



# **Evolving Learning Space Typologies**

**In education, workplaces and  
emerging contexts**

**Place Associates & BVN**  
October 2015



# Outline

This paper explores the evolving structure of educational spaces and workspaces as 'learning spaces'. In this context, 'learning space' is defined as a space designated for the purpose of learning. Learning can be both formal – programmed, curriculum based, delivery orientated – and informal, be it independent or through peer gatherings that are task or interest related. The paper will examine how learning spaces in educational institutions and workplaces facilitate the growth and development of human capital and learning in response to changing market factors. Case studies will exemplify the critical elements that address user needs within the culture and design of learning spaces.

The paper will also examine the emerging incarnations of learning spaces that exist outside workplaces and educational institutions. These unconventional spaces and experiences will be critiqued in relation to the market factors that have driven their existence as well as their spatial execution in relation to user needs.

# Introduction

We are moving into an era of the knowledge economy, where science, technology and knowledge-based industries are dominating and disrupting markets, whilst the traditional economic industries, such as manufacturing and mining, begin to take the back seat. Consequently, the skills and knowledge required to succeed in global and local economies of the future must change. Education and the drive for innovation are becoming the key focus for governments, industries, businesses and individuals. A report by Deloitte's Center for the Edge suggests enterprises should develop institutional innovation approaches that are facilitated by the implementation of spaces that enable learning, collaboration and informal knowledge sharing (Hagel & Seely Brown 2013). In support of this, we are seeing the emergence of various types of learning spaces in progressive educational institutions, workplaces and even in unconventional areas, such as retail and social settings. These three areas will be critiqued in the following sections in the context of their ability to promote the development of human capital and learning in both their culture and spatial design.

# Educational Spaces

The design of the traditional school typology, dating back to the late 18th and early 19th centuries, reflects a pedagogy in which teachers impart knowledge and students passively receive, largely through rote memorisation. This was based on an industrial model of schooling, with a primary goal to provide students with basic skills needed to participate in an industrial workplace.

Today, there is increasing emphasis on skills and competencies required by young people to 'allow them to engage with and participate in the rapidly-changing world of today and tomorrow' (*P21 Partnership for 21st Century Learning* 2015). United States-based P21 – an organisation founded in 2002 as a coalition bringing together the business community, education leaders and policymakers to position 21st century readiness at the centre of American K–12 education – notes that 'to cope with the demands of the 21st century, people need to know more than core subjects. They need to know how to use their knowledge and skills by thinking critically, applying knowledge to new situations, analyzing information, comprehending new ideas, communicating, collaborating, solving problems, making decisions' (*P21 Partnership for 21st Century Learning* 2015). The New South Wales Department of Education and Communities (NSW DEC), Australia, emphasises skills required by young people to live, work and be successful in the 21st century as the 4Cs: creativity, communication, collaboration and critical thinking (*21st century skills for Australian students* 2012).

A 2015 OECD report, *Schools for 21st-Century Learners*, based on data and comparative analysis from several OECD publications, discusses changing approaches to teaching so that students acquire the skills they need to thrive in competitive global economies. These include regrouping teachers, regrouping learners, rescheduling learning and widening pedagogical repertoires (TALIS 2013 Results: An International Perspective on Teaching and Learning 2014) (PISA 2012 Results In Focus: What 15-year-olds know and what they can do with what they know 2013).

Whilst these approaches can and do take place in traditionally designed school environments, these types of spaces may not optimally support activities beyond what they were originally designed for. Similar to contemporary workplace design, in which spatial design supports and fosters the types of activities and relationships desired to optimise relationships and behaviours in a new workplace culture, fresh approaches to school design can better enable new pedagogies. Exemplars referred to in this section demonstrate how their spatial configurations optimise innovative approaches to learning.

**Regrouping teachers** addresses the deprivatisation of the classroom to a more collaborative working environment. Collaborative planning, team teaching and professional development creates a more dynamic learning environment both for teachers and students. Enhanced visibility between learning spaces enables opportunities for teachers to demonstrate and see different mixes of learning and pedagogy.

The Zone is a dedicated home for Years 5 and 6 students at Northern Beaches Christian School's (NBSC) K–12 campus in Sydney, Australia. The Zone accommodates 180 students collaboratively taught by six teachers. Formerly housing traditional classrooms and the school's library, the building was refurbished in 2011 to be a more open and connected learning space over two levels. Large open areas are complemented by smaller learning spaces, all of which are visible through glass walls enabling students and teachers to see others engaged in learning throughout the space. A dedicated collaborative work area for teachers is similarly visible, enabling students to see teachers working together, and by doing so demonstrating what they teach. This area is bounded by retractable glass walls which allow teachers to completely remove the separation between teacher and student areas emphasising the notion of everyone being a worker and a learner.

**Regrouping learners**, by taking a 'stage-not-age' approach, in which learners are grouped by ability rather than age, recognises the individual student and their differing levels of ability and interests. Peer-to-peer learning is also better supported



**The Zone, Northern Beaches Christian School**  
Sydney, Australia

through this approach, as well as fostering improved social relations and as a result minimising bullying. Regrouping learners into smaller groups within larger groups through 'house' systems, or 'home bases' in a 'Schools Within Schools' model can also improve learning contexts through scalable environments better supporting a sense of belonging and community. (Deweese 2007)

The Kunskapsskolan school system, which began in 2000, is the leading independent school operator in Sweden. The Kunskapsskolan Education program (KED) is based on a structure that recognises every student as a unique individual with each having a personalised education program. Together with their teachers and parents, students set long-term learning and attainment goals for the year ahead. Each student has a teacher who acts as a mentor to help them plan their learning in order to achieve their learning goals. In Odd Eiken's 2011 article 'The Kunskapsskolan: A Personalised Approach to Education', he imparts that Kunskapsskolan's schools are typically located in facilities which were originally built for other purposes, i.e. former office buildings, factories or shops. These decisions around school locations consider the proximity of community facilities which students can access such as libraries and recreational facilities. Consequently, these spaces are not included within the design of Kunskapsskolan schools.



d.school, Berlin, Germany

**Rescheduling learning** refers to changing the structure of the school day, shifting from shorter periods of time on multiple subjects each day to fewer subjects over longer periods, enabling greater flexibility within lessons, and importantly, to enhance opportunities for deeper learning. This, in particular, is of benefit for schools that move away from a standard subject-based curriculum to interdisciplinary and project-based learning (PBL).

High Tech High is an innovative collection of charter schools in Southern California. The educational model is firmly rooted in PBL, where students acquire academic knowledge while picking up real-life skills, such as collaboration and critical thinking. Students see only five teachers over the course of a week, often in double periods of up to two hours per day. By doing so, students build stronger relationships with their teachers, are able to go more deeply into projects and encounter less scheduling issues around field trips and guest speakers. PBL is very similar to the structure of workplace projects, and we can see High Tech High as an excellent exemplar of a pedagogy system that prepares its students with workplace capabilities.

**Widening pedagogical repertoires** reflect that learners need to experience a range, not a single method or pedagogy (Dumont, Istance & Benavides 2010). This can include whole-group, teacher-led learning, as well as self-directed inquiry and interdisciplinary PBL.

**Incorporating real-life problems and hands-on experiences can be engaging for students who value the authenticity of relevant, complex and challenging problems tied to the real world.**

The d.schools at Stanford University and Potsdam, Germany, take this approach, bringing together students and faculty in engineering, medicine, business, law, the humanities, sciences and education to collaborate on real-world problems. Projects are developed in partnership with corporate, non-profit and government organisations, giving students direct contact to partners, stakeholders, users and experts to explore real problems. Through a process called design thinking, students combine creative and analytical approaches to better understand contexts, define problems, and from there iteratively develop potential solutions by testing in the field with users (*d. Hasso Plattner | Institute of Design at Stanford 2015*).

Technology also offers opportunities to widen pedagogical repertoires by providing access to a greater body of information not previously accessible, creating immersive or simulated experiences and enabling online communication and knowledge sharing. Technology has also fuelled the Maker Movement, a contemporary culture or subculture representing a technology-based extension of DIY culture. Maker spaces are hands-on environments enabling users to explore a range of engineering-oriented pursuits, such as electronics, robotics, 3D printing, CNC tools, as well as more

traditional activities, such as metalwork, woodwork and traditional arts and crafts.

**There is evidence of declining rates of student participation in science globally, with international research suggesting that 75 per cent of the fastest growing occupations globally require science skills and knowledge.**

In response to this, schools are introducing Maker Spaces in an attempt to attract students to STEM learning (Science, Technology, Engineering, Mathematics) (Chubb 2015; Kennedy, Lyons & Quinn 2014).

Initiated with an objective for students to explore and gain skills in science and technology, The Mind Lab by Unitec began as a start-up in Auckland, New Zealand in late 2013 to teach students robotics, 3D design, electronics, stop animations and augmented reality, among other skills. School students visit as part of school excursions during term time, or independently during the holidays to tinker, play and learn. This venture has been so successful it is now backed by Unitec, a leader in applied vocational education with further sites now open in Gisbourne, Wellington and Christchurch. In addition to classes offered to children, teachers can undertake professional development through a postgraduate qualification specialising in digital and collaborative learning. This program of study introduces new teaching methodologies for active class engagement, practical knowledge of digital tools and exposure to emerging pedagogical practices that enhance the learning experience for today's learner (*The Mind Lab by Unitec* 2015).

The examples noted above demonstrate a shift from the traditional learning environment to a more disruptive innovation model (Leadbeater & Wong 2010). In formal contexts, i.e., within school, such as NBCS The Zone, Kunskapsskolan and High Tech High, timetables are personalised, assessment is less exam focused, classes are organised by ability and interest rather than age, and there is more collaboration through peer-to-peer teaching and learning. The interdisciplinary, project-based and authentic learning experiences offered by the d.school within Stanford University similarly depart from a traditional to a more disruptive approach to learning. In informal contexts, outside of school, spaces such as The Mind Lab by Unitec, are demonstrating the impact of independent enterprises that supplement learning offered within school, and which in turn are influencing school systems. Of note are the physical and spatial characteristics of all of these examples, which are less formal, more open and diverse, and as a result actively support collaborative work between students and their teachers.



**The Mind Lab by Unitec**, New Zealand

# Workspaces

The necessity for continual learning within the workplace is a growing priority that is shaping workplace culture and design. Advances in digital technology and the relaxation of global economic policies are major contributors to market changes and evolving consumer needs. To maintain a competitive advantage, individuals and enterprises need to be agile, adaptable and continually engage in opportunities to enhance their knowledge and learning (Harteis and Billett 2008).

A report by the Deloitte Center for the Edge (2013) suggests enterprises should develop institutional innovation approaches that are facilitated by the implementation of spaces that enable learning, collaboration and informal knowledge sharing. The case studies to follow are exemplars of such an approach and can be viewed as workplaces that are responsive, connected and adaptive in their culture and spatial design. There is also a growing trend of workspaces located outside traditional work environments that are catering for an increasingly mobile and collaborative workforce.

Formal and informal knowledge sharing between work peers has been identified as a highly beneficial mode of learning that has creative and productive outcomes. While this is arguably more likely to occur within traditional organisations, the growing number of 'solopreneurs' require access to workspaces and networks that can boost their capabilities. Co-working spaces are increasingly emerging to support this independent workforce. One particular example is Factory in Berlin, a tech-specific co-working space that provides a number of learning opportunities for its tenants. Factory curates its tenant mix to ensure a range of companies in different stages in their business cycle. Some companies are emerging and others firmly established (including tech giants Twitter, Mozilla and Soundcloud). Similar to Kunskapsskolan's 'regrouping of learners', this strategic mix enables knowledge sharing across experience levels, allowing start-ups to garner business insights and seasoned professionals to capture fresh ideas. Jeremy Bamberg, the community and outreach manager at Factory, says that 'elevator, restaurant and bar conversations are treasured elements of this space' and imparts that in developing a thriving network of tech start-ups, a community culture has formed. While many co-working spaces will have a series of programmed events, Factory takes a more targeted approach to learning. Start-ups are given the autonomy to host and/or request events that are directly relevant to their needs rather than passively accepting content that may tread familiar territory. All of this provides a distinct difference in attracting and fostering a truly collaborative and dynamic learning and working hub.

And while co-working spaces bring together like-minded individuals, traditional corporations are faced with the proposition of producing environments that will ensure learning occurs internally.

**Informal knowledge sharing via chance encounters or 'collisions' is increasingly being recognised as a way in which valuable learning can occur.**

A 2014 *Harvard Business Review* article, titled 'Workspaces That Move People', reports that informal interactions result in increases in innovation and productivity. Jon Fredrik Baksaas, the CEO of telecommunications company Telenor, views the company headquarters 'not as real estate but as a communication tool'. Since reconfiguring the workspace to a hot-desk format, improvements in communication, accelerated decision-making and even a shift to 'an attacking mindset' followed. This represents a boost in personal confidence and communication skills and, in turn, positive business outcomes.

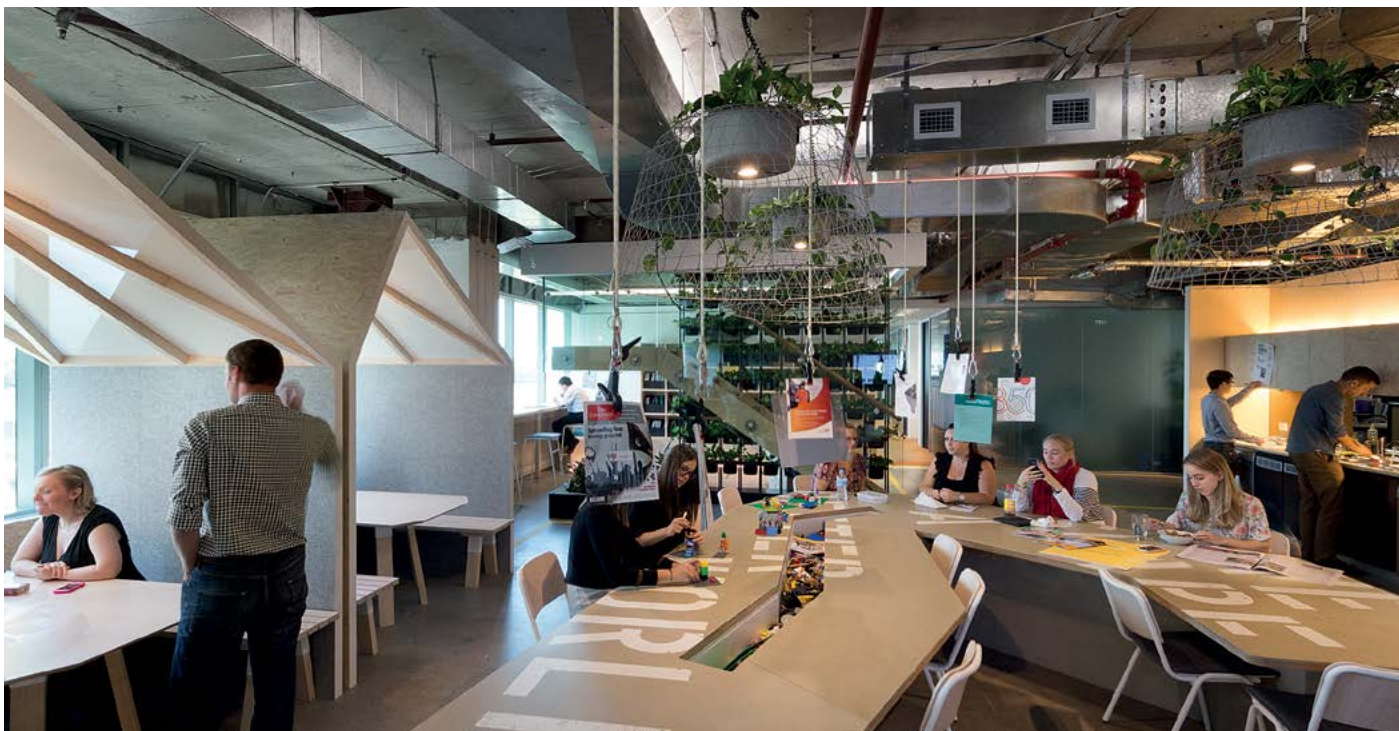
Workspace configuration is not a one-size-fits-all game and must be attuned to employee needs and organisational policy if certain outcomes and capabilities



**Factory**, Berlin, Germany

are to be met. The 2013 Gensler Workplace Survey reveals that 'balanced workplaces' are the most effective environments. These are defined as spaces that prioritise both collaborative spaces and quiet areas for individual focus. Employees working in these environments indicate that their spaces are 22 per cent more effective for focus and 17 per cent more effective for collaboration compared with workplaces that do not support both (2013, p.13). One may infer that providing employees with the opportunity for secluded independent work results in more effective learning, the flow-on effect of which is an enhanced contribution in collaborative scenarios.

The global commercial real estate services firm CBRE's Los Angeles office is a workplace that offers the aforementioned balance and flexibility as a means to boost collaboration, performance and satisfaction. Rather than having assigned workspaces, employees can choose from 15 different space typologies on a daily basis, thus selecting the one that is appropriate to the particular activities of a given day. Spaces range from lounges and collaboration spaces to acoustically treated individual enclaves. CBRE has supported this mobility by creating a paperless office and supplying employees with work-from-anywhere mobile technology (Hoskins). This is an exemplar of a highly attuned approach to a productive workspace that views collaboration as one component of learning, a component that is best supported by an aligned organisational policy, response to individual needs and appropriate supportive technology.



Arup Offices, Sydney, Australia

Similar to CBRE, Arup's Sydney office is piloting a number of activity-based working spaces (ABW) that are directly aligned to the consultancy's engineering culture. One of the key spaces is the 'workshop', a modular space that contains informal collaboration spaces, areas devoted to research and knowledge sharing, meeting spaces for small groups and firm-wide events, as well as bespoke pieces, such as a 3D printing hut and a community table with integrated Lego boxes. The Arup website imparts that the intention for these adaptable, writable, modular spaces is to inspire staff to participate, share, design, make and cross-pollinate ideas between disciplines. The workshop is gradually gaining popularity among employees and has begun to influence new internal activities. One such activity is 'Arup Imagine', which asks teams of employees to devise and implement additional creative uses of the space. One installation included a sculptural data visualisation that mapped each staff member's favourite place and daily commute across Sydney. Arup's research and learning group, Arup University, also sits at the centre of the studio (*New workplace design for Arup's Sydney office* 2015). This symbolically and literally communicates the value placed on the integration of learning within a workspace and strong commitment to the development of human capital.

Innovation labs and incubators are another type of space that is being integrated into workplaces to facilitate learning and product development, both among the internal staff as well as with external stakeholders, strategic partners and customers. An excellent example

is the LinkedIn [in]cubator which strategically only fosters ventures that can benefit LinkedIn's customers or employees. Every quarter, LinkedIn employees can pitch an idea about a potential product or service offering to the executive staff, including founder Reid Hoffman and CEO Jeff Weiner. If the idea is successful, the employee is paired up with an executive mentor, and allowed up to three months to develop the project (*The LinkedIn Incubator* 2013). Here we can see high-level learning opportunities and experiences being embedded into the culture and executed through direct mentorship from the company's experienced professionals.

It can be seen that the most effective workspaces that foster learning are those that reinvent the traditional workplace model by encouraging and supporting individual autonomy through adaptive and responsive organisational policy, flexible physical spaces and appropriate technology. When individuals are allowed choice they feel empowered to take charge of learning and development opportunities (Pogue et al. 2013), such as curating learning programming attuned to individual needs, throwing themselves into creative company projects as well as garnering the confidence to build networks and engage collaboratively. These qualities are the foundation for innovative outcomes. As we will see in the following section, increased personal autonomy in educational spaces and workplaces begins to filter out into social areas, resulting in the initiation and involvement in new learning experiences.

# Emerging Learning Spaces

While we are seeing traditional educational and workplace environments that are increasingly responsive, connective and adaptive, learning spaces with similar characteristics are emerging in a number of unconventional spaces and in a variety of operating models.

The following section will critique informal 'peer-to-peer' learning, lifelong learning and supportive networks as the emerging learning space typologies.

Peer-to-peer learning can be defined as knowledge sharing that occurs in semi-formal networks formed in community circles. Where in workplaces we might see rapid knowledge sharing and chance encounters formed by physical space, peer-to-peer learning is often enabled by online platforms that connect individuals. The type of space that is used for learning is often secondary, in that existing spaces (cafes, parks, libraries) are often utilised for learning sessions, as opposed to custom-designed spaces.

One particular online learning and social connection platform is Konnektid, which has emerged in an effort to harness the collective knowledge of persons across age groups, ethnic backgrounds and professional expertise. The Konnektid website says that 'the potential to learn anything is right in your own neighborhood', allowing everyone access to social capital (Konnektid 2015). The idea behind this online learning network is to activate the knowledge of communities and to encourage people to share their skills or expertise with each other. In doing so, this model helps to ignite a sense of community spirit. Founder Michel Visser believes that engaging in this type of learning can contribute to one's success, both personally and in the labour market (Konnektid launches new platform to share knowledge 2014).

Another peer-to-peer learning organisation is Laneway Learning. This is a program that engages the community to hold classes in non-traditional learning environments, such as cafes, bars or event spaces. With a mission to make education 'as accessible and inexpensive as possible', Laneway Learning courses are taught by experienced members of the community or professionals rather than qualified teachers. Courses range from indoor gardening and pickling to sock puppetry (Laneway Learning 2015).

**In these peer-to-peer scenarios we can witness a growing culture and confidence toward learning and teaching. This could be attributed to the growing innovation cultures in workplaces and the autonomy given to individuals to curate their own learning opportunities.**

Turning now to lifelong learning, though individuals have long sought to learn outside of compulsory systems for their personal development, it is important to note that the ways in which this occurs and the underpinning motivations are changing. This paper will explore two types of lifelong learning: upskilling for career development and acquiring 'life skills' and emotional intelligence.

In a career context, the continuing desire for lifelong learning and changing market expectations are requiring educational providers to think differently about how



Laneway Learning, Sydney, Australia

they present their courses. This has opened the door to educational experiences being staged in a range of unexpected places through unconventional platforms. Broader access to high-speed internet and the proliferation of access to online learning have spurred an 'education by demand' trend. This model, where universities now compete with the likes of free online course providers such as Coursera, gives aspiring students access to greater options regarding what, when and how they learn. This is education delivered 'by convenience' through very different fee models – if they are not already free. General Assembly delivers career-enhancing courses online or in small educational facilities in cities around the world. It runs courses over a variety of periods, with some lasting just weeks or even hours.

A different form of lifelong learning is one that favours ontology and the development of emotional intelligence that allows one to navigate life. This is a response to a society that is frazzled by constant connectivity and rapidly evolving platforms that continually shift interactions and protocols. To manage this, new pedagogies seek to engender individuals with assuredness in the face of constant change and engage them as 'persons not knowers' (Gibbons et al., 1994; Nowotny et al., 2001 cited by J. 2010).

The School of Life is an initiative led by mainstream philosopher Alain de Botton that responds to this need to develop emotional intelligence and does so through

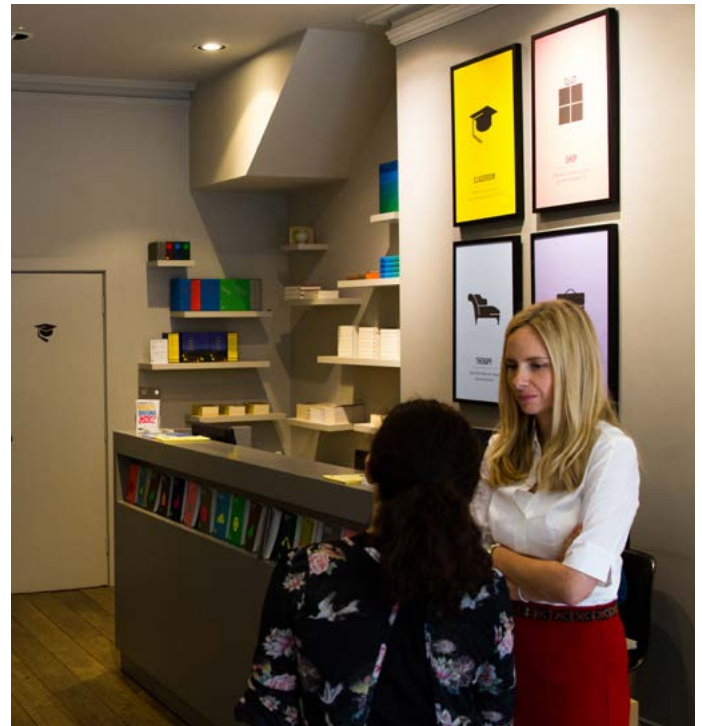
cultural resources. Some topics include ‘how to find fulfilling work’, ‘how to master the art of relationships’ and ‘how to find calm’. The School of Life operates in eight locations worldwide and each offers a range of classes, workshops and even psychotherapy sessions. These ‘schools’ are run from high-street locations, each including a cafe and retail store. As such, they remove the stigma from tackling personal emotional issues and the notion of where we traditionally believe education and learning can occur. Interestingly, in an interview, de Botton expresses that his team has ‘created a brand in an area that used to be totally unbranded’ (Matousek 2013). The School thus attempts to ‘put learning and ideas back to where they should always have been – right in the middle of our lives’ (de Botton 2013).

**In the 2004 article ‘Learning for an unknown future’, author Professor Ronald Barnett speculates that the long-term benefit of this investment in personal development is likely to yield the ‘adaptability’, ‘flexibility’ and ‘self-reliance’ that the corporate sector demands from graduate employees, and thus these dispositions will have an economic and performative value (Barnett 2004).**

As we have seen from a number of examples previously discussed, the capacity for businesses and individuals to learn and perform highly is increased when there is access to a supportive network or community of like-minded individuals. This has been discussed in terms of the internal operations of learning spaces; however, a broader lens will note that there are emerging networks managed and implemented by private property developers and governments who have recognised the value of work and educational spaces in their ability to enhance the social vibrancy and economic prosperity of an area.

One such example is the Cockpit Arts business incubator for designer-makers and the nearby bespoke retail destinations of Lamb’s Conduit Street (LCS) and Rugby Street in Bloomsbury, London. Internally, Cockpit Arts is a highly supportive organisation that nurtures creative businesses to reach commercial viability and sustainable growth. They provide learning resources which include consulting services, online toolkits, access to mentors and affordable workspaces. Cockpit Arts also supports its creatives by hosting events that leverage the bespoke tastes of the retail clientele of Lamb’s Conduit Street. The regular ‘Open Studio’ events allow customers to buy direct from the designer-makers and attracts 11,000 visitors, giving them high exposure to the community (Cockpit Arts | Making It 2015).

In a more strategic sense, Cockpit Arts forms part of the creative proposition of Lamb’s Conduit Street (LCS). A 2014 article from *The Academy of Urbanism*; ‘Lamb’s Conduit Street and Starbucks were never easy



School of Life, London, UK

bedfellows’ references a Here & Now interview with Andrew Glover, partner at Farebrother, the chartered surveyors responsible for managing the portfolio of buildings in LCS. Glover imparts that the property owners of LCS look to the ‘graduates’ of Cockpit Arts to occupy their retail tenancies. They are selected based on their commercial ‘fit’ within the street and their potential to stay long term. It is also noted that Farebrother have taken a long-term approach to asset management, whereby they aim for maximum revenue and limited voids rather than maximum capital return. Thus, the letting policy focuses more on occupation than pushing the rent beyond what is sustainable. On an ongoing basis, this supportive network enables the street to establish and maintain a unique sense of place that allows its creative practitioners to flourish.

On a far greater scale, supportive networks can also be viewed on the scale of cities and government bodies. Knowledge sharing and learning are becoming a concern for cities and nations in their efforts to remain economically competitive into the future. This is supported by the 2013 Gensler Workplace Survey, which imparts that the workplace is not the sole location for work, but is a vital connection among myriad locations in which work happens. Today’s knowledge work happens not just at the scale of people and offices, but at the scale of buildings, cities and ultimately the globe. Boston is one city that has looked to innovation and company growth as an important feature of the city’s economic plan. Over recent years



Knowledge Plaza, Brazil

the local government has supported the development of an innovation district across 1000 acres on the waterfront of South Boston. The mission of the district is to harness existing knowledge and create further opportunities for growth between enterprises and to foster collaboration, shared innovation and sustainable business practices. To facilitate this, a number of co-working spaces, innovation labs and apartments with work amenities have been developed. 'District Hall' is a building that anchors the district and serves as a central meeting ground between organisations. The hall has casual meeting lounges, 'flexible use pods', conference and workshop spaces. Since its inception, the Boston Innovation District has added over 5000 new jobs in more than 200 new companies across the city. Technology companies have contributed 30 per cent of new job growth, 21 per cent of which are in creative industries such as design and advertising, and 16 per cent in greentech and life sciences (*Boston's Innovation District* 2015).

At the other end of the spectrum, developing nations are also implementing learning networks and seeking to democratise education. In Rio de Janeiro, the local mayor and current government have invested heavily in the building of six 'Knowledge Plazas' or 'Knowledge Spaceships'. These digitally geared educational facilities are located in the city's favelas and are seen as a way of giving greater access to digital technology and thus greater levels of education for the masses. It is this high exposure to technology and learning programs that the

government hopes will bring about an end to the poverty cycle. The pivotal point driving this ambitious outcome is that the spaces will provide excellent educational programs to underprivileged adults and children in order to build skills and increase access to information, which the government says is a 'right that is owed to all citizens' (Booth 2013).

It can be seen that key areas of emerging learning spaces are the informal and self-propelled experiences that are supplementary to one's core life activities, from the miscellaneous lessons of Laneway Learning and Konnectid or self-directed career upskilling of General Assembly to online formats. This informality can be attributed to both the operations (often being community driven or self-directed) and also the spaces in which these learning experiences occur – cafes, retail settings, converted spaces. This deformalises learning, creating a more relaxed and social learning experience where individuals can build confidence that can be fed back into the more formal environments of work and academic spaces – thus boosting learning and interpersonal capabilities overall. Though the discussed 'supportive networks' are more formalised, their value is in their ability to transform the landscapes of communities on varying scales. Their inclusion in this section creates a breadth in the scope of emerging learning spaces and, in turn, the high level of accessibility and value placed on learning in all tiers of society.

# Conclusion

In today's knowledge economy and from the exemplars discussed we can see that the implementation of learning spaces in traditional educational institutions and workplaces is being driven by a pursuit of innovation as a means to remain competitive and equipped for changing landscapes. As a way to draw connections between the exemplars, their inherent innovation can be critiqued through Leadbeater and Wong's Education Innovation Grid (2010). This grid suggests a framework to improve learning through four basic strategies: improve, supplement, reinvent and transform.

Formal learning refers to learning which takes place within an 'institutional' environment, e.g., schools, universities and traditional workplaces. Informal learning takes place outside of these institutions and often involves a wider community. Sustaining innovation refers to innovation which improves or supplements existing learning structures. Disruptive innovation refers to the reinvention and transformation of existing structures.

	FORMAL LEARNING	INFORMAL LEARNING
SUSTAINING INNOVATION	IMPROVE	SUPPLEMENT
DISRUPTIVE INNOVATION	REINVENT	TRANSFORM

**Fig 1.** The Education Innovation Grid 2010, Leadbeater, C. Wong, A. *Learning from the Extremes*, Cisco Systems, Inc.

	FORMAL LEARNING	INFORMAL LEARNING
SUSTAINING INNOVATION	<b>IMPROVE</b>	<b>SUPPLEMENT</b> The Mind Lab by Unitec Konnectid Laneway Learning School of Life
DISRUPTIVE INNOVATION	<b>REINVENT</b> CBRE            NBS The Zone Factory        Kunskapsskolan LinkedIn      High Tech High Arup            The d.school	<b>TRANSFORM</b> General Assembly            Coursera Boston Innovation District    Cockpit Arts Knowledge Plazas

**Fig 2.** The Education Innovation Grid: Education institutions, workplaces and emerging learning spaces

Selected case studies referred to in this paper cluster into three of the quadrants with a tendency towards 'disruptive innovation'. Exemplars noted within education and workplace typologies are largely disruptive models of formal learning which reinvent existing systems through personalised learning programs, peer-to-peer, collaborative and informal learning. With goals to connect and engage students in real-life scenarios, examples shown in educational settings tend to focus on interdisciplinary, project-based and authentic learning programs. The learning spaces in this quadrant tend to be informal in nature, with a diversity of larger and more open, as well as smaller and more intimate spaces to accommodate different learning settings. The Mind Lab by Unitec is an interesting anomaly – whilst it originally began as an independent (and disruptive) enterprise, its success has attracted the attention of Unitec, an institute of technology, and New Zealand's largest trade training provider. Now operating as a partnership, The Mind Lab by Unitec provides further education through professional development courses for teachers in the form of a postgraduate qualification.

Emerging learning spaces have a tendency towards informal learning. Case studies in this category which supplement learning often have a focus on peer-to-peer learning within the local community such as Konnectid and Laneway Learning. The skills of communication and collaborative work are seen to be critical for young people entering the 21st century workforce, and these 'soft skills' are the main focus at the School of Life.

The final quadrant, where informal learning meets disruptive innovation, addresses new ways to learn new skills outside of formal structures. Examples in this quadrant transform existing systems, largely through the networked nature of the learning. Technology is a key driver enabling many of the examples to flourish, such as General Assembly and Coursera, allowing anyone around the globe to enrol in their courses yet learn in their own time. At the city scale, the Cockpit Arts business incubator in London, and the Boston Innovation District are both physical examples of how strategically designed urban areas can support and foster learning, and create thriving and sustainable communities through shared spaces and programs which bring people together to develop and learn.

The breadth and depth of case studies reinforces education consultant Stephen Heppell's notion that we are moving out of the 'information age' and into 'an age of learning' (Heppell 2007). This is a time where learning is omnipresent, highly visible and accessible – where governments, businesses, educational institutions and individuals are actively engaging in new learning formats to navigate and engage in our world's changing landscape.

# References

- Barnett, R. 2004, 'Learning For An Unknown Future', *Higher Education Research & Development*, vol. 23, no. 3, pp. 247–60.
- Booth, L. 2013, *Knowledge Spaceships beam art into Rio's shantytowns*, viewed 5.5.2015, <<http://www.zdnet.com/article/knowledge-spaceships-beam-art-into-rios-shantytowns/%3E>>.
- Boston's Innovation District* 2015, viewed 15.5.2015, <<http://www.innovationdistrict.org/the-strategy/%3E>>.
- Brungies, M. 2012, *21st century skills for Australian students*, NSW Department of Education and Communities.
- Chubb, I. 2015, 'Choosing the STEM path', *The Australian Independent Schools STEM Leadership Conference Sydney*.
- Cockpit Arts | Making It* 2015, viewed 10.6.2015, <<http://cockpitarts.com/about-making-it/>>
- d. Hasso Plattner | *Institute of Design at Stanford* 2015, <<http://dschool.stanford.edu/%3E>>.
- de Botton, A. 2013, *The School of Life*, viewed 17.2.2015, <<http://alaindebotton.com/the-school-of-life/%3E>>.
- Deweese, S. 2007, *The School-Within-a-School-Model*, Education Resource Information Centre.
- Dumont, H., Istance, D. & Benavides, F. 2010, 'The Nature of Learning: Using Research to Inspire Practice', *Educational Research and Innovation*.
- Eiken, O. 2011, 'The Kunskapsskolan ("the knowledge school"): a personalised approach to education', viewed 2015, <<http://www.oecd.org/education/innovation-education/centreforeffectivelearningenvironmentscele/47211890.pdf%3E>>
- Hagel, J.I. & Seely Brown, J. 2013, *Institutional Innovation. Creating Smarter Organisations to Scale Learning*, Deloitte University Press.
- Heppell, S. 2007, *An age of learning*, viewed 31.8.2007, <<http://www.journeytoexcellence.org.uk/videos/expertspeakers/anageoflearningstephenheppell.asp%3E>>.
- Hoskins, D., *Employees Perform Better When They Can Control Their Space*, Harvard Business Review, <<https://hbr.org/2014/01/employees-perform-better-when-they-can-control-their-space/>>.
- Kennedy, Lyons & Quinn 2014, 'The continuing decline of mathematics and science in Australian high schools', *Teaching Science*, vol. 60, no. 2.
- Konnektid* 2015, viewed 15.04.2015, <<https://http://www.konnektid.com/about%3E>>.
- Konnektid launches new platform to share knowledge* 2014, BBP Media Marketing Tribune/Online Marketing, viewed 24.04.2015, <<http://www.marketingtribune.nl/online/nieuws/2014/04/konnektid-lanceert-nieuw-deelplatform-voor-kennis/%3E>>.
- Laneway Learning* 2015, viewed 26.4.2015, <<http://sydney.lanewaylearning.com/about-us/%3E>>.
- Leadbeater, C. & Wong, A. 2010, *Learning from the Extremes*, Cisco Systems, Inc.
- The LinkedIn Incubator* 2013, 20.12.2013, viewed 15.05.2015, <<https://youtu.be/WXippDHxVw>>.
- Matousek, M. 2013, *The School of Life: An Interview with Alain de Botton*, viewed 17.2.2015, <<https://www.psychologytoday.com/blog/ethical-wisdom/201311/the-school-life-interview-alain-de-botton%3E>>.
- The Mind Lab by Unitec* 2015, viewed 15.5.2015 2015, <<http://themindlab.com/%3E>>.
- New workplace design for Arup's Sydney office* 2015, viewed 15.06.15 2015, <[http://www.arup.com/News/2015\\_03\\_March/24\\_March\\_Sydney\\_Office\\_Launch.aspx%3E](http://www.arup.com/News/2015_03_March/24_March_Sydney_Office_Launch.aspx%3E)>.
- P21 Partnership for 21st Century Learning* 2015, viewed 05.05.2015, <<http://www.p21.org>>
- PISA 2012 Results In Focus: What 15-year-olds know and What they can do with what they know* 2013.
- Pogue, J., Andreou, A., Barber, C., Lucken, E. & Pittman, T. 2013, *The 2013 US Workplace Survey*, Gensler.
- TALIS 2013 Results: An International Perspective on Teaching and Learning* 2014.

# The Authors

**Stephanie Bhim is a design trends researcher based in Barcelona (Spain),** she is passionate about creating design strategies that elevate the experience of public spaces for visitor benefit and market return. Her strategies are underpinned by research that is future forward, market focused and human centred.

**Leanne Sobel is a design strategist with a background in communication design based in Sydney (Australia).** Over her professional career she has worked in a diverse set of roles including: design and client management, design education, design research, design and brand strategy, and marketing. Her passion is 'design thinking' work methodology and how they can be used to facilitate collaboration across industries. In addition, she is interested in exploring design, research and communication projects for creative communities, business, and government in Australia.

**Fiona Young is a Practice Director at BVN, a cutting-edge architectural practice with a strong commitment to Research and Development based in Sydney (Australia).** Motivated by her particular passion for education as the key to a better world, Fiona has worked in architectural design in projects ranging from K-12 schools, universities and in the cultural sector.

# Document Credits

## Researchers and Writers

Stephanie Bhim, Place Associates

Leanne Sobel, Place Associates

Fiona Young, BVN

## Editor

Ginny Grant

## Photography

### Cover page

John Gollings, Arup, Sydney – p. 10

### Educational Spaces

Anne Knock, The Zone, Northern Beaches Christian School – p. 5

Leanne Sobel, d.School, Berlin – p. 6

Matt Richards, The Mind Lab by Unitec – p. 7

### Workspaces

Paul O'Connor, Factory, Berlin – p. 9

John Gollings, Arup, Sydney – p. 10

### Emerging Learning Spaces

© Laneway Learning – p. 12

Ash Watson, School of Life – p. 13

© Knowledge Plazas – p. 14