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Improve education provision in Aotearoa New Zealand: By building assessment and learning capability

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Currently the focus of education provision in Aotearoa New Zealand is on successful school achievement in specified learning areas and provision of guidance for Kaiako. Yet, the real purpose of education is ako – to collectively equip ākonga with knowledge, skills, values, and capabilities for lifelong learning. Without clarity on the 'why' – the purpose for education – people in the system flounder in knowing what to teach, when, or how. This commentary proposes building assessment and learning capability to provide clarity on these important questions and thereby enable the education system to celebrate ākonga diversity and agency through life wide and lifelong learning.

Keywords: assessment capability, assessment for learning, New Zealand, co-agency

Introduction

While there are several *purposes* of education, the main one is *learning* (Hattie & Larsen, 2020). And, central to the learning *process* is assessment capability which enables learners and teachers to interpret and use information to inform or adjust learning (Booth et al., 2021). These learning and assessment moments are further enriched when all learners, whanau (family), teachers, and the wider education system involved are mutually respected and enabled to grow in confidence and capability. This is the essence of the commentary argument which will be developed across three sections. The first section briefly examines the notion of learning. It is followed by benchmarked national and internationally sourced evidence of Aotearoa New Zealand student learning and achievement trends over the last 10-15 years to ascertain the current state of education. Secondly, the commentary argues why building assessment capability across the education sector is a pivotal strategy for lifting educational provision. Thirdly, that effective educational environments are built on a shared sense of 'co-agency,' wherein students, peers, teachers, parents, and the community learn with and from each other, *when* there are embedded (assessment) feedback loops for lifelong learning.

The purpose and nature of learning in education

International vision for education and learning

In 2015 members of the United Nations committed to 17 goals, one of which was education to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2018). In conditions of inclusion, equity and lifelong learning, learners flourish in *who* they are, *what* they can do, and *how*:

1. The *who* is the lifelong 'becoming' influenced through relationships, experiences, values, beliefs, and belongingness. Learners 'become' by valuing and respecting themselves, their family, social and cultural identity. These "interactive, mutually supportive relationships – with parents, teachers, the community, and with each other – that help students progress towards their shared goals" (Organisation for Economic Co-operation and Development, 2019, p. 2) are known as 'co-agency,' a term to which we return shortly.
2. The '*what'* includes the competencies students need to shape the future, as well as their unique dispositions to develop physical, social, mental, and spiritual capabilities.
3. The '*how'* is developed as students learn, receive feedback, and reflect on their work" (Organisation for Economic Co-operation and Development, 2019, p. 6), also through their interactions and relationships with others and the world around them.

Opportunities for learners to actively make choices and decisions in a wide range of moral, social, economic, and creative contexts develops their learning agency to set goals, reflect, and act responsibly to effect change (Organisation for Economic Co-operation and Development, 2019). Accordingly, effective educational environments are built on a shared sense of cultural and educational 'co-agency,' wherein students, peers, teachers, parents, and the community learn with and from each other.

How does the current state of Aotearoa New Zealand's provision of education align with this goal of inclusive, equitable, and lifelong learning?

Current state of learning in Aotearoa New Zealand education

At the time of writing, a major refresh of the New Zealand Curriculum (NZC) is underway, with the intention of full implementation by 2026 (Ministry of Education, 2023). Its impact on learning is unknown, though the intention is to be more inclusive and address inequities, especially for tangata whenua (indigenous people). Te ao Māori wisdom states, "ka mura, ka muri – walk backwards into the future" (Rangiwai, 2018). The past informs and influences the future, so this commentary examines the impact of the NZC (Ministry of Education, 2007) to inform the future of learning and achievement.

In comparison with the United Nation's Sustainable Development Goal 4 (SDG4) of Quality Education, the NZC was explicit about lifelong learning, but implicit about inclusion and equity, with its vision of "Young people who will be confident, connected, actively involved, lifelong learners" (Ministry of Education, 2007, p. 7). Expanding on this vision, the NZC specified five key competencies and eight learning areas. Yet, despite its vision of lifelong learning, there was no dedicated section in the NZC expanding how to learn, or how to develop capable learners. Moreover, achievement in the learning areas was left to schools to determine – "schools provide clear statements of learning expectations that apply to particular levels or across a number of levels" (p. 29) – and only general achievement objectives were specified for the eight levels of the curriculum over 13 years of schooling. Consequently, ascertaining progress and improvement was difficult for students, teachers, whānau (family), and arguably, the wider education sector. Finally, although the NZC stated that the "primary purpose of assessment is to improve students' learning and teachers' teaching" (p. 39), it claimed, "Much of this [assessment] evidence is 'of the moment.' Analysis and interpretation often take place in the mind of the teacher" (p. 39), yet the student ought to be centrally involved in assessment processes. While intended to accommodate teacher and student circumstances, the lack of clarity may have caused some confusion for teachers.

We turn now to examine a range of available evidence on the efficacy of the NZC vision, as indicated by standardised national and internationally benchmarked student achievement data.

Confident, connected learners (Sense of 'Who'/Becoming, Belonging, and Valued): According to Chamberlain and Forkert (2022), who analysed data from the Progress in International Reading Literacy Study 2016 (PIRLS 2016), middle primary school students in Aotearoa New Zealand have a higher sense of belonging than many international counterparts, but it decreases markedly by age 15. This is an important finding since feelings of belonging are linked to levels of emotional and physical wellbeing and academic achievement (Chamberlain & Forkert, 2022), but are undermined by bullying. In 2017, the Office of the Children's Commissioner indicated that six-year-old children "reported feeling sad and powerless because of bullying" (cited by Chamberlain & Forkert, 2022, p. 3), which seems to worsen with age. In PIRLS 2016, and in the Programme for International Student Assessment 2018 study (PISA 2018) (Avvisati et al., 2019), about a third of Aotearoa New Zealand students reported being bullied monthly, with boys and students in lower decile schools reporting higher rates, and 18% of Aotearoa New Zealand students felt lonely at school, compared with the Organisation for Economic Co-operation and Development (OECD) average of 16%. Concerningly, "frequent bullying rates were high in all Aotearoa New Zealand schools, and higher than the international average on the bullying scale measured by PIRLS" (Chamberlain & Forkert, 2022, p. 3).

Yet reported data from parents and whānau were mostly positive about their English-medium primary children's sense of belonging and wellbeing at school (Wylie & MacDonald, 2020). Perhaps parents were influenced by increasing numbers of schools having dedicated programmes fostering student wellbeing and positive behaviours (Wylie & MacDonald, 2020). Nevertheless, reported student data suggest the vision of confident, connected learners is yet to be fully realised.

Actively involved (agency): Attendance and achievement rates are indicators of students' involvement in school learning. These rates are a proxy of inclusion and agency, for students who feel included and agentic are more engaged in learning (Gibbs & Poskitt, 2010). National statistics on student attendance and achievement rates are presented below, to ascertain students' sense of involvement and agency.

***Student attendance rates*:** The New Zealand Ministry of Education (MoE) defined regular school attendance as the percentage of students who attended school more than 90% of school term two (Ministry of Education, n.d.). Data in years 2020-2022 reflect disruptions caused by the Covid-19 pandemic in which students were required to learn from home when they or members of their household were unwell or infected with the virus. Justified absences for medical reasons accounted for 8.6% of term two time in 2022. Figure 1 displays the percentage of enrolled student attendance in term two from 2011 to 2022. In the 12 years of data displayed in Figure 1, fewer than 70% of students regularly attended school. Furthermore, there is a general trend of decreasing attendance, especially in 2019 (the year before the Covid-19 pandemic) and in 2022 (when the pandemic was abating). Note the 2020 data is somewhat misleading because in national lockdown students were 'deemed to be attending.'

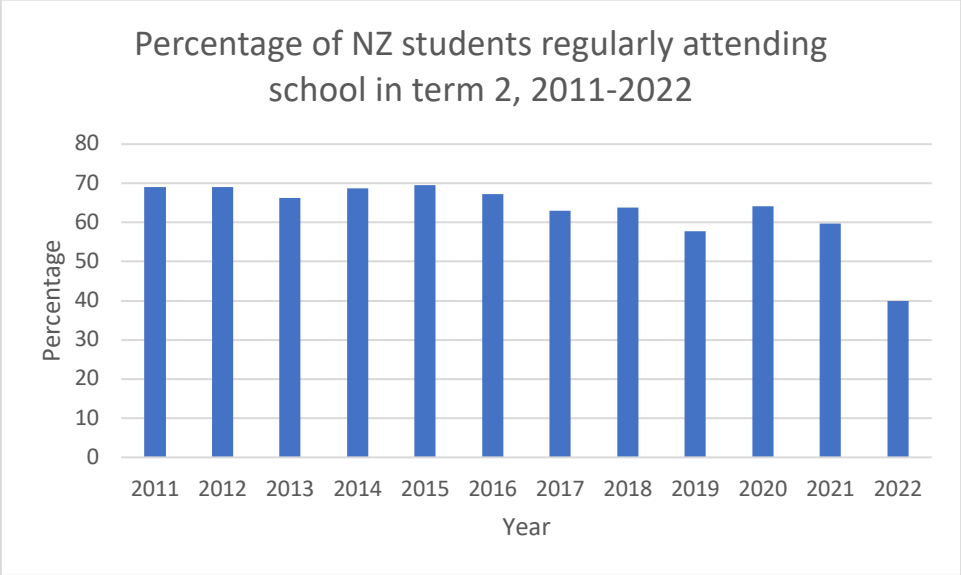

Figure 1. Aotearoa New Zealand students regular school attendance percentages 2011-2022

Source: Ministry of Education (Ministry of Education, n.d.)

Attendance also varies across ethnicities. In 2022, regular attendance percentages by ethnic group were as follows: Māori (27.0%), Pacific Peoples (26.4%), Asian (52.4%) and European/Pākeha (42.6%), (Ministry of Education, n.d.). Inequitable attendance rates are similarly reflected across the decile range of schools, wherein the lower the decile (socio-economic) rating of the school, the lower percentage of students regularly attended school in term 2, 2022.

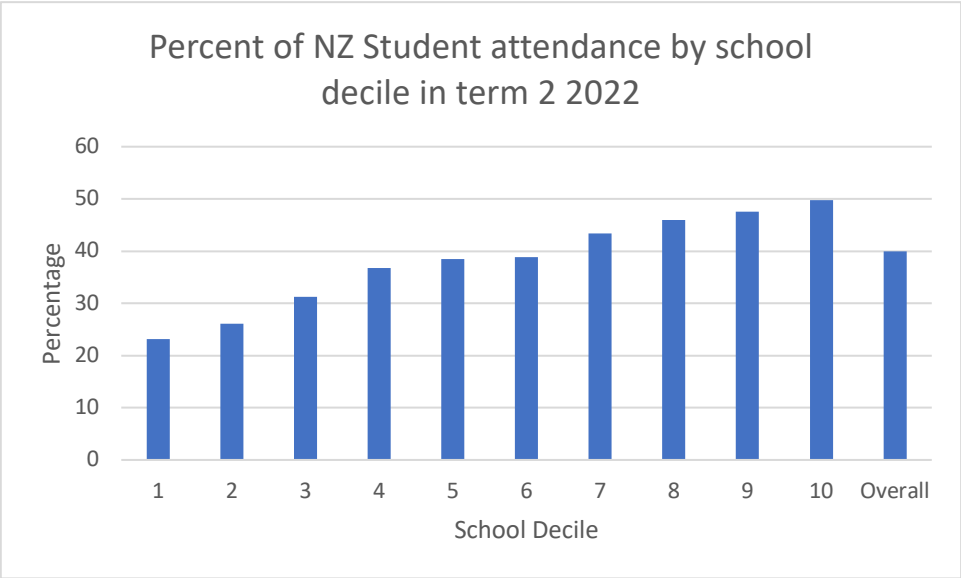

Figure 2. Aotearoa New Zealand student attendance in 2022 by school decile

Source: Ministry of Education (Ministry of Education, n.d.)

Aotearoa New Zealand student attendance rates seem to be worse than the OECD international average. For example, analysis of PISA 2018 results revealed that 15-year-old students completing the survey reported having "skipped a day of school (NZ 29% c.f. 21% OECD) in the two weeks prior to PISA testing" (Organisation for Economic Co-operation and Development, 2019, p. 7).

These data on attendance indicate a decline in agency over time (2011-2022), lower rates of participation (agency) than same-aged students internationally, and more concerningly, inequitable levels of agency across ethnic groups and socio-economic backgrounds. Students with agency seek active participation by attending school – not avoiding school. These results imply that the SDG4 of inclusive and equitable education for lifelong learning is yet to be realised in Aotearoa New Zealand in respect to attendance. To check the validity of this argument, another indicator is considered – that of student achievement rates.

***Student achievement rates*:** In this next section, student achievement rates are examined across student year groups and curriculum areas, from three data sources, firstly, Aotearoa New Zealand's own National Monitoring Study of Student Achievement (NMSSA), secondly, the Trends in International Mathematics and Science Study (TIMSS), and thirdly, the Programme for International Student Assessment (PISA). These three sources are considered because they are benchmarked sources of student achievement data.

NMSSA annually monitors student achievement at Year 4 and Year 8 through a stratified, random sample of 100 participating schools. Curriculum areas are surveyed on a four-year rotation. The latest English survey (National Monitoring Study of Student Achievement, 2020) included written, oral, and visual literacy. Compared with the previous cycle, there was a decline in English achievement for Year 4 students. "In 2019, the overall average WELA (writing) score for Year 4 students was 2 scale score units lower than in 2012. This difference was statistically significant" (National Monitoring Study of Student Achievement, 2020, p. 10).

Nevertheless, a higher percentage of Year 4 students met the NZC Level 2 expectation than the Year 8 student Level 4 expectations across the language modes. For example, Writing (Year 4, 63%; Year 8, 35%), and Reading (Year 4, 63%; Year 8, 56%). "At both year levels, Māori students scored lower, on average, than non-Māori students in all English language modes. … The least difference was in writing, and the greatest difference was in speaking (about two years progress)" (National Monitoring Study of Student Achievement, 2020, p. 9). Moreover, "Pacific students at both year levels scored lower, on average, than non-Pacific students in all language modes" (p. 9). Concerningly, these inequitable results were reported in 2012 (National Monitoring Study of Student Achievement, 2013) and have yet to be turned around.

To ascertain the validity of the concerns about inequitable and declining achievement, published reports with international comparative data on additional student year groups and broader curriculum domains are now considered.

According to TIMSS 2019 (Mulls et al., 2020), Aotearoa New Zealand performance of fourth grade students (average age 9 years) in mathematics reduced from 491 in 2015 to 487 average scale score in 2019, which was below the TIMSS Scale Centrepoint of 500. Aotearoa New Zealand results peaked in 2003 at 493 and though there have been some fluctuations, there is a general decline (492 in 2007; 486 in 2011; 491 in 2015; 487 in 2019), despite considerable national focus and investment in numeracy. On average, girls scored 484, while boys were 490. In science at Grade 4, Aotearoa New Zealand performed at the average scale

score 503 compared with the TIMSS Scale Centrepoint of 500. However, this score was lower than the 506 gained in 2015, and lower than the peak score of 520 in 2003. Like the mathematics score, results were similar 2007-2019 (504, 497, 506 and 503 respectively). A system that strives to instil lifelong learning capabilities could be expected to show increasing rates of achievement over time. Yet, in short, mathematics and science achievement for Year 4 (primary school) students is close to the international average performance and has either remained steady or declined since 2003.

How do these Year 4 results compare with students with more time in Aotearoa New Zealand's education system? Data for Year 8 students (average age 13 years) show a steady decline in TIMSS mathematics achievement since 1995 (with an average scale score of 501), and a further drop in 2015 (493) and in 2019 (482). Girls' average scale score (478) was less than the boys (484) in 2019. Similar trends occurred with Year 8 science results that peaked in 2003 at 520 and declined in 2015 (513), and further still in 2019 (499), which was lower than the TIMSS Scale Centrepoint of 500. Aotearoa New Zealand girls average performance was 497 compared with boys at 500 – indicating inequitable gender trends across two subject areas.

It seems that additional time in the Aotearoa New Zealand education system makes little difference – Year 8 student achievement results have also steadily declined since 1995. To further triangulate this emerging trend, a third age group is considered – Year 10-11 students (average age 15 years, and a different set of internationally benchmarked data (PISA) to minimise potential data bias).

With respect to secondary school student achievement trends, PISA assesses 15-year-old students in reading, mathematics and science knowledge and skills on a triennial basis. According to Schleicher (2019), while Aotearoa New Zealand students scored higher than the 2018 OECD average in reading (NZ, 506 c.f. OECD, 487), mathematics (NZ, 494 c.f. OECD, 489), and science (NZ, 508 c.f. OECD, 489), Aotearoa New Zealand student performance has trended downwards since 2000 in reading (529 in 2000; 509 in 2015; 506 in 2018), mathematics (523 in 2003, 495 in 2015, 494 in 2018), and science (530 in 2006, 513 in 2015, 508 in 2018). In reading, the most rapid declines were in the lowest-achieving students, while in mathematics and science declines occurred in the top and lower achieving students (Schleicher, 2019).

As seen with the two younger age groups (average ages of 9 and 13), fifteen-year-old student results in reading, mathematics and science have either stagnated or declined since 2000. Therefore, not only across the three student age groups and across different data sets, but also over time (2000-2020), the data are concerningly consistent in the absence of growth in achievement that could be expected if students were actively involved, confident and increasingly learning capable in compulsory schooling. However, lifelong learning extends beyond compulsory schooling. Perhaps participation in tertiary education may provide indicators of lifelong learning interest and capability.

Lifelong learners: Although lifelong learning includes formal and informal learning throughout the lifespan, one indicator of lifelong learning is attainment of tertiary qualifications since tertiary education is not compulsory. In 2001, 24% of 25- to 64-year-olds did not hold a school qualification, and this percentage reduced to 13% in 2021 (Ministry of Education, 2022). Similarly, the percentage of New Zealanders with a tertiary education qualification increased from 54% in 2001 to 65% in 2021 (Ministry of Education, 2022). Therefore, educational qualification attainment *improved* in the wider Aotearoa New Zealand

population, particularly related to tertiary qualifications, and by proxy, lifelong learning. A cautionary note though – 13% of the adult population have no qualifications. Secondly, while 85% of the adult population has attained at least a school qualification, this is not equitable across ethnic groups – with Māori at 71% and Pacific peoples at 69% in 2021 (Ministry of Education, 2022). Therefore, though there is reason for optimism about lifelong learning by way of increasing interest and willingness by New Zealanders to invest in further formal education, the trend has slowed since 2019 with the pandemic and subsequent cost of living crisis, and participation is inequitable across ethnic groups.

In short, the data examined above indicate that the NZC vision of "confident, connected, actively involved, lifelong learners" (Ministry of Education, 2007, p. 7), and SDG4 of inclusive, equitable and lifelong learning is yet to be materialised. What might it take to increase the confidence, connectedness, active involvement, and lifelong learning of New Zealanders?

Lifting educational provision by building assessment capability

This section begins by defining assessment and subsequently arguing its efficacy for learning and achievement. Assessment is the collection, analysis, and *interpretation* of learning information, though it is *how the information is understood and used that influences learning*. Black and Wiliam (2018) argue that assessment is "a procedure for making inferences" (p. 554), so any assessment that is interpreted and used for the purposes of informing or shaping learning is *assessment for learning*. Assessment for learning includes formal, standardised tests, but is predominantly characterised by dynamic classroom learning interactions like speaking, watching, and doing – actions that seek and respond to information to inform ongoing learning (Allal, 2020; Klenowski, 2009). Assessment makes explicit individual, peer, and shared class (social) learning, and integrally links to teaching, learning and curriculum by informing adjustments in what is taught and how (Allal, 2020).

Evidence of the positive impact of assessment for learning on students' self-efficacy, capacity to learn and achieve is considerable across student age, subjects, countries and cultures for more than two decades (e.g., Black & Wiliam, 1998a, 1998b, 2003, 2018; Crooks, 1998; Hattie & Clarke, 2018; Yan & Yang, 2022). This positive impact is because assessment capable teachers inform and empower students to use quality assessment information to affirm or extend their learning (Absolum et al., 1988; Brown, 2021). When students are actively involved, they have the language and analysis skills to identify their learning gaps and seek pertinent information and feedback from teachers, their peers and whānau members (Absolum et. al, 1988; Brown, 2021).

Given concerns about Aotearoa New Zealand student achievement trends, it is argued therefore, that a focus is needed on building assessment capability of teachers and learners, and those who support them, namely whānau and personnel across the education sector. This focus on building assessment capability is argued partly because of the known positive impacts of assessment capability on learning and achievement (see above). And, because when Aotearoa New Zealand student achievement results were at their peak (arguably around the early 2000s, as shown in achievement data presented earlier), there was, and had been, extensive professional learning and development (PLD) on capability building in assessment. For example, the Ministry of Education funded nation-wide PLD on assessment, Assess to Learn (AToL), available for primary and secondary schools (Poskitt & Taylor, 2007), and the National Curriculum Exemplar Project in the early 2000s, which integrated curriculum, teaching, learning and assessment (Poskitt et al., 2004). The argument now turns to examine how and why to build teacher capability in assessment.

Why building teacher capability in assessment impacts student achievement

Building teacher capability in assessment through PLD impacts student achievement in three ways. Firstly, "it is teachers' work in the classroom that is key to raising standards … and that improvement "happen[s] relatively slowly, and through sustained programmes of professional development and support" (Black & Wiliam, 2003, p. 629). Integrated capability building for teachers, often referred to as PLD, attends to processes and knowledge over sustained periods of time for deep change (e.g., Black & Wiliam, 2018; Poskitt, 2014). Effective PLD processes include professional reading and expert input, reflection on student achievement data, teacher discussions, coaching and feedback.

Secondly, an integrated approach to PLD deliberately deepens teacher knowledge across five areas (Luke & McArdle, 2009):

1. student knowledge – knowing and relating well with ākonga/rangatahi and their whānau; valuing identity and connectedness,
2. content knowledge – depth and breadth in specific disciplines,
3. pedagogical content knowledge – of field-specific and general pedagogies,
4. curriculum – syllabus goals and standards, knowing the national political context,
5. assessment conceptions – purposes, principles, practices, and proof.

Skilful teachers draw on multiple sources of knowledge in the teaching moment to adjust or confirm learning. They simultaneously draw on 1) their knowledge of students – what is important to them as persons for their emerging identities and their optimal learning, 2) key concepts in a content area, 3) analysis of student understanding, 4) how best to extend or challenge current understanding, and 5) how to build student assessment capability in making explicit the interpretation of assessment information. Each essential area dynamically informs and links the other areas.

Thirdly, when teachers have confidence and competence in assessment, they are more open to sharing assessment knowledge and processes with students, whānau and other educational personnel. It is through the web of professional dialogue that shared language, understanding and respect grow as well as collective commitment for the betterment of student learning (Poskitt, 2016). This in turn develops into consultative co-agency at, and across, multiple levels: school level (between teachers, students, whānau); regional and national levels; and inter-agency level (across practitioners, teacher educators and professional learning facilitators, researchers, educational agencies), and policy makers. Interactions amongst the multiple levels builds further co-agent and collaborative action.

Co-agency and collaboration

Co-agency is defined by the OECD as "interactive, mutually supportive relationships – with parents, teachers, the community and with each other – that help students progress towards their shared goals" (2019, p. 2). Agency can be applied in every facet of life, and while some cultures focus more on individual agency and others on collective agency, this paper argues the value of individual and collective agency to foster students' optimal learning and achievement. Co-agency implies shared knowledge and power, which in the educational context starts with teachers.

Teachers use skills in noticing, recognising, interpreting, and responding to evidence of learning in ways that are relevant to students' learning needs, and develop co-agency with

the student community. To be effective co-agents, "teachers need support, including in initial teacher education and through professional development, in designing learning" (Organisation for Economic Co-operation and Development, 2019, p. 8) that supports student/family/community agency. Teachers also need to be included as co-agents with educational agencies (namely, the Ministry, the Education Review Office, the New Zealand Qualifications Authority, the Teaching Council), PLD facilitators, researchers, local iwi, and the wider community, to collaboratively discern, share, and learn what matters in education. The need for community trust and belief in teachers' professionalism and in assessment processes is vital, otherwise media criticism results in tighter accountability measures (Crooks, 2011).

Co-agency, collaboration, and communication have multi-layered benefits in the education system by leading to more aligned understanding of learning needs between the policy makers, the policy PLD facilitators, and policy enactors (practitioners), which reduces problematic implementation in classrooms and educational settings (e.g., Laveault & Allal, 2016; Siddiqui et al., 2022). Better alignment occurs when there are opportunities for shared input and open communication. Such collaborative communication requires provision of sufficient time and resources to share, co-construct, apply new knowledge, reflect, and collaboratively adapt through reciprocal feedback (Poskitt, 2016). In such conditions of aligned goals and communications, shared responsibility and purpose for assessment and learning evolve amongst policy makers, facilitators, and enactors. Collective agency develops where change for the greater good can happen on a larger scale (Organisation for Economic Co-operation and Development, 2019). In this case, collective action could enhance student learning and assessment capability, and accordingly, student achievement.

Conclusion

Assessment plays a critical, integral role in providing clarity on the purpose of education – specifically the 'what, how, when, and why' of learning because assessment grows co-agency capabilities of learners, teachers, whānau and the wider education system. When we start by asking *what* students know, we create opportunities for open dialogue and insights into their life experiences, what they value, their identities, relationships, and connectedness. Collaboratively interpreting this information leads to discovering *how* students best learn, contributing to teachers' pedagogical content knowledge, and collectively determining what next to learn. What next, and *when*, may be negotiated between the learners' current and future learning, their interests (and those of their whānau), abilities, and curriculum expectations. The process of interpretation and negotiation builds shared assessment and learning agency in respecting and seeking input from learners, their whānau, and educators; and even greater system level co-agency when feedback loops of interpreted information inform policy development and resource allocation. But reciprocal and respectful dialogue, and shared responsibility for learning and assessing rely on teachers, learners, and whānau being provided with sufficient time and resources to develop assessment and learning capability. This capability occurred during the Assess to Learn and National Curriculum Exemplar periods and can occur again when there is committed collective agency that includes students, their whānau and the wider education system, who know how, when, and why to use assessment to inform learning. Then, we will witness again the powerful and equitable impact of assessment capability on lifelong learning and achievement.

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