

What do teachers and leaders have to say about co-teaching in flexible learning spaces?

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Abstract

Schools in New Zealand and parts of Australia are rapidly transitioning from traditional classrooms to co-teaching in flexible learning spaces provisioned for 50 to 180 children and two to six teachers in a single space. In New Zealand, this transition is driven by the Ministry of Education who have specific guidelines for designing new schools and re-builds. School leaders and teachers must reconceptualise teaching and learning from private autonomous learning environments to co-teaching in shared learning spaces.

This mixed methods study examined the views of 40 practitioners and leaders, experienced in co-teaching contexts in New Zealand and Australian schools, to develop a greater understanding of the factors that contribute to effective co-teaching implementation. Not surprisingly, educators highlighted that shared beliefs about student centred pedagogy were pivotal to their co-teaching relationships. Beyond this central element, participants also identified a range of systems, tools, strategies and skills that enabled co-teaching to focus on and support student learning. The study provides insights of value to school leaders who are faced with the challenges of implementing flexible learning spaces, and leading school change in this area.

Keywords: *Flexible learning spaces; co-teaching; teacher collaboration*

Introduction

This study was inspired by the challenges facing one principal as he led the process of designing, building and commissioning a new “Innovative Learning Environment” (ILE) in post-earthquake Canterbury. The opportunity of a new purpose built school was accompanied by the significant challenges associated with introducing the school community to the concept of flexible learning spaces catering for 100+ children in one area, and the desire to lead the transition from a well-informed and knowledgeable position. This quest, and the knowledge that many other leaders were grappling with similar challenges, drove the research reported in this article. The findings are shared in the expectation that they will provide evidence and strategies to support school leaders in similar situations.

What are flexible learning spaces?

Innovative Learning Environments (ILEs) contain what the Ministry of Education (2014) describe as flexible learning spaces (FLSs). FLSs are essentially large spaces which can be reconfigured to meet learning needs and teaching modes and can be re-purposed with mobile walls (Parnell & Procter, 2011). In addition to meeting Ministry (Ministry of Education, 2015a) requirements for insulation, heating, acoustics, sustainability and lighting, these spaces are designed to allow a range of learning areas for individuals, small and large groups. Ideally these FLSs are shared collaboratively with two or more teachers (Ministry of Education, 2015a; Shank, 2005).

FLSs facilitate the grouping of learners according to need, and allow teachers to facilitate learning using the combined expertise of the teaching team and the affordance of the FLS itself (Nair, 2014). FLSs facilitate and enable a wide range of teaching styles including direct teaching, inquiry, experiential and guided teaching (Fisher, 2005; Nair, 2014; OECD, 2012). FLSs are usually technologically rich, support the social nature of

learning, and enable personalised, student centred learning connected to the world and experiences of the learner (OECD, 2013).

Most pertinent to this study, the de-privatised, shared nature of FLSs impacts on the daily work of teachers, as co-teaching scenarios create opportunities for teacher collaboration and professional growth, and less favourably, the potential for misunderstanding, conflict and challenge. It is this transformation, the shift from teachers' relative autonomy in traditional classrooms to their experience of the collective enterprise of co-teaching that educators must grapple with while maintaining an unwavering focus on student learning. The following section will provide a brief discussion of the benefits and challenges of co-teaching, lessons learnt from the past, and the heart of the matter, student-centred learning in today's FLSs.

Literature

Co-teaching occurs when two or more teachers share responsibility for a group of students, usually within one workspace, through a shared approach that includes the pooling of resources and joint accountability (Friend & Cook, 2010). Co-teaching originated in the 1960s when special education students were included in mainstream classes taught by a general teacher and a specialist educator (Friend & Cook, 2010; Walther-Thomas, 1997). Since then, specific co-teaching strategies have evolved and subsequently been identified as beneficial to meet diverse student needs. These strategies include alternate teaching; station teaching; parallel teaching; one teach, one observe; one teach one assist; team teaching; complementary and supportive co-teaching (Friend & Cook, 2010). Co-teaching strategies require teachers to understand and agree to: mutually developed goals; a shared belief in co-teaching; a belief in the importance of engaging in the roles of teacher and learner; distributed functions theory of leadership and a co-operative process (Friend & Cook, 2010; Villa, Thousand, & Nevin, 2008).

The challenges associated with co-teaching have been documented including: the time taken to develop trust (Fullan, 2007; Osbourne, 2013; Sergiovanni, 2005); the impact of disagreement between teachers (Friend & Cook, 2010); loss of autonomy and decreased ability to be flexible and responsive to the teachable moment (York-Barr, Ghere, & Sommerness, 2007); insecurity as previously private practice becomes public (University of Kansas, 2014); additional time required with colleagues for planning, administration, and to develop pedagogical frameworks (Friend & Cook, 2010; Ploessl, Rock, Schoenfeld, & Blanks, 2010); and a lack of quality professional learning to support the transition to and effective working in a co-teaching environment (Buckley, 2000; Cuban, 2004; Friend & Cook, 2010; Hattie, 2015; Villa, Thousand, & Nevin, 2013). These challenges have the potential to significantly constrain the potential of co-teaching in a FLS and may result in negative experiences for teachers, staff, children and whānau.

However, there are also important benefits associated with co-teaching. One of the most significant benefits is the opportunity for teachers to engage in quality conversations and reflection about their professional practice in a supportive and authentic learning environment on a moment by moment basis (Nieto, 2003; Sergiovanni, 1992). Co-teaching creates opportunities for what Sergiovanni (1992) describes as an ideal collaboration where teachers work, debate, plan and problem solve together, observing colleagues' lessons and sharing successes as well as challenges. This approach allows conversations and decisions to be implemented in real time with support from colleagues through collegial feedback and critique (Anderson & Speck, 1998).

There is no doubt that collaboration adds complexity to the teaching process, with teachers needing to spend time collectively before and after lessons planning, evaluating, sharing information, reviewing timetables and discussing teaching strategies (Johnson, 2003; University of Kansas, 2014). There needs to be agreement about how collaborative practices will be enacted for flexible learning spaces to be used to their full potential (Cameron & Robinson, 1986; Department of Education, 1977; Ministry of Education, 2015b). To realise the

benefits the co-teaching relationship needs to be a deeply collaborative joint enterprise focused on students and their learning.

Teachers' strategic collaborative interaction to transform learning has also been described in the literature on professional learning communities or PLCs (Eaker, DuFour, & Burnette, 2002; Hargreaves & Fullan, 2012; Hattie, 2012; Kise, 2006; Robertson, 2005; Timperley & Parr, 2004; Stoll, 2011). A particular benefit of effective PLCs is the sense of shared problem solving as teachers attempt to identify strategies to engage learners and assist with learning (Hattie, 2009; Marzano, 2003; Lovett & Verstappen, 2003; Timperley, 2008). PLCs are characterised by the use of quantifiable evidence and shared experience to enquire into teaching and learning (Ross, 2013). However, some have described PLCs as creating "contrived collegiality," where leaders require teachers meet to assess, mine and moderate data, resulting in token responses (Hargreaves & Fullan, 2012, p. 118). An inherent problem in this form of collaboration is the lack of opportunity for teachers to participate in genuine, ongoing learning about teaching and learning in the context where they work (Elmore, 2004; Fullan, 2007; Sergiovanni, 1992). If the collaboration is contrived then teachers remain isolated as they manage student learning and well-being in their own class (DuFour, 2011; Feiman-Nemser, 2012; Hattie, 2015). A significant challenge to a collaborative culture, even in PLCs, is the attitude and responsiveness of teachers when they retreat to their own private classroom rather than work together in a collaborative environment (DuFour, 2011).

Research evidences collaboration as key to improving schools and schooling systems (Fullan, 2011; Hattie, 2009; Hord, 1998). Through collaboration and the provision of mutual learning opportunities and collaborative support structures, improvements are evident in teacher competencies, retention of beginning teachers, training of student teachers and student learning outcomes (Fullan, Cuttress, & Kilcher, 2009; Fullan, 2011; Hargreaves & Shirley, 2009; Sergiovanni, 2007). Relative to their own past performance, individuals will outperform themselves when working collaboratively, and collaborative schools outperform individualistic schools (Fullan, 2011; Marzano, Waters, & McNulty, 2005; Rosenholtz, 1991). Conversely, a limiting factor in schooling improvement is the lack of collaboration, eliminating teacher opportunity to learn reciprocally on a continuous basis within their own classrooms (Elmore, 2004; Levin & Fullan, 2009).

However, without a planned process to develop effective co-teaching collaboration in a FLS, many of these benefits may be lost. Critics of today's FLSs are quick to point to the demise of the open plan era of the 1970s-80s and ask what is different. There are similarities: the open plan era encapsulated the philosophy of student centred education through a constructivist approach (Cuban, 2004); it utilised variable spaces and provided for student agency through choices about learning pace, the use of rich learning resources and activities, and curriculum integration with a focus on small group and individual teaching rather than large group instruction (Cuban, 2004); collaborative learning was encouraged and teachers were urged to adopt a more facilitative approach (Cameron & Robinson, 1986; Cuban, 2004). The open plan era presented a paradigm shift from direct instruction, teacher-centred pedagogy, a curriculum of the "Three Rs" and absolute autonomy in a private space to a whole new pedagogy and philosophy for teachers. Relying on teachers to make the transition simply because they had the space overlooked the complexities of teaching and learning, and it is not surprising that without adequate support, many reverted to known practices (Department of Education, 1977). However, in contrast to the open plan era, today's approach is well supported by a complementary national curriculum, developments in neuroscience and research regarding effective teaching and learning (Department of Education, 1977; Cameron & Robinson, 1986; Ministry of Education, 2007). A key difference for today's educators is that student-centred learning is at the heart of the New Zealand Curriculum (NZC) with the vision for "Confident, connected, actively involved lifelong learners," underpinned by the NZC's principles, values and key competencies (Ministry of Education, 2007, p. 7). Of particular note is the emphasis today on supporting student agency and self-regulation. Self-regulated learners utilise metacognitive strategies; setting goals, developing plans, managing their time, monitoring their learning progress through self-evaluation, self-

reporting and ultimately taking control of their own learning (Baker, 2013; Bird, 2009; Education Endowment Foundation, 2015; Hattie, 2009).

Method

This mixed method study employed survey and interviews to investigate the experiences of teachers and school leaders who have been involved in co-teaching in a flexible learning space for two or more years. Surveys followed by interviews provide an opportunity for the researcher to further understand the experience of participants by revisiting questions and gaining additional information to enhance insight (Tolich & Davidson, 2003). Purposive sampling was employed to identify 13 schools where co-teaching was well-established, and where participants agreed to a supplied definition of co-teaching. Co-teaching is in its early stages in New Zealand so two Australian schools, with 4 and 10+ years' experience respectively, were included to provide further insights. Four additional schools were selected after they responded to a New Zealand wide email inviting further participation. The 17 participating schools represented high, mid and low decile schools; contributing and full primary, intermediate and area schools; urban and rural schools; and those with retro-fitted and purpose built facilities. All teacher participants were fully registered and working in or leading a physical environment with at least one other teacher. Twenty-eight teachers responded to the online survey investigating their views on team membership and relationships, professional learning, release time, systems (monitoring, reporting, assessing), timetabling, multi-level classes, resources, physical space, leadership (within team and school level), and effectiveness of co-teaching. Twelve principals completed the leaders' survey investigating the rationale for co-teaching, stakeholder involvement, processes, strategies, implementation, appraisal, professional learning, learner outcomes, staff appointments, evidence base for co-teaching, conditions for effective co-teaching, relationships, and advice for other schools.

Interviews were conducted with three teachers and six leaders to gain a deeper understanding of their experiences in relation to the emerging themes. The interviews included four principals from schools where teachers had completed the survey but the principals preferred to engage in person to provide rich responses rather than complete the survey. Interviews included New Zealand and Australian participants and were approximately 30-45 minutes long. The interviews were conducted on the school campus or at locations convenient for the participants. After preliminary analysis of the data, two participants were contacted again to clarify aspects of their responses and to gain additional information.

Data from the closed response and Likert style survey questions were presented in graphs and tables to assist analysis. Qualitative data from the open survey questions along with transcribed interview data, were analysed using the process advocated by Mutch (2013) of, "Browse, highlight, code, group and label, develop themes or categories, check for consistency and resonance, select examples, report findings." (p. 124). To synthesize the data a thematic approach was utilised for both the surveys and the interviews. The process of data collection and collation and subsequent analysis and theming allows themes to emerge from the data (Cohen, Manion, & Morrison, 2000). Comparative analysis of the surveys from teachers, surveys from principals, and interview data allowed the data to be cross checked for themes.

Eight elements, conceptualised as key components for co-teaching in FLSs, were identified: student-centred pedagogy; shared beliefs and understanding; collaboration skill development; support for transition; smart systems to support teaching and learning; specific co-teaching strategies; school-wide structures and processes; and developing understanding of how to use flexible space effectively.

Findings

All eight elements represent important components of effective co-teaching in flexible learning spaces, and key findings are presented under three main categories: building strong foundations through shared understanding; systems and structures to support co-teaching; and supporting staff to transition to co-teaching.

Building strong foundations through shared understanding

Principals and teachers in this study spoke of the importance of having shared values, beliefs and understandings to create a positive and effective co-teaching environment. Answering “why” schools should adopt co-teaching in FLSs is a fundamental step, and should be answered before focusing on “how”. The rationale about the impact on student learning and well-being was expressed this way:

We have defined transformational environment, use of digital tools and collaboration as important emerging affordances. Collaboration is a core value of the school philosophy. We believe it is best for teachers' professional learning and development and best for children's learning. It gives flexibility in the learning styles for children.

Participants warned against “just putting holes in walls”, or moving into new spaces and then expecting teachers to share beliefs about how collaboration and co-teaching would impact on learners: “Not having a shared vision and transparent strategic goals and trying to simply transplant single cell teaching into a shared space is a real risk”.

Respondents emphasised that schools needed to be clear about why they would build or reconstruct spaces for teachers and students to work together, and what they expected to achieve by doing so. Building design does not achieve pedagogical change or outcomes for students, and beliefs must be translated into explicit goals or mutually agreed team expectations (MATES) to influence practice. Participants encouraged others to take time to discuss how co-teaching in an FLS can enable the school vision, and to identify what effective teaching and learning would look like in this model. Examples of specific expectations associated with the benefits of collaboration included shared planning and moderation of assessment, co-creation of success criteria, personalised learning plans and portfolios, and use of specific co-teaching strategies.

Student-centred learning is central to the New Zealand Curriculum and critical in all settings. As schools introduce large class groupings with multiple teachers in FLSs, leaders must ensure that the practicalities of implementation enable rather than constrain student-centred ideals. All of the schools in this study recognised student-centred learning as a key factor driving successful co-teaching arrangements, for example: “Students are truly at the forefront. Everyone is focussed on what makes a difference for the students not what is easier for teachers.”

Participants were strong in their views that co-teaching strengthened opportunities for students to make choices about their learning and noted how this occurred, for example:

Kids opt into workshops, staff assess together, it is more about developing learners that are leading their own learning rather than reliant on teacher instruction.

It is based around the principle of having students take ownership of their learning. We run a very open teaching and learning style where the students have a lot of choice and we as teachers get alongside them and help them by starting where they are.

These approaches are not unique to FLS, but co-teaching offers greater flexibility and spontaneity in how teachers respond to dynamic student learning needs, and how students connect with teachers. Teachers noted their ability to respond “just in time” to learning needs, and the ability to utilise teaching strengths:

This enables us to give the kids access to a wide range of teachers who possess different skills and different specialties. In this way they can access a broad range of styles and some really awesome cross curricular teaching.

Students work better/differently with different people/teachers. Students have the opportunity to learn from a range of teachers offering a range of teaching and learning styles. It is based around the principle of having students take ownership of their learning.

For this dynamic learning environment to work, teachers must share an understanding that the children are “Ours” not “Mine.” Participants stressed the importance of collective responsibility for every aspect of each child’s learning, self-regulation and hauora. This shift in thinking from direct responsibility for a class to shared responsibility for a much larger group necessitated different ways of operating and a greater reliance on systems and processes to facilitate teaching and learning.

Systems and structures to support co-teaching

The practicalities of implementing co-teaching require organisational changes including how children are grouped; how school systems support the day-to-day activities of large groups and multiple teachers, for example through timetabling; the use of technology; and the adaptation of other support systems within the school.

Schools used different types of groupings including, “home room,” “whānau group” or “guardian group”. Participants’ responses indicated there was a variation in the importance placed on these groups, with one school moving away from the system of home groups as teachers, children and whānau became more comfortable with collective responsibility for learning:

When I first started teaching in a collaborative pod, we really felt the need for home groups. We called these guardian groups. It was actually more for the benefit of the parents as this was all so new to them and we didn’t want them to feel as though we wouldn’t know their children. As the community has come to trust us and the collaborative model more, we haven’t needed this and now do not have this at all.

It was apparent some teachers struggled with the difference between a “home group” and a classroom, creating some tension between the need for a closer relationship with a smaller group of children and the risk of reverting to traditional practice of “my class”: “We have deliberately steered away from this (home rooms) so that ‘ownership’ of children is shared”.

Re-grouping children according to need, interest or passion requires schools to have systems in place to communicate learning expectations and goals and to monitor progress and achievement. Effective systems, routines and processes were required for day to day functioning of the room to minimise stress to students and staff and maximise teaching and learning times:

Systems are very important for the children, otherwise it could be very overwhelming for them. Systems that are discussed, agreed upon and carried out are vital to the collaborative space. For example, where to put the books, what children need to be seen (where and when), negotiation of literacy/maths activities, storage of resources. When everyone knows what is happening, things work really well and precious time is not wasted.

Teachers agreed effective systems support student well-being and self-regulation, and they recognised that students also needed to understand these and the implications for their learning: “The students need to know what the expectations are for independent learning and what we want it to look like”.

Teachers in this study recommended significant time be allocated to establishing and maintaining effective systems to facilitate teaching and learning in these complex environments; furthermore, they suggested once systems are agreed on, they must adhere to by all. As this teacher noted, although these flexible learning environments appear more fluid they are often more planned and organised than a traditional classroom and this “soft system” is what ensures effectiveness and accountability:

Experience has shown us so far that systems are crucial. These environments are twice as structured as they were when teachers were teaching in isolation. If the systems are not effective

then co-teaching cannot happen. Although it seems on the surface that it is seamless, there was a lot of organising, discussing and prioritising that goes on beforehand.

It was evident that digital tools were essential to the smooth functioning of collaborative classrooms: 74% of participants used online planning strategies; 96% of participants shared planning, assessment and anecdotal information with colleagues; and 68% of teachers wrote reports collaboratively, with teachers sharing responsibility depending on their relationship to the child and the report format.

Most importantly, for multiple teachers to maintain effective student-centred learning they need immediate access to current information on all children in the FLS. This enables them to communicate effectively with one another, leadership, and whānau; supports student agency and self-regulation with planning often being shared with children and families; ensures rigorous accountability for students learning in different ways in the FLS; and helps teachers to support and challenge learners to achieve the best outcome.

The findings also indicated: each school had been developing their own systems over time, predominately through a trial and error approach; teachers need to understand the systems and have the necessary skills and attitudes to implement them; and teachers agreed considerable time must be set aside to discuss every detail of the day-to-day functioning of the flexible learning space and the creation of enabling systems to support teaching and learning.

Supporting staff to transition to co-teaching

Just over half (52%) of teachers surveyed engaged in professional learning and development (PLD) related to the transition to co-teaching, and only 56% of these considered they received adequate PLD. Most indicated they learnt many of the required skills on the job, and would have benefitted from ongoing PLD. One thoughtful response noted:

It has been helpful that we have had various bursts of PLD as we have progressed into co-teaching. There is the beginning stage where you don't know what you don't know; then you need another burst as you begin to try things out, to sort out misconceptions or develop shared understandings; then we benefitted from the experts as we grew our understanding and began to focus less on the how, and more on the why.

Participants were unanimous in their recommendation for quality PLD including: pedagogy for co-teaching; how to use flexible space effectively; communication skills (especially difficult conversation skills); collaboration skills including problem solving and negotiation skills; interpersonal skills; rationale for co-teaching; stages of transitioning into FLS; understanding fixed and growth mindsets; systems to support FLS; and skills to utilise technology.

Overall 42% of teachers used recognised co-teaching strategies on a day-to-day basis, and some were very clear about the strategies employed:

We use a variety of . . . strategies. . . . It depends on the programme being implemented and the number of children in our class at the time. We would mainly use station teaching for literacy, parallel teaching for numeracy and team teaching for inquiry. We use one teach, one assist in the morning routine or pack up. And when we [orientated] the new teacher we had one teach, one observe.

Other responses were mixed: some teachers designed their own strategies as needed; some could not identify any strategies unique to teaching in a FLS other than running “workshops”; while others noted that they utilised a wide range of co-teaching strategies but were unable to identify what these were, how they were implemented and when. Leaders identified co-teaching implementation was inconsistent in 67% of cases.

Further investigation with teachers and leaders indicated the majority of participants were not explicitly utilising specific strategies they could identify with co-teaching other than “workshops” and “needs based guided teaching”, both of these could be described as either station or alternate teaching. Of the five to six commonly known co-teaching strategies the most often utilised by teachers are, “one (or more) teach: one assist,” and “alternate/station teaching.” Some teachers commented that while they started with explicit strategies, over time these evolve:

We acknowledge that all of these [co-teaching strategies] have a place in co-teaching. We try to explicitly state what co-teaching strategies we are using in our planning, but often it evolves organically - especially as relationships develop.

In addition to the commonly known co-teaching strategies other strategies have evolved to suit the space and the focus of the team. One school identified the “Daily 5” as a strategy utilised to manage literacy. Another school described the type of teaching and learning occurring in the different spaces:

In my team we set up ... four classrooms. Room 1 - teacher room where small group lessons are taught, Room 2 - Tuakana Teina Room working in pairs, Room 3 - share space and group room, Room 4 - quiet room, individual work.

In this case while no specifics were provided regarding the strategy employed it is evident the teachers were utilising station teaching where students were receiving small group instruction and teaching depending on need.

Communication intensifies with collaborative co-teaching in an FLS where decision making may involve two to five teachers. Teachers who have worked autonomously before may struggle to communicate and collaborate effectively in a FLS, with the potential for conflict, stress and attempts to withdraw. Teachers in this study repeatedly acknowledged the importance of skills to engage in ongoing professional conversations about the ways each co-teacher contributes (or not) in the space, their interactions with children, parents and other staff and the co-teaching strategies used.

Teachers identified the need to focus conversations on factors that most positively impact on improving learning outcomes rather than simply meeting to consider administrative and organisational matters. Leaders should heed participants’ suggestions that ongoing investment in PLD to support communication and collaboration enhances the culture of the learning environment and has the greatest potential to assist teachers to improve learning outcomes. Such support must go beyond the routines, structures and systems required for multiple teachers working together to ongoing learning talk regarding specific learning needs and strategies to improve outcomes, self-regulation and hauora.

Discussion

For co-teaching to be effective in today’s FLSs then principals and school leaders must understand and address the challenges associated with teachers working collaboratively in de-privatised spaces with collective responsibility for large groups of children. A fundamental step in effecting this change is the development of a shared understanding of the rationale for co-teaching. While it was evident that the principals in this study could clearly articulate a school-wide belief in the importance and place of collaboration and the links to student centred learning, participants in this study suggest leaders will need to continually provide opportunity for beliefs to be challenged while providing support to assist teachers to refine beliefs over time through practical experience, facilitated discussions, ongoing research and quality PD.

Sinek (2009) advocates that developing an understanding of why a certain approach will be undertaken is central to success, particularly when new innovations are being implemented. Similarly, Robinson, Hohepa and Lloyd (2009) argue that to achieve changes in beliefs and practice, leaders need to clearly articulate the rationale for the new paradigm, then set and communicate unambiguous expectations in order to gain

teachers' commitment. Furthermore, goals must be realistic, meaningful and related to student achievement with well-defined criteria, and they must be suitably resourced, for teachers to reframe beliefs and improve their practice and collaborative expertise to better meet student needs (Hattie, 2015; Robinson, Hohepa, & Lloyd, 2009, Timperley, 2008).

While all respondents were adamant about the importance of co-teaching and their belief in it, less than half could define specific co-teaching strategies, skills required to co-teach, PLD to support co-teaching, or provide evidence that co-teaching was improving outcomes for learners. This study found that most teachers lacked an informed understanding of specific strategies to support co-teaching, and instead they relied on an experiential, "trial and error" approach. This not only has implications for the teachers in these spaces, but also for the many teachers and leaders who visit these schools on their own journey toward working in a flexible learning space. Practising Teacher Criteria (PTC) 6-9 and 11-12, detail expectations that teachers will understand and reflect on teaching strategies used, analysing the effectiveness of the strategies, critically reflecting on evidence and refining practice as required (Education Council of Aotearoa New Zealand, 2015). To make this critical reflection possible, teachers will need to plan specific co-teaching strategies and reflect explicitly on the effectiveness of such strategies. This is especially important given that co-teaching strategies in the literature have their origins in the inclusive schooling movement and generally relate to supporting special needs learners. These co-teaching strategies may have value in a flexible learning space; however explicit planning and reflection is required to determine merit. Given the co-teaching strategies evident in the majority of the participant schools have origins in the inclusive schooling movement there is opportunity for educators to refine these to suit the unique New Zealand context.

Teachers require time to communicate with co-teachers on a regular basis and shared teacher workspaces can facilitate regular in-depth learning focused conversations (Cameron & Robinson, 1986; Timperley, 2008). Where teachers are taking collective responsibility for a large group of students, ongoing conversations ensure all stakeholders are aware of learning needs and are able to collectively participate in problem solving to meet student needs (Fullan, 2011). Additionally, as co-teaching relationships progress beyond two teachers, the importance of a shared place for conversations increases. While enabling space is important for teachers, it is even more important for teaching and learning. A number of participants explained how poorly designed space limited the effectiveness of collaborative teaching and learning and children's ability to self-regulate. In addition to teacher workrooms, effective flexible learning spaces included multiple breakout learning areas, quality acoustic treatment, natural light and natural flow to the outdoors and sufficient "openness" to allow reconfiguration of the area to respond to a wide range of teaching and learning needs (Nair, 2014). Teachers who attempt to co-teach in traditional spaces linked by shared foyers and corridors found the space restrictive and negatively impacting on co-teaching. The provision of flexible learning spaces enables enhanced teacher collaboration, facilitates co-teaching and provides improved opportunity for student self-regulation supporting multiple modes of learning.

The provision of resourcing for suitable systems to support teaching and learning is essential to create high performing schools (Robinson, Hohepa, & Lloyd, 2009). Systems include digital systems and day-to-day systems for the functioning of the space. As students are encouraged to be more self-managing and regulating and are learning in environments with co-teachers, smart systems are essential. Teachers in the study clearly articulated that co-teaching environments in a flexible learning space are more structured than their experience of traditional spaces. These more structured approaches are necessary to support self-regulation and to assist teachers to monitor progress and personalise learning.

Teachers sought digital systems to share planning, ongoing assessment and reporting. These digital systems also support organisation of workshops or needs based teaching groups and monitoring of progress. A number of participant schools have refined their digital systems to support teaching and learning in five

week blocks, with very specific and detailed monitoring of student progress (or otherwise) during this timeframe. The majority of schools are utilising Google tools to share planning, assessment and teaching strategies. Additionally, a number of schools are utilising systems such as Google Classroom, Hapara and other IT applications to support and manage students' learning and digital portfolios. While these tools are helpful, teachers and leaders appear to be spending significant periods of time creating personalised systems, in each team, in each school, across New Zealand. At present, smart systems are not evident as these require investment of many hours of planning and creation time in each school, and teachers do not seem to be utilising features that enable seamless transition of information from one year to the next to support personalised learning over time.

The day-to-day functioning of an effective flexible learning space requires explicit and well considered systems as teachers make a paradigm shift to co-teaching and collective responsibility and accountability for student progress and achievement. This study suggested that schools still have some way to go in realising the potential in systems and tools to support co-teaching, planning, assessment and reporting. This will require leadership and resourcing to access and exploit systems, including open source collaborative tools, to support effective pedagogy in a flexible learning space.

Conclusions

There is significant risk for students, staff and whānau when buildings or technology drive change processes. This was evidenced in the open plan era and can be seen where technologies or programmes are promoted as a "fix all", rather than building from a learner-centred foundation. As Hattie (2015) suggests, we enter into the politics of distraction when the focus shifts from factors that do make a difference to those which have less potential impact such as buildings and technology. There is also a risk for co-teaching to become the rationale for change as opposed to co-teaching being identified as a strategy to support a student centred environment grounded in effective pedagogy. School leaders and Boards of Trustees have a responsibility to place learners at the centre of decision making and base any change on their needs.

In order to meet students' learning needs, teachers must be well equipped and supported for the transition to co-teaching in FLSs. Leaders must begin by addressing the rationale for the transition, and challenging teachers' beliefs about the value of collaborative teaching and learning for students and staff. The value of professional learning and development cannot be underestimated: teachers need the knowledge and skills to meet diverse student needs through collaborative approaches; they require enhanced collaboration, communication and interpersonal skills to work effectively with peers; and they need to develop capability in using systems and technologies to facilitate collaborative practices.

There are significant benefits for students and staff when teachers work collectively and collaboratively within flexible learning environments to share their skills, strengths and expertise to improve learning outcomes for all.

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