary and needed for the future development of the students and helps teachers with lesson development and planning.

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About the author

Throughout my career, I have been a dedicated educator, driven by a profound passion for guiding students towards success. With over 38 years of experience in high school education across various countries, I have witnessed the transformative power of education first-hand. For the past 15 years, my focus has been on Career Education. Currently, I am the Head of the Careers Faculty at James Cook High School in South Auckland.

Creating change and fostering opportunities for young learners is my WHY. It is this deep-rooted commitment that led me to pursue a master's degree, where I sought to strengthen and develop my understanding of effective practices. Through rigorous research and critical analysis, I have gained valuable insights and perspectives that will further enhance my contributions to the field of education.

Beyond my professional pursuits, my wife and I find solace in exploring life together, often parked up in our caravan on the beach. Engaging in drone fishing with bait and fishhooks attached adds a sense of adventure and joy to our lives, reminding us of the importance of balance and finding pleasure in every aspect of our journey.