



A Culture of Innovation in Early Childhood Education: Which Factors Shape How Teachers Use Curriculum Innovation?

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Accepted: 17 February 2023 / Published online: 1 April 2023
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Abstract

Curriculum innovation occurs throughout the early childhood education (ECE) sector. This article reports on the results of a survey conducted in Aotearoa New Zealand, during Phase 1 of a two-phase mixed-methods study. The research examines the factors that shape the way teachers use curriculum innovation and seeks to understand how teachers' interactions with other teachers, families, and learners affect their innovative practices. In this study, 193 ECE teachers from throughout Aotearoa New Zealand responded to an online quantitative survey on these topics. The initial findings show that teachers' innovation is informed by self-belief, relationships, and contextual factors, and how these all work to shape curriculum innovation. It is anticipated that this research will spark new thinking, new practices, and new collaborations across the ECE sector. Phase 2 qualitative case studies are currently underway across multiple locations in Aotearoa New Zealand.

Keywords Early childhood teachers · Survey · Curriculum innovation · Aotearoa New Zealand

Introduction

This national study aims to discover how teachers' self-beliefs and prior experiences affect their engagement in innovative practice, and how relationships with teachers, children and families, and community members affect how and why teachers use curriculum innovation. Curriculum innovation can be defined in many ways across a range of sectors. For this research project, we are using the following term, 'innovation' informed by a definition used in the Teacher-Led Innovation Fund [TLIF] (Ministry of Education [MoE], 2018). Here, innovation was viewed as "... inquiring into new teaching practices, or applying existing practices in new contexts, and investigating in a systematic way whether they result in improved learning outcomes" (MoE, 2018, p. 2). Innovation is a leading success factor across many disciplines and is said to be intrinsic with organisational values and beliefs, physical infrastructure, incentive initiatives and other contributing factors. International research on innovation by Jakovljevic (2018) introduces a structure to innovation known as the ORED

model (observation, revelation, exploration, design) a model aligned with an inquiry-based approach as outlined in the definition for this research study. Halasz (2021) suggests that innovation is often spontaneous and initiated by employees' practice or workplace-based issues. This kind of innovation has been likened to an exploratory way of working outside of planned work and regular practices resulting in 'remarkable everyday work practices' (Høyrup, 2012, as cited in Halasz, 2021). According to (Green et al., 2007) these practices have been ignored by researchers and should be recognised as 'hidden-innovation'.

For this research, we recognise curriculum as being a complex, multi-layered concept (Mulenga, 2018). We define curriculum as including content, plans, ideas, interactions, and guided learning experiences that teachers use to facilitate active learning in their learners. We recognise that curriculum can take on different forms in different settings and it involves a range of perspectives, including those from learners, teachers, families, and members of the wider learning community. It includes ideas about how learning takes place and the content that is used for learning in an interactive process (Dowden, 2010) that can change over time. It is shaped by contexts, interactions, history, philosophies, and cultures. It excites both teachers and learners and ignites new ideas and positive change. It requires vision, passion, energy, and motivation (Brundrett et al., 2010).

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Curriculum in Aotearoa New Zealand is determined by *Te Whāriki* (MoE, 2017), which was first developed in 1996 and was the first bicultural national curriculum in Aotearoa New Zealand. The curriculum was a collaborative venture that drew on the ideas and beliefs of teachers, researchers, and working groups from throughout Aotearoa New Zealand (Te One, 2013). It was updated in 2017 to portray a range of early-learning contexts. In Aotearoa New Zealand, *Te Kōhanga Reo* and *Te Whāriki* (MoE, 2017) stand tall as shining examples of what is possible in curriculum innovation. They show that good things happen for learners when communities collaborate with passion, drive, and a shared belief in the power and importance of the way curriculum is created and implemented. Both introduced an aspirational vision of children, a contextualised view of learning, and a recognition of the importance of relationships.

Te Kōhanga Reo ('the language nest') embodies the transformative possibility of innovation in education. *Kōhanga reo* (settings in which only the Māori language is used) provide total immersion education for children aged 0 to 6 years in family-managed settings (D'Cunha, 2017). *Te Kōhanga Reo* was born out of a movement by Māori in the 1980s to revitalise *te reo Māori* (the Māori language). Until then, the control mechanisms of policy within the education system had assimilated Māori, suppressing the *reo* and banning it from all native schools, resulting in the loss of language. Recognising that the *reo* could disappear altogether, the elders instigated an initiative to grow the use of *te reo Māori*, as they believed if the *reo* was lost, the Māori culture would also be lost. This movement spearheaded the "survival and revival of Māori language, knowledge, and culture" (Smith, 1989, p. 24).

These two curriculum giants inspired this research study, alongside the curriculum innovation that we have observed and experienced in the early childhood education (ECE) sector. The purpose of this study is to explore the factors that shape teachers' use of curriculum innovation? The specific research questions were:

1. What is the role of self-belief in curriculum innovation?
2. What is the role of relationships in curriculum innovation?
3. What is the role of context in curriculum innovation?

Curriculum Innovation in Aotearoa New Zealand

This research project was inspired by the team's collective experiences of curriculum innovation in New Zealand early childhood education centres [ECE], observed over several years of practicum visits. The researchers also share a common desire towards encouraging extensive networking of

teachers across the country, to inspire them and to encourage learning from each other's innovative teaching practices (Dahiya, 2019). As a team, we were excited to share the diverse curriculum practices with ECE teachers from across the country with the intention of encouraging greater curriculum development across the wider ECE sector.

In 2002, a government-funded research programme, Centres of Innovation (COI), was established by the MoE (Meade, 2010) to undertake research into innovation in the Aotearoa New Zealand ECE sector. COI were set up in ECE settings around the country, with the aim of building and sharing knowledge about quality practices and undertaking research into innovative practices. The COI nurtured teachers' research skills through supportive relationships with experienced research mentors, using an action research approach. Due to a lack of funding, the programme was disestablished in 2009.

More recently, the Teacher-Led Innovation Fund (MoE, 2018) established links between innovation and successful learner outcomes, providing support for qualified teaching teams to develop innovations, with professional development as a central factor. Further, it identified self-confident, collaborative teachers as enablers of innovation producing successful educational outcomes for learners. Risk-taking actions were recognised as being essential parts of innovation, including challenging current practices and inquiring into new practices. In addition, a report by the Education Review Office (ERO) (2018) emphasised the need for educational contexts to be innovation ready, which required leaders and teachers in educational contexts to be open to, and excited by, innovation. ERO also linked successful teacher innovation practices to three key factors: a "growth mind set" (p. 5) in both school leaders and teachers; collaboration within the team; and a tailored curriculum for each individual learner.

The government has given a clear mandate for innovation in education. This is reflected in its investment in programmes such as the Pacific Education Innovation Fund (MoE, 2020), which supports innovative education practices for Pacific learners to bring forward new ways of thinking about and experiencing education. This specific, Pacific-focused approach draws on the strengths of Pacific pedagogies and aims to enhance the educational and wellbeing needs of Pacific learners and their families. Although these programmes have focused on sharing innovative practices, they have not focused specifically on what affects teachers in their use of innovation. This current research helps to fill this knowledge gap and provides an in-depth understanding of teachers' perspectives of curriculum innovation across the ECE sector; what encourages teachers to be innovative, and the factors that facilitate innovation.

Previous Research on Curriculum Innovation

When teachers innovate, they embrace change, show resilience, and drive improved performance and better outcomes for children and families, as well as their own and the team's pedagogy (ERO, 2021). "Curriculum innovation allows teachers to work as domain experts, find meaningful patterns in the domain and solve problems in designing curriculum" (Koh et al., 2014, p. 852). Innovation in education also helps to create a "knowledge society" (Hewitt & Tarrant, 2015, p. 19). Curriculum innovation is centred on the notion of changes in practices (White, 1992). This means teachers considering new ways of 'doing' curriculum and reflecting on why they want to introduce these changes. It is equally important to understand the way educational communities negotiate change and what it means for learners, teachers, and families (Anand, 2018). In 1992, White expressed a concern that new practices needed to be supported effectively, and this remains a relevant concern in education today. Therefore, research into curriculum innovation could also consider what professional development opportunities, resources, and planning time could be offered to teachers.

In Aotearoa New Zealand, change for Māori within education has been championed by Māori leaders (Alton-Lee, 2020). Recent improvements in educational experiences for Māori learners have been achieved through a pedagogy of responsive innovation by education experts. Alton-Lee identified the key components of this innovation as being cyclic research and development philosophies, in addition to a focus on building relationships with families and communities that value "connections, responsibilities, and commitments" (p. 24). These ideas are supported by the curriculum documents *Ka Hikitia* (MoE, 2013), *Tātaiako* (Education Council of Aotearoa New Zealand & MoE, 2011) and *Te Whāriki* (MoE, 2017). *Te Whāriki* foregrounds innovation facets as part of the curriculum, including the flexibility for teachers to develop meaningful pedagogical practices that embrace innovation. The curriculum is holistic and not prescriptive in nature, and therefore enables teachers to be creative and innovative without feeling the tight constraints of a traditional curriculum.

The ability to build positive and productive relationships with learners and families was defined by the Education Council of Aotearoa New Zealand and the MoE (2011) in *Tātaiako* as one of the five key competencies required in successful teachers. The importance of relationships in social innovation has been emphasised by Davis (2020), who described innovation as being a "continuous cycle of learning" that is underpinned by the following five Māori values or 'ways of being': rangatiratanga (self-determination), manaakitanga (support), ako (reciprocal learning/

teaching), whanaungatanga (links between families), and tangata whenua (indigenous people of the land). Therefore, innovation should create a process of learning that promotes mana motuhake: self-determination, a sense of belonging, reciprocal learning, collaborative relationships, and a commitment to making a difference for Māori.

According to Lesaux and Jones (2018) teachers see innovation as being a separate part of their daily practice, something that requires them to start over and work harder, while some see it as 'overwhelming and discouraging' (Paniagua, 2018, para. 2). Subramani and Iyappan (2018) noted that teachers who have an innovative mindset show a willingness to progress and change for the benefit of both children and teachers. Brundrett et al. (2010) believed that teachers' capacity for innovation was linked to their capability and self-belief, as well as having the relevant knowledge and skills to progress ideas and implement change.

Aydemir (2021) suggested that teachers' lateral thinking should be recognised as an important factor of innovation, generating new ideas and productive outcomes. Seeing ideas as being movable parts, rather than fixed would enable teachers to "think about alternatives, to approach problems creatively, to pave the way for innovation" (p. 252). Jakovljevic (2018) explains personality traits and how these are seen within innovative practice with the high extraversion trait being linked to an open minded, creative innovator. The concept of merging innovation, personality traits and leadership can be both positive – when teachers are working within a team that distributes leadership according to teacher knowledge, skills, and strengths – and negative – when a top-down hierarchical approach to innovation is applied, stifling creativity and limiting confidence (Law et al., 2010).

ERO (2021) suggests that successful changes in teacher practices can be a result of teachers tapping into 'lead teacher' support that is embedded in a reflective, collaborative culture. When teachers feel connected to their colleagues and centre leaders, and not pressured through top-down power structures, they are more likely to engage in innovative and transformative practice (Kirby et al., 2021; Sims & Waniganayake, 2015). This is supported by Jakovljevic (2018) who concludes that teachers' openness to new ways of working, to their curious nature and desire to learn more affects innovation performance. This cannot be taken for granted as the trait can be affected if the social and political environment limits the desire to innovate.

Greany and Waterhouse (2016) noted that despite the stifling nature of the accountability that the government had imposed on school curricula in England, some primary schools had been able to be innovative because of the 'rebellious' agency shown by their principals and leadership teams. Their findings echoed earlier comments by Brundrett

et al. (2010), who suggested that successful curriculum innovation comes from school leadership teams creating a desire for, and belief in, the value of change.

Dong and Cao (2021) established a focus on the team approach, saying the team must have “[a] long-term fixed goal (team culture), continuous creative points (innovative thinking), strong cohesion and stability of core members (team development), ladder configuration of team members (organizational structure), fair and just incentive measures (team system), and stable source of members and training courses (expansion channels)” (p. 3). Similarly, *The Educational Leadership Capability Framework* (Education Council of Aotearoa New Zealand, 2018) highlighted nine capability dimensions to improve each leader’s ability to influence practice. The framework detailed trust relationships and culturally responsive practice, alongside valuing teachers’ leadership capability and its sustainability. Other dimensions included leaders inquiring into and evaluating practice, with a focus on outcomes and awareness of their own professional development and wellbeing (pp. 5–7). Koh et al. (2014) noted, “Curriculum innovation seems to cascade from the leadership layer to the teacher level, with greater autonomy at each layer” (p. 858).

In ECE, teachers often refer to leadership styles that encourage autonomy, saying that teachers who show distributed leadership values, beliefs, capabilities, and qualities are more inclined to encourage curriculum innovation across their teaching teams (Heikka et al., 2021).

Methods

Ethics

This research study was approved by the organisation’s Ethics Committee. Respondents were given detailed information about the online survey via email, as well as an information sheet and consent form. Responses to the survey were anonymous. Respondents could choose to omit questions, and their participation was voluntary. This research was not specifically Māori research, but it was conducted in ways that respected tangata whenua (the indigenous people) and their values and customary practices, with an expert co-researcher guiding appropriate approaches to Māori participants and their communities. The survey questions were reviewed as part of the ethical approval process and refined with support from an expert quantitative researcher.

Study Design and Participants

An online survey link was emailed to teachers in 2700 early childhood services around Aotearoa New Zealand. A

quantitative deductive methodology underpinned a survey containing nine questions; eight quantitative and one qualitative. Results from the survey were intended to provide early innovation indicators that would help to shape second phase case study research.

Data Collection/Analysis

The online survey questions were aimed at gathering demographic information from teachers based on their gender, teacher registration status and years of teaching experience. One of the questions asked teachers for their curriculum strengths and the three Likert scale questions that followed acquired information on teachers’ attitudes towards self-belief, relationships and teaching contexts in relation to innovation. The respondents rated their level of agreement with each statement using a five-point Likert scale: ‘Strongly disagree’, ‘Disagree’, ‘Neutral’, ‘Agree’, ‘Strongly agree’. The subscales for the Likert scale questions are discussed in the [Results](#) section. The survey concluded with an open-ended question asking teachers to share their experiences of innovation.

Descriptive statistics including frequencies and crosstabs were calculated to analyse data, using Statistical Package for Social Science. Crosstabs were used for the Likert scale questions to calculate respondents’ agreement regarding self-belief, relationships, teaching contexts and curriculum innovation. A deductive approach was used to analyse the open-ended question data, using the pre-determined categories of self-belief, relationships and teaching contexts.

Reliability and Credibility

When reporting on reliability it is important to consider both internal consistency and the properties of the measuring scale (Taber, 2017). This study used Cronbach’s Alpha to measure the reliability of the three subscales, which were designed to gather information about teachers’ self-belief, relationships, and teaching contexts in relation to curriculum innovation. As shown in [Table 1](#), the alpha was 0.9 for the scale measuring self-belief, 0.8 for the scale measuring relationships, and 0.8 for the scale measuring teaching contexts. These scales had acceptable internal consistency.

The researchers worked together in all parts of the research process to ensure consistency, and agreement in relation to interpretation and understanding.

Table 1 Respondent demographics

Variable	Frequency	Percentage
Gender		
Male	6	3
Female	187	97
Total	193	100
Teacher registration status		
Yes	179	93
No	14	7
Total	193	100
Teaching experience		
Under a year	1	0.5
1–5 years	10	5.2
6–10 years	30	15.5
10+ years	152	78.8
Total	193	100

Results

In total, 193 surveys from ECE teachers throughout New Zealand Aotearoa were included in the study. Table 1 sets out demographic information about the survey respondents. 97% of respondents were female ($n=187$), and 93% of all respondents were registered teachers ($n=179$). Only 1 respondent had taught for less than one year, 10 respondents had taught for one to five years, and 30 respondents had taught for six-ten years. 79% of respondents ($n=152$) had taught for over ten years.

Outlier

There was one respondent who had less than one year's teaching experience. All of their responses to the Likert scale statements were 100% agreement. This created a small quandary: Should the responses be designated an outlier and removed, or included in the results? In our opinions as researchers, the respondent may have (a) rushed through the survey choosing the same response each time; (b) misunderstood the directions for answering the survey; (c) may have been a newly graduated teacher with a great deal of enthusiasm and enjoyment of their new role who provided genuine responses.

Given that the respondent was anonymous, there was no way to clarify the nature of their responses. It was decided to keep these responses, but to alert readers to them.

Curriculum Strengths

Respondents were asked to identify areas of curriculum they had a strength in. There were 22 curriculum areas which could be selected. An additional category 'other' was included for any areas that had been missed in the survey.

Curriculum strengths were included in the survey to gain an understanding of whether teachers were innovative in

Table 2 Curriculum strengths

Curriculum area	Frequency	Percentage
Literacy and numeracy	129	67
Environment	123	64
Story time	120	62
Community connections	115	60
Physically active play	110	57
Science and nature	104	54
Water play	102	53
Music and movement	98	51
Bicultural focus	97	50
Arts and craft	97	50
Messy play	95	49
Transition-to-school programmes	95	49
Excursions	95	49
Family and dramatic play	91	47
Gardening	91	47
Sand play	90	47
Cooking	85	44
Puzzles	81	42
Blocks	72	37
Carpentry	63	33
Exploring local history	49	25
Technology	42	22
Other	18	9

Table 3 Male and female curriculum strengths

Males	Frequency	%	Females	Frequency	%
Science and nature	6	100	Lit-eracy and numeracy	127	68
Excursions	5	83	Environment	121	65
Transition-to-school programmes	5	83	Story time	116	62

curriculum areas they felt were strengths, or whether they innovated in curriculum areas they needed to work harder at.

Table 2 sets out the results for this question. Just over two-thirds of the respondents ($n=129$) identified numeracy and literacy as their top area of strength. Other high-ranking curriculum areas included environment ($n=123$), story time ($n=120$) and community connections ($n=115$).

There were noticeable differences between male and female respondents in relation to curriculum strengths (see Table 3). All six male teachers identified science and nature as their main curriculum strength and five of them identified excursions and transition-to-school programmes as their second strengths. Literacy and numeracy was the main curriculum strength for female respondents, with environment second and story time third. There are no clear reasons for these results, and as the survey respondents were anonymous, their responses could not be clarified. This is an area which will be explored more in the second phase of this study.

Table 4 Sub-scale questions

How self-belief affected innovation	
I have used innovation previously	
I feel confident using innovation	
I currently use innovation	
Using innovation builds my confidence	
I use innovation well	
How relationships affected innovation	
My innovative practice acknowledges the partnership of Te Tiriti o Waitangi	
My teaching team supports innovation	
Families welcome innovative teaching	
I include the voices of learners in my innovation	
Learners benefit from my innovative approaches	
How teaching contexts affected innovation	
My current teaching context welcomes new ideas and approaches	
My leadership team encourages innovation	
Professional development opportunities support my innovation practice	
I have enough time to plan and carry out innovation	
I have adequate resources to be innovative	

Table 5 Factors affecting innovation

Variable	Years of teaching experience (% of respondents)			
	< 1	1–5	6–10	10+
Self-belief and innovation	100%	88%	86%	84%
Relationships and innovation	100%	94%	94%	87%
Teaching contexts and innovation	100%	85%	76%	69%

Likert Scale Questions: Self-Belief, Relationships and Teaching Contexts

Three statements were provided to ascertain teachers' attitudes towards self-belief, relationships and teaching contexts in relation to innovation. Each statement was converted into a group of statements representing elements of the overall statement. The respondents rated their level of agreement with each group statement using a five-point Likert scale: 'Strongly disagree', 'Disagree', 'Neutral', 'Agree', 'Strongly agree'. The three overall statements were:

"We are interested in how self-belief affects innovation. Please choose the best response to each statement:

We are interested in how relationships affect innovation. Choose the best response to each statement:

We are interested in how teaching contexts affect innovation. Please choose the best response to each statement:"

The group statements are shown in Table 4.

Table 5 shows group averages for the Likert scale statements relating to self-belief, relationships and teaching contexts in relation to innovation. The results show the level of agreement with the Likert scale statements for each category. The results are organised into groups based on the number of years respondents had been teaching.

Self-Belief

There was one respondent who had taught less than one year. That respondent showed complete agreement with all self-belief category statements. 88% of respondents (n = 10) who had taught from one to five years showed agreement with the self-belief category statements. 86% of those respondents (n = 30) who had taught from six to ten years showed agreement with the self-belief category statements. 84% of those who had taught for more than ten years (n = 152) showed agreement with the self-belief category statements.

Relationships and Innovation

There was one respondent who had taught less than one year. That respondent showed complete agreement with all relationships category statements. 94% of respondents (n = 10) who had taught from one to five years showed agreement with the relationships category statements. Of those respondents who had taught from six to ten years, 94% (n = 30) showed agreement with the relationships category statements. Meanwhile, 87% of those who had taught for more than ten years (n = 152) showed agreement with the relationships category statements.

Teaching Contexts and Innovation

There was one respondent who had taught less than one year. That respondent showed complete agreement with all teaching contexts category statements. Meanwhile, 85% of respondents (n = 10) who had taught from one to five years showed agreement with the relationships category statements; 76% of those respondents (n = 30) who had taught from six to ten years showed agreement with the relationships category statements; and 69% of those who had taught for more than ten years (n = 152) showed agreement with the relationships category statements.

Open-Ended Question

The final open-ended question in the survey asked respondents to provide information about their experiences with innovation. Respondents were asked:

"According to the definition below of innovation, please tell us about your experience with innovation.

In this project our understanding of 'innovation' is informed by a definition used in the Teacher-Led Innovation Fund [TLIF] (Ministry of Education [MoE], 2018). Here, innovation was viewed as "... inquiring into new teaching practices, or applying existing practices in new contexts, and investigating in a systematic way whether they result in improved learning outcomes" (MoE, 2018, p. 2).

Among, respondents, 69% (n = 125) answered this question. Their responses provided multiple perspectives on their experiences with innovation. These responses were analysed based on the categories of self-belief, relationships and teaching contexts in relation to innovation. These results contribute to the final [discussion](#) section.

Discussion

This research reinforces the connections between self-belief, relationship, teaching contexts and innovative curriculum. Teachers who feel supported by colleagues, whānau and leadership teams in their teaching contexts, are more confident in using innovation in their practice. The teachers in this study used innovation to support improved outcomes for the children they were teaching, as well as for themselves. They celebrated the use of the curriculum as a central part of innovative practice, alongside the inquiry opportunities that facilitated new ideas and change (MoE, 2018).

The research questions for this study have been addressed by the respondents to this survey:

- What is the role of self-belief in curriculum innovation?
- What is the role of relationships in curriculum innovation?
- What is the role of context in curriculum innovation?

Self-Belief

Teachers in this study had strong self-belief in relation to innovation, reflecting an openness to embracing change and challenging their teaching practices (Law et al., 2010; Zhu et al., 2013). Most teachers used innovation in their current practice and had used innovation in the past. Teachers felt confident about using innovation and in turn, found that engaging with innovation made them feel confident. However, not *all* teachers felt confident.

The passage of time as a teacher appeared to affect the self-belief of teachers in this study. For some, this was a negative experience. For example, 21% of the most experienced teachers had lower levels of self-belief compared to the strong self-belief of the least experienced teacher. In addition, those who had been teaching for more than five years were less certain about their ability to use innovation well.

One teacher commented “Due to me practising for a long time and several changes through my time as a teacher I always find it challenging to be an innovated teacher.” (R

20). Others in the study embraced the notion of innovation, considering it part of being a teacher:

“To me innovation comes naturally as a teacher” (R 35).

“Teaching is a profession where you have to be innovative, open to new ideas and new ways of teaching.” (R 40).

Teachers in this study were insightful in recognising the importance of self-belief. R 12 commented, “Innovation is subjective and totally influenced by beliefs, values and trends. In my experience when working with people innovation has to be adaptive and transformative with the aim of a successful outcome for those you are doing it for...”. This thinking echoed recent New Zealand government publications on innovation. The MoE (2018) identified self-confident collaborative teachers as enablers of innovation, creating successful educational outcomes for learners. ERO (2018) also considered a “growth mind set” (p.5) in school leaders and teachers as a key factor in innovation. Furthermore the MoE (2018) recognised that risk-taking actions were essential elements of innovation, including challenging current practices and inquiring into new practices. Many teachers in this study were open to change, seeing it as a vehicle for new learning:

“Innovation comes from a belief in knowing that there might be a creative way to try something new. It might not work but being open to tweak and being flexible helps to sustain innovation. I feel that innovation comes from mixing prior knowledge in a way that has not been seen together before” (R 71).

“The world is forever changing, learning environments need to be constantly adapting and teachers need to be exploring new thinking to best meet the needs of children and their whānau. Being creative, openminded and flexible to best meet the needs of all” (R 79).

Relationships

The teachers in this survey considered good relationships within ECE centre teams and environments as being contributing factors to successful innovation. Most of the respondents to this survey saw innovation as being a shared venture involving wider engagement within their teaching and learning communities, with its success or failure affecting relationships. One respondent commented, “I believe that our team has a well-developed inquiry practice that has formed over the years and helps us to be open-minded and really question our practice as well as keep us up to date with current practice. I enjoy working in partnership with children and working how they do, always being curious, experimental, trying new things and having open-ended inquiry. New teachers and students to the team also challenge our existing practice in a good way and we are not

scared to turn things on their head to look at things in a different way or from a different perspective.” (R 48).

As shown in above, the majority of survey respondents who had been teaching for 10 years or less, (100% for those < 1 year experience, 94% for those with 1–10 years’ experience) agreed that their relationships acknowledged te Tiriti o Waitangi, their teaching teams supported innovation, that learners were involved in teachers’ innovation and benefited from it, and that families welcomed innovation. The results for teachers with over ten years of experience was slightly lower at 87% agreement. Respondents cited many examples of relationships with the wider community. R 45 shared, “Our kindergarten established a weekly programme with our local marae. The programme has been evolving over the past 3 years and we were finalists in the Prime Ministers Awards for engagement in 2019. The programme, similar to a forest kindergarten model, involves 8 of our eldest children spending the morning each week at the marae. Mātauranga Māori is practiced through pōhiri, learning the local waiata and pūrakau, learning with and from kaumatua and working in the mārā kai. We are involved in marae events and also have excursions pertaining to the landmarks and sites of significance. Our whānau are actively involved in the programme also.”

Supportive relationships helped the respondents in our survey to be innovative. An integral part of curriculum innovation was the teachers’ openness to embracing change and challenging their teaching practices (Law et al., 2010; Zhu et al., 2013). For example, “#18- Myself and my team take every opportunity to learn and grow as a team. whether it be something learnt through PD or readings we as a team like to share and bounce our ideas and thoughts off each other. We may not always agree with each other, but we try things and see if they work and look at ways to make them work within our own environment.” (R 18).

The findings also support Brundrett and Duncan (2015), who concluded that curriculum innovation depends on factors such as early involvement of the teaching team in developing a vision and ideas, trust in leadership, and clearly defining the value of innovation in achieving positive outcomes for children. Additionally, to be meaningful, the innovative ideas needed to be generated within the ECE environment, rather than imposed from outside. R 49 shared “Innovation doesn’t need to be ground-breaking. It can be as simple as no longer doing something the way it has always been done just because that’s the way it’s always been done. It’s about revisiting the why behind our practice and the most basic of practices, i.e., why do early learning services have rosters? We don’t have rosters, we walk our talk. You cannot say your teams are empowered or that you trust them, or that they are professionals if they are being managed by a piece of paper on the wall.”

Teaching Contexts

Overall, respondents appeared to agree that their current teaching contexts welcomed new ideas and approaches, their leadership team encouraged innovation, and that professional development opportunities supported the teachers’ innovative practices. Respondents in this survey commented on the importance of being encouraged and supported to be innovative:

“PLD is an important part of developing kaiako and keeping with current pedagogy, teaching strategies and techniques. Our management encourage new and creative ideas and to implement these into the teaching programme.” (R 24).

“I’m lucky enough to work at a centre which welcomes innovation. We’re trusted as teachers to seek innovation, to feed forward our ideas and fully supported to put into place innovations that as a team we feel will only add to our already great centre. Being trusted to do a good job and free to share innovations I know is not always possible in other centres. I value this in my current workplace.” (R 4).

However, the levels of agreement differed markedly between groups of teachers and decreased significantly over time. The one teacher with less than a year’s experience agreed with all aspects of the teaching context statements, whereas one third (31%) of the most experienced teachers (10+ years of experience) disagreed that teaching contexts supported innovation and 24% of teachers with six to ten years of experience also disagreed. Those respondents cited a lack of time to plan and carry out innovation, or a lack of adequate resources for innovation.

This result was also reflected in responses to the final open-ended question “Innovation can be helped or hindered by many factors. Leadership that supports innovation is the starting point for me but often a lack of funding, non-contact time and resources put a stop to innovative ideas before they even get off the ground. I work in a high-quality centre, but we are community run, not for profit and the resources and time just aren’t there.” (R 74). This result echoes Yang’s (2019) findings that a decline in teachers’ use of innovation was linked to lack of motivation, high demand on teachers’ time, limits or change in leadership, limits in the level of teachers’ skills and capabilities, and the need for more awareness in developing teachers’ roles and responsibilities.

Many of Chen and Yuan’s (2021) research findings about the intrapersonal and external factors prevalent in teachers’ use of innovation (teachers’ philosophy, motivation, support, leadership, and the ability to problem solve) were reflected in this study. Some of our respondents concurred that the external factors were challenging “I will use technology and try new teaching practices to engage and inspire the children to be curious, and to want to learn more. The

trouble is the lack of funding to support this, lack of new resources, and finding time to create new resources or to learn new ways of doing things. The government needs to put more funding into ECE and recognizing the importance of ECE. Teachers are not respected or given enough money or time to improve teaching practice.” (R47).

Limitations

This was a small-scale survey and therefore, is not representative of the whole ECE workforce within Aotearoa New Zealand. The quantitative data could be generalised, however the number of responses does limit this aspect (MacNaughton et al., 2010). The survey has shown that teachers celebrated innovative curriculum as a collaborative venture, but also acknowledged the challenges of time and resources. To understand teacher perspectives in a deeper way we will complement the information provided by this survey through case studies using a qualitative research approach. For phase two we intend to strengthen this discussion by undertaking case study interviews to provide more complex, nuanced perspectives of teacher innovation.

Conclusion

Teachers in ECE settings in Aotearoa New Zealand are creative, inventive, problem-solving, collaborative innovators. This research has helped to build a deeper understanding of teacher perspectives of curriculum innovation. It has provided insight into what drives teachers to be innovative and the factors that make this possible. Teachers shared their ongoing experience with innovation, both past and present which is of value to children and ECE teaching teams. This study illuminates the practices of those who teach within the sector and shares the importance of inspiring more innovation in future practice.

This research suggests that more government incentives for teachers to be innovative could enable greater recognition of the work teachers are doing in the ECE sector. Teachers in this study identified the desire for more opportunities that enrich teacher pedagogy and practice that support them to engage in innovation with determined self-belief and confidence. In addition, teachers reiterated the importance of being given enough time and resources to be able to engage in innovation in a supportive team environment.

This research highlights the value of teacher innovation across the ECE sector in New Zealand and the factors that drive the success and challenges of this. It is apparent that teachers would value the opportunity to have more dialogue

and opportunities across the sector to share their innovative curriculum developments.

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