Personalised Learning Strategies for Higher Education

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Abstract
This chapter will explore how the places of learning might look in next generation learning spaces where learners traverse physical and virtual spaces using personalised learning strategies. It will examine how learning spaces may represent ubiquitous spaces in which the learner undertakes some form of study or learning. Although there has been extensive examination of the design of spaces for knowledge generation (Souter, Riddle, Sellers, Keppell, 2011; Keppell & Riddle, 2012, 2013) there has been little attention given to how learners customise and personalise their own physical and virtual learning spaces as they traverse their learning journey. Seven principles of learning space design will be adapted for use by the personalised learner. Personalised learning strategies encompass a range of knowledge, skills and attitudes that empower the learner to take charge of their learning within next generation learning spaces. Personalised learning consists of six broad concepts: digital citizenship, seamless learning, learner engagement, learning-oriented assessment, lifelong and life-wide learning and desire paths. Teachers will need to assist learners to design their own personalised learning spaces throughout formal education to encourage learners to be autonomous learners throughout their lifetime. In order to assist learners in developing personalised learning strategies we need to teach them about learning space literacies. We can’t assume learners have the knowledge, skills and attitudes to be able to identify and effectively utilise appropriate learning spaces that optimises engagement.

Learning in Ubiquitous Spaces

Introduction
Learning spaces represent all spaces in which the learner undertakes some form of study or learning. Also known as distributed learning spaces, these may include: physical/virtual, formal/informal, blended, mobile, outdoor, academic staff spaces, personal and practice-based spaces (Keppell & Riddle, 2012). Higher education learning is no longer typified by a singular place of learning but a range of places and spaces that we seamlessly move through (Keppell & Riddle, 2012). A student may move through a variety of learning spaces on any given day. This may include working at home, reading journal articles on the train, working within a learning management system, or attending formal classes at their University. Learning in higher education takes place in a range of distributed learning spaces. The chapter will explore the rich tapestry of distributed learning spaces and the way learners customise them through personalised learning. It will also focus on learning in the future in a variety of physical, blended and virtual learning spaces connected seamlessly by the learner. Future learners will transition between spaces without difficulty due to their ability to adapt and utilise the affordances of the spaces for learning with their mobile technology. The trend toward personalising learning will have implications for the place and space of learning and will require digital citizens to have sophisticated literacies to embrace ubiquitous learning spaces. There will be an increasing need to educate university teachers and learners in how to best use the diversity of spaces for learning.

Defining Learning Spaces
A broad definition of learning spaces includes all spaces where the learner undertakes some form of study or learning. These may be formal university spaces such as lecture halls/classrooms, as well as informal spaces such as home, train, cafes, and other spaces inhabited or customised by the learner. Learning spaces can be defined as:

- physical, blended or virtual learning environments that enhance learning;
- physical, blended or virtual ‘areas’ that motivate a learner to learn;
- spaces where both teachers and learners optimise the perceived and actual affordances of the space; and
- spaces that promote authentic learning interactions (Keppell & Riddle, 2012).

Physical, blended or virtual learning environments that enhance learning:
Blended learning is “a design approach whereby both face-to-face and online learning are made better by the presence of each other” (Garrison & Vaughan, 2008, p. 52). Learners optimise the affordances of this enhanced learning environment by interacting in physical and virtual learning spaces. Physical learning spaces are often designed with a singular learning function in mind e.g. one-to-many lecture. Lecture rooms, tutorial rooms, and laboratories represent typical examples of physical learning spaces within the traditional University context. These spaces are enhanced through the addition of Wi-Fi, accessible power points for charging computers, tablets and phones, and teachers who accept the
connected nature of learners. Motivated learners will enrich their interactions in the physical space by accessing ‘knowledge in the network’ (Siemens, 2006) as well as virtual spaces within the learning management system or informal virtual spaces such as Twitter related to the topic. By engaging in a rich range of virtual and physical spaces the learner should strengthen their understanding of the traditional lecture content as they are engaged in a blended learning space. These blended learning strategies provide a rich learning environment for both teachers and learners.

**Physical, blended or virtual ‘areas’ that motivate a learner to learn:**
Within physical spaces the chairs, tables, access to Wi-Fi and power points need to be considered to allow adaptability of the learning environment for the learner. Informal physical learning spaces may include libraries and learning commons that have been explicitly designed to encourage learners to engage in both independent and peer-learning. Ideal informal spaces provide sufficient flexibility so that learners can re-configure the informal space to suit their own learning needs. Motivated learners will seek spaces that assist their learning engagement. A diverse range of virtual spaces in learning management systems and social media provide an enhanced range of areas that provide spaces for learning as well as assessment.

**Spaces where both teachers and learners optimise the perceived and actual affordances of the space:**
Teachers and learners need to perceive the ‘action possibilities’ of learning spaces by recognising the types of interactions that are possible within the space (Souter, Riddle, Sellers, Keppell, 2011). The learning design or pedagogical approach needs to utilise: interactive learning (learner-to-content), networked learning (learner-to-learner, learner-to-teacher), learner-generated content (learners-as-designers), connected learner approaches (knowledge-is-in-the-network) and assessment-as-learning (Keppell, 2010). For example, virtual learning spaces have unique affordances that allow learning interactions that are not possible in the physical learning space. These affordances or ‘action possibilities’ allow a richer range of learning interactions and may include online discussion forums, blogs, wikis, podcasts and diverse media-rich environments (Norman, 1988). The asynchronous online spaces have unique affordances for learning and teaching.

**Spaces that promote authentic learning interactions:**
Authentic learning experiences focus on real-world activities that value the application of knowledge to solve real-world problems. Authentic learning has its foundations in situated learning or situated cognition (Lave, 1988; Lave & Wenger, 1991). Learning spaces should promote authentic learning and the transfer of learning to professional settings to enable learners to transition into professional practice. Authentic learning provides a means of engaging learners through all aspects of curricula, units of study (e.g. subject, module, etc), activities and assessment (Keppell, Suddaby, Hard, 2011). Although, as stated in Herrington, Oliver, and Reeves (2003), “it is impossible to design truly authentic learning experiences” (p. 60), committed educators will always strive to provide the best learning experience for their learners” by focussing on real-world problems and by focussing on transfer of knowledge to professional practice.

**Personalised Learning Strategies**
Personalised learning strategies are based on personal learning environments (PLEs) that “support self-organised, informal, lifelong learning and network learning and translates the principles of constructivism and connectivism into actual practice” (Chatti, Jarke & Specht, 2010, p. 79). In the PLE model, learners are “responsible for creating and maintaining their very own learning environments, self-adapted to their individual needs” (Chatti, Jarke & Specht, 2010, p. 79). Attwell (2007) suggests that PLEs are a means for organising learning in multiple contexts. Dabbagh & Kitsantas, (2011) define personal learning environments as “a potentially promising pedagogical approach for both integrating formal and informal learning using social media and supporting student self-regulated learning in higher education contexts” (p. 3). They further suggest that self-regulated learning is a cornerstone of PLEs and not all students possess these skills to manage their own PLEs. Within this chapter personalised learning strategies will encompass a range of knowledge, skills and attitudes that empower the learner to take charge of their learning within next generation learning spaces. This section will examine the characteristics of next generation learners and then focus on six personalised learning strategies: digital citizenship, seamless learning, learner engagement, learning-oriented assessment, lifelong and life-wide learning and desire paths.
Next Generation Learners

Next generation tertiary education learners are characterized by having a rapport or relationship with technology. Next generation tertiary education learners interact in a digital age. They adapt and customise their learning and personalise their interactions to suit their needs. Having a rapport with technology suggests that the learner has an affinity with technology, however multiple literacies are required to understand the nuances of the technology for learning and teaching needs. Within the higher education environment there is a need to scaffold and coach learners in the affordances of the technology to meet learning outcomes. Next generation learners also have an inherent need to express themselves through multiple avenues which utilise user-generated content. This content includes artefacts created by the student that are uploaded to the Internet for sharing with other people in the learners network. Common examples include photos, video and blog posts but also include the prolific range of Facebook, Twitter, Instagram and Pinterest posts. There has been a fundamental shift towards creating content, which has been enabled by the low cost hardware and software. The increasing range of networks that learners inhabit through social media enable wide and connected interactions, sometimes with people they have never met. Connectivism (Siemens, 2006) suggests that ‘knowledge is in the network’. Knowledge development is now a product of networks and ecologies. Thus, knowledge now requires literacies in networking. Learners connect via virtual and physical networks and regularly adapt and personalise spaces around them for their needs. In addition, learning is increasingly mobile as we move through a wider range of spaces. Learners now expect to be able to work, learn, and study whenever and wherever they want (Johnson, Adams, Cummins, & Estrada, 2012).

Digital Citizenship

All learners in the digital age require a range of knowledge, skills and attitudes related to digital citizenship. Martin (2005) defines digital literacy as the “awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process” (p. 135). Beetham (2010) defines being digitally literate as possessing “the functional access, skills and practices necessary to become a confident, agile adopter of a range of technologies for personal, academic and professional use.” Digital citizenship encompasses digital literacies as well as safe engagement via networks, appropriate and responsible technology usage and digital wellness. For example a learner needs to use tablet devices in an ergonomically safe way. Digital literacies are a necessity for life in the digital age and a core aspect of digital citizenship. They encompass the knowledge, skills and attitudes that will enable individuals to learn, work, live, play and interact more effectively in a digital age (Johnson, Adams, Cummins, & Estrada, 2012). An increasingly wide range of information, media, business services, and entertainment require digital literacies. These new forms of literacies may involve technical, cognitive and social-emotional dimensions (Ng, 2012) as well as mindfulness and the critical appraisal of ubiquitous Internet information (Rheingold, 2012). Other similarly used terms include eLiteracy, electronic literacy, media literacy, information literacy, visual literacy, ICT Literacy, technological literacy and technoliteracy. With the interconnectedness of digital technologies, technology and communication come together to form another literacy commonly referred to as technoliteracy (Walker, Huddleston & Pullen in Pullen, Gitsaki & Baguley 2010). This diversity of definition and plural nature of such literacies elucidates the multiliterate and complex nature of the concept (Pullen, Gitsaki & Baguley 2010; McLoughlin 2011).

Being digitally literate involves learners and teachers developing their digital identities in an age where our online presence could be as important as our physical presence in social and work environments. Digital identity is focused on how we portray ourselves and represent ourselves online. It includes the etiquette and ethics of communicating and doing business online, leading to safer and more engaged digital citizenship. For example, one does not hesitate calling a friend on the telephone without first announcing the intention with a text message. On the other hand when calling a friend on Skype it is usual practice to first text a message via Skype before calling. According to social constructivists, (Vygotsky 1978) social interaction is fundamental to the pursuit of high quality thinking and learning outcomes. Social software promotes such exchanges through the development of online communities with a multitude of communication channels. These interactions can take several forms, including one-to-one (instant messaging or email), one-to-many (blogs or web pages) and many-to-many (wikis). Anderson (2005) suggested that social software are “networked tools that support and encourage individuals to learn together while retaining individual control over their time, space, presence, activity,
A major part of digital identity is our digital footprint or digital history that we create as we use the Internet. Digital footprint refers to the audit trail that digital users create as they navigate and click on links throughout the Internet. It can be compared to the ‘history’ function on web browsers that track each and every website that we personally visit. Betcher (2009) who coined the term digital footprint suggested that: “I can see a day in the not too distant future (if it’s not already here) where your “digital footprint” will carry far more weight than anything you might include in a resume or CV” (Betcher, 2009).

Digital literacies are an essential aspect of personalised learning. All aspects of the learner experience need to examine digital literacies and it will become increasingly important to survive in a digital society. Digital literacies will also become an essential criteria for employment at all levels of society and therefore crucial for success in future employment. Digital literacies will empower the mobile and nomadic learner as they move seamlessly through a range of diverse learning spaces.

**Seamless Learning**

Kuh (1996) coined the term seamless learning and suggested that “the word seamless suggests that what was once believed to be separate, distinct parts (e.g., in-class and out-of-class, academic and non academic, curricular and co-curricular, or on-campus and off-campus experiences) are now of one piece, bound together so as to appear whole or continuous” (p.136). He further suggested six guiding principles for creating seamless learning environments for university education:

- Generate enthusiasm for institutional renewal
- Create a common vision of learning
- Develop a common language
- Foster collaboration and cross-functional dialogue
- Examine the influence of student culture on student learning
- Focus on systemic change (Kuh, 1996).

In particular we need to understand the influence of student culture on student learning particularly in relation to how next generation learners utilise social media, smartphones and tablet devices.

Seamless learning is about “connecting learning across settings, technologies and activities” (Sharples et al, 2012). Seamless learning has key aspects of continuity and fluidity across the settings or spaces whether these are physical, virtual or blended spaces (Sharples et al, 2012; Keppell & Riddle, 2012). It can also be associated with transitions through school from primary to secondary to university and to the workplace. ‘Seams’ disappear between formal and informal learning spaces, times, and physical and virtual places. Fluidity is recognized through this lens. The personalised learner will require diverse skills to traverse informal and formal next generation learning spaces. However the flip side of interacting in a supposed seamless environment also needs to be considered. “Alongside the challenge of creating seamless learning is the related challenge of creating seams in the flow of learning experience, spaces to stop and reflect, spot the gaps in our understanding, take into account the perspectives of others, and gain genuinely new experience (Sharples, et al p. 18, 2013).” Personalised learners will need to develop strategies for stopping and reflecting, listening to peers and genuinely being aware of how a new learning space might influence their learner engagement. Kinshuk (2012) suggested that his “personal view for the future of personalised learning research is the seamless integration of learning into every aspect of life, which implies immersive, always-on learning that happens so naturally and in such small chunks that no conscious effort is needed to be actively learning while engaged in everyday life” (p. 561).

The following three narratives describe examples of seamless learning. The first narrative describes the journey of a student studying at a distance education university while living in a regional residential college. The second journey describes a journey across the National University of Singapore in an environment of ubiquitous Wi-Fi. The third narrative describes a project in which the leadership team reside in three different countries and describes the learning journey of the three leaders reflecting on this new work space.

*The Charles Sturt journey - Student Journey from Residential to Formal class*
John awoke from his single bed, single room residential college room on the Thurgoona campus. He set his alarm early so that he could secure the best seat in the lounge room with access to wireless networking. He competed with nine other learners for this prime wireless spot. John is not interested in accessing his formal study sites in the Learning Management System but wants to send an email to his girlfriend living 200km away. He sends the email, accesses Facebook, and is satisfied with his before-breakfast networking. Other members of the residence stumble to the lounge. Some have been out late socializing, others had assignments to complete and yet others just want to be part of the breakfast social gathering. John is studying Education and needs to walk across the campus to his lecture. It’s a traditional lecture room that seats thirty learners, a five-minute walk from the student residences. He then plans to hang out at the 24/7 learning commons in the library discussing an assignment with three other classmates. His classmates helped in clarifying his approach as they spoke about their progress on the assignment. He was reassured by the discussion but still overwhelmed by the amount of work he needed to complete. He retired to a quiet corner in the learning commons to complete some individual work on the assignment. He then packed up his laptop and walked to the Gums café just outside the commons to meet his two friends for lunch. It was always the most relaxing part of the day, joking and laughing, disguising their nervousness at the impending final exams. John walked back to the learning commons, looked for some relevant books in the library, Googled some websites, interacted in an online discussion forum for one of his subjects and then focused for another two hours on his assignment. He packed his bag with his laptop and called his girlfriend on his iPhone as he walked back to his residence. He was going out tonight to the local pub as it was a Friday. John enjoyed Friday drinks.

This narrative illustrates how this student moves seamlessly through physical and virtual spaces as they complete their learning journey. The narrative represents a student who is comfortable with the transitions and has the digital literacy skills to interact in the wide variety of environments. John also recognises the different affordances of the various physical and virtual spaces.

**The National University of Singapore – Ubiquitous Wi-Fi**

Whenever I travel overseas the first thing that I search for at my destination is 'how do I connect my mobile devices.' My attempt to purchase a nano SIM card for my iPad was met with difficulty at the airport as most visitors request a phone SIM card. Although disappointed, once I reached my destination I realized that it was unnecessary. Visiting the National University of Singapore (NUS) as a visiting educator I was immediately struck by the size of the campus. It was too large to walk around as it was hilly and the humidity curbed my usual enthusiasm for walking. NUS is the largest university in Singapore with some 35,000 learners. As always I was also struck by the heat outside in contrast to the coolness of the public transport. I was also impressed by the connectivity of the campus. There are some 1000 base stations around the campus, which means that there is ubiquitous Wi-Fi. No matter where you go on the campus you are able to connect your mobile device. Even the buses are connected as learners stand, headphones in place watching a video as they journey around the hilly terrain of the campus to their classes or lunch. They stand fixated on the movie, semi-aware of their destination. They switch to music as they walk the short distance to lunch.

I have included this narrative to illustrate how the author practices seamless learning when travelling as an academic in another country. It illustrates the importance of connectivity and how important Wi-Fi can be for communicating and continuing work whilst travelling abroad.

**Leading a Project Across Three Countries and Three Timescapes**

The Network of Australasian Tertiary Associations (NATA) is a 2-year ALTC-funded legacy project. The overarching vision for NATA is to facilitate a sustainable collaborative network between established higher education associations with the intent of fostering best practice in networks to engage members more strongly with Australasian higher education learning and teaching. NATA is a challenging project that traverses the major tertiary education professional associations across Australasia. It is also led by three people across three countries (Australia, New Zealand and Mexico). For the leadership team it is irrelevant that we reside in three different countries, what is important is that we can engage in the same virtual and dialogue spaces to manage and lead the project. We meet each Friday for a regular Skype meeting at 9:00am Toowoomba time, Australia; 12:00pm Nelson time New Zealand and 9pm Guadalajara, Mexico time. We engage in the project as if there are no timescapes (different time zones) and utilise Google Docs to set the agenda. The project manager documents the actions for each item in real time, which appear on-screen for the three attendees. The agenda refers to various documents in Dropbox, which we all have access to and we read and engage for the meeting. We conclude the
This narrative describes how a project has been managed across a diverse range of physical and virtual spaces as well as timescapes across the globe. It illustrates the range of skills and attitudes that three project leaders needed to successfully manage a complex network leadership project.

The three narratives demonstrate how seamless learning, distributed learning spaces, technology and people intersect to shape the interactions and the engagement. At the core of the three narratives is personalised learning. Learning wherever we are is referred to as seamless learning and is particularly related to moving through different spaces over a period of time. Learner engagement is an essential characteristic of the personalised learner.

**Learner Engagement**

Learner engagement has been defined as “active and collaborative learning, participation in challenging academic activities, formative communication with academic staff, involvement in enriching educational experiences, and feeling legitimated and supported by university learning communities” (Coates 2007, p. 122). Aligning pedagogical, technical and administrative issues is also a necessary condition of success for creating an engaging learning environment. Coates (2007) also stated that engagement is a multidimensional phenomenon. He suggested that student engagement measures intrinsic involvement, assesses student engagement, measures educational outcomes, measures learners involvement in learning, considers the quality of university education on student learning, examines learners interactions with their universities and student. Krause (2005) suggested that student “engagement refers to the time, energy and resources learners devote to activities designed to enhance learning at university. These activities typically range from a simple measure of time spent on campus or studying, to in- and out-of-class learning experiences that connect learners to their peers in educationally purposeful and meaningful ways” (p. 3). Learners need to be supported and empowered to make engagement meaningful. The introduction of strategies to assist learners to actively engage and manage difficult circumstances in engagement with higher education also need to be considered. Being aware of how a learning space influences engagement will be an essential skill for personalised learners. Within next generation learning spaces assessment will also need to be personalised and contextualised to the learning journey of the student. Learning-oriented assessment holds promise in achieving this goal.

**Learning-oriented Assessment**

“One of the reasons why new models of learning are rare in institutional educational settings is that traditional assessments are inadequate for measuring the outcomes related to self-regulated and collaborative learning. As the assessment practices have a strong guiding influence on education, the most powerful way of changing educational practices is to change the assessment” (Hakkinen & Hamalainen, 2012, p. 235). Learning-oriented assessment is one approach that has potential as an alternative to an emphasis on assessment-of-learning approaches. Learning-oriented assessment has three core aspects: Assessment tasks as learning tasks; Student involvement in the assessment processes; and Forward-looking feedback (Carless, Joughin, Liu, & Associates, 2006). Assessment tasks as learning tasks focus on creating assessment that encompasses the learning outcomes for the course. By involving students in the assessment process the student becomes aware of the characteristics and features of assessment. By providing feedback that can be acted on by the student we are providing forward-looking feedback. Because all assessment leads to some form of learning it is important to thoughtfully design assessment in order to encourage the types of learning outcomes that we value and desire (Carless, 2007; Keppell & Carless, 2006; Boud, 1995, 2010). In addition, because assessment often determines student effort it is essential that we design assessment for learners that are engaging, authentic and relevant. By doing so, learners’ efforts are focused on learning while at the same time fulfilling the measurement requirement of the subject or curriculum. Too often assessment focuses on assessment OF learning as opposed to assessment AS learning. The latter is a central characteristic of learning-oriented assessment. There are a number of important reasons why learners need to be actively involved in the assessment process. Active learning helps learners to learn about assessment and to begin to understand its importance in their own learning. Active learners can determine the quality of their own work through self-evaluation, reflection and self-regulation. Sadler (1989) suggested that by understanding the quality of their work learners are then able to monitor their
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own progress in relation to this quality standard. An assessment task should require sustained effort over a period of time in order to promote deep as opposed to superficial learning. Feedback as feedback suggests that learners receive feedback that can be acted on to improve learning and assessment outcomes. This is one of the most important concepts in learning, being able to act on feedback to improve subsequent performance (Keppell & Carless, 2006). Personalised Learners also need to develop an attitude that learning is a continuous facet of life.

Lifelong and Life-wide Learning

Personalised learning requires a certain attitude and motivation. A life-long learner is someone who has embraced change and who has a level of motivation that instils in them continuous learning for life. Lifelong and life-wide learning encompass both formal and informal learning and self-motivated learning (Watson, 2003). In addition to continuous learning for life the concept of life-wide learning focuses on learning experiences across different spaces, places and contexts. Life-wide learning “recognises that an individual’s life contains many parallel and interconnected journeys and experiences” (Jackson, 2010, p. 492). At its core is the self-motivation to continue learning throughout our life. Personalised learners also need to develop their own learning pathways that suit their life circumstances. Desire paths represent a metaphor for this journey.

Desire Paths

Desire paths are the shortest or most easily navigated route between an origin and destination and are often seen as walking or cycling paths that are short-cuts that diverge away from the prescribed path pre-determined by the grounds staff or council staff who design and build walking paths and cycle tracks throughout open spaces in an outdoor environment. Learners often desire the shortest quickest path to achieve their certification or qualification. They also want to tailor the learning experience to best fit their circumstances, needs and work aspirations. Personalised learners will need to continually refine their learning journey by considering their desire paths at different stages of their learning journey. I suggest that personalised learning will require a range of learning space literacies. The following section will explore the concept of learning space literacies for navigating distributed learning spaces.

Learning Space Literacies

There is widespread acceptance of the importance of digital literacies as a 21st century capability for learners and teachers in the digital age (Beetham, 2010; Ng, 2012; Pullen, Gitsaki & Baguley 2010; Rheingold, 2012, Wheeler, 2010). However the concept of literacy is a contested concept. It is a “plural and dynamic concept” (p. 9) and there is no single notion of literacy as a skill that people possess (UNESCO, 2011). Next generation learners will need to adapt space to their own needs and will require a range of learning space literacies as a personalised learner.

I define learning space literacies as the knowledge, skills and attitudes that are required to recognise, utilise and adapt distributed learning spaces so that they allow the personalised learner to engage with their learning.

The learning space literacies discussed below have been adapted from the Spaces for Knowledge Generation (SKG) Project design principles (Souter, Riddle, Sellers, and Keppell, 2011). The SKG project “was based on the philosophy that constructivist approaches to learning, as well as to research and study, should make use of technologies and approaches that learners favour, and that learning spaces should therefore be organised to accommodate learner-generated aspects of learning. Spaces for Knowledge Generation provides a model for designing student learning environments that is future-focused and sustainable for the medium term” (Souter, Riddle, Sellers, Keppell, 2011). Souter, Riddle, Sellers & Keppell (2011) suggested seven principles of learning space design which support a constructivist approach to learning and support a learning environment that is student-centred, collaborative, and experiential. The development of these principles explicitly embraced the student voice. The Spaces for Knowledge Generation design principles comprise:

1. Comfort: a space which creates a physical and mental sense of ease and well-being.
2. Aesthetics: pleasure which includes the recognition of symmetry, harmony, simplicity and fitness for purpose.
3. Flow: the state of mind felt by the learner when totally involved in the learning experience.
4. Equity: consideration of the needs arising from cultural and physical differences.
5. Blending: a mixture of technological and face-to-face pedagogical resources.
6. Affordances: the “action possibilities” the learning environment provides the users.
7. Repurposing: the potential for multiple usage of a space. (Souter, Riddle, Sellers & Keppell 2011).

These seven learning space design principles have also been adapted for the evaluation of learning spaces through a series of evaluation questions (Keppell & Riddle, 2013). In the context of personalised learning these principles will be adapted for assisting the learner to recognise, utilise and adapt distributed learning spaces. Table 1 outlines the types of questions personalised learners need to ask before they engage in a learning space.

Table 1: Learning Space Literacies and Questions for Personalised Learners

<table>
<thead>
<tr>
<th>SKG Learning Space design Principles</th>
<th>Questions for Personalised Learners</th>
</tr>
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<tbody>
<tr>
<td><strong>Comfort</strong>: a space which creates a physical and mental sense of ease and well-being.</td>
<td>Are the chairs, tables, and furniture conducive to learning in this space? You might want to test them out before committing to this learning space. How comfortable do you think this space will be for learning? Is the space noisy or quiet?</td>
</tr>
<tr>
<td><strong>Aesthetics</strong>: pleasure which includes the recognition of symmetry, harmony, simplicity and fitness for purpose.</td>
<td>What features of the learning space might assist your learning?</td>
</tr>
<tr>
<td><strong>Flow</strong>: the state of mind felt by the learner when totally involved in the learning experience.</td>
<td>What features of this space promote your learning engagement? Do you feel you can engage with your work in the learning space? Are you looking for a quiet or noisy space?</td>
</tr>
<tr>
<td><strong>Equity</strong>: consideration of the needs of cultural and physical differences.</td>
<td>Do you think the learning space is inclusive for you and any team members with whom you might be working?</td>
</tr>
<tr>
<td><strong>Blending</strong>: a mixture of technological and face-to-face pedagogical resources.</td>
<td>Can you utilise your computer, tablet or mobile device in the learning space? How easy is it for you to connect to the network?</td>
</tr>
<tr>
<td><strong>Affordances</strong>: the “action possibilities” the learning environment provides the users.</td>
<td>What does this learning space allow you to do that you cannot do in another space? What action possibilities are you looking for in this learning space?</td>
</tr>
<tr>
<td><strong>Repurposing</strong>: the potential for multiple usage of a space (Souter, Riddle, Sellers &amp; Keppell, 2011).</td>
<td>Can you rearrange tables and chairs to create your own learning area?</td>
</tr>
</tbody>
</table>

**Conclusion**

This chapter has explored how learning might look in next generation learning spaces where learners move through ubiquitous learning spaces using personalised learning strategies. Personalised learning was conceptualised as encompassing: digital citizenship, seamless learning, learner engagement, learning-oriented assessment, lifelong and life-wide learning and desire paths. It was also suggested that learning space literacies will be essential for next generation learners who traverse distributed learning spaces to undertake their study and learning. Being able to recognise appropriate learning spaces will require a knowledge of the affordances or ‘action possibilities’ of the space as well as the learning goal to be achieved. Being conversant with how to best utilise the learning space will also be an essential skill to optimise learner engagement. In addition, knowing how to adapt a learning space to suit the learning task will be an essential literacy for mobile and connected learners. Discussion about learning space affordances needs to be an ongoing discussion throughout formal education (kindergarten, primary, secondary, university, etc). Personalised learning strategies encompass a range of knowledge, skills and attitudes that empower the learner to take charge of their learning within next generation learning spaces. Teachers will need to assist learners to design their own personalised learning spaces to encourage lifelong, engaged and autonomous learners.
References


