



which indicated that high illuminance does not correlate with young women's sense of safety. The research showed that women and gender-diverse people felt safer when lighting was layered, consistent and warm, because contrast between bright and dark spaces makes it harder for the eyes to adjust. This contradiction demonstrates why linking government guidelines to perceptions of safety by users, rather than just the client, is important.

The many recent sporting facility upgrades across Australia are integral to retaining and growing female participation in Aussie Rules and cricket through the provision of more changing rooms that are unisex, and that have additional privacy and safer surrounds, benefitting everyone. However, more research is needed to understand the relationship between the environmental attributes of sporting facilities, such as quality design, and gendered participation in sport, to extend these observations.⁵ And beyond the spatial brief, there are still leaps to take in gender equity in sport, such as fair access of women's teams to all amenities and sporting facilities, from the gym to the field, which are still often prioritized to men at optimal times.

Kate Jenkins, the sex discrimination commissioner at the Australian Human

Rights Commission, identified further barriers to participation in sport in her Women in Sport Summit 2019 speech. These extend beyond the sports facilities to equal pay and sponsor support, representation in governance and respect for women more broadly.⁶ The upgrade of facilities is just one component in creating a more just sporting field for everyone.

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— Amelia Borg is a director of Sibling Architecture and was awarded the inaugural Steve Ashton Scholarship in 2017.

Footnotes

1. Amanda Mooney, Chris Hickey, Debbie Ollis and Lyn Harrison, "Howzat! Navigating Gender Disruptions in Australian Young Women's Cricket," *Journal of Australian Studies* vol 43 Issue 1, January 2019, 71–86.
2. Social scientist and writer Adele Pavlidis highlighted that, in 2017, state governments committed significant financial support to improve sports facilities for women and girls: \$15 million in Queensland, \$14 million in Victoria and \$10 million in South Australia. Adele Pavlidis, "Making 'space' for women and girls in sport: An agenda for Australian geography," *Geographical Research* vol 56 issue 4, September 2018, 343–352.
3. Rob Harris, "Girls change rooms line doesn't stack up in 'sports rorts' scandal: Labor," *Sydney Morning Herald*, 30 January 2020, smh.com.au/politics/federal/girls-

change-rooms-line-doesn-t-stack-up-in-sports-rorts-labor-20200130-p53wb4.html (accessed 22 May 2020).

4. Ann Travers, "Transgender issues in sport and leisure," Louise Mansfield, Jayne Caudwell, Belinda Wheaton and Beccy Watson (eds.), *The Palgrave Handbook of Feminism and Sport, Leisure and Physical Education*, (London: Palgrave Macmillan, 2018), 649–665.

5. Clare Hanlon, Claire Jenkin and Melinda Craike, "Associations between environmental attributes of facilities and female participation in sport: a systematic review," *Managing Sport and Leisure* vol 24 issue 5, July 2019, 294–306.

6. Megan Maurice, "The challenges now facing women's sport in bid to build on recent momentum," *The Guardian*, 9 August 2019, theguardian.com/sport/2019/aug/10/the-challenges-now-facing-womens-sport-in-bid-to-build-on-recent-momentum (accessed 22 May 2020).

↖ The Hanmer Reserve facilities now incorporate two unisex changing rooms, allowing greater flexibility in the use of the space.

↑ Angled skylights let in natural light and open up the building while maintaining users' privacy.

Learning environments: Designing space for every body

Words by Fiona Young and Dani Martin

Students learn in many different ways, regardless of gender. Rather than creating differences in the built form of schools to reflect different genders, designers need to create learning environments with a variety of spaces that are comfortable, aesthetically pleasing and offer diverse opportunities for social interaction.

For many architecture practices working on commissions for single-sex schools, a recurring consideration is how the physical environment of schools should reflect the gender diversity of its students. While there is much debate about the merits of single-sex versus co-educational schools, there is little critique of how the design of learning spaces contributes to definitions of gender identity and how schools shape gender equity.

Recent research relating to gender disparity influenced by school experiences has focused on the distribution of recreational facilities. A 2018 study of 20 independent schools in Brisbane revealed that boys' schools had three times the amount of outdoor play space within their immediate school grounds than girls' schools.¹ The boys in the study had higher aspiration toward outdoor careers than girls. The authors speculate that greater access to outdoor play space may contribute toward boys feeling that outdoor careers are a more "natural" option than girls feel they are for them. Another recent study of co-educational primary schools supports these divergent behaviours, finding that school grounds are dominated by boys engaged in competitive, physically vigorous rule-bound games such as soccer, handball and basketball, while girls are engaged in intimate verbal interaction and open-ended imaginary play at the edges of formal spaces, or in "in-between" spaces.²

Single-sex schooling has historically prevailed in the UK. Michál Cohen, director of London-based Walters and Cohen,

discusses differences she has observed between boys' and girls' approaches to learning. Examples include boys preferring to be active when they socialize while girls prefer to be in less active environments. Furthermore, boys exhibit more risk-taking behaviour while learning and this sits in contrast to girls' tendency toward a fear of failure. While Cohen notes that these characteristics may be attributed to a whole range of factors rather than gender alone, they can nevertheless be useful when considering how the institutional space might shape interactions and opportunities.

↓ At the co-educational Woodleigh School senior campus in regional Victoria, "homesteads" designed by Law Architects offer students an aesthetically pleasing and comfortable yet robust environment. Photograph: Drew Echberg





Matt Esterman, director of learning technologies and innovation at Our Lady of Mercy College in Parramatta, suggests that factors such as a student's curiosity to learn, the socioeconomic context of their family, access to technologies, and the variability of teaching approaches and classroom cultures they might experience are more pronounced than gender in influencing learning. In recognizing this, Cohen believes that rather than creating differences in the built form of schools to reflect different genders, there should instead be a variety of spaces for all students. However, 70 percent of schools across Australia and New Zealand are based on a traditional closed cellular classroom design,² with limited ability to offer spatial variation.

Richard Leonard, a director at Hayball, notes that one of the most overlooked elements in education design is the need to acknowledge learning as an essentially social enterprise. Having observed the fluidity of expanding and contracting "social circles" formed by groups of girls, Leonard felt that "in-between" spaces needed to be included in school design, both indoors and out. At St Columba's College in Melbourne, a series of small, intimate spaces enables a range of settings in which girls can socialize and learn in myriad ways. These include reading nooks, terraced seating and raised platforms with a variety of furniture options.

A former principal at both girls' and co-educational schools, educational consultant Vicki Steer likewise observes that all students learn in different ways and require well designed spaces to suit their individual learning needs. Steer feels that both boys and girls like aesthetically pleasing environments, spaces with natural light, a variety of spaces in which to spread out, and diverse opportunities to be physically active.

In observing the physicality of students, Sandy Law, director at Law Architects, notes that as well as being physical with each other, boys are more likely than girls to run and jump at exit signs and hang off doors. This level of energy combined with the tendency for boys to be physically bigger than girls – particularly in senior years – means that larger and more robust spaces need to be considered in boys' learning environments. Designing for these types of behaviours can sometimes lead to an austere aesthetic; however, this is not the case at the Woodleigh School senior campus in Victoria. Here, both

boys and girls learn together in a series of reconfigured "homesteads" that offer variety, robustness and comfort.

To accommodate the need for diversity within school settings and allow for learning spaces most suitable for boys, girls, those who identify as gender-diverse and on a broader spectrum that resists binary constructions of gender, the design of schools needs to become more inclusive to difference. Larger learning areas, more informal zones and greater diversity of spaces are all characteristic of the spatial qualities of innovative learning environments (ILEs),⁴ first realized in the mid-2000s in Australian schools such as Wooranna Park Primary School in Victoria and the Australian Science and Mathematics School in South Australia. These environments have emerged with an aim to enable more differentiated learning opportunities than cellular classroom school models. Learning approaches include teacher-directed instruction, and small-group, peer-to-peer and individual study. Recent studies show that ILEs also support better opportunities for students' deep learning than traditional classrooms.⁵

As well as supporting deeper student learning, by their very nature ILEs are more inclusive of all types of learners. The introduction of ILEs to Australian schools is challenging as it signifies not only a change in space, but also the complementary need for a change in teaching practices to successfully activate these spaces. However, despite the challenges of shifting away from the industrial school model of "cells and bells," the emergence of these new-generation learning environments heralds an opportunity to provide better equity for all students, allowing them to receive the education they need in the way most suitable to them. Regardless of student gender, this is something we want to see for all future generations.

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Footnotes

1. Terrance W. Fitzsimmons, Miriam S. Yates and Victor J. Callan, *Hands up for gender equality: A major study into confidence and career intentions of adolescent girls and boys* (Brisbane: AIBE Centre for Gender Equality in the Workplace – The University of Queensland, 2018).

2. Fatemeh Aminpour, Kate Bishop and Linda Corkery, "The hidden value of in-between spaces for children's self-directed play within outdoor school environments," *Landscape and Urban Planning*, vol 194, February 2020, 103683.

3. Wesley Imms, Marian Mahat, Terry Byers and Dan Murphy, *Type and use of innovative learning environments in Australasian schools* (Melbourne: ILET Survey No. 1, University of Melbourne, LEARN, 2017), iletc.com.au/wp-content/uploads/2017/07/TechnicalReport_Web.pdf (accessed 20 May 2020).

4. Fiona Young, Benjamin Cleveland and Wesley Imms, "The affordances of innovative learning environments for deep learning: Educators' and architects' perceptions," *Australian Educational Researcher*, October 2019, link.springer.com/article/10.1007/s13384-019-00354-y (accessed 20 May 2020).

5. Wesley Imms et al, *Type and use of innovative learning environments*.

← Hayball's design for the Sophia Library at St Columba's College, a girls' school in Melbourne, includes "in-between" spaces, inside and outside, in recognition that learning is a social enterprise. Photographs: Dianna Snape