EDITORIAL

International Studies of School Design – Lessons for Europe on Innovation and Risk

Joanne Deppeler[a]*, Ian Thompson[b] and Deborah Corrigan[c]

Abstract

This editorial sets out the context and agenda for this special issue of *European Educational Research Journal*, which brings together five accounts of research from diverse international contexts in relation to schools that are being designed and promoted as innovative learning environments. The overall purpose is to advance what is known about innovation and the challenges and risks involved for those engaged in the design and occupation of innovative learning environments. The editors begin by outlining some of the important considerations for researchers working in innovative learning environment and new school build projects that specifically place an emphasis on participatory approaches to innovation and put educational and social change, at the center of the work. The editors then highlight some themes for readers to keep in mind as they consider the arguments developed in the papers.

Keywords: school design; learning environments; innovation; risk; international

Innovation and risk

The relationship between intentions and motives that lie behind innovative school designs and the pedagogical and social uses of buildings by users is both complex and imbued with potential possibilities and contradictions. Innovation inevitably carries risk and lies in uneasy relationship to evidence-based approaches to school design. In this special issue that focuses on international studies of school design, we seek to advance what is known about

[a] Monash University, Australia
[b] University of Oxford, UK
[c] Monash University, Australia

*** Contact:** Joanne Deppeler joanne.deppeler@monash.edu

innovation and risk in school design in relation to the spaces and the experiences of those who design, work and learn in these innovative learning environments. Recent important research has looked at innovation in school design from the perspective of teachers' post-occupancy pedagogic uses of space and social configurations (Carvalho et al. 2020) and the active negotiation of classroom participants in new learning spaces (Koko and Hursto 2020). Tse et al. (2014) point out that considerations of risk in new school builds often focuses on the complexities of design and construction in terms of building delivery (e.g. Carpenter and Bauman 2016), the use or misuse of new technologies (e.g. Istance and Kools 2013), or environmental performance (e.g. Barrett et al. 2015). However, as Woolner et al. (2007) point out research that focuses on risks associated with environmental factors in school buildings in isolation from the learning that goes on in spaces can lead to confusing and sometimes contradictory conclusions. Moos (1979) argued many decades ago that the learning environment involves a complex interaction of social, cultural, organizational and physical factors and Benito (2003) pointed is both a historic physical construct and a cultural entity that can be transformed by teaching. This transformation involves both innovation and risk,

The impetus for this special issue on international studies of school design emerged from the authors' shared concern that innovation and risk in innovative school builds should be explored from the perspective of learning. The articles deal with pre and post occupancy innovation in school design and consider the alignment or misalignment between the concerns of those who design and build the school and those who teach and learn in it. This editorial is being written at the height of the Covid-19 pandemic amid uncertainty about the present and future of education. Education systems worldwide have wrestled with the realities of school closures, blended and virtual learning and social distancing. Buildings and spaces have been used and adapted to fit emergency and in many cases there has been a

heightened awareness of the need to focus on student, and staff, wellbeing. Yet the economic uncertainty caused by the pandemic will have serious consequences in the short term for innovation in school design. It is imperative, therefore, that we learn from what is known about innovation and risk in school design so we can build for the future.

In the context of rapid socio-economic and technological changes, education systems globally are required to respond to the changing needs of diverse learners whilst simultaneously ensuring that all learners become empowered and equipped to meet the challenges of the 21st century (OECD, 2018). Operating under current and future conditions of uncertainty and risk, educational systems are challenged to provide environments that support the development of these capacities. One key strategy to achieve these outcomes has been to attempt to optimize innovation in the design of the physical learning environments.

Innovative Learning Environments

Open and flexible learning classrooms have emerged in schools in many parts of the world, most notably in Australia and New Zealand but also in the European contexts of the Netherlands (Könings, Bovill and Woolner, 2017*)*, Austria (Schabmann et al., 2016), Germany (Reh, Rabenstein and Fritzsche, 2011), Finland, Spain and parts of the United Kingdom (Mäkitalo-Siegl et al, 2010). Increasingly, over the past decade, international efforts to transform education for the future have included a significant investment in the infrastructure of schools. Schools are being designed and re-designed and promoted as innovative learning environments (ILEs) that have the potential to bring about pedagogical practices that will achieve the aims of 21st-century learning competencies (i.e. communication, collaboration, critical thinking and creativity) (OECD, 2017). Thus, the

design of the school learning environment has become a growing focus of research and discussion; theoretically, empirically and in global education policy and practice.

Research evidence relating to the impact of the physical environment on learning is complex (Woolner, Thomas, & Tiplady, 2018) and with competing discourses on the design of schools to achieve this policy intent (Benade & Jackson, 2017). There is also limited research concerning the voices and perspectives of school stakeholders (Deppeler and Aitkens, 2020; Schabmann et al., 2016) or the pedagogic processes involved in alternative learning environments (van Merriënboer et al., 2017). Reh et al. (2011) found that in the German context the metaphor of a more open space for individual learning was contradicted by the creation of new classroom inequalities. This points to the risk that the intentions for the purposes of school design can have unforeseen consequences in practice. Another risk is the disjuncture that may occur between the views of the designers and builders of schools (architects, constructors, engineers) with their focus of technical issues and the users of the school post occupation (Woolner, Hall, Wall, & Dennison, 2007). Any pedagogical potential is lost in translation leaving 'teachers and students who may treat buildings as a fixed, indifferent or even an unresponsive background of their teaching and learning' (Koutamis, Heuer and Könings, 2017, p.295). Schabmann et al (2016) found that although school principals were generally open to innovative learning environments there were barriers from lack of resources, knowledge and professional networks.

Carvalho and Yeoman (2018) highlight the importance of ILE research focusing on the relationships between, on the one hand, pedagogy, place and people and, on the other, theory, design and practice. This points to the importance of research on the complexity of relationships in the design process, school spaces and pedagogy.

Themes

The five papers that are included in this special issue are all concerned with extending our understanding of how the processes of school design might be shaped to balance innovation and risk in order to develop built school environments that are appropriate for different social contexts and in connection with the broader social challenges of equity and quality education. The authors share a common interest in participatory approaches to address these aims, albeit within different policy contexts and partnership arrangements that influence the drivers of change, accountability, autonomy and choice. Collectively, the papers provide key interdisciplinary and intercultural lessons from research conducted across four continents – providing lessons for the European contexts around potential user participation in school design versus the standardized designs adopted by many European countries. The researchers employ both qualitative and mixed method research approaches using data from a range of sources and stakeholders to report on findings from single and multiple school case studies.

Drawing on their research with schools the papers bring considerable attention to the complexity of relations between design processes, spaces, pedagogy, culture and relationships expressed by those who act in schools. Papers highlight the challenges, benefits and risks for a range of stakeholders: policy makers, educational planners, architects, educators, parents and students and document the changing relationships between practice and design through time.

Across the contexts, critique of both policy and the processes that underpin the transformation of education and schooling in the twenty-first century are key themes. The authors critically analyze power and control in the policy landscape and apply different theoretical frameworks to assess the connections between innovation and risk in different educational and societal contexts. Authors highlight the tensions between educational policy enacted at the level of governance and the corresponding implementation of that policy by

those engaging with the changes to place and purpose in re-designing schools for teaching and learning. Exploring the net of influences, the studies draw attention to the involvement of teachers, students, parents/ caregivers and architects in the design processes of their school and the diversity of views among the stakeholders. Although, the articles draw on international studies they also relate their findings to the relevant European literature in an attempt to stimulate more consideration of the complex relationships between innovation and risk in school design,

Overview of the papers

The authors of the first paper, Harry Daniels, Ian Thompson, Hau Ming Tse and Jill Porter, present lessons learned through a longitudinal study of ten secondary schools built in the UK. In particular, the focus of their paper is on the possibilities and the potential risks involved in the co-design of innovative spaces which 'can influence the discourses and practices of teaching and learning when the building is occupied'. The authors draw our attention to the complexity of co-design processes. Stakeholders that are involved in the collaboration are diverse, varying in respect to their motivation, levels of power and influence and whose intentions are influenced by 'wider social and cultural histories as well as the mediating effect of the social relations in institutions'. The authors call for a 'new conception of collective' that interrupts relations of power and control and that might provide a path towards innovation 'in the development of complex systems of human action.'

The next paper by Leon Benade is set within a very different context where ILEs have been promoted by the New Zealand Ministry of Education, since 2011. Benade's paper reports on a study that investigated how parents were invited to participate and/or contribute to school design processes. Echoing themes raised in the first paper regarding differential power and influence, architects, delivery managers and parents varied in the way they

perceived the ILEs and in how their views were valued. Applying Lefebvre's lens of 'space as socially produced by human practices, Benade sheds light on the dual themes of innovation and risk with particular attention to the thinking and policymaking underpinning ILEs in the international context.

In the third paper *Taking a risk: transformative designs and global educational models in schools in Saudi Arabia and Uruguay*, Paula Cardellino and Craig Deed extend our understandings of risk by investigating how educators and schools understand and adapt to global educational influences on local school design and pedagogy. Drawing on Gislason's conceptual framework, the authors investigate the implementation of 'innovative' designs in different and complex contexts and cultures. The potential risks of misalignment between design and pedagogic use of space is high if the prior experiences of educators, administrators, students and families are not considered. The authors note that if school transformation is to be successful it needs to be informed by local stakeholders through participatory approaches in order to adapt to local realities.

The paper entitled *Innovation and risk in an innovative learning environment – A Private Public Partnership in Australia*, Joanne Deppeler, Deborah Corrigan, Luke Macaulay and Kathleen Aikens provide another example of the importance of the adaption of design to local contexts and conditions. The authors apply a conceptual framework for risk in public service innovation and a Responsible Innovation (RI) framework as analytic tools to understand how various stakeholders understood and experienced their new school built under a partnership arrangement. Consistent with the findings from other papers in this Special Issue, the authors highlight the challenges and the importance of addressing diverse stakeholder needs as part of the participatory processes. The authors argue that the application of a RI framework provides a mechanism to improve the alignment of school design with user needs and to support on-going adaptation of a school to respond unexpected changes in future conditions.

Finally, the paper by Pamela Woolner, Ulrike Thomas, and Jennifer Charteris, *The risks of a standardised school building design: beyond aligning the parts of a learning environment,* can be seen as an alternative way of viewing alignment. The authors develop a theoretical framework to investigate the risks associated with a UK secondary school's rebuilding project. The aim was to understand how members of the school community including School Head, staff and students understood and experienced the rebuild of the school. The school illustrated a case of alignment among a number of elements of the design epistemic design and social design. However, despite the acknowledgement that misalignment among structural resources, pedagogical approaches and social relations can often result in 'significant risks for school building projects'…the authors argue that the risk aversion associated with 'performativity and conservatism' in school design can also, paradoxically lead to a greater risk - the risk of a missed opportunity to embrace a broad conception of evolving pedagogies.' The authors suggest that wider consideration should be given to considering the goals and purpose of schooling for children and society.

Final thoughts

Collectively the papers in this special issue contribute theoretical resources and methodologies to further develop a research agenda that will address design and learning as complex social practices. In so doing, the papers highlight dynamic practices that generate new ways of working in response to the changing school learning environment and offer international lessons that will provide insight for the European context in maximizing innovation and minimizing risk. Our intention is to frame discussions and elicit debate to inform the efforts of researchers, educators, architects, policy-makers and planners to make inclusive and responsible decisions in the innovation and research of learning environments that will be necessary to move this agenda forward (Ribeiro et al., 2018).

The pandemic has made educators around the world acutely aware of the importance of being together in physical spaces of learning. It has caused many to question what is important in learning and to reconsider the importance of social and emotional dimensions of schooling. The future research agenda envisaged in this Special Issue involves both learning from the lessons on past attempts at innovation and risk in school design and thinking abot the future of innovative leaning environments.

References:

Benade L and Jackson M (2017) Introduction to ACCESS special issue: Modern learning environments. *Educational Philosophy and Theory* 49(8): 744-748.

Benito, AE (2003) The school in the city: School architecture as discourse and as text. *Pedagogica Historica*, 39(1): 53-64.

Carpenter N and Bauman DC (2016) Project Delivery Method Performance for Public School Construction: Design-Bid-Build versus CM at Risk. Jouranl of Construction Engineering and Management 142(10): 1-10.

Carvalho L, Nicholson T, Yeoman P and Thibaut P. (2020) Space matters: framing the New Zealand learning landscape. *Learning Environments Research* 23**,** 307–329.

Carvalho L and Yeoman P. (2018) Framing learning entanglement in innovative learning spaces: Connecting theory, design and practice. *British Educational Research Journal* 44(6): 1120-1137.

Deppeler J and Aitkins K (2020) *Spotlight Report 1: Responsible Innovation-Designing Schools for Tomorrow's Learner.* Melbourne: Moans University.

Istance D and Kools M (2013) OECD Work on Technology and Education: innovative learning environments as an integrating framework. *European Journal of Education* 48 (1), 43-57.

Kokko, A.K., Hirsto, L. From physical spaces to learning environments: processes in which physical spaces are transformed into learning environments. *Learning Environments Research* (2020). https://doi.org/10.1007/s10984-020-09315-0

Könings K D, Bovill C and Woolner P (2017) Towards an interdisciplinary model of practice for participatory building design in education. *European Journal of Education* 52: 306-317.

Koutamis A, Heuer J and Könings KD (2017) A visual information tool for user participation during the lifecycle of school building design: BIM. *European Journal of Education* 52: 295-305.

Mäkitalo-Siegl K, Zottmann J, Kaplan F and Fischer F (eds) (2010) *Classroom of the Future: Orchestrating Collaborative Spaces.* Rotterdam: Sense Publications.

Moos RH (1979) *Evaluating Educational Environments: Procedures, measures, findings and policy implications.* San Francisco, CA: Jossey-Bass.

Niemi K (2020) 'The best guess for the future?' Teachers' adaptation to open and flexible learning environments in Finland, *Education Inquiry.* DOI: 10.1080/20004508.2020.1816371

OECD (2017) *The OECD Handbook for Innovative Learning Environments, Educational Research and Innovation*. Paris: OECD Publishing.

OECD (2018) *The Future of Education and Skills Education 2030.* Paris: OECD Publishing.

Ribeiro B, Bengtsson L, Benneworth P, Bührer S, Castro-Martínez E, Hansen M, Jarmai K, Lindner R, Olmos-Peñuela J, Ott C and Shapira P (2018) Introducing the dilemma of societal alignment for inclusive and responsible research and innovation. *Journal of Responsible Innovation* 5(3): 316-331.

Reh S, Rabenstein K and Fritzsche B (2011) Learning spaces without boundaries? Territories, power and how schools regulate learning. *Social and Cultural Geography* 12(1): 83-98. Schabmann A, Popper V, Schmidt BM, Kühn C, Pitro U and Spiel C (2016) The relevance of innovative school architecture for school principals. *School Leadership and Management* 36(2): 184-203.

Tse HM, Learoyd-Smith S, Stables A and Daniels H (2014) Continuity and conflict in school design: A case study from building schools for the future. *Intelligent Buildings International* 7(2–3): 64–82.

Woolner P, Hall E, Higgins S, McCaughey C and Wall K (2007) A sound foundation? What we know about the impact of environments on learning and the implications for Building Schools for the Future, *Oxford Review of Education* 33(1): 47– 70.