

Māui whakakau, kura whakakau

The impact of physical design on Māori
and Pasifika student
outcomes



Report:

Māui whakakau, kura whakakau

The title reflects the educational transformation that can be supported by thoughtful design, and likens a school's ability to transform to Māui's ability to transform into all the birds of the forest. Māui is recognised as a common ancestor of Māori and Pasifika people.

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Māui whakakau, kura whakakau: The impact of physical design on Māori and Pasifika student outcomes

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Māui whakakau, kura whakakau

The impact of physical design on Māori and Pasifika student outcomes

Foreword	5	Interior spaces	23
Executive summary	7	Learning spaces	24
Introduction	11	Break out spaces	25
Scope and content of this report	11	Language spaces	25
Terminology	12	Multi-purpose cultural spaces	25
Methodology	12	Kīhini and wharekai	26
Vision and consultation	15	Furniture, fittings and equipment	27
Whānau	17	Outdoor spaces	29
Cultural visibility	19	Conclusion	31
Design and artworks	20	Glossary	32
Cultural symbols	20	Bibliography	33
Naming and signage	21		
Visual media	21		



Foreword

As teaching and learning practices evolve, many schools are changing the way they deliver the curriculum. The Ministry of Education is working with schools to ensure property can support these changes.

In recent years, a large number of schools have been moving towards a particular type of practice: innovative learning environments. Between aging school properties reaching the end of their lives, and the sudden need to redevelop and rebuild 115 schools affected by the Christchurch earthquakes, the demand for physical spaces to support innovative learning has boomed in recent times.

To accommodate this shift, we have been building, or supporting schools to create, flexible learning spaces – property that is ready for today and future-proofed for any changes to teaching and learning in the years to come.

Flexible learning spaces consist of multiple spaces for many types of individual and group-based teaching and learning practices. These spaces also enhance and enable innovative learning environments, where student-centred learning and collaborative teaching practices are at the core of a school's educational vision.

With the appearance of these new spaces on the educational landscape, many are curious about what the research says about the link between physical spaces and student outcomes. The Ministry commissioned a literature review to bring together the existing research and help support a national conversation about learning spaces and their place in 21st Century teaching and learning.

I am pleased to launch *Māui Whakakau, Kura Whakakau – the impact of physical design on Māori and Pasifika student outcomes*. Alongside our literature review, *The impact of physical design on student outcomes, Māui Whakakau, Kura Whakakau* complements the overall findings with views from focus groups and interviews with Māori and Pasifika communities. It explains the importance of considering New Zealand's unique perspective when designing learning spaces.

We hope this document will inform and assist schools and their communities when they make decisions about redeveloping or rebuilding their property.

Jerome Sheppard
Head of Education Infrastructure Service

Kaiti School *Be Brave*
Kia Tu Maia
Kia Tu Pakari
Stand Strong
Kia Tu Rangatahi
Puhikaiti *Be Brave*

Executive Summary

Māui Whakakau, Kura Whakakau addresses a number of the areas also addressed in the companion document to this report, *The impact of physical design on student outcomes*. However, the companion document is primarily a review of previous literature in the area, and much of the literature is from international sources and therefore does not take full account of the cultural context of Aotearoa New Zealand. This report combines relevant findings from the literature with information obtained through a series of interviews and focus groups with subject matter experts in the area of Māori and Pasifika education.

This report provides a starting point for schools to develop the cultural inclusivity of their physical environment, and focuses on the features of school design that demonstrate to Māori and Pasifika students the value placed on their identity, language and culture. Literature on Māori and Pasifika student outcomes emphasises that effective teaching involves valuing (and being seen to value) students' cultural backgrounds (Alton-Lee, 2003).

The physical environment can only support cultural inclusivity to the extent to which this is also reflected in effective teacher-student relationships and culturally responsive pedagogies. Schools are therefore encouraged to use these guidelines in conjunction with reviewing the current knowledge levels of teachers and leadership. Professional learning and development that addresses identified needs and allows teachers to maximise the cultural responsiveness potential of the physical environment should be implemented alongside physical changes.

Meaningful consultation with students, whānau and community from the conceptual design phase is essential for developing a culturally responsive design. This consultation should be based on the principle of ako, in which the school and its community are both teacher and student. Open and robust consultation allows the school to learn more about the story and history of the school and its local community, as well as reaching a shared understanding of whānau and community vision for students. Consultation is also an opportunity for the community to learn more about different possibilities for innovative teaching and learning approaches and environments, and to negotiate any tikanga adaptations within the design.

This report should be read alongside the guiding principles of *Ka Hikitia* and the *Pasifika Education Plan*, as well as the companion document, *The impact of physical design on student outcomes*. *Ka Hikitia - Accelerating Success 2013 - 2017* builds on the achievements of *Ka Hikitia - Managing Success 2008 - 2012*, and continues progress towards the vision for Māori students to enjoy and achieve education success as Māori. The *Pasifika Education Plan 2013 - 2017* builds on goals of the earlier *Pasifika Education Plan 2009 - 2012*, and is aimed at raising Pasifika students' participation, engagement and achievement.

Ongoing whānau and community involvement is extremely important for supporting students' learning. For Pasifika families in particular, the respect accorded to teachers in Pasifika culture can mean that parents may feel hesitant about involvement. Whānau can be supported to engage with the school on a less formal basis by having spaces that they can access within the school. For example, if it was practical, a school might have a whānau room where families can meet with teachers, wait for their children, have a cup of tea or coffee, and access the internet.

The visibility of culture throughout the school is an important signal for conveying to students and whānau that their culture is acknowledged and valued by the school. This includes the aesthetics of the buildings themselves, the presence of cultural artwork throughout the school, and the incorporation of

cultural symbols or patterns in multiple media. The increased visual transparency in flexible learning spaces causes a reduction in solid wall space for displaying artwork, and so the design process should consider the appropriate balance between the two.

Artwork, along with names given to learning spaces and buildings, should link the school to the history of its community and the local environment. These names should be displayed on signage around the school. Other areas should have signs showing their functional name (office, reception, etc) in Te Reo Māori. Photographs of students, tūpuna (ancestors), and Māori and Pasifika role models can also be used as visual symbols of culture and identity.

Table 1 shows design considerations for different spaces within the school, including their location in relation to each other, and on the school site.

Table 1 Cultural considerations for school design

SPACE	IMPACT ON OUTCOMES
Learning spaces	<ul style="list-style-type: none"> • Flexible learning spaces provide opportunities for working in different groupings. • Students can learn collectively, and can easily come together in larger groups for activities such as kapa haka and waiata. • Flexible learning spaces can support tuakana-teina relationships between students and between teachers. • Spaces which support different teacher locations within the room increase discursive teaching practice, which is linked to higher Māori student achievement. • Spaces should be oriented so that they receive good sunlight. Natural light is linked to increased student achievement, and Tamanuiterā (the sun) is important in the whakapapa of Māori culture.
Break out spaces	<ul style="list-style-type: none"> • Visual transparency is important for supervision, but also supports students within these spaces to maintain their link to the rest of the group. • Students working in small groups in these areas can provide feedback or support to other students, encouraging Māori and Pasifika students to feel comfortable taking risks in the main learning space by asking or answering questions in front of a larger group. • When sited near a large multi-purpose cultural space, these spaces can be used for smaller whānau hui, sharing kai, or as a safe place for younger children while whānau take part in an event in the multi-purpose cultural space.
Language space	<ul style="list-style-type: none"> • Classrooms for Māori or Pasifika language learning should be located in a place on the site that demonstrates the mana of the language. The languages should be valued throughout the school setting.

SPACE	IMPACT ON OUTCOMES
Multi-purpose cultural space	<ul style="list-style-type: none"> While this space may be used for kawa and tikanga such as pōwhiri (formal welcome ceremony), it is more flexible if the space is not tapu. If a school wishes to build a whare or fale, extensive consultation with appropriate advisors from local iwi or from the Pasifika community is essential. Whare in a Māori context are always tapu. This building is best located at the front of the site, as it mirrors the placement of the wharehau on a marae, provides a visual indicator of cultural inclusivity, and is easily accessed by visitors. A veranda in front of the multi-purpose cultural space provides shelter during ceremonies, an overflow area for larger groups, and can be used for less formal activities. Storage is important to support flexibility in usage, and built-in bench seating with storage underneath may be an easy way to provide both seating and storage. The choice of floor covering is important, as the space may be used for diverse activities ranging from performances to sleeping. Mattresses should be stored so that they are not used for sitting on. Sufficient showers need to be provided to cater for groups sleeping over at the school. If the multi-purpose cultural space, kīhini (kitchen) and wharekai (eating area) are standalone and have access to wharepaku (toilets), this can make it easier for the community to use these facilities outside school hours.
Kīhini and wharekai	<ul style="list-style-type: none"> The separation of food preparation and eating from bodily functions such as ablutions and sleeping is fundamental to Māori and Pasifika cultures. The kīhini or food preparation facilities should be located near the multi-purpose cultural space. A contemporary way of providing food preparation facilities is to site the food technology area so it can be used for this purpose. In some cases the multi-purpose cultural space will also be used for eating (in cases where tapu is not placed on the space), but if a separate space will be used, this should be located near the kīhini and multi-purpose cultural space to encourage easy flow. Wharepaku should be located away from the kitchen and food preparation facilities. Schools should consider having one set of laundry facilities for food-based laundry and one for washing that has been used for the body. If this is not possible, then laundry facilities should be organised to ensure that these can be washed separately.
Furniture, fittings and equipment	<ul style="list-style-type: none"> Moveable furniture will increase the flexibility of the multi-purpose cultural space. Consideration should be given to making sure furniture is suitable and comfortable for students and visitors of a range of different heights and builds. Different types of seating should be provided for students, including mats, soft seating, and seating that can be used outside. If cushions are used for sitting, their size and shape should make it apparent that they are for sitting upon, so that they will not be mistaken for pillows for resting the head upon. Floor coverings should be carefully considered if students will be removing their shoes, or will be spending time sitting on the floor while learning.
Outdoor spaces	<ul style="list-style-type: none"> Visual transparency connects students with the outdoors even when they are inside. Glass doors, decks and verandas make the outdoors an extension of the interior learning space. Plantings should reflect the local flora and fauna, and could incorporate plants such as harakeke that can be harvested for weaving, and trees that can have the bark stripped for dyeing or other artworks.



10

10

Introduction

Scope and content of this report

The intention of this report is to reflect the current applied and academic knowledge in the area of physical design to support Māori and Pasifika students. The focus is largely on the physical components of an innovative learning environment, although it also emphasises the importance of whānau and community engagement and involvement.

All schools should be striving to create a culturally responsive learning environment for their students, and many of the recommendations in this report are equally applicable to schools which are not undergoing a renovation or rebuild. The findings of this report also align with many of the principles of *Ka Hikitia: Accelerating Success*, and the *Pasifika Education Plan 2013-2017*.

This report should be read alongside the guiding principles of *Ka Hikitia* and the *Pasifika Education Plan*, as well as the companion document to this report, *The impact of physical design on student outcomes*. The companion document is primarily a literature review, while this report combines relevant findings from the literature with practical recommendations from subject matter experts in the area of Māori and Pasifika education. There is also a glossary at the back of this document that explain any terms you may not be familiar with.

Schools may use the findings of this report as part of their self-review toolkit when examining the extent to which Māori and Pasifika students at their school are able to learn and achieve in an environment that recognises and supports and reflects the value of their identity, language and culture.

Terminology

Pasifika is a collective term used throughout this report to refer to people of Melanesian, Micronesian, and Polynesian descent or heritage or ancestry who have migrated to or have been born in Aotearoa, New Zealand.

While identifying themselves as Pasifika, this group may also identify with their ethnic-specific Pacific homeland. Pasifika people are not homogenous and Pasifika does not refer to a single ethnicity, nationality, gender, language, or culture.

Many of the sections in this report use kupu Māori or tikanga Māori concepts. This use of vocabulary does not directly either include or exclude Pasifika vocabulary or concepts, it simply reflects the terminology used in the literature and interviews. Where recommendations relate specifically to Māori or Pasifika students, this is indicated.

The majority of source information was based on the compulsory schooling sector. However, findings would be equally applicable in other educational settings, and so while 'school' is used throughout this report, this should be considered to include other educational facilities such as early childhood centres and Kōhanga Reo. These guidelines are also applicable to Kura Kaupapa Māori, but will not themselves be sufficient to create a physical environment that fully meets the principles laid out in Te Aho Matua. Likewise, these guidelines will not fully address the special character of Kura ā-Iwi.

Methodology

Secondary data collection

The literature used in this study was sourced from keyword searches of a number of education-related databases, and a search of government publications. The education and psychology databases that were searched were:

- Australian Education Index
- British Education Index.
- Education Research Complete.
- Education Resources Information Center (ERIC or EBSCO).
- Index New Zealand.
- PsycINFO.

Keywords used were a selection of synonyms relating to school building and facility architecture, design and construction, and furniture, fittings, and equipment. These keywords were also used in association with searches of different pedagogical approaches, and student needs or outcomes. The reference lists of the resulting publications were then searched for relevant additional source material.

No limitations were placed on timeframe and country of origin, but once the literature was read and analysed for applicability to a New Zealand context, the majority of the publications originate from Western countries and date from the 1990s onwards. While the ongoing development of this subject area meant that more recent publications tended to be of greater relevance, earlier publications were cited only if considered seminal. Most publications related to the compulsory schooling years, but studies with an early childhood or tertiary focus were also included where the design principles aligned with those outlined in this document.

This review yielded three main types of documents. The first was technical design guides or specification documents, which were usually published directly by government agencies or were commissioned by government agencies. Documents of this type were only included if they provided evidence or a rationale for their guidelines. While the current report does not give technical design guidance, findings from these documents are included where relevant.

The second type were studies that relied on qualitative data such as interviews with students, whānau and educators, or on basic quantitative surveys of self-reported satisfaction, engagement or similar variables. These were frequently commissioned or published by the Ministry of Education or its equivalent in other countries. Studies of this nature were included where they provided meaningful insights into student achievement or engagement, or teacher perception thereof.

To a lesser extent, observation was used as a data collection technique in these types of documents, although this was generally based on the self-reported observations of teachers, rather than structured ethnographic observations by objective researchers. Studies with findings based on structured ethnographic

observations were considered more reliable and valid, while studies based on reporting of informal unstructured observations were only included if they illustrated findings from other studies. It is important to be aware, therefore, that the guidelines contained in this report are in part reliant on the judgements and perceptions of subject matter experts, rather than solely on quantitative research relating these findings directly to student engagement and achievement. For an overview of post-occupancy methods and their associated challenges, see Cleveland and Fisher (2014).

These perception-based studies can only conclude that the physical environment causes a change in perception of student outcome. This is not to exclude the professional judgment and expertise of school leadership and teachers, or to discount the value of teacher observations such as the class being more settled (AC Nielsen, 2004), or even to overlook the feelings and opinions of the parents or the students themselves. It simply recognises that it is possible that characteristics about the perceiver themselves may be influencing the opinion they express.

For example, reviews of effective classroom lighting have concluded that in addition to the type and level of lighting, teachers report more satisfaction with their environment when they have control over those lighting levels (Lang, 2002). A teacher who reported higher student engagement after more effective lighting was introduced may be overlooking the relationship between his or her own job satisfaction and the effectiveness of his or her teaching. That is, it may be that the teacher's satisfaction is a direct effect of the improved lighting, and the observed levels of engagement are an indirect variable, caused in whole or in part by changes in the behaviour of the teacher.

The third type of study was most valuable for establishing a link between aspects of flexible learning spaces and student engagement and achievement outcomes, and was used to triangulate with or verify the conclusions of the other types of studies. These studies considered the impact of a particular feature of flexible learning on some measure of student engagement or achievement, most commonly standardised achievement tests or quantitative measures of engagement (number of absences, number of disciplinary incidents etc). These were published in national or international journals, or presented at conferences or symposia. As this is a rapidly developing area of study, there was a comparatively large volume of masters or doctoral dissertations. These were carefully considered before inclusion by examining organisational and supervisory affiliations, theoretical underpinnings, methodological design and data collection instruments, and ensuring the conclusions reached were justifiable based on the data provided.

Some studies in this category were quasi-experimental in design, and compared student outcomes in schools or learning spaces with a target feature with student outcomes in other schools or learning spaces. Others described the results of experimental studies where an intervention had been carried out and student outcomes measured as the dependent variable. It should be noted, however, that these studies tended to be correlational rather than causal in structure, largely due to the difficulty of manipulating the independent variables.

None of the source types was automatically prioritised due to type; rather each source was considered independently and in relation to other confirming or opposing claims.



Vision and consultation

Participants emphasised the importance of ongoing consultation and engagement with whānau and the community from the conceptual design phase. This consultation should be based on ako, which is a principle of *Ka Hikitia*, in which the school and its community are both teacher and student. Open and robust consultation allows the school to learn more about the story and history of the school and its local community, as well as reaching a shared understanding of whānau and community vision for students. It also creates productive partnerships, central to the principles of *Ka Hikitia* and the *Pasifika Education Plan*. The consultation process should take place at the student, whānau, hapū, rūnanga and iwi levels.

Consultation was viewed as an opportunity to inform the community and to secure buy-in for the project. There was a perception that communities tend to be influenced by the school environments that they themselves were familiar with. Participants therefore believed that consultation achieves more effective outcomes when communities are given an opportunity to learn about different possibilities for innovative teaching and learning pedagogies and environments. The ERO evaluation framework for Māori student success also recognises the importance of whānau involvement in school design (Education Review Office, 2012).

In this report, references are made to tikanga and kawa, sometimes with specific guidelines or examples demonstrating how tikanga and kawa may inform the design and usage of physical spaces. Tikanga and kawa may vary from place to place, and so engagement with iwi and the community is important to ensure that appropriate local tikanga and kawa is adopted. Consultation is particularly important where spaces were designed or located in a way that required the adaptation of traditional tikanga or kawa to better fit within the school or education context, such as the glassing-in of the veranda of the wharehau, or the location of the toilets in relation to other spaces.

The selection of the architect was emphasised by participants as being of central importance. The role of the architect included the physical creation of the spaces and functions required, but also involved capturing a number of less tangible concepts in the design. Participants described the architect's design needing to capture the history or story of the school and its community, as well as concepts such as aroha (affection, empathy), whakapapa (connections through genealogy) and manaakitanga (showing hospitality).

Some of these concepts were difficult for participants and other stakeholders to describe in specific physical terms, and many participants described wanting the spaces to feel or function a particular way, or have a particular wairua (spirit). Successful projects were those where the architect spent time listening and translating the concepts and ideas being discussed, which usually involved a period of consultation with students, staff, whānau and community. Some architects learned about the desired functions of the spaces by observing or participating in events at the school or in the community.



Whānau and community involvement

“la ifo le fuiniu l le lapalapa”

*“As to each coconut leaf belongs a cluster to young
nuts, so each individual belongs to a family.”*

Samoan proverb

Participants recognised the importance of whānau and community involvement with more formal aspects of school life, such as attending ceremonies, hui and performances. However, participants emphasised the importance of whānau supporting their children's education by being present and involved in less formal ways also. There is a strong body of research supporting the positive impact of parental involvement on student outcomes (see Brownlee, 2015, for a review for findings) and on the importance of whānau engagement (Hall, Hornby & Macfarlane, 2015).

Pasifika participants believed that the respect accorded to teachers in Pasifika cultures meant that parents often felt hesitant about being involved with the school. Parents were more likely to be involved if there were spaces that encouraged their involvement by being culturally supportive and easy to access within the school site. One participant gave the example of schools in Samoa where the school buildings were surrounded by open-sided fale where parents and community members could meet and socialise, and share food with students during meal breaks.

Participants suggested that a whānau room expresses manaakitanga, as well as offering a less formal way to engage with the school. There were different concepts of a whānau room, and some participants saw it as a space with some visual privacy where whānau members could meet with teachers. It was suggested that naming the space 'whānau room' and having frosting or film on the glass to provide some privacy would remove the stigma about coming into the school, and would have fewer negative connotations for whānau than meeting in an office or other formal setting.

Other participants saw this as a more relaxed

space, where whānau could wait for their children and have a cup of tea or coffee. The ERO evaluation framework for Māori student success considers how whānau can feel a sense of connection or belonging within the school (Education Review Office, 2012), and this type of space may be one way for the school to demonstrate manaakitanga to its whānau and community.

Participants spoke about the enthusiasm with which Māori and Pasifika students embrace new technology, but were also aware that some whānau may not have internet access at home. It was suggested that schools may be able to engage whānau by offering free internet access in the whānau room or the school library.

ERO also recognised whānau or home rooms as features of schools that had successful outcomes for Māori students (Education Review Office, 2010), although it did not specify whether these spaces were for whānau, or were a culturally inviting space that students could visit for study purposes. A study of tertiary outcomes for Māori students found that a space for study and internet access was an effective contributor to Māori student outcomes (Taipapaki Curtis et al., 2012).

Schools may wish to consider whether a single space will be suitable for these joint purposes, or whether it would be more appropriate to have a space for whānau specifically. Other learning spaces within the school may already be suitable for Māori and Pasifika students to study and access the internet. Schools will also need to consider whether it is possible or practical within their own contexts to be able to provide such as a space, or whether there are other methods that they could use to engage whānau within the school.

Cultural visibility

“we can’t ‘be’ if we can’t ‘see ourselves’”

Ferguson, Gorinski, Wendt Samu & Mara (2003)

Participants emphasised the importance of visual symbols of culture being displayed throughout the school. This was key in conveying to students and whānau that their culture is acknowledged and valued by the school, and that they will not have to shelve or conceal their cultural identity to participate and achieve within that school. It also aligns with the principle of identity, language, and culture, which is central to Ka Hikitia and the Pasifika Education Plan. Nakhid (2003) likened a lack of cultural symbolism to being given a school photograph, and students looking for themselves and noticing their absence from the photograph.

While the areas of visibility listed below provide an opportunity for students to identify with their language and culture, it is important to engage in genuine consultation with iwi and the community before making decisions of this type. This helps schools to understand the nuances of the culture in their community, such as what artwork would be appropriate in a given space.



Design and artworks

Cultural visibility included the design of the buildings themselves, such as having buildings that had a roof like a fale, or with a veranda area that echoes the veranda outside the wharenuī on a marae.

It also included the presence of cultural artwork throughout the school, such as carvings, raranga (weaving), lavalava, tapa cloth, tukutuku panelling, and other forms of traditional and contemporary artworks. Many participants described the importance to their school of students and community being involved in producing the artworks, such as by whānau gifting artworks, or by student work being displayed.

Cultural symbols

Participants also spoke about the importance of integrating cultural symbols and adornment in many different visual mediums throughout the school. For example, kōwhaiwhai and other cultural patterns and symbols could be used as logos for the different house groupings, in window films, and as borders on walls and around whiteboards or notice boards.

One potential drawback of increased visual transparency within flexible learning spaces is that it reduces the solid wall space required for displaying artworks. One participant described using a display screen to scroll through a selection of student artwork, so that multiple artworks could be displayed in a single space. However, for many cultural artefacts and

artworks, a temporary display medium would lessen the mana of the artefact. The design process should explicitly consider the balance between visual transparency and permanent display space for cultural symbols and student work. It is important to acknowledge that visual symbols of culture convey a sense of belonging and cultural safety to current and prospective students, and provide concrete reminders that their culture is valued by the school.

However, this is also an opportunity to extend understanding of identity and cultural connection by using artworks and symbols that tell the story of the school community, and link the students to their tūpuna.

"I feel a sense of belonging when I enter this place. Why? Because we have got cultural tools that I can connect [with]. I am going to make the most of my learning because I can connect, I can use some of these cultural artefacts to share my thoughts and my thinking and my insight when we're having discussions and dialogue."

Pasifika participant

These symbols also show the connection of the students and the school to its local environment, and should reflect the location of the school in relation to flora, fauna and places of cultural significance. Visual symbols of this could include artworks, logos or patterns connected to the local river or mountain, and plantings could echo the traditional fauna of the area.

Naming and signage

The naming of spaces within the school should also reflect this connection with history and location, and schools are encouraged to talk with their community and local rūnanga or iwi about names for learning spaces or buildings that represent the history and location of the school, local flora and fauna, or whakataukī (proverbs) that support the school's vision for its students.

These names should reflect the mana whenua or tangata whenua of the school's locality. One publication referred to the incorporation of history as ensuring that the design 'looks to the future from the past' (Ministry of Education, 2000, p. 4).

Where learning spaces or buildings have been named, this should be shown on signage. Signage in Māori and Pasifika languages throughout the school creates a feeling of inclusivity and belonging. In addition to named spaces, this should include functional names such as 'taupaepae' (reception area). Consultation with iwi and the community on the use of local names is important, but is also useful for functional signage as there may be variations in functional names depending on the local dialect.

Signage at the entrance could include the English and Te Reo Māori names of the school and a welcome in different languages. These were described by participants as being important initial indicators to students and whānau that their culture and identity will be valued by the school. Te Reo Māori can also be made visible around the school by having values, mottos or whakataukī displayed in learning spaces (Hill & Hawk, 2010). This usage needs to be supported by teaching practice, and schools should ensure that the names and language on signage are used and understood by students, teachers and school leadership.

Visual media

The presence of photographs of people of their own ethnicity also sends a message to students about their place within the school community.

One participant spoke of visiting a reception area within a school with a large Māori and Pasifika roll, and not being able to find photographs of any Māori or Pasifika students among the display of student photographs within the area. For her, this sent a powerful message about the relative importance of Māori and Pasifika students within the school community. Schools could work with their community to incorporate photographs of tūpuna who have passed on within the multi-purpose cultural space (the form and function of this space is discussed in a subsequent section). Some schools also have photographs of prominent Māori and Pasifika role models in their learning spaces (Hill & Hawk, 2010).



Interior spaces

This section discusses cultural design and usage considerations for buildings and interior spaces. Where relevant, the relationships between spaces, and the positioning of spaces on the school site is also discussed.

Learning spaces

“Mā te whakaaro nui e hanga te whare; mā te mātauranga e whakaū”

“Big ideas create the house; knowledge maintains it”

Whakataukī

Participants who had experience of larger learning spaces appreciated the flexibility that they provide to learn in different student groupings and through different activities. Some participants believed that learning collectively and with access to practical activities were effective pedagogies for Māori and Pasifika, and that larger learning spaces allowed this type of learning more easily than smaller cellular classrooms. Learning spaces were generally designed and furnished so that there were spaces and areas where students could work individually or in small groups. Larger learning spaces also supported larger numbers of students coming together for activities such as karakia and waiata without having to move students to a hall or wharenuī space. Larger spaces also allow for whānau to be more easily involved in student learning.

These spaces also supported tuakana-teina (learning interactions between more and less knowledgeable), particularly where there were students of different ages within the same learning spaces. While we generally think of such relationships as involving direct interaction, participants also recognised the tuakana-teina relationship as being of value when students were simply able to occupy the same space as other students who offered them support. For example, being able to see or make eye contact with an older sibling or friend, which provided reassurance and increased wellbeing. For older siblings or friends, being able to provide kaitiakitanga (guardianship) over younger siblings, friends or whānau members by seeing them within the learning space helped to build a nurturing learning environment.

This concept of tuakana-teina also applied to teachers within the learning space. Participants spoke of the professional development

and learning needed to teach confidently within larger learning spaces, but they also acknowledged the unexpected development of informal tuakana-teina relationships between teachers. With teaching practice being more visible to other teachers within the space, it becomes more straightforward to recognise when a teacher needs additional support, or when their knowledge or practice in an area can be used to inform other teachers.

One of the guiding principles of Ka Hikitia is ako, which recognises that the teacher can be both teacher and learner. Participants whose schools had moved from a more traditional cellular design to flexible learning spaces have appreciated the collaborative teaching and planning practices that are supported by these spaces, and believed that this also positively models collaborative learning for the students. In addition to tuakana-teina, they believed that this collaboration encouraged ako between the teachers sharing a learning space.

One of the indicators of student-centred discursive practices measured as part of the Te Kotahitanga project was the amount of time the teacher spent at the front of the learning space (Bishop, Berryman, Wearmouth, Peter & Clapham, 2011). More culturally responsive teaching styles led to the teacher spending less time at the front, and more time interacting with students at various places within the learning space. By creating multiple potential points for instruction, in addition to multiple configurations for different learning groupings and activities, flexible learning spaces are viewed as supporting teachers to move to more discursive teaching styles.

Research recognises the importance of natural lighting to student achievement and engagement outcomes, and this was reiterated by participants discussing the importance of orienting learning spaces so that they face the sun and receive lots of natural light. This also supports the importance of Tamanuiterā in Māori culture, and creates links between students and the natural environment outside the learning space. It is important to remember to balance this with considerations of glare and of excessive solar heat gain.

Break out spaces

Break out spaces were often used for individual or small group work also, such as if a student required further support, or needed to work individually. Participants felt that visual transparency was important so that students in break out spaces were not visually cut off from students in the larger learning space. This was important for teacher supervision, but also so that the student continued to feel part of the collective. Participants talked about the importance for Māori and Pasifika students to feel connected to the group, and to be part of the collective experience of learning.

Break out spaces were also used for small groups, and participants spoke about many Māori and Pasifika students enjoying working cooperatively with their peers. Students working in a break out space could tautoko (support) one another, which increased their confidence and academic self-belief. Some students used one-on-one discussions with teachers as an indicator of the teacher caring about them and their progress (Knight-de-blois, 2015), and break out spaces can provide opportunities for this to take place.

Participants felt that Māori and Pasifika students participated more effectively in some wider class activities when they first had the opportunity to receive support in a smaller group environment. This could be through asking questions or seeking further explanation in the smaller group, or through having the opportunity to rehearse a speech or receive feedback on a piece of written work before sharing it with a larger group.

Although students can sometimes feel uncomfortable or whakamā (embarrassed) to speak up in larger classroom settings, flexible learning spaces provide opportunities for students to work in smaller groups and use break out rooms which allows them to take risks in a more culturally safe environment (see Fletcher, Parkhill, Fa'afai & O'Regan, 2009, for a discussion of risk-taking in learning by Pasifika students).

Language spaces

In secondary schools, where Te Reo Māori or Pasifika languages may be taught as curriculum subjects, the location of the learning space(s) used for these subjects signals the value accorded to the language.

It is important, therefore, that consideration is given to integrating the space with other learning spaces, and by adorning the space to demonstrate the value placed on language. While existing schools will have space restrictions on their sites, a Māori or Pasifika language learning space should be placed in a location that reflects the mana of the language.

Multi-purpose cultural spaces

“Our whare had to look like a Māori place so all these kids knew when they came, when they walked up the driveway, this was a Māori place and so you didn’t have to leave your Māori-ness at the door.”

Māori participant

Participants used a range of terms to refer to a large space or building that can be used for cultural purposes, including hui space, marae, virtual marae, whare, fale and wharenui, with the common theme of flexibility as a key requirement of that space. While this space is used for tikanga practices, participants recognised that the space was more flexible if it was not tapu, so that students, whānau and other visitors could eat and drink within the space.

If a school wishes to build a whare or fale, this requires extensive consultation and engagement with the community and (for whare) local iwi. Whare in the Māori context are tapu, and are often seen as the embodiment of an ancestor of the local iwi or hapū. To embrace this aspect of Māori culture, boards of trustees must fully engage with the appropriate advisors from the Māori community. The building and dedication of a whare invokes Māori spiritual and cultural dimensions, and a whare has the potential to become a prized and highly valued part of the school community.

Similar to a marae, it was suggested that the multi-purpose cultural space or where is best located towards the front of the school, where it has the dual benefits of visually conveying the idea of cultural inclusivity, and of making it easy for visitors and whānau to access the school.

If the same space will be used for manaakitanga and the sharing of kai (in cases where tapu is not placed on the space), it should be located in close proximity to the kīhini or food preparation facilities.

If another space will be used as a wharekai, then this should also be located nearby. The space is more flexible in its usage if there are smaller break out spaces located nearby. During events such as hui, pōwhiri and poroaki (farewells), they are able to be used for smaller meetings of whānau, the sharing of kai, or as a safe place for younger children while whānau were involved in the hui or event in the multi-purpose cultural space.

Post-occupancy research suggests that consideration must be given to the floor covering within the space. The space may be used for such diverse activities as sport, performance, and sleeping, and so the floor covering should be hard wearing enough to support more active activities, but still soft and comfortable enough to be suitable for laying down mattresses to sleep on. Underfloor heating could also be considered as a heating option to provide a more comfortable sleeping area.

Because the space will be used for multiple purposes, storage is very important. Built-in bench seating with storage underneath is an easy way to provide both seating and storage. If the space will commonly be used for sleeping, suitable storage should be provided for storing mattresses, pillows, and any other bedding. It should be ensured that mattresses are stored in such a way that they are not used for sitting or any activity other than sleeping. Sufficient facilities for showering need to be provided when students or visitors will be staying at the school. These should be located so that they

can be easily accessed from the multi-purpose cultural space.

Participants spoke about the importance of their schools to their communities, in addition to the importance of community involvement in the school. This involvement was easier to facilitate if the access points to the school are more apparent to a visitor, such as encouraging the natural flow from the multi-purpose cultural space to the wharekai, and then onwards into the rest of the school if appropriate. A standalone multi-purpose cultural space with kitchen facilities, space for sharing kai, break out spaces, and access to wharepaku also makes it easier for the community to use the school facilities outside school hours, as this area can be self-contained.

A veranda in front of the multi-purpose cultural space supports its use for tikanga practices such as pōwhiri. Some participants spoke of adapting tikanga by glassing-in this space, which meant it provided shelter, and could act as an overflow for large groups or for less formal activities. Depending on the location of the multi-purpose cultural space within the school site, it may be possible to include an outdoor space at the front of the space to act as a marae ātea (courtyard).

Kīhini and wharekai

It is important that there is easy access to kīhini or food preparation facilities in order to demonstrate manaakitanga.

Participants recognised that this may be done in a more contemporary way, such as by locating the food technology area in close proximity to the space that is used as a wharekai, and close to where manuhiri (visitors) are welcomed and brought into the school.

Some schools will use the multi-purpose cultural space for eating, while others have a purpose-built wharekai. This is used for manaakitanga when welcoming manuhiri to the school, but is also used for expressing whanaungatanga

(building relationships) and manaakitanga among students and teachers. The tumuaki of one kura kaupapa Māori explained that students and teachers are encouraged to eat meals in the wharekai together, so that the students are able to interact with teachers in a less formal, more whānau-oriented setting. The same kura kaupapa Māori uses the wharekai for students to learn about and practise manaakitanga, and students take turns preparing and serving morning tea, and cleaning up the wharekai after meals.

Consideration needs to be given to the tikanga around food preparation and wharepaku, with toilets located away from the food preparation and service areas. Participants recognised the need to adapt tikanga for a school setting, so that while toilets were traditionally located in a separate building, it may be impractical for students to go outside in winter, or in bad weather, if toilets could be more conveniently located inside the building.

Laundry facilities should be arranged so that washing generated by food preparation or service, such as cloths, tea towels or table cloths, are not washed with washing that has been used for the body, such as bedding from the sick bay or dirty clothing. This may mean that schools have two separate laundry areas, or a single laundry area organised so that the two types of laundry can be washed and dried separately.

Furniture, fittings and equipment

Moveable furniture will support the flexibility of spaces to be used for different activities, such as being able to easily move seating within a multi-purpose cultural space to make it suitable for a performance, or being able to configure seating for a ceremony such as a pōwhiri.

Part of manaakitanga is making sure that visitors are comfortable, and so participants

suggested making sure that the seating provided is suitable and comfortable for adults of a range of heights and sizes. This is particularly important where they will be expected to be seated for a long time. It is important that classroom furniture is also able to comfortably accommodate students of all different sizes and builds (Research New Zealand, 2010).

Within the learning spaces, different areas support different student preferences for learning, such as soft seating for individual reading or group discussion. This may include mats for students who prefer to sit or lie on the floor. Where cushions are used for students to sit on when working on the floor or outside, it is important that the shape and size of these make it apparent that these are cushions for sitting upon, and could not be mistaken for pillows for resting the head upon.

Visually, participants expressed a preference for furniture, fittings, and equipment that conveys cultural symbols, such as chair backs in a koru shape, or furniture that can be configured into kōwhaiwhai patterns. However, it was also acknowledged that there were multiple practical considerations for the form and function of furniture, fittings, and equipment, and that the visual aspect needed to be balanced with these other considerations.

The floor coverings are more important where students will remove their shoes before entering a space, or where some learning activities will take place on the floor. If students will remove their shoes, then underfloor heating could be considered as a suitable form of heating. Where students will be sitting on the floor, the quality of the carpet or mats should be considered. This is also important from a maintenance perspective, and if higher quality carpet will be used because it is going to be sat upon for learning activities, it should not then be used in a main thoroughfare, or where spillage is a possibility.



Outdoor spaces

“We learn holistically and through all our senses. It’s important to be able to sense and be a part of nature. That’s where having a lot of area where you can see outside, you can see nature and it brings it into your learning environment, is really important.”

Māori participant

While outdoor spaces that are visually attractive are important, there was a consistent focus on making these culturally meaningful for engagement and learning. Waharoa (gateways) were traditionally located at the entrance of a pā or marae ātea, and symbolised the passing from one state to another. Schools may have a waharoa (gateway) at one of the entrances to the school site, and should consult closely with whānau and community on appropriate placement and design.

Visual transparency in the form of interior and exterior windows was viewed as very important by participants for supporting student learning, as it emphasised students’ connection to one another, and to the natural environment. Many participants talked about creating an indoor-outdoor flow visually and functionally by having glass doors or walls that open the learning spaces up to the outside. Teachers in these schools tended to regard the outdoors as an extension of the interior learning space, and students could work outside on the veranda or deck. The furniture in these spaces had been chosen to be easily portable and suitable for outdoor use, so students could take bean bags and other seating outside.

Cultural symbols can also be visually signalled in the outdoor spaces, such as kōwhaiwhai patterns in the concrete or other hard surfaces, or in the shape of garden areas and pathways. Symbology can also be used to support navigation and wayfinding around the site, such as a school using tukutuku (lattice-work) patterns for navigation pathways (Milne, 2013).

Participants also spoke about using native plants and trees to reflect the interaction between culture and the natural environment. A further connection can be made between student culture and the environment by using plants such as harakeke that can be harvested for weaving, and trees that can have the bark stripped for dyeing or other artworks.



Conclusion

This report lays out a number of design guidelines to assist schools to build a culturally responsive learning environment. These guidelines should be implemented with regard to the individual school context, and the aspirations of that school community.

To achieve a truly culturally responsive wairua within the school, stakeholders are recommended to embrace the tikanga concept of ako. Stakeholders, particularly those from a majority culture background, may need to put themselves in the position of student, and be prepared to act as visitors within the cultural space of their Māori and Pasifika whānau and community (Glynn, Berryman, Walker & O'Brien, 2001).

These recommendations, if implemented in partnership with the school's Māori and Pasifika community, provide tangible evidence to students and whānau that their identity, language and culture are valued. They provide a culturally nurturing backdrop against which schools can form positive relationships with Māori and Pasifika students, whānau and community, and effectively implement culturally responsive teaching pedagogies.

Glossary

TERM	DEFINITION
Ako	Reciprocal teaching and learning
Aroha	Love, affection, empathy
Fale	A Pasifika house with open sides and a thatched roof
Hapū	Kinship group, clan or subtribe
Hui	Meeting, conference or gathering
Iwi	Tribe
Kai	Food
Kaitiakitanga	Guardianship
Karakia	Prayer
Kawa	Protocol, may differ from iwi to iwi
Kihini	Kitchen
Kōhanga Reo	A Māori immersion ECE provider, literally 'language nest'
Koru	Fern frond
Kōwhaiwhai	Ornamental patterns, often used to decorate wharenui
Kupu	Word
Kura ā-Iwi	Māori immersion school, established under section 156 of the Education Act 1989, and following the philosophy of the local iwi
Kura kaupapa Māori	Māori language immersion school, established under section 155 of the Education Act 1989 and following the principles of Te Aho Matua
Lavalava	Colourful, patterned rectangular fabric, generally used as clothing or for decoration
Mana	Prestige, status
Mana whenua	Territorial rights
Manaakitanga	Hospitality, caring
Manuhiri	Guest(s) or visitor(s)
Marae	Courtyard in front of the wharenui, term is often used to include the buildings around the courtyard
Marae ātea	Open courtyard in front of the wharenui
Mātauranga	Knowledge, education
Pā	Fortified village
Poroaki	Farewell ceremony
Pōwhiri	Formal welcome ceremony
Raranga	Weaving
Rūnanga	Tribal council

TERM	DEFINITION
Talanoa	A Pasifika research methodology that emphasises discussion and the sharing of stories and experiences, literally 'to speak or talk'
Tamanuiterā	Personification and sacred name of the sun
Tangata whenua	The people of the land; the local people of that area
Taonga tuku iho	An heirloom; something precious handed down to subsequent generations; may be knowledge or information rather than an object or possession
Tapa cloth	Cloth made from bark and decorated by painting or stencilling, used for decorative purposes or for clothing on formal occasions
Tapu	Restricted or prohibited, a spiritual or supernatural state of sacredness. Where this refers to a building (such as a Whareniui), there are implications for how this building can be used.
Tautoko	To support
Te Aho Matua	The philosophical base for Kura Kaupapa Māori
Tikanga	Correct custom or procedure, may differ from iwi to iwi
Tino Rangatiratanga	Authority and self-determination; this right is protected by Ko te Tuarua (Article 2) of Te Titiri o Waitangi
Tuakana-teina	The relationship between an older person or person with higher expertise (tuakana), who helps or guides a younger person or person with less expertise (teina).
Tukutuku	Lattice-work pattern, traditionally woven and used for decorative purposes
Tūmataunga	God of War
Tumuaki	Principal, leader
Tupuna, tūpuna	Ancestor(s), singular without the macron, and plural when a macron is used
Waharoa	Gateway
Waiata	Song
Wairua	Spirit
Whakamā	Embarrassed
Whakapapa	Ancestry or family tree
Whakataukī	Saying or proverb
Whānau	Family, generally a wider definition rather than limited to immediate family
Whanaungatanga	Building relationships and connections
Whare	House or building, often used as the shortened version of whareniui
Wharekai	Eating or dining area
Whareniui	Main building of a marae where guest are accommodated
Wharepaku	Toilets

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