

Modern Learning Environments (MLE) and the Relationship Between Design and Teaching Practice in New Zealand Schools.

PRINCIPAL SABBATICAL REPORT

Warwick Moyle, Kaharoa School, Rotorua, September – November 2013

ACKNOWLEDGEMENTS

I would like to thank and acknowledge:

- The Kaharoa School Board of Trustees for approving my sabbatical.
- Kaharoa School staff; in particular my Deputy Principal who led so capably in my absence.
- The Ministry of Education for providing this opportunity, not only to investigate my sabbatical focus, but also to gain many valuable and useful insights from a variety of New Zealand schools. I greatly valued the time and space to reflect while away from the day to day responsibilities of leading a school.
- Property Consultant Derek Devoy, who used his networks to provide a list of schools for me to visit.
- The following Principals and/or School Leaders who were all open to a visit.

Debbie Simon	Whiteora School
Anne Marie Biggs	Glendowie Primary
Melinda Bennett	Ahuroa School
Stephen Lethbridge	Taupaki School
Lisa Squire	Hobsonville Point School
Janine Irvine	Cornwell Park
Jill Dyet	Marina View School
David McMillian	Saint Mary's School
Cathryn Naera	Ngongotaha School
Jaco Broodryk	Whakarongo School
Sue Walters	Masterton Primary
Alastair Kay	South End School
Kyran Smith	Kahurangi School
Mike McGimpsy	Kilbirnie School
Lesley Murrhiy	Amesbury School
Anne Lye	Churton Park School
Mike Smellie	Adventure School
Mark Smith	Papakowhai School
James Petronelli	Clearview School
Mike Anderson	Waimairi School
Debbie Dickson	Remarkables Primary School
Wendy Bamford	Wanaka Primary
Ben Sincock	Carisbrook School
Richard Newton	St Clair School

All were most obliging, freely answering questions, sharing their stories, experiences and learning environments, and later completing a survey. If the leadership in these schools is

representative of New Zealand primary schools, then I am left feeling confident that educational leadership is in good hands.

EXECUTIVE SUMMARY

This investigation was prompted by a desire to ensure that capital funds allocated to Kaharoa School are spent effectively to meet the pedagogical needs of the school, while also working within the four Ministry of Education 10 Year Property Plan work priorities. These priorities are:

- Priority 1 – Health and Safety
- Priority 2 – Essential infrastructure
- Priority 3 – Modern Learning Environments
- Priority 4 – Discretionary projects

This led to my research focus question: Is the Modern Learning Environment building design driving changes in teaching practice, or is teaching practice creating a need for changes to design, function and aesthetics?

The research for this study was undertaken by visiting twenty-four newly built or remodelled primary schools throughout New Zealand, and analysing thirty-two survey responses from seventeen of these schools visited.

The results, discussion and reading indicate the importance of wide and inclusive consultation to create a school-wide vision. Early in this planning process a strong focus on pedagogical practice and how it relates to space function, design and aesthetics is essential in order to maximise the benefits of change in teacher practice. This approach allows all staff to feel part of agreed protocols and active participants in the vision. Consultation is essential for effective transition and use of flexible learning spaces (Victoria School Design 2008)

Early and carefully planned inclusion of staff to identify and understand the purpose of the changes helps to accelerate the positive pedagogical impacts. Early involvement should lead to teachers more readily adapting co-operative and collaborative practices, setting action learning goals related to flexible learning environments, reflecting on practice within these flexible spaces and being open to new learning and change.

PURPOSE

To look at Modern Learning Environments (single cell/open plan) in remodelled and new primary and intermediate schools to explore:

- how much the design supports the schools' overall vision, teaching philosophy and learning.
- how these spaces are commonly and effectively used by teachers and students.
- how these spaces are meeting 21st Century learning needs (particularly ICT) during school and outside school hours.
- cost effective remodelled designs which have been used to make best use of the available space and money.

RATIONALE AND BACKGROUND INFORMATION

On the Ministry of Education website it is stated:

The Government is committed to improving student achievement, and the Ministry of Education is supporting this commitment by building a world-leading education system that equips all New Zealanders with the knowledge, skills, and values to be successful citizens in the 21st-century.

School property supports educational achievement by providing the appropriate physical infrastructure, ICT and environments that support the learning needs of all students. It is assumed that school buildings will continue to be the preferred infrastructure from which education services are delivered.

The Government requires assurance that school property management is currently structured to effectively and efficiently deliver the significant investment in 21st-century schools; including continuing the roll-out of broadband in schools and the use of Modern Learning Environments to support improved pedagogical approaches. (Ministry of Education)

The environment at Kaharoa School is typical of many rural country schools. The site has expansive open grounds overlooking farmland and eight single cell classrooms that are standard rectangular prefabrications. These rooms connected by open decks are in two blocks of four with each block having a resource room. Only two rooms have an internal connection.

All facilities have been maintained to a good standard through a combination of 5YP (\$81,088 2003-2007 and \$77,889 2008 to 2012), locally raised funds, community working-bees and a well-managed maintenance programme. All rooms, though well maintained, need to varying degrees improvement in the quality of learning environment. The dearth of 5YP funding was rectified with notification of a significant increase in the 5YP capital grant (\$702,957) due to historical under funding over the last thirty years.

The same ten year period has seen rapid advances in technology and the revision of the New Zealand Curriculum. The emphasis on 21st Century learners who are confident, connected, actively involved, lifelong learners has seen significant shifts in teacher practice and children's learning depending on learning settings and contexts. These shifts, supported by targeted professional development have been limited, to some extent, by the traditional classroom environment and lack of flexible spaces.

Being awarded a sabbatical provided the ideal opportunity to look at Modern Learning Environments in new and remodelled schools. My thinking needed to shift from maintaining property to remodelling spaces to support and build upon classroom practice and student learning.

Kaharoa School's 2013 Education Review Office (ERO) report, just prior to my sabbatical, also shaped my thinking for the need to provide flexible learning spaces. ERO supported our identified next step which was to encourage students to more effectively manage their learning. Creating supportive and productive learning environments that promoted independence and self-motivation would assist teachers in helping children to develop meaningful goals and individual learning pathways. Linking children's learning and supporting their differences and motivations in an effective learning environment requires different pedagogical approaches and spaces.

Managing a variety of pedagogical approaches in the traditional rectangular 'egg crate' design (Michael Deaker) is a challenge. I realised I needed more information on how to improve the physical environment to cater for students' needs, backgrounds, perspectives and interests. If we got building design right we could enhance how we challenged and supported students to develop

deep levels of thinking and application while supporting teachers' ability to facilitate, assess and assist children's progress. (Fisher 2005)

I also wanted to inquire into the possible tensions between teachers' changing practice and perceptions regarding the learning environment, as some teachers voiced concern that Modern Learning Environments were a repeat of the open plan classroom experiment of the '70s. In his writing this viewpoint is quickly rebuked by Prakash Nair. He links design closely to instructional needs providing opportunities for traditional teaching to seamlessly connect with many other modes of learning. Nair put it simply by stating '*it is form following function, not function (unsuccessfully) following form*' (Nair 2011)

From school visits and a survey I was looking to establish how much the design supported the schools' overall vision and teaching and learning philosophy.

Was practice driving physical environment or were changes to physical environment driving practice and had changes made an impact on learning?

How are these spaces meeting 21st Century teaching and learning needs (particularly ICT) during school and outside school hours?

What effective designs have been used to make best use of the available space and money?

How are these spaces commonly and effectively used by teachers and students?

Meeting the learning needs of our children and community, equipping teachers with the best possible flexible teaching environment to cater for the 18 modalities of learning and ensuring our next instalment of five year property planning funding is spent wisely and responsibly prompted this investigation.

ACTIVITIES UNDERTAKEN (Methodology)

Prior to my sabbatical my leadership team and I spent three days visiting seven schools in Hamilton and Auckland. This was an ideal time to discuss design features as well as learning and teaching at our school. During my sabbatical I visited a further seventeen schools ranging in decile and size and funding models. Some were newly built but the majority were remodelled schools through merger or roll growth. These locations included Rotorua, Palmerston North, Wairapa, Wellington, Christchurch, Dunedin and Central Otago.

Information was gleaned from Principals or those deputizing.

Subsequent to my visit, where possible, staff personal completed a questionnaire. From the 24 schools visited, 32 responses were received from 17 schools. Of the 32 responses 14 were from Principals, nine from AP/DPs, four from team leaders (one of who was also a BOT member), four from teachers and one from a Board of Trustee member.

Some reading was also undertaken to support or follow up what I had seen or heard.

FINDINGS

How much does the design support the schools' overall vision and teaching and learning philosophy?

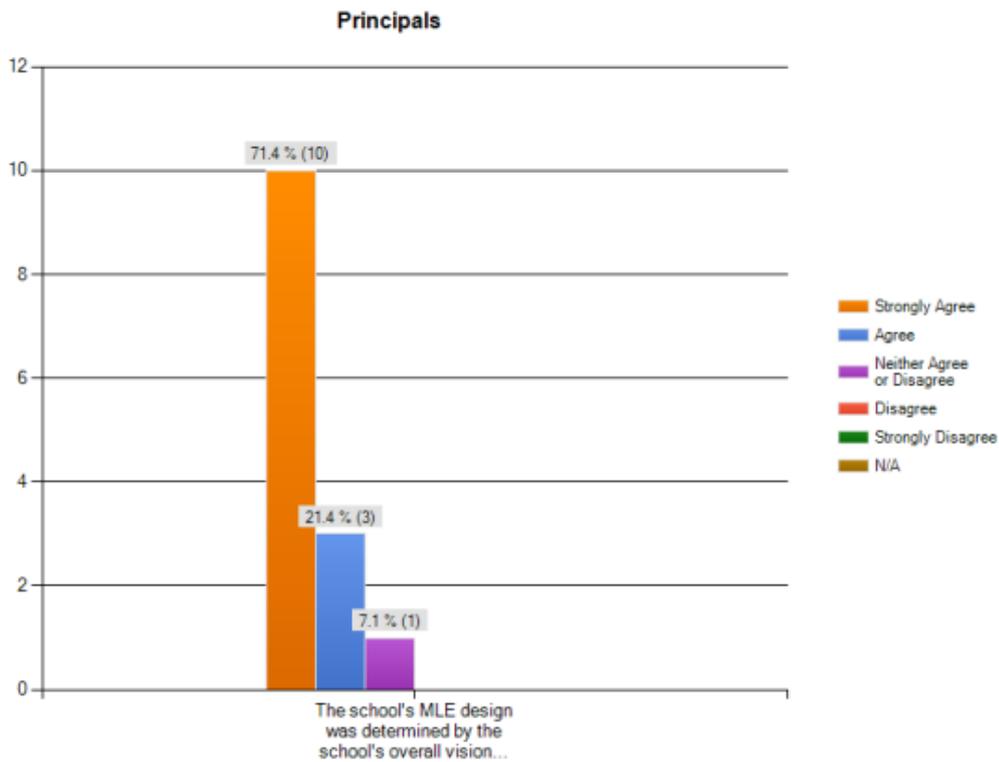


Figure 1: The degree to which Principals agree with the statement that the school's MLE design was determined by the school's overall vision.

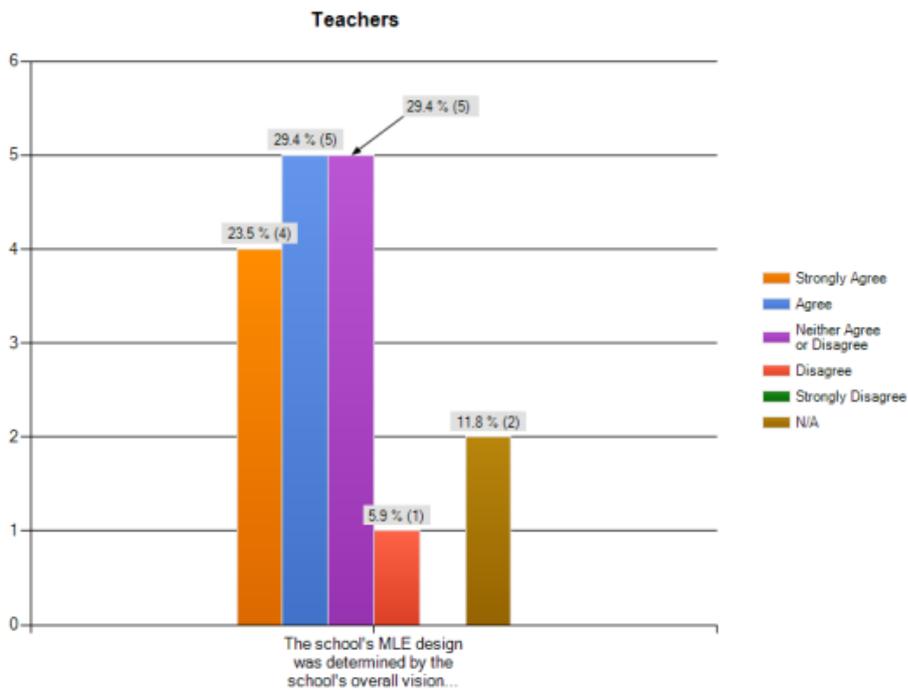


Figure 2: The degree to which teachers agree with the statement that the school's MLE design was determined by the school's overall vision.

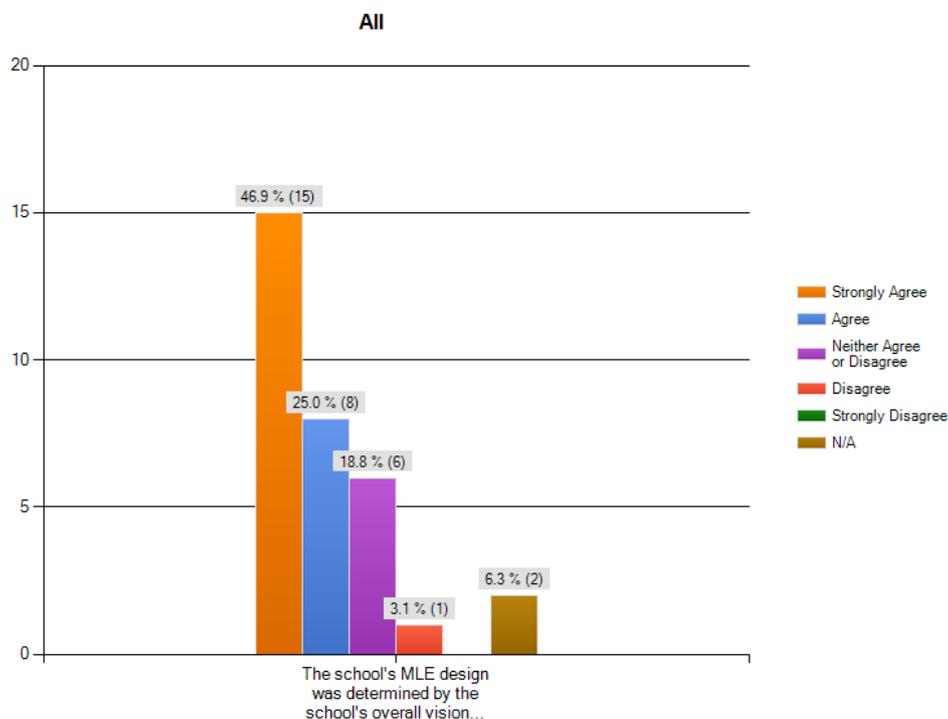


Figure 3 The degree to which all respondents agree with the statement that the school's MLE design was determined by the school's overall vision.

It is clear from responses and discussion, particularly from Principals (Figure 1), that having a clear vision and teaching and learning philosophy was seen as important in designing flexible learning environments. This question was reasonably supported by teachers (Figure 2) however three of the seventeen respondents disagreed or felt it wasn't relevant and a further five teachers were ambivalent.

In Richard Newton's sabbatical report (Newton 2011) his findings highlighted two approaches 'A Strategic and Structured Approach, Linking Pedagogy and Property' or 'An Evolutionary Approach.' This was still relevant with schools either adopting a strategic and structured approach prior to construction or a 'softly, softly' approach recognising the need for some staff to lead the change process as change agents or for some staff to evolve into the new settings developing goals and actions to support teaching and learning in the new environments.

Some of the responses from six different schools are summarised below

- One school had an intense school professional development focus for 6 months which included: a lot of pre-construction teacher talk, sending teachers to visit other schools with MLE, promoting the use of an ideas book and open dialogue, Google Doc collaboration and personality surveys.
- Another school used "The Language of School Design - Design Patterns for 21st Century Schools" by Prakash Nair and Randall Fielding to facilitate discussion and design considerations.
- One school leader outlined the importance of consulting with students.
- One Principal mentioned the key was the pedagogy and philosophy behind the space when developing a humanist approach to building independent learners.
- Another outlined the importance of building the concept design of a quality MLE from inside out, looking at what the effective teaching and learning process of each curriculum lesson looked like. For example, what do the elements of a highly effective guided reading lesson look like, where are the children sitting, where is the teacher working, how are other children engaged in work at this time? Then you can work out what design best meets the

pedagogical needs of a class. With teachers having designed spaces and furniture for specific learning needs, children then use these spaces for those specific activities rather than design being driven by furniture companies or architects. This school also took all staff including secretary and caretaker to Melbourne, to engage them in the understanding and development of a shared vision.

- A further Principal worked closely with Prakash Nair to create flexible learning spaces based on the cave, camp fire and watering hole approach for children and adult learning which provides spaces for all learning needs. She also tracked corporate leaders for six weeks so that she had a clear appreciation of what preparing children for the future actually looked like.

Does the design complement current teaching practice or are the MLE developments a conduit for change?

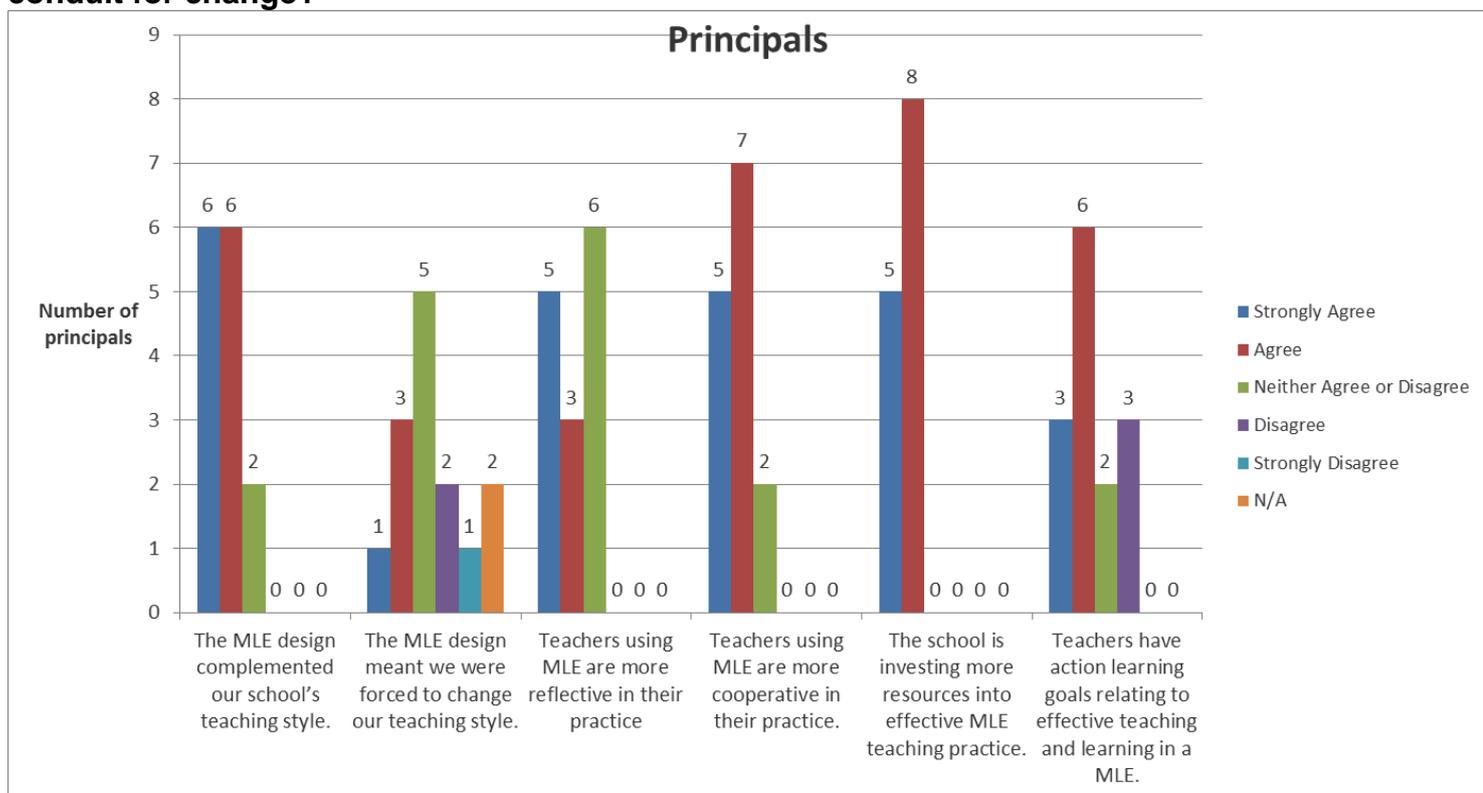


Figure 4: Principals' response to the impacts of MLE.

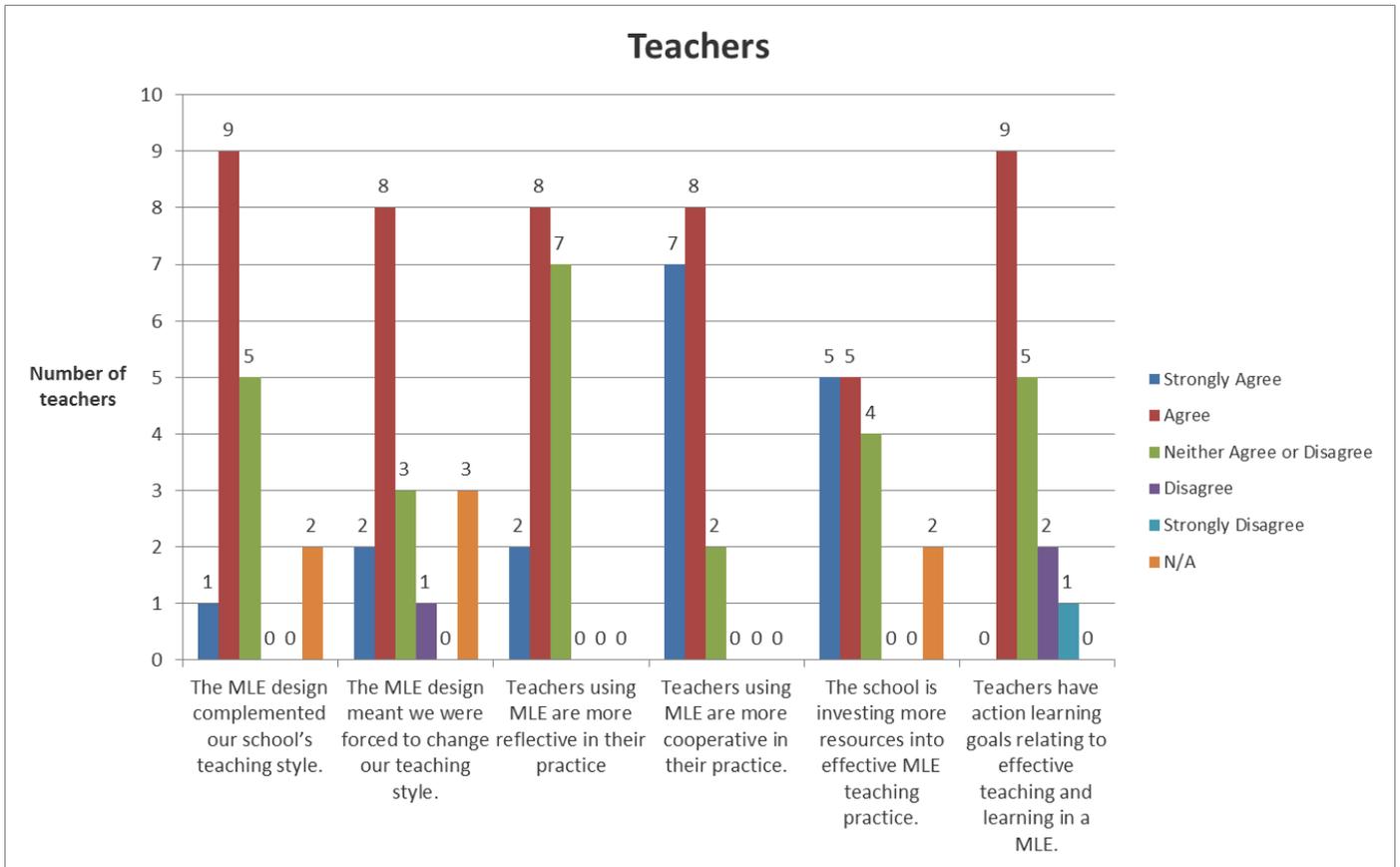


Figure 5: Teachers' response to the impacts of MLE.

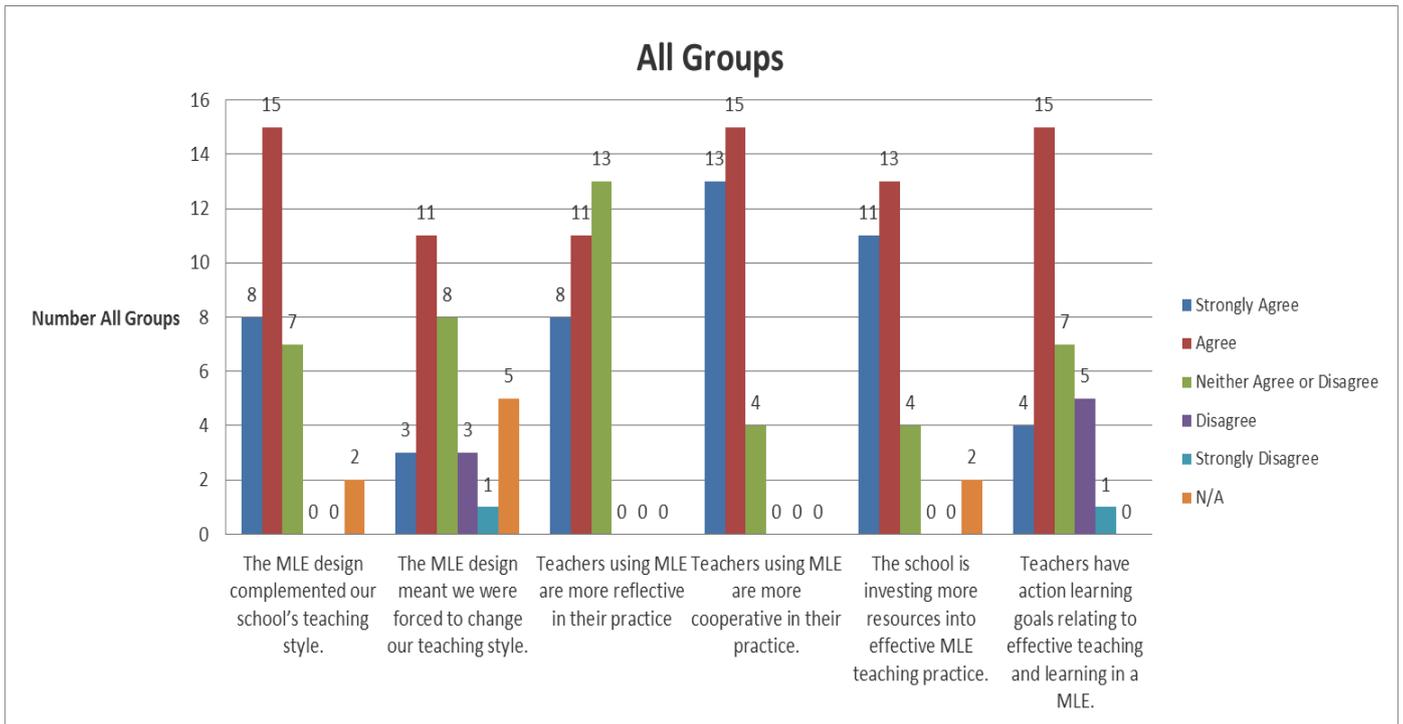


Figure 6: All groups' response to the impacts of MLE.

Survey responses indicated that teachers (Figure 5) felt the MLE complemented their school's teaching style however a large number (14/31, with ten of these being teachers) felt they were forced to make changes, whereas Principal responses (Figure 4) tend to indicate less need for change.

Responses to the question regarding teachers being more reflective in practice indicate some shifts but also support the conjecture that respondents feel teachers have generally been reflective practitioners anyway.

The survey responses support the notion that teaching in a MLE promotes co-operative teaching while also indicating school’s investment into professional development and setting action learning goals related to MLE is happening and is viewed as important.

When discussing change a number of Principals mentioned the importance of professional development based on sound teaching and learning theory. They stressed the need for clearly understood norms, protocols and the ‘nitty gritty’ around using the flexible and shared spaces. For example, tolerance of noise, management techniques, whether or not to display work on glass walls.

Have the changes made an impact on learning?

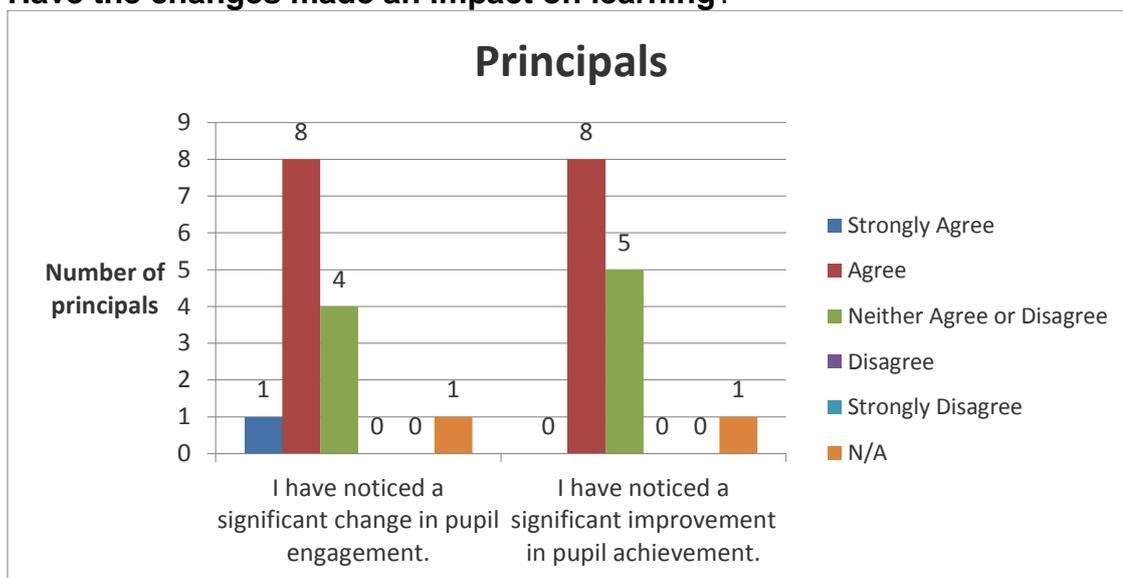


Figure 7: Understanding of change impacts by Principals.

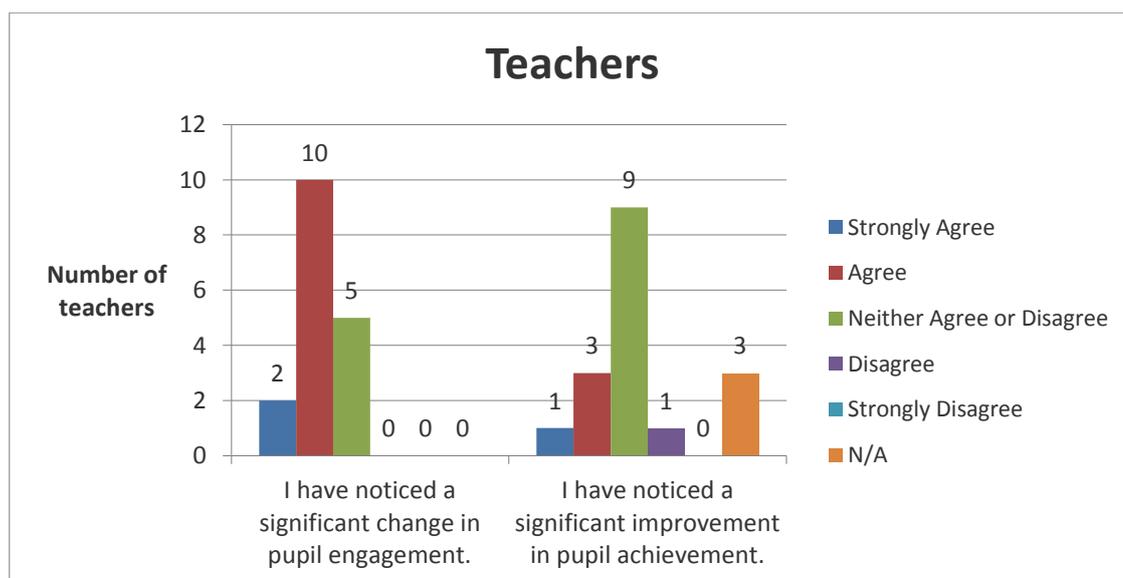


Figure 8: Understanding of change impacts by teachers.

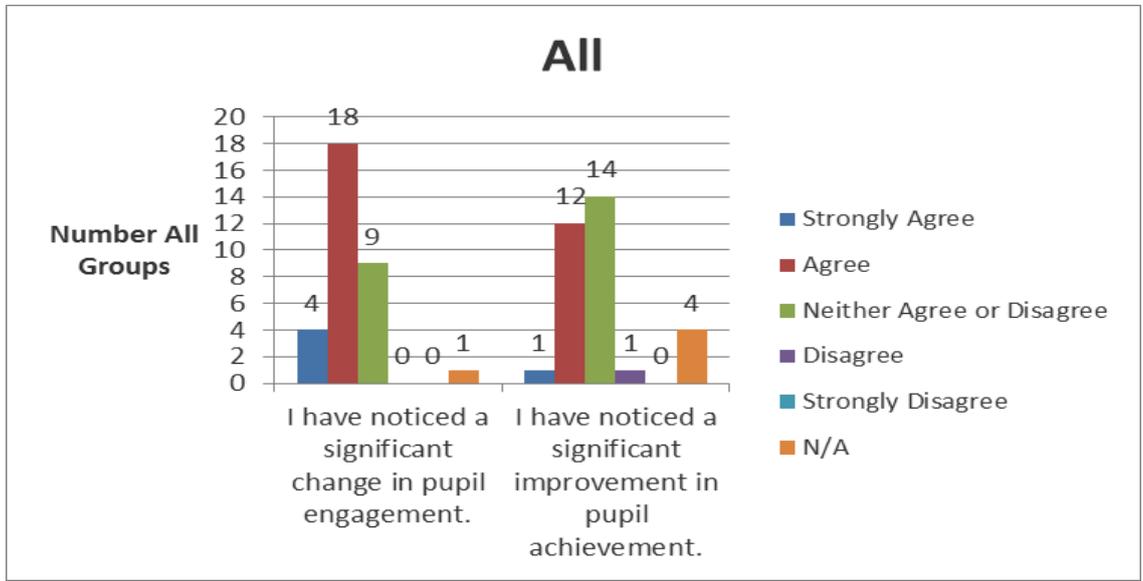
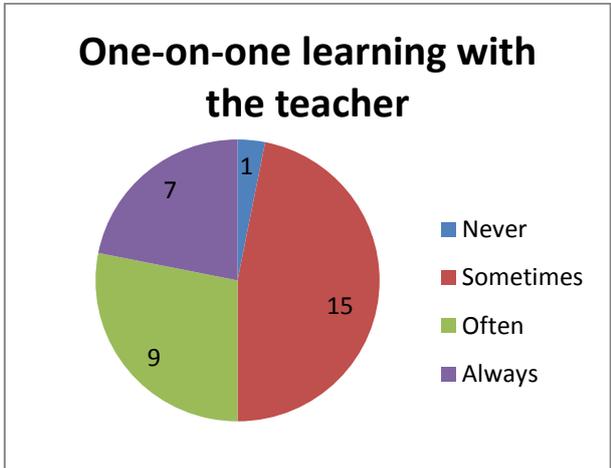
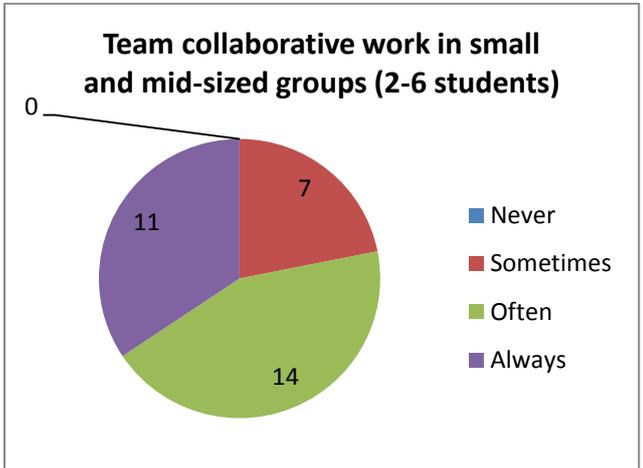
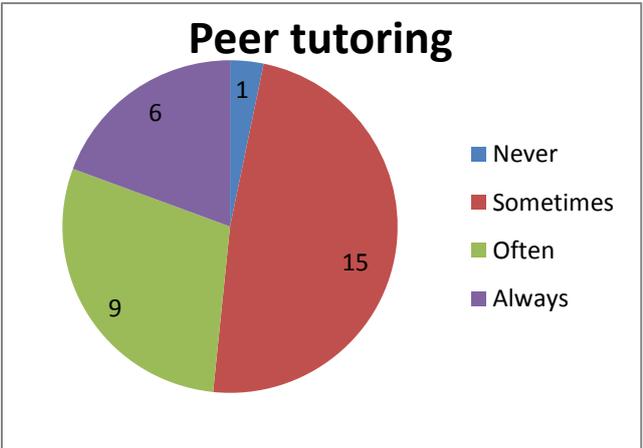
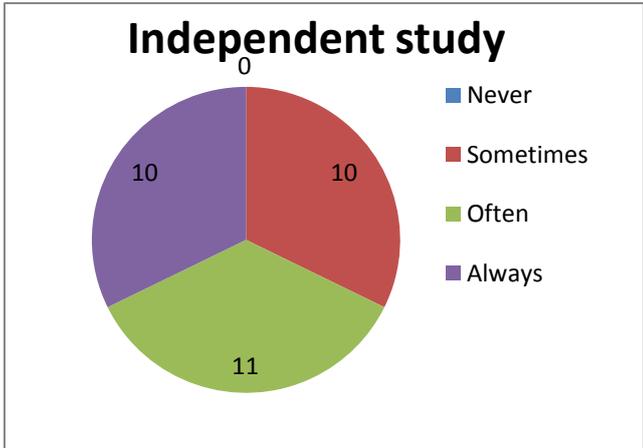


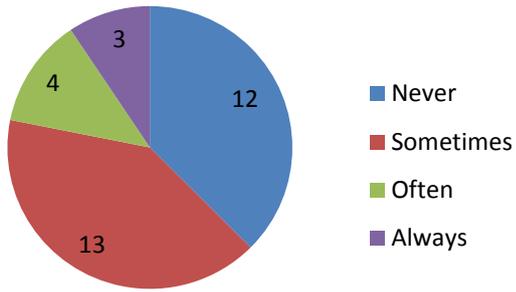
Figure 9: Understanding of change impacts by all respondents.

69% of respondents (Figure 9) noticed a change in pupil engagement with a further 28% neither agreeing nor disagreeing. Only 41% had noticed a significant improvement in pupil achievement. One could perhaps speculate that over time, if children are significantly engaged, achievement levels would also follow this trend.

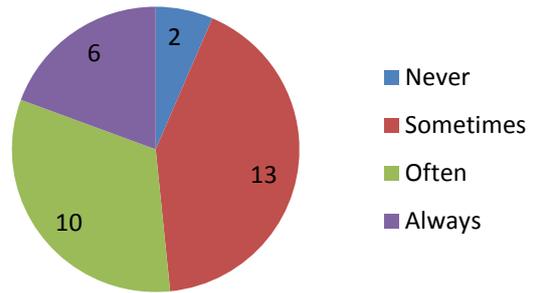
How are these spaces meeting 21st century teaching and learning needs (particularly ICT) during school and outside school hours?



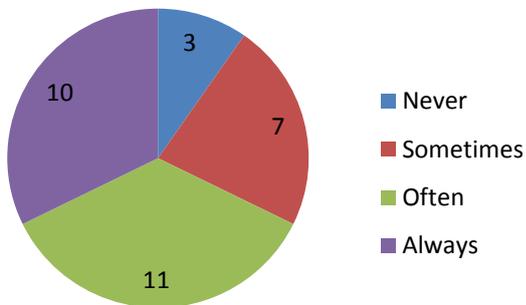
Lecture format with the teacher at centre stage



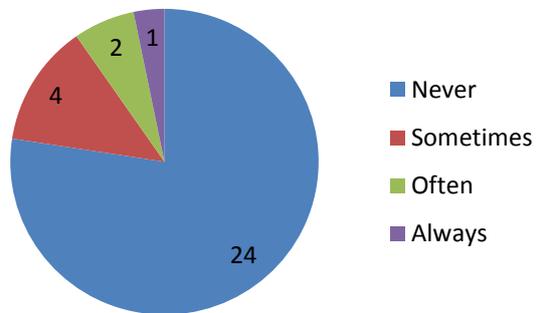
Project-based learning



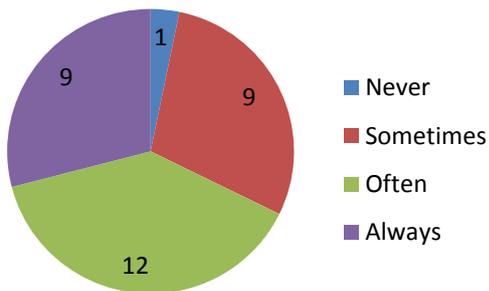
Technology based learning with mobile computers



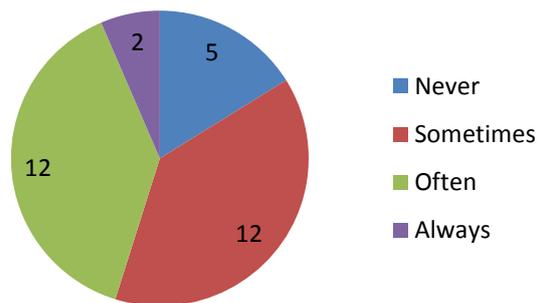
Distance learning



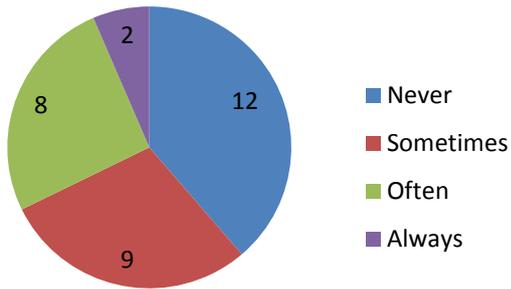
Research via the internet with wireless networking



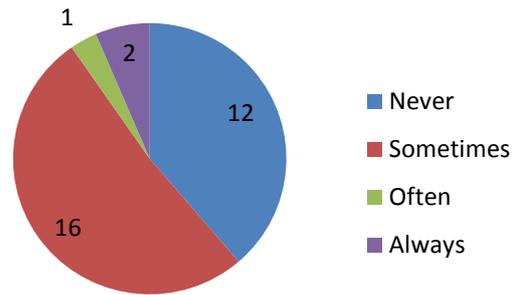
Presentation



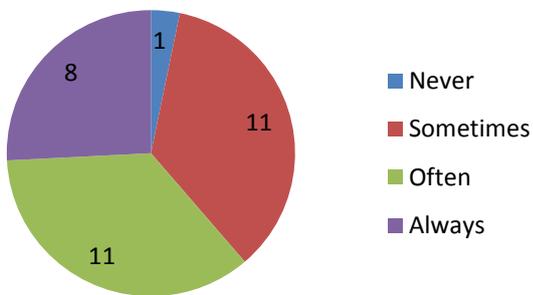
Performance based learning



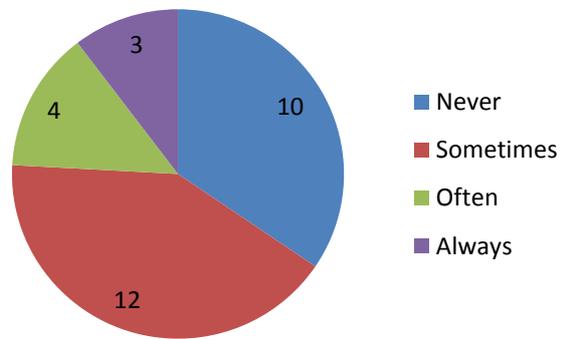
Seminar-style instruction



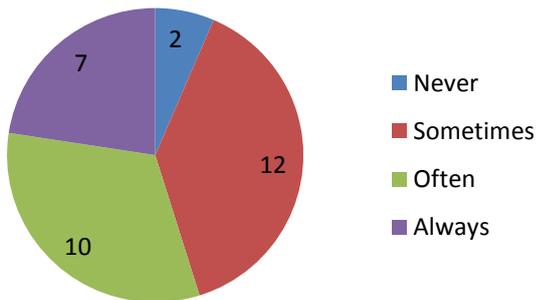
Hands on project-based learning



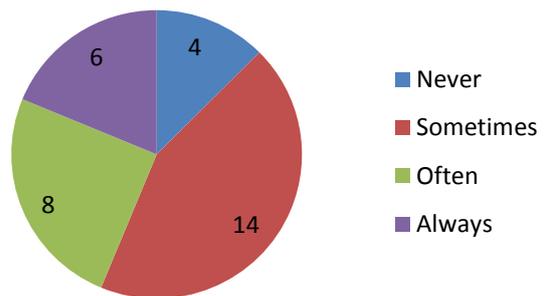
Naturalist learning



Social/emotional learning



Art-based learning



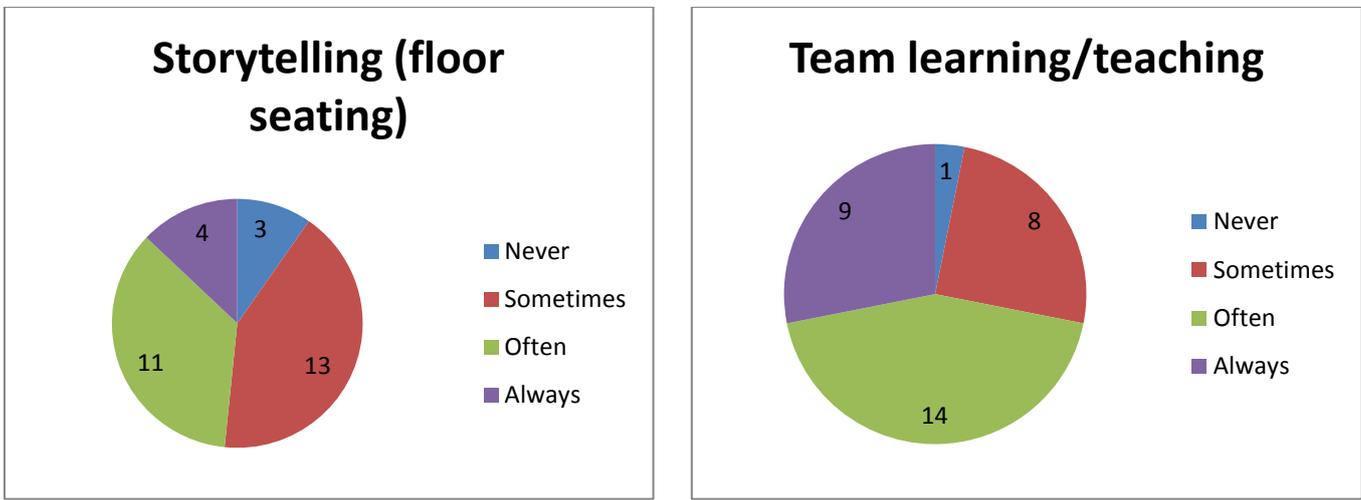


Figure 10: Responses relating 21st Century learning needs to facility use as highlighted by the 18 modalities of learning.

Survey responses to this question (Figure 10) highlighted the impact flexible learning environments and associated teaching had on co-operative and independent learning practises. The following of Prakash Nair’s 18 learning modalities (Nair 2005) scored as being utilised always or often by over 20 respondents – independent study, team collaborative work in small groups (2-6 students), technology based learning with mobile computers, research via the internet with wireless networking, team learning/teaching. If including the sometimes, often and always options together the following modalities, peer tutoring, project based learning, one-on-one learning with the teacher, hands on project-based learning, social/emotional learning, art based learning and storytelling scored over 28 responses. This survey indicated very few respondents used the MLE for distance learning.

How are these spaces commonly and effectively used by teachers and students?

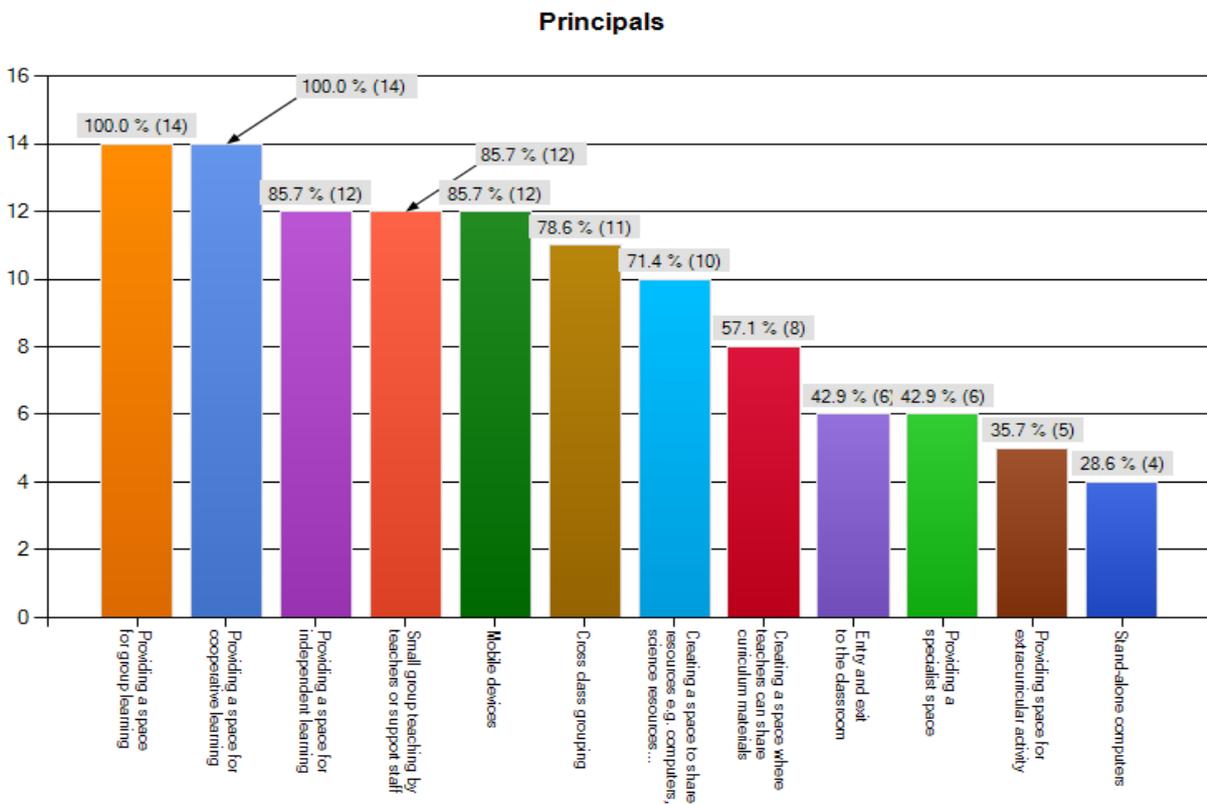


Figure 11: Principals’ responses for how spaces are most effectively used.

Teachers

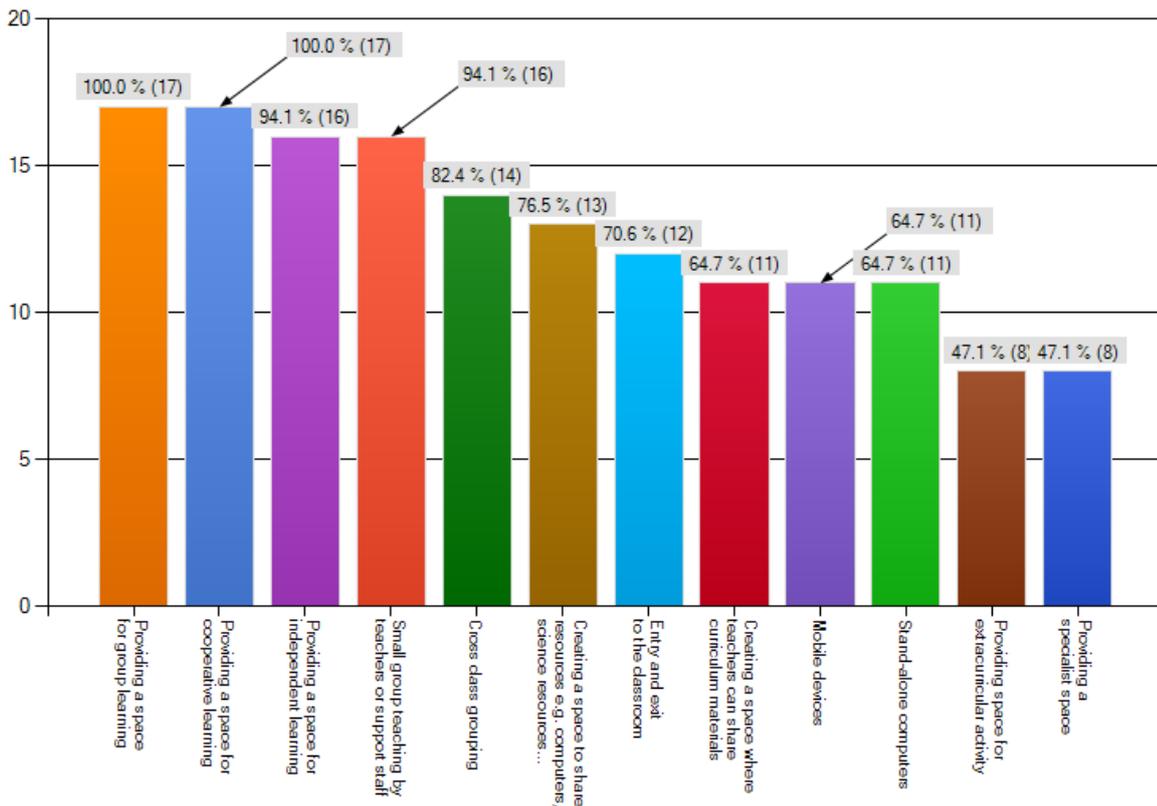


Figure 12: Teachers' responses for how spaces are most effectively used.

100% of teachers and Principals agreed spaces were commonly used for group and co-operative learning and percentages were closely aligned in agreement that spaces were used for independent learning, small group teaching, cross class grouping and creating a space to share resources. There was a difference in perception or understanding of protocols around spaces being used for entry and exit (teachers 70.6%, Principals 42.9%) and use of stand-alone computers (teachers 64.7%, Principals 28.6%)

What effective designs have been used to make best use of the available space and money?

One Principal commented, 'we have to be careful that the term Modern Learning Environment isn't used as code for saving building costs by building large open spaces. All our talk in relating design to pedagogy should be about flexible learning spaces'.

Prakash Nair advocates design concepts in which spaces are created for 18 learning modalities (as outlined above), including "campfires" for direct instruction and story-telling, "watering holes" for social learning, and "caves" or home bases for individual study, reflection and reading. Most schools indicated that funding was tight and there appeared to be significant variations in funds available particularly when comparing new schools to remodelled schools.

Cleve Bloor in his sabbatical report (Bloor 2011) highlighted many useful design features that I do not feel a need to repeat in this report. Many design features are also discussed in the BRANZ Ministry of Education publications.

A few, but not all, of the points I noted or which were commented on during my visits were

- Ensure built-in cupboards have enough depth for teaching resources
- Carpet squares allow for easy cost effective replacement if damaged
- Do not use orange (or light colours) on the floor as it shows the dirt

- Utilising your administration office foyer as a library
- Teacher offices were often very cluttered and lacked storage, reinforcing the need for enclosed storage space or clear protocols
- Built-in shelves and cupboards so that they are part of your fixed assets while also utilising mobile furniture
- Mobile stations of four computers and floor plugs for these so they can be utilised in different rooms as clusters of computers when needed
- Furniture all one colour – ‘not about furniture colour it’s about children’s learning’
- Furniture that has adjustable heights.
- Ensure doors can be opened by the children

IMPLICATIONS

There have been some significant and rapid changes in education over the last 5 to 10 years. These have included the introduction and implementation of the New Zealand Curriculum, up-skilling in effective use of information and communication technology to support learning, embedding National Standards, on top of the regular day to day functions and demands within a regular efficient teaching and learning environment.

Concurrence on how to support, enhance and improve the learning environment in which we all work and what effective pedagogy looks like in these new environments is imperative so that any changes to the ‘egg crate’ design isn’t seen as a radical fad that is just another imposition on our effective teaching.

This consensus will best be achieved through a careful and deliberate plan of consultation with staff, Board, students and community where stakeholders have a common sense of purpose and direction.

CONCLUSION

A carefully planned and considered approach is needed to mitigate the financial constraints while at the same time maximising the learning outcomes for children. The current good practice in schools can only be enhanced by the planning of the physical environment through shared understandings and agreed protocol.

It is important to have a planned inclusive consultative approach of all stakeholders, Board of Trustees, teachers, community and children. To support the change process this should include staff professional development linking pedagogical practice across the curriculum to effective use of flexible spaces in any new design. It will also require the development of a long term building concept plan so that financial constraints can be managed.

Understandings of effective pedagogy, effective utilisation of space and agreed protocols will assist this planning, as well as assisting in changes of practice and engagement of staff to maximise the new vision. The challenge for Kaharoa School, as it has been for other schools, will be managing meaningful change within the budgetary constraints and regulatory footprints.

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