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VERTICAL SCHOOLS AS COMMUNITY HUBS

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Abstract

Vertical schools, relatively new to Australia, are responding to increasing student numbers in central suburbs with limited available land. School facilities and spaces for drama, music, exercise, socialising, craft, play and eating are typically located for potential community use. The analysis within this paper focuses on the traces of community connections that can be discovered from visual analysis of plans and occupied buildings. We compare emerging Australian vertical schools with European precedents. How and why are communities using school spaces? What community spaces do students use and what are their adjacencies with school uses? What are the private, privileged and public spaces of vertical schools? Which schools operate as gated communities and how do the more porous examples address the safety of children? We consider northern European examples where vertical schools have had a longer history. Examples include the influential Danish Hellerup School, Ørestad Gymnasium, Sydhavnen School, the Finnish Saunalahti School and the Swedish Barkaby School. This forms part of a larger analysis of vertical schools in Australia and overseas the authors are proposing to undertake.

Keywords: vertical schools; community hubs; urban communities; urban consolidation; community planning; learning environments

Vertical Schools as Community Hubs

Vertical schools of four or more storeys in height are starting to be constructed in most Australia capital cities. While common in Europe and Asia, vertical schools are a relatively recent phenomenon in Australia, developed in response to changing demographics within the centres of our capital cities. The vertical school typology represents a radical departure from designs with multiple low-rise buildings (although designs in the 1920s and 1930s were often three stories) linked by covered walkways and often on large land parcels with plentiful green space (Matthews, 2018; Swinburn, 2017). Vertical schools are typically contained in one, sometimes two, buildings.

Australian urban consolidation and policies encouraging city residential development have been accelerating since the 1990s (Newton, 2019; Matthews, 2018; Swinburn, 2017). Increasing school-age populations in urban cores, high land prices and a scarcity of suitable sites make vertical schools an economic alternative to long-standing cultural preference for low-rise schools in the suburbs. This approach is helping to accommodate an estimated million additional Australian school students in the next two decades (Blandy, 2017; Goss, 2016).

Schools must be designed to function well as learning environments, but should schools also be designed as social infrastructure for the broader school community? A recent survey of Australian parents and educators found schools provide 'hubs of community' that bring social benefits beyond learning (Renton & Stobbe, 2020, p.14). Survey participants perceived that schools have become more inclusive over the past five years in terms of ethnicity, gender and religion. Supporting diverse communities is important given Australia's multicultural composition.

The Community Hubs Australia project was designed to promote social inclusion and cohesion and included 8000 families from over 100 countries of origin. Evaluation of the program noted the benefits for migrant families and school readiness of taking an integrated approach to delivering community services (Rushton, et al., 2017). Opening schools to diverse communities has design implications as well as management and governance implications. For example, the entry design can be welcoming or a barrier. School facilities and spaces for drama, music, exercise, socialising, craft, play and eating can be located for potential community use or for school use alone.

This paper focuses on the traces of community connections that can be discovered from visual analysis of plans and occupied buildings. These are compared with northern European examples, where vertical schools have a longer history. It considers various forms of space and their uses, permeability, safety issues and other conditioning factors that influence community use of vertical schools. Examples include the influential Danish Hellerup School, Ørestad Gymnasium, Sydhavnen School and International School, the Finnish Saunalahti School and the Swedish Barkaby School.

Background and Context

In Australia's large capital cities urban consolidation policies aim to densify and enliven urban areas while reducing suburban sprawl (Raynor, Mayere and Matthews, 2018). Increasingly some families are choosing to remain in urban core areas slowly reversing a long-standing suburban preference among Australian households with young children. As one example, enrolments for inner city schools in Sydney have risen by more than 13 per cent – nearly 3.5 times the state average – since 2012 (Swinburn, 2017). Consequently, there is escalating demand for inner-urban school spaces which, along with limited land availability, is leading to the emergence of vertical schools (Truong et al., 2018).

All Australian states except Tasmania are developing vertical schools. The Australian vertical school phenomenon can be divided typologically into mid-rise and high-rise. Most are mid-rise, between four and seven storeys, but taller schools from 10 to 17 storeys have been opened in New South Wales and Victoria (Newton, 2019). These new vertical schools and their campuses, like all schools, will be important forms of social infrastructure that are connected in complex ways to their proximate built, natural and material environments (Botsoglou et al., 2019; McLeod, 2014). Creating schools that function well as learning environments and as social infrastructure requires collaboration between educators, design professionals and other stakeholders including urban planners, policymakers and parents (Halarewicz, 2017).

Analysis

Table 1 lists the early examples of vertical schools in Australia. Design themes emerged as we contrasted early Australian vertical schools with European examples.

We found similarities in the types of facilities shared between schools and communities, but we also found distinctive issues related to the design of entry experiences as well as boundary conditions. We noted different arrangements for outdoor spaces and different attitudes to community and risk. These themes are often interconnected. For example, attitudes to risk aversion impact the entry arrangement and whether there are supervised gateways between spaces for the community and spaces for students.

Facilities shared between communities and schools

Australian vertical schools benefit by proximity to community facilities and vice versa. St Andrew's Cathedral School is Australia's oldest vertical school, having been built in 1976. Students occupy the top three levels of the eight-storey brutalist office building in central Sydney and use the adjacent cathedral as an auditorium, the city library and museum for learning, and the playing fields at the University of Sydney (Curnow & Lambert, 2015). Likewise, the university makes use of St Andrew's classrooms after hours.

Melbourne's first vertical school is the city campus of Haileybury private school, as shown in Figure 1. The 2017 retrofit of a thirty-year-old office building was in response to the rapidly expanding city

Table 1

Vertical Schools in Australia

School name	State	Location	Years	Date	Peak Enrol	Levels
St Andrew's Cathedral Sc ¹	NSW	Sydney CBD	K-12	1976	1100	Top 3 of 8
Arthur Philip HS ²	NSW	Parramatta	7-12	2020	2000	17
Parramatta Public ²	NSW	Parramatta	F-6	2020	1000	4
Inner Sydney HS ³	NSW	Surry Hills	7-12	2020	1200	11
Inner City North SC ⁴	QLD	Fortitude Valley	7-12	2020	1500	7
Inner City South SC ⁵	QLD	South Brisbane	7-12	2021	1650	
Adelaide Botanic HS ⁶	SA	Adelaide CBD	7-12	2019	1250	7
Haileybury City Campus ⁷	VIC	Melbourne CBD	EL-12	2017	800	10
South Melbourne PS ⁸	VIC	South Melbourne	F-6	2018	525	6
Richmond HS ⁸	VIC	Richmond	7-12	2019	650	4
Prahran HS ⁹	VIC	Prahran	7-12	2019	650	5

Note: ¹Noel Bell and Herbert F Hely | ²Grimshaw Architects with BVN | ³FJMT Architects | ⁴Cox Architecture with Thomson Adsett | ⁵BVN Architects | ⁶Cox Architecture with Design Inc | ⁷Darren Carnell Architects | ⁸Hayball Architects | ⁹Gray Puksand Architects

Figure 1

Haileybury City Campus



Source: Haileybury School. Photographer: Chris Kappa.

residential population revealed in the 2011 census. Like St Andrew's, Haileybury benefits from its central city location for cultural, educational, sporting and recreational facilities.

Adelaide's Botanic High School (Fig. 2) links six learning levels in a repurposed university building with a new seven-storey building. Botanic High also makes use of adjacent city facilities for teaching and learning, particularly the nearby botanic gardens and parklands. In contrast, the northern European schools studied tend to be further from the city centres in areas with extensive apartment living.

Community use of outdoor spaces

Of the Australian vertical schools, Botanic High is most like the European precedents in terms of how outdoor spaces are freely available for use by the broader community outside school hours. The school-to-community boundaries are porous and only semi-defined by height-level changes with robust outdoor tables and chairs openly accessible. In Copenhagen, the local authority takes responsibility for maintenance of the school's outdoor spaces of Sydhavnen Skolen with even the school roof, constructed as an outdoor landscape of timber steps, accessible to the community (Fig. 3).

Figure 2

Outdoor Spaces, Adelaide Botanic High School



Source: Cox Architecture.

Figure 3

Outdoor Spaces, Sydhavnen Skolen, Copenhagen



Source: Image by author.

Richmond High School, in the inner urban ring of Melbourne, has outdoor spaces that, while fenced, are kept open after hours and on weekends for use by the community. Outdoor spaces with playground equipment are particularly valuable in inner city areas as more families occupy apartments with limited outdoor areas.

Community and school co-use of indoor spaces

The broader community of Richmond benefits from after-hours access. Rather than a hard line separating school-use and community-use, there are interstitial spaces used by multiple groups near the entry areas such as spaces for drama and music. The school is located near community sports facilities including a pool and netball courts. The additional gymnasium, built as part of the school, is used by both the local community and the school, thereby extending the opening hours and resulting in more efficient infrastructure use.

Two other medium-scale vertical schools were opened at similar times to Richmond High School in other inner ring suburbs of Melbourne. The six-level South Melbourne Primary School was conceptualised in the context of the new and dense Docklands urban community.

The design brief envisaged school spaces might support residents living in nearby apartments by accommodating after-hours use of facilities such as makerspaces, gathering spaces for meetings as well

as access to music, drama and sports areas. Prahran High School has a rooftop gymnasium, garden and running track that are likewise envisaged for after-hours use by community.

On its Education Department website the Victorian State Government provides policy, guidance and resources for schools wishing to hire, license or develop shared use agreements. In 2006, Victorian School Councils were encouraged to enter into third party agreements for the use of school facilities when not required for ordinary school use. The policy stipulates that fees paid cannot be higher than required for cost recovery (School Operations, 2020). This is to encourage more efficient and equitable access to government-funded community infrastructure.

The symbolic and functional importance of central atria

The Victorian and South Australian vertical schools are designed around a central atrium, forming a visual heart and gathering space for each school as well as connecting the vertical levels and making learning spaces more visible. This is in contrast with traditional classrooms off corridors. Rather than just connecting levels with staircases, seating is provided by the stairs. These have become known as Hellerup stairs given early use at Hellerup School in Copenhagen by Arkitema Architects (Fig. 4).

South Melbourne Primary School uses the central stairs as a mini theatre space. Students use the central stairs of Prahran High School for presentations but also for informal gathering or study (Fig. 5). Richmond High School has a smaller Hellerup-model stairway located just inside the entry. Rather than

Figure 4

Hellerup, Copenhagen



Source: Image by author.

Figure 5

Prahran High School, Melbourne



Source: Gray Puksand.

facing a staff-controlled desk, students enter the school into the atrium each day to be welcomed by the principal. With seating on the stairs to the side and a canteen nearby, this entry sequence is similar to many of the northern European examples where the boundaries between public and private are blurred.

Blurred boundaries versus gated communities

The three Copenhagen schools considered within this paper each have entry sequences rather than controlled access gateways with reception desks in public foyers. Visitors enter Hellerup School through a recreation room to reach the central stairway. At the Sydhavnen School administration staff can view the entry from an upper level rather than in a control desk area near the entry. Visitors arrive into a double height space with student artwork and a mix of informal furniture. There is a view through the dining area to the outdoor spaces. Ørestad Gymnasium, by 3XN Architects, has a traditional formal entry mid-way along its rectilinear and colourful façade, but inside, the visitor enters into an atrium where boomerang shaped floor platforms hold circular learning pods, often cantilevered into the atrium. On entering each of these buildings, visitors move from a *public space* to a *privileged or invited space* before reaching the more *private* learning spaces within the school.

Visitors entering schools in Australia are generally overtly controlled with reception areas acting as gateways between a public foyer and the school beyond. New schools developed for the Victorian School Building Authority often have separate student waiting areas from the waiting areas used by the public.

Perceived and real risks

A topic worthy of further exploration is how community attitudes towards risk impact the design of schools. The playground of Sydhavnen School is adjacent to a canal, but the school community chose to keep the canal unfenced on the basis that children needed to learn to be safe near canals. The roofscape can be played upon as a large stair with few handrails (Fig. 3). In Australia, such a play surface might be perceived as unsafe.

Student classrooms and outdoor areas in American and UK schools have highly controlled access points. Public access to the northern European schools appears to be less clearly defined by the architecture. The Swedish school of Herrestaskolan by Liljewall Architects uses signage to orient visitors rather than a reception entry desk (Fig. 6).

Urban presence

Seeing into learning spaces from public paths is not unusual in the European schools. The Finnish Saunalahti School teaching spaces and the Herrestaskolan gymnasium both have windows on to the public paths adjacent (Fig. 7). Figure 8 shows views from Sydhavnen School to the public street. Vertical schools in Europe are often built up to the external boundary adjacent to roads and footpaths whereas in Australia we tend to avoid the public viewing into areas occupied by children by ensuring learning spaces

Figure 6

Entry sequence with signage, Herrestaskolan, Sweden



Source: Images by author.

Figure 7

Entry sequence with signage, Herrestaskolan, Sweden



Source: Images by author.

are distanced from public areas or separating with the use of a corridor.

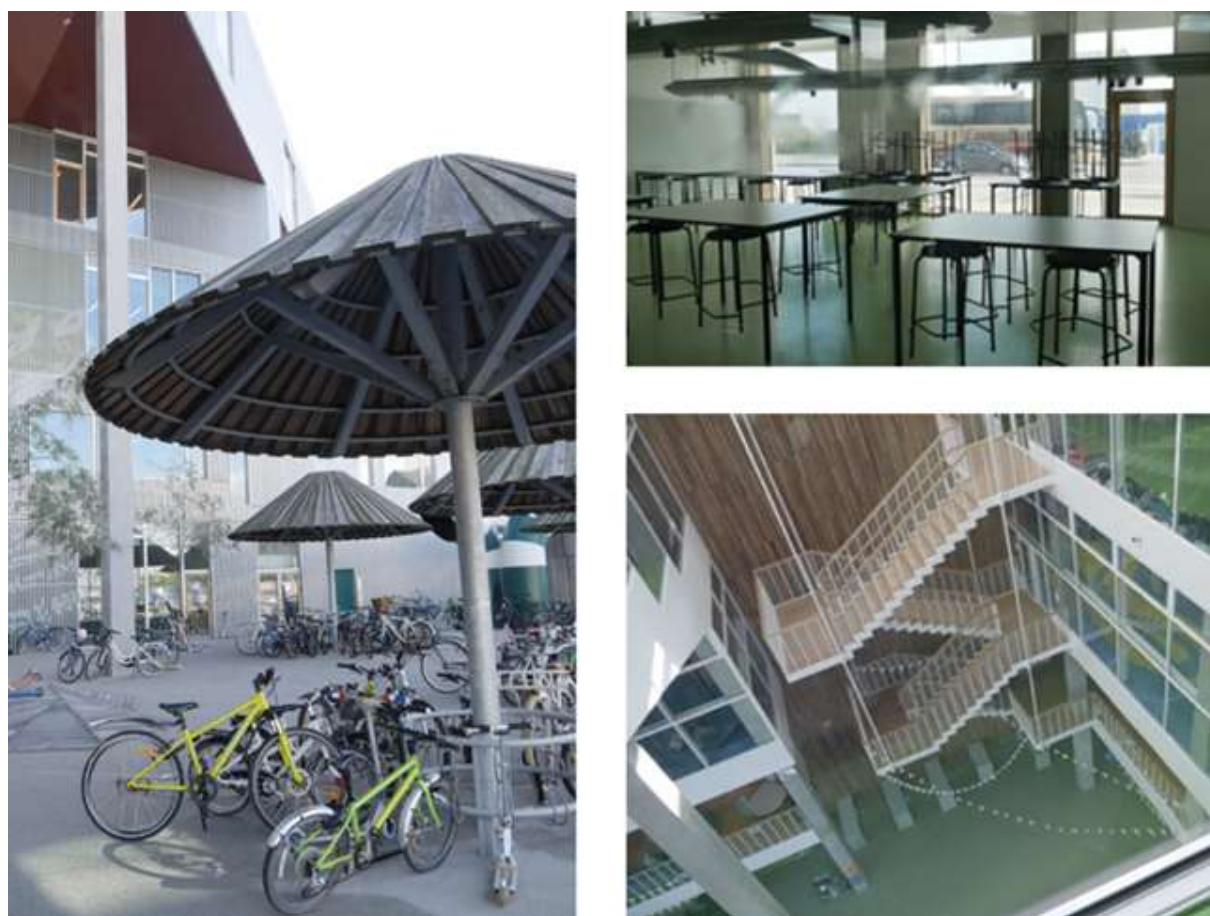
Co-located community functions

We have not yet visited many Australian or northern European examples of co-located community facilities such as community centres and kindergartens in vertical schools. Arthur Philip High School, the first public high-rise school in NSW, has provided flexibility for future community uses. Fiep Westerdorp (Fig. 9) in Amsterdam has the collocation of a school, nursing home and apartment complex around a shared playground. While visiting this school we spoke with a waiting parent who explained the convenience of living in the adjacent apartment as he used a wheelchair. Mixing generations is sometimes regarded as having mutual benefits (Warner, Homsy & Greenhouse; 2010). Anecdotally, teachers we spoke to at Fiep Westerdorp and residents in the adjacent nursing home did not see the relationship between the school and the nursing home as being synergistic. Further research is needed to better understand why.

Calvijn College (Fig. 10) in Amsterdam by Wiersema Architects, has a program entitled NEXT,

Figure 8

Entry sequence with signage, Herrestaskolan, Sweden



Source: Images by author.

Figure 9

Mixed uses of Fiep Westerdorp



Source: Images by author.

Figure 10

Shared spaces for young and old at Calvin College



Source: Images by author.

where students connect with local communities in a range of ways including preparing and serving meals for older local residents as part of an internship. Kitchens are used for events and the sports program and a training in hairdressing and beauty are interconnected to community with a range of partner organisations contributing to the student education.

Conclusion

The complexity of research into community hubs

As vertical schools become more prevalent in Australian cities, it is necessary to deeply explore the complexities of how these vertical schools operate as community hubs in the Australian context. This new type of school campus has the potential to create innovative and desirable learning and community spaces if designed correctly. Hopefully Australian governments will support this view. Lessons on good practice from overseas are a helpful first step. The next, more critical phase of research requires location and context-specific investigations of vertical school development in Australia. Quality research will help maximise community and learning outcomes from this new and vital form of social infrastructure. This can ensure that future vertical schools meet the needs of their communities, as well as facilitating great learning outcomes for students.

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