Equitable Pedagogical Spaces: Teaching and Learning Environments that Support Personalisation of the Learning Experience

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Abstract
This paper introduces the concept of equitable pedagogical spaces and discusses the potential educational gains that may result from the creation of physical learning environments that are designed to facilitate equity of instruction. Incorporating Monahan's concept of 'built pedagogy', and informed by work in constructivist educational theory by Dewey, Gardner, Vygotsky, Friere and Bruner, the paper explores the potential for 'space' to play a significant role in supporting the authentic personalisation of student learning in schools.

Figure 1: Group work and collaborative research activity settings
Introduction
The term ‘equity’ is frequently associated with discussions regarding education and schooling. Such discussions often focus on the provision of schooling that is non-discriminatory and inclusive of people of diverse ethnicity, religious following and socio-economic circumstance (Singh & Taylor, 2007). Sometimes ‘equity’ enters discourse concerning the quality of facilities that schools are able to offer their clients – the students. Rarely is ‘equity’ associated with the diverse instructional needs of individuals.

This paper explores the ways schools may better cater for the individual needs of learners. In addition, it seeks to extend educational discourse regarding issues of social justice by considering the concept of equity through a lens that views space as a powerful tool that may be harnessed to improve students’ learning experiences.

The paper examines whether the quality of learning experiences in schools can be improved through the creation of learning environments that are intended to facilitate equity of instruction at the micro level of the ‘learning situation’. It is suggested here that the re-organisation of physical spaces in schools may facilitate a dramatic shift in the ability of schools to authentically personalise student learning.

Background: instruction, the learning environment and built pedagogy
The Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008) states, ‘Goal 1: Australian schooling promotes equity and excellence’. When elaborating on this goal, the Declaration advances the position that schools must ‘promote personalised learning that aims to fulfil the diverse capabilities of each young Australian’. ‘Personalisation’ and ‘catering to individual differences’ have become buzz words in schools over recent years, but can schools provide a personalised learning experience for students within a system that is historically-based on ‘equality’?

Equality of both instruction and learning environment has been one of the fundamental tenets of schooling and school building design since the ‘classroom’ emerged during the Industrial Revolution (Lackney, 1998). For more than 200 years the factory production-line
metaphor has informed not only the design of school curricula, pedagogies and assessment practices, but also the design of the school buildings that have supported these education models. As Western societies and economies continue to evolve from centres of manufacturing to become dominated by information services, the vast majority of schools appear to have maintained the Henry Ford production-line approach.

Changing perspectives on educational provision, influenced by globalisation, technological advancements and the exponential rate of information production, has meant that the requirements of school facilities are being reviewed. Stephenson, in a publication entitled 'Educational Trends: Shaping School Planning and Design: 2007' (p.1), believed that:

Growing numbers of educators and policymakers have begun to realise that 'identical' school facilities do not translate into 'equal opportunity' for students. While some students function measurably better in one kind of environment, others perform more effectively in another: the differences depend on student talents, abilities, and needs.

Only a few people within the education community are engaged in discourse regarding the impact of physical space on the learning experiences of students. Broader consideration of school spatial settings and spatiality – space created through the interaction of the physical and the social (McGregor, 2004) – may advance the capacity of schools to meet the individual needs of students. The influence of space in schools needs to be considered alongside the standard educational mechanisms of curriculum, pedagogy and assessment.

Monahan's (2002) concept of 'built pedagogy' provides a window through which to view the influence of space on educational practices. He defined built pedagogy as the 'architectural embodiments of educational philosophies' and described how the creation of school spaces was intrinsically tied to the pedagogical philosophies that informed educational practices:
Built pedagogies operate along a continuum between discipline and autonomy. On the disciplinary side, they can restrict learning possibilities by not allowing for certain movements or flows. For example, desks bolted to the ground make flexible interpretations of spatial use extremely difficult, and they impose directions for how space should be used. In the middle of the discipline/autonomy spectrum, there are built pedagogies that enable but do not require flexible behaviors: movable partitions and desks illustrate space left open to interpretative use. Finally, on the autonomy end, open classrooms invite and almost demand that individuals appropriate space to their perceived needs. (Monahan, 2002, p. web)

In the discussion of equitable pedagogical spaces below, you will see that these environments provide a range of purposeful spaces that enable individuals to flow between activity settings where they may pursue personalised learning tasks. Subsequently, learners may appropriate smaller spaces within each activity setting through the movement of non-fixed furnishings.

A very short history of spatial innovation in schools
Over time there have been small pockets within mainstream education systems that have resisted traditional practices and spaces. These groups have created a range of alternative environments in which to conduct activities of teaching and learning. Innovations in school spatial design, however, have so far been no match for the widespread acceptance of the ‘classroom’ as a suitable environment for educating students.
The development of the open plan classroom was one significant attempt to try something different. This design concept was informed by the open learning movement of the late 1960s and early 1970s. Popularised by the Educational Facilities Laboratories in the United States (Marks, 2009), the open plan classroom 'experiment' crossed international borders and, for a time, was widely accepted as best practice design in some areas of Australia, Britain, Canada, the USA (Beck, 1980; Rodwell, 1998) and Israel (Klein & Eshel, 1980). The movement's influence faded during the late 1970s and the early 1980s and the production-line concept of the 'cells and bells classroom' came back into vogue.

Although perhaps not considered mainstream, schools aligned with the Reggio Emilia education movement continue to innovate with regard to the design of learning environments. The evolution of the spaces in these schools has come about following careful consideration of early childhood education approaches and the development of an educational philosophy that is strongly allied with the idea of learner-centred education. The designs of these schools are founded on the notion that students should have a significant influence on the types of activities in which they engage. This has resulted in learning environments that are composed of diverse activity settings, rather than uniform classrooms. Significantly, the students are able to move between different settings – often as required – to engage in a wide variety of learning activities: from reading and writing, to painting, digital design, play making, music composition, group discussion and so on.

Spatiality in schools

Spatiality is defined as 'space created through the interaction of the physical and the social' (McGregor, 2004) or as 'the social production of space' (Soja, 1989). Studies by human geographers Fielding (2000) and Jacobs and Jacobs (1980) give us insight into the role that spatiality can play in creating productive learning situations for students.

Based on research into students' geographic experiences in primary schools in the United Kingdom, Fielding suggested that the role of space in schools should be more closely considered and that understanding the dynamics of children's geographies may lead to significant improvements in pedagogic practices. Fielding identified
schools as 'hot beds' of moral geographies and suggested that schools are places where moral codes dictate 'how and where children ought to learn and behave' (Fielding, 2000, p. 231). He concluded that the playing out of these codes has a significant influence over children's geographies, thus affecting their use of space and their learning experiences.

Fielding described unequal institutional power relations as having moulded the behaviour of school children for many years. He described the degree to which children are included as active participants in the use of space as being largely dependent upon the structuring of the teaching, learning and management within a school. Jacobs and Jacobs (1980) considered similar issues and contended that the inclusion of students as managers of school spaces should become part of the school curriculum so that children's spatial literacy may be developed, along with their ability to exert control over their environment.

Equitable pedagogical spaces
What might constitute an equitable pedagogical space? In other words, what might a teaching and learning environment that supports a personalised learning experience for students look like and how might it be used?

The architectural drawings shown throughout this paper, including the plan diagram below (Figure 3), provide a visual example of how an equitable pedagogical space might be interpreted spatially.
Introducing 'equitable pedagogical spaces'

An 'equitable pedagogical space' is a learning environment in which students have the opportunity to pursue learning through the range of learning modalities that will best fulfil their educational needs. These environments physically demonstrate an acknowledgement that each student comes to school with different interests and talents, and therefore requires a different overall learning experience. Some students may require additional direction and support in some areas, while others may thrive when given the opportunity to be more self-directed. Equitable pedagogical spaces encourage and enable students to learn in ways that allow them to attain their personal academic and social potential.

Equity is achieved when the diversity of student needs across a cohort is being met and when each student has the opportunity to engage in learning that is appropriate to them. In addition, equitable pedagogical spaces play a role in breaking down divisions between learning at school and learning outside of school, so that students can make better connections between what they are learning and the relevance of that learning in a wider context.
Equitable pedagogical spaces support teachers in personalising the learning experience for each student. Personalisation may be supported by providing students with access to a range of activity settings in which they may engage in diverse learning experiences. These settings may be teacher or student led, depending on the immediate requirements of the students.

In equitable pedagogical spaces, the power relationships between students and teachers are such that students are commonly able to move between settings on an as-needed basis. In these environments, teachers play a number of different roles. They may act as instructors, guides, mentors and facilitators. Teachers are required to change roles depending on the needs of the students. Generally, equitable pedagogical spaces require teachers to work in teams so that they can respond to the diverse needs of the students.
In one example of how this may work, one teacher might oversee a large group of students working on projects or extended tasks within a particular setting. Concurrently, in interconnected spaces, a second teacher might provide instruction in a tutorial situation to a smaller group of students working on developing a particular skill, while a third teacher may sit with two or three students to discuss the way forward regarding a particular aspect of their work.

The tracking of student progress and achievement in equitable pedagogical spaces requires the development of individual learning plans and formative assessment practices. The creation of student portfolios may be one method of collecting evidence of the work that students do both as individuals and as members of groups.

Equitable pedagogical spaces and educational theory

A driving force behind reform in educational thinking during the past century has been the collective works of prominent figures such as Dewey, Gardner, Vygotsky, Friere and Bruner. Their philosophical and theoretical work has promoted approaches to education that may be described as constructivist. Constructivism calls for personalised or learner-centred educational frameworks that enable students to develop their own understandings, rather than require them to learn solely via teacher-led instruction. Strommen and Lincoln provide the following outline of the constructivist approach:
A brief overview of constructivist ideas reveals their utility. One foundational premise is that children actively construct their knowledge. Rather than simply absorbing ideas spoken to them by teachers, or rather internalizing them through endless, repeated rote practice, constructivist theory posits that children actually invent their ideas. They assimilate new information to simple, pre-existing notions to modify their understanding in light of new data. In the process, their ideas gain in complexity and power; with appropriate support, children develop critical insight into how they think and what they know about the world as their understanding increases in depth and detail. Constructivism emphasises the careful study of the processes by which children create and develop their ideas. Its educational applications lie in creating curricula that match (but also challenge) children's understanding, fostering further growth and development of the mind. (Stommen & Lincoln, 1992, p. 468)

As contemporary educators increasingly adopt constructivist approaches to teaching and learning, equitable pedagogical spaces are required to facilitate learning that is in keeping with this philosophical approach – traditional homogeneous classrooms will not suffice.

Equitable pedagogical spaces can support learning that is aligned with Dewey's ideas of democratic education and experiential learning (1966; 1971). These environments support 'freedom and initiative' rather than 'guidance and control', and enable students to explore their interests. As Dewey noted, however, the students' interests are a starting point and are not ends in themselves:

Interests in reality are but attitudes towards possible experiences; they are not achievements; their worth is in the leverage they afford, not in the accomplishment they represent... Continuous initiation, continuous starting of activities that do not arrive, is, for all practical purposes, as bad as the continual repression of initiative. (Dewey, 1971, pp. 15-16)
Equitable pedagogical spaces facilitate learning in Gardiner’s Multiple Intelligences educational model (1999). To ensure students explore their strengths and weaknesses as learners, they can be encouraged to engage in verbal/linguistic, logical/mathematical, visual/spatial, body/kinaesthetic, musical/rhythmic, interpersonal, intrapersonal, and naturalistic learning modalities while working across the range of activity settings within the overall learning environment. The settings in equitable pedagogical spaces are interconnected so that students can see what others are doing, with the expectation that they will become excited by the activities of others and wish to pursue new experiences and engage in new learning opportunities.

Further to this, these environments are designed to support the dialogical character of learning by facilitating collaboration and dialogue between students and students, and students and teachers. The desire for language-based collaboration is informed by Vygotsky’s concept of the ‘zone of proximal development’, or ‘zo-ped’, in which a student’s ‘empirically rich but disorganised spontaneous concepts “meet” the systematicity and logic of adult reasoning’ (Vygotsky, 1986, p. xxxv). To this end, the creation of opportunities for dialogue is vital for the development of students’ detailed understandings of new concepts and aspects of knowledge. As described below by Kozulin in the introduction to Vygotsky’s Thought and Language, conversation between student and teacher is an important vehicle for learning:

As a result of such a ‘meeting’, the weaknesses of spontaneous reasoning are compensated by the strengths of scientific logic... The final product of this child-adult cooperation is a solution, which being internalized, becomes an integral part of the child’s own reasoning (Vygotsky, 1986, p. xxxv).

Friere (1970; 1973) advocated that learning for students should be integral with their daily lives, not founded on the perspectives of the dominant culture. He promoted democratic education, calling for a breakdown in the traditional didactic teacher-student relationship and the development of a reciprocal affiliation where all members of a learning community act as both teacher and learner.
Equitable pedagogical spaces make possible the social structures required to meet Friere's ideals. These environments make a statement that says that the knowledge and understandings that each member of the learning community brings to school is important and should be shared.

Ultimately the creation of equitable pedagogical spaces is driven by the wish to create learning cultures that can support the academic and social development of every student. Bruner's (1996) work on the impact of culture on learning supports this goal. He described how learning, or meaning making, involves situating experiences within cultural contexts. He suggested that the cultural situatedness of meanings enables them to be readily communicated with others, and that this ability to communicate meanings is what makes them useful to the learner. He expands on this idea below:

It is culture that provides the tools for organising and understanding our worlds in communicable ways...learning and thinking are always situated in a cultural setting and always dependent upon the utilisation of cultural resources. Even individual variation in the nature and use of mind can be attributed to the varied opportunities that different cultural settings provide. (Bruner, 1996, pp. 3-4)

In a post-Fordist society, students need to be able to apply their knowledge, skills and conceptual understandings in a wide variety of settings. Thus, it is vital that the cultures in which students learn are in keeping with the broader cultures in which they live so that what they learn can be applied, and readily communicated, in diverse contexts. Learning that is applicable only to formal assessments is not particularly useful to the student if that learning has no greater purpose or does not provide knowledge, skills and conceptual understandings that are useful beyond school.

Equitable pedagogical spaces are intended to assist students to build independence as learners and to develop their meta-cognitive understandings of themselves as learners. The development of skills for life-long learning is essential in today's ever-changing world. Student
participation in social systems in which they are active members of learning communities and empowered participants within today's Knowledge Society can only enhance their future prospects in a world that is demanding agility and adaptability in the workplace and in daily life.

Instructional models suited to equitable pedagogical spaces

Equitable pedagogical spaces are well aligned with contemporary instructional models, including the Principles of Learning and Teaching (P-12) (PoLT) model (DEECD, 2009a) and the E5 model (DEECD, 2009b), both of which are endorsed by the Victorian Department of Education and Early Childhood Development.

Parallels between the philosophical positions underpinning equitable pedagogical spaces and PoLT can be seen in the six basic principles of PoLT listed below:

1. The learning environment is supportive and productive.
2. The learning environment promotes independence, interdependence and self-motivation.
3. Students' needs, backgrounds, perspectives and interests are reflected in the learning program.
4. Students are challenged and supported to develop deep levels of thinking and application.
5. Assessment practices are an integral part of teaching and learning.
6. Learning connects strongly with communities and practice beyond the classroom.

Like PoLT, the E5 instructional model advocates constructivist approaches to education. The basic E5 framework is set out below:

1. Engage
2. Explore
3. Explain
4. Elaborate
5. Evaluate
The implementation of constructivist instructional models such as PoLT and E5 is required in order to make the most of equitable pedagogical spaces. Disjunctions between physical learning environments and pedagogical practices are likely to occur if teacher-led pedagogies are consistently employed in these spaces. Such disjunctions may lead to frustration on the part of teachers and students alike and a breakdown in the quality of education provided to students.

Equitable pedagogical spaces demand a greater complexity of use than traditional classrooms. When shifting from traditional approaches to teaching and learning, curriculum, pedagogy and assessment practices all require careful restructuring if authentic personalisation of student learning is to be achieved. Teachers require time and professional learning in order to make these transitions.

Exploring the designs of equitable pedagogical spaces
When designing equitable pedagogical spaces it is important to ensure that spatial designs are created in unity with educational theory and the anticipated teaching practices that will occur in these environments. Schools need to ensure that teachers are well supported with professional learning opportunities so that they may quickly come to understand their role as leaders of education in these environments and can manage the complexities surrounding the use of these spaces as sites of constructivist learning.

Many schools will not have the room or budget to create learning environments like those presented in the images shown in this article. With some modification, however, existing classrooms can be joined or reconfigured to create new contexts for learning that are aligned with the equitable pedagogical spaces concept.

The creation of large open spaces will not suffice. As demonstrated by the open plan classroom experience of the 1970s, a lack of spatial differentiation leads to a breakdown in the quality of the learning experience due to a lack of spatial context and misunderstandings regarding how spaces should be used (Rodwell, 1998).

Although the equitable pedagogical spaces concept is most readily applicable to primary schools, as shown in the images in this paper, it can also be applied to secondary schools. Implementing equitable pedagogical spaces into
secondary schools that operate on a program of subject specificity would involve significant modification to the schools' organisational structures, but with the implementation of an integrated approach to learning, such spaces are suitable.

Beare (2000a) commented that education based on year groups, subjects, specialist teachers, hierarchies, linear progression, and graded criteria is already passing. In designing schools for the new century, he suggested that it might be quite inappropriate and socially dysfunctional to let obsolete ideas about learning that are based on outdated concepts continue unchallenged. In the 21st Century, Beare envisages learning becoming increasingly modularised, rather than organised into discrete subjects:

Educators as a group will find themselves responsible for mentoring a group of learners, directing them sequentially into projects or modules of activities, and keeping track of progress and outcomes. It is obvious that a project about volcanoes, for example, can simultaneously result in deepening reading skills, learning some physics or mathematics, and acquiring some knowledge about geography and geology. It is probably silly, if not impossible, to label such a project Language or Science, Maths or Geography. (Beare, 2000b, p. web)

Figure 6: Artistic exploration and construction activity setting
Conclusion

As schools seek to better align their educational approaches with current and future societal circumstances, the environments in which students learn should be configured in ways that reflect broader societal cultures and contexts. If schools are to support students to become life-long learners who are capable of exhibiting agility and adaptability in the workplace and in their everyday lives, then students need to be educated in environments that are consistent with the wider cultures in which they reside.

Aligning the concept of built pedagogy (Monahan, 2002) with contemporarily accepted educational theory for the creation of modern learning environments can support young people to become better-prepared for the ever-changing global society of the 21st Century. Further aligning these spaces with new forms of spatiality will enhance the likelihood that students will become more engaged as active participants in their own learning and that learning for each student can become more authentically personalised and equitable.

By making the time to engage in discourse about the spaces in which students learn, and working towards the creation of equitable pedagogical spaces, schools may better equip themselves to cater for the diverse interests and capabilities of the students in their care.

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