1. Executive Summary

"Given evidence now exists that ILEs are successful in practice, what characterises major advances in builds into the coming decade? This report emphasises (1) design of ILEs can be argued to have now 'peaked' in Australia and NZ; (2) high-impact spaces are increasingly a product of highly informed collaborations between educators, designers and allied industries; (3) 'successful' builds in the coming years will surpass 'innovation' and 'flexibility' criteria, to be tested against increasingly sophisticated nuances of wellbeing, engagement and equity. "

Imms, W. (2020) Invited Address, Education Estates (England). October 2020.

"We need to advance on the discourse that has dominated a decade of ILE evolution - the 'innovation and adaptable spaces' focus. Innovation and adaptibility have been achieved, and while we continue to refine such properties, they now constitute our new baseline. It is time to address the next challenge, what ILTEC calls the 'abilities design' concept; designing spaces whose primary function is to enable all students to actively engage curriculum."

Imms, W. (2020) *Moving beyond Innovative Learning Environments to an 'abilities design' concept: Findings from ILETC.* Invited Address, EduTech (Sydney). October 2020.

In the briefest terms, the ILETC Project found the following...

A. (Antecedent knowledge) What academic knowledge relevant to ILETC already exists?

A.1 There is a paucity of existing quality research on ILEs, quality teaching and student deep learning.
A2. Apart from some signature studies, what mostly exist uses conflicting definitions, frequently exhibits poor methodologies, and addresses a confusing range of topics.
A3. The problem of consistent defining of key variables is not yet resolved.
A4. Few studies have successfully isolated space as a variable.
A5. While some studies have addressed links between various ILE affordances, teaching practices and student learning, these are isolated - there exists no cohesive body of knowledge on this vital issue.
A6. Typically, causality is not claimed in quality ILE literature; correlations are the norm.
A7. Pre-2000 literature is consistently negative when reporting impact of 'open learning' environments on student experiences and outcomes. Post-2000 literature trends the opposite, often citing correlations between ILEs and improvements in a range of student learning outcomes, well-being, and engagement.

1. (Research question 1) What is the current situation in Australian and New Zealand schools in terms of the number of, types of, and teacher/student activities within ILEs?

1.1 ILEs have become reasonably common.
1.2 No one genre of ILE design exists. A hybrid of designs are in use between the often polarised 'traditional' and 'open plan' extremes.
1.3 A trend in teaching approaches is identifiable when comparing traditional spaces to ILEs.
1.4 A trend in student learning approaches is identifiable when comparing traditional spaces to ILEs.
1.5 In Australian and New Zealand primary and secondary schools, three quarters of teachers engage in didactic or 'teacher-centred' teaching practices.
1.6 In Australian and New Zealand primary and secondary schools, three quarters of students engage in 'teacher-directed' learning practices.
1.7 The majority of Australian and New Zealand primary and secondary students continue to be taught in traditional ways, in traditional settings.

2. (Research question 2) What characterises 'good transition' by teachers into ILEs?

2.1 Contrary to general assumptions, many teachers are transitioning well into ILEs.
2.2 A common 'pathway' or journey of this transition can be described. This appears to be consistent internationally.
2.3 Teachers are utilising a wide variety of strategies and tools to assist this progress.
2.4 Fourteen 'themes' can be identified that typify that journey.
2.5 Apart from two issues, teachers are receiving minimal support during this process.
2.6 While industry knowledge is high about many of the 'affordances' that support this transition (e.g. design, furniture, acoustics, technology), teachers are missing its quick dissemination into actual teaching situations.
2.7 The concept of 'spatial typologies' assists this dissemination.

3. (Research question 3) What correlations can be established between ILEs and high levels of student deep learning, and high incidence of favourable teacher mind frames?

3.1 ILEs are linked to better teaching and the learning desired of many educational authorities.
3.2 There exists statistical evidence that a correlation can be established between ILEs, higher levels of student deep learning, and 'high-impact' teaching strategies (teacher mind-frames).
3.3 There is evidence of a linear progression between spaces and teaching/learning – ***the more flexible the space, the more common the desired learning outcomes and teaching practices****.*
3.4 While ILEs can be linked to greater deep learning by students, they have no impact on surface learning – ***ILEs assist deeper learning while not reducing surface learning.***

I. Summary, and where to now? (Implications)

I.1 Do altering teacher mind frames unlock the potential of ILEs? Yes, direct positive links were found between these two phenomena. But (1) the the word 'change' proved problematic. The study found no reason to 'change' mind frames, teachers were already modifying prcatices; rather, pre-existing practices that aligned to the mind frames were tested against ILE and non-ILE settings to allow this claim of correlation to be made.
I2. causality was not detected – teachers were found to teach 'well', and students to learn 'better' in ILEs, but at present we cannot say the space created those outcomes.
I3. Due to the solid correlation however, it is logical that ILEs play a role in facilitating these positive outcomes.

The task now is to leverage from this finding and rich array of additional data, to facilitate widespread sustainable practices. ILETC findings constitute a platform for the next layer of evidence gathering about making ILEs more effective. Findings imply four streams of 'follow-on' investigation; (1) gather robust evidence of ILE impact on student learning outcomes and experiences; (2) develop a workable understanding of teacher spatial competency that improves student learning; (3) improve teacher understanding of the teaching/learning affordances of ILEs; (4) find a way to dramatically increase the impact of critical industry knowledge on teachers daily practices.

2. Preamble

Context

ILETC's primary research focus was: *Can altering teacher mind frames unlock the potential of innovative learning environments?* The development of subsidiary research questions was guided by the following conjecture, stated in the original project application:

> *The hypothesis of this study is that by changing teachers' ways of thinking about their teaching and their use of ILEs, they are more likely to change the proportions of surface to deep learning in their classes…*
>
> *… teachers who deliberately aim to facilitate students' deeper learning are those most likely to optimize ILE spaces.*

At the beginning of ILETC a clear mandate existed in government and academic conversations for these 'innovative learning environments (ILEs) to have a primary aim of fostering students creative and critical thinking, and communicative and collaborative practices; this often was embedded in '21st Century Learning' ambitions. There existed, however, a worrying paucity of quality research to act as a baseline for understanding this phenomenon. For this reason, ILETC adopted an exploratory design in seeking to document correlation between 'good' teacher use of ILEs and high levels of student deep learning.

The resulting research questions were:

1. *What is the current situation in Australian and New Zealand schools in terms of the number of, types of, and teacher/student activities within ILEs?*

2. *What characterises 'good transition' by teachers into these ILEs?*

3. *What correlations can be established between ILEs and high levels of student deep learning, and high incidence of favourable teacher mind frames?*

Evidence correlating the claims come from the following sources[1];

- Seven PhD dissertations
- Seven international conferences
- Three international industry think tanks
- 7 Technical reports
- A book
- 6 Teacher Workshops
- 30 Case Studies
- Development of the Teacher Transition Pathway
- Development of the ILETC Spatial Typologies

We rank our findings in terms of perceived strength of the claims.

'Robust' claims
Findings that have empirical evidence to support them, and/or have been published in a peer-reviewed journal or book, and/or are based on facts published in a project Technical Report.

'Promising' claims
Claims, published in a variety of sources, with a high degree of likelihood that further examination will find them to be accurate.

[1] Listed in the upcoming 'ILETC Curriculum Vitae'

'Emerging' claims
Claims, often not yet formally published, but with enough credibility to suggest they 'signpost' future research and carry the potential to inform this area of research in valuable ways.

4. Preliminary findings

Antecedent knowledge: What ILETC relevant research exists?

A1
There is a paucity of existing quality research on this topic.
A2.
What does exist uses conflicting definitions, frequently exhibits poor methodologies, and addresses a range of topics with so little cohesion, an exploratory research design is required for ILETC.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
There exists a surprising lack of evidence on the impact of ILEs across a number of domains, most critically in terms of quality of teaching, student learning, and learning outcomes.	ILETC	Robust	Published, public domain	Byers, T., Mahat, M., Liu, K., Knock, A. & Imms, W. (2018). *Systematic Review of the Effects of Learning Environments on Student Learning Outcomes*. Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports Bradbeer, C., Mahat, M., Byers, T. & Imms, W. (2019). A Systematic Review of the Effects of Innovative Learning Environments on Teacher Mind Frames. Melbourne: University of Melbourne. Retrieved from: http://www.iletc.com.au/publications/reports
There exists a surprising lack of cohesion across current research in terms of definitions of key factors. For this reason, stipulative definitions must be made before research can advance.	ILETC	Promising	Published, public domain	Mahat, M., Bradbeer, C., Byers, T. & Imms, W. (2018). *Innovative Learning Environments and Teacher Change: Defining key concepts.* Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports

Teachers perceive ILEs in ways that often differ to the confusing range of discourses currently in use in research of ILEs.	ILETC	Promising	Published, public domain	Mahat, M., Grocott, L., & Imms, W. (2017). *"In the real world...": Teachers' perceptions of ILEs. ILETC phase 1 teacher workshops.* Melbourne: University of Melbourne, LEaRN, Retrieved from: http://www.iletc.com.au/publications/reports/.
Teachers don't always identify deep learning when it happens	PhD Villafranca	Robust	Peer reviewed, published, public domain	Villafranca, E. (2020). *Curated learning: A pedagogical approach to maximise learning environments for students' deep learning* [Doctoral thesis, University of Melbourne]. Retrieve from
Teachers actually 'use' pedagogical affordances of ILEs without realizing it.	PhD Villafranca	Promising	Reviewed internally Peer reviewed, published, public domain	Villafranca, E. (2016). Understanding Affordances in the Museum Education Context. In H. Mitchelltree, B. Cleveland & W.Imms, Informing education theory, design and practice through learning environment evaluation (pp. 113-120). Retrieved from: Villafranca, E. (2020). *Curated learning: A pedagogical approach to maximise learning environments for students' deep learning* [Doctoral thesis, University of Melbourne]. Retrieve from

A3.

Stipulative definitions are required to ensure ILE research does not compare apples to oranges. Critical to this, the most compelling literature argues that ILEs must be seen as the confluence of innovative designs and innovative practices; the word 'environment' transcends the physical, to describe the state of balance between space, teaching, and learning.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
There exists a surprising lack of cohesion across current research in terms of definitions of key factors. For this reason, stipulative definitions must be made before research can commence.	ILETC	Promising	Published, public domain	Mahat, M., Bradbeer, C., Byers, T. & Imms, W. (2018). *Innovative Learning Environments and Teacher Change: Defining key concepts.* Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports

Typologies of learning environments, providing a common language with which to discuss ILEs, and translate potentially complex spatial concepts into a practitioner-friendly graphic.	ILETC	Promising	Reviewed internally	Technical Report 5 (in progress). See also Transitions book

A5
Few studies have successfully isolated space as a variable
A6
Causality is not claimed in quality ILE literature; correlations are the norm.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
Studies avoid methods that specifically attempt to isolate 'space' as a variable when measuring impact on student learning and schooling experience. Most studies surrender to confounding variables, and rely on suggestions of correlation – with varying degrees of success.	ILETC	Robust	Published, public domain	Byers, T., Mahat, M., Liu, K., Knock, A. & Imms, W. (2018). *Systematic Review of the Effects of Learning Environments on Student Learning Outcomes*. Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports Bradbeer, C., Mahat, M., Byers, T. & Imms, W. (2019). *A Systematic Review of the Effects of Innovative Learning Environments on Teacher Mind Frames*. Melbourne: University of Melbourne. Retrieved from: http://www.iletc.com.au/publications/reports
Few, if any studies claim causality. Such claims would require methodologies (such as RCTs) that at present are beyond the filed to undertake.	ILETC	Robust	Published, public domain	Byers, T., Mahat, M., Liu, K., Knock, A. & Imms, W. (2018). *Systematic Review of the Effects of Learning Environments on Student Learning Outcomes*. Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports

A7.
Pre-2000 literature is consistently negative when reporting impact of 'open learning' environments on student experiences and outcomes. Post-2000 literature trends the opposite, consistently citing correlations between ILEs and improvements in a range of student learning outcomes, well-being, and engagement.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
Of the 21 studies that meet this reviews definition of 'quality', a trend exists in terms of findings. Studies from research conducted during the 1970-1980s consistently finds no relationship between space and improved student learning, and frequently returns negative findings. Of the 'quality' studies done post-2000, most have positive findings in terms of the above.	ILETC	Robust	Published, public domain	Byers, T., Mahat, M., Liu, K., Knock, A. & Imms, W. (2018). *Systematic Review of the Effects of Learning Environments on Student Learning Outcomes*. Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports Bradbeer, C., Mahat, M., Byers, T. & Imms, W. (2019). A Systematic Review of the Effects of Innovative Learning Environments on Teacher Mind Frames. Melbourne: University of Melbourne. Retrieved from: http://www.iletc.com.au/publications/reports

Research question 1: What is the current situation in Australian and New Zealand schools in terms of the number of, types of, and teacher/student activities within ILEs?

1.1

ILEs have become reasonably common. In terms of numbers of ILEs, approximately one quarter of Australian and New Zealand primary and secondary schools are what ILETC would define as 'innovative learning environments' (types D and E on ILETCs Design Typology).

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
Twenty-five percent of all surveyed learning spaces are capable of medium to high degrees of 'flexibility' – ie, are Types D and E.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne

Definitions of learning space designs are possible through analysis of the literature.	ILETC	Promising	Published, public domain	Mahat, M., Bradbeer, C., Byers, T. & Imms, W. (2018). *Innovative Learning Environments and Teacher Change: Defining key concepts.* Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports
Typologies of learning environments provide a common language with which to discuss ILEs. In terms of the myriad of learning space design orientations, this typology translates potentially complex spatial concepts into an easily understandable graphic, one that allows educators to discuss with some confidence their implications.	ILETC	Emerging	Conference Proceedings	Imms, W. & Mahat, M. (2020). +*What is involved in making the journey from traditional to innovative learning environments?* Proceedings of international symposium Transitions19: One journey, many pathways. Retrieved from: http://www.iletc.com. au/publications/proceedings/

1.2

No one genre of ILE design exists. In terms of types of ILEs, it is clear that representation of an either/or polarisation of design types is misleading; that is, treating learning space designs as being either open plan or traditional. The more likely reality is a mass of 'hybrid' designs are well represented between these two extremes.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
Distribution of design types is noticeably spread across the five categories represented in the ILETC Design Typology. While the type A and B (traditional) setting are most represented, types C, D and E (designs that provide greater flexibility) exist in significant numbers.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne
Definitions of learning space designs are possible through analysis of the literature.	ILETC	Promising	Published, public domain	Mahat, M., Bradbeer, C., Byers, T. & Imms, W. (2018). *Innovative Learning Environments and Teacher Change: Defining key concepts.* Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports
Typologies of learning environments provide a common language with which to discuss ILEs. In terms of the myriad of	ILETC	Promising	Reviewed internally	To be published as Technical Report 5. See also Transitions book

learning space design orientations, this typology translates potentially complex spatial concepts into an easily understandable graphic, one that allows educators to discuss with some confidence their implications.				

1.3

A trend exists in Australian and New Zealand schools in terms of teaching approaches in particular spaces. Approximately three quarters of Australian and New Zealand primary and secondary school teachers are considered to predominately use what ILETC would define as 'teacher-centred' pedagogies, (types 1 and 2 on ILETCs Pedagogy Typology).

Sources

Findings	**Who**	**Degree of 'proof' Robust, Promising, Emerging**	**Type of 'proof' -**	**Citation**
A statistically significant correlation was found in terms of the the types of teaching and the types of spaces being used.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne
Definitions of teaching pedagogies are possible through analysis of the literature	ILETC	Promising	Published, public domain	Mahat, M., Bradbeer, C., Byers, T. & Imms, W. (2018). *Innovative Learning Environments and Teacher Change: Defining key concepts.* Melbourne: University of Melbourne, LEaRN. Retrieved from: http://www.iletc.com.au/publications/reports
A typology of teaching pedagogies, that translate potentially complex practices into an easily understandable graphic, assist teachers identify and discuss styles of teaching.	ILETC	Promising	Reviewed internally	To be published as Technical Report 5. See also Transitions book

1.4

A trend exists in Australian and New Zealand schools in terms of student learning approaches in particular spaces. The majority of schools report a higher incidence of what research would categorise as 'high-impact' teaching strategies in ILEs (as defined by ILETC and represented as types 3, 4, 5 and 6 in its Pedagogy Typology).

Sources

Findings	Who	Degree of proof: Robust, Promising, Emerging	Type of proof	Citation
Participants from schools with a higher prevalence of traditional spaces reported a lower assessment of Teacher Mind-frames, with the reverse in ILEs.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne

1.5

The majority of schools report a higher incidence of what research would categorise as 'high-impact' teaching strategies (teacher mind-frames) in ILEs, as defined by ILETC and represented as types 3, 4, 5 and 6 in its Pedagogy Typology.

Sources

Findings	Who	Degree of proof: Robust, Promising, Emerging	Type of proof	Citation
Participants from schools with a higher prevalence of traditional spaces reported a lower assessment of Teacher Mind-frames, with the reverse in ILEs.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne

1.6

The majority of schools report a higher incidence of what research would categorise as student deep learning approaches in ILEs (as defined by existing literature into student superficial and deep learning).

Sources

Findings	Who	Degree of proof: Robust, Promising, Emerging	Type of proof	Citation

Participants from schools with a higher prevalence of traditional spaces reported a lower assessment of student deep learning, with the reverse in ILEs.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne

1.7

The majority of Australian and New Zealand primary and secondary students continue to be taught in traditional ways, in traditional settings.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
ETC can make the claim that in Australian and New Zealand imary and secondary schools, three quarters of students are ceiving teacher-directed instruction and are situated in ditional settings, being either desks facing 'a front,' or usters of tables facing 'a front'.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne

Research question 2: What characterises 'good transition' by teachers into ILEs?

2.1

Evidence exists that contrary to assumptions, many teachers are transitioning well into ILEs.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
Correlation of use of ILEs and perceptions of quality teaching habits suggest positive transition is frequently occurring.	ILETC	Robust	Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in

				Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne . Imms. W. & Mahat, M (in progress). *Preliminary analysis of the Teacher Transition Survey: ILETC Survey 2.* Technical Report X/2020. ILETC: Melbourne
Teachers are using ILEs well. A linear progression exists between spatial types and increases in use of high-impact pedagogies (mind frames); the more flexible the space (up to type D), the more the incidence of the qualities of teaching being sought by educational policies.	ILETC	Robust Robust	Reviewed, published, public domain Reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne. Bradbeer, C., Byers, T., Cleveland, B., Kvan, T., Mahat, M. & Imms, W. (2017). The 'state of play' concerning New Zealand's transition to innovative learning environments: Preliminary results from phase one of the ILETC project. *Journal of Educational Leadership Policy and Practice, 32*(1) 22-38.
Teachers actively interrogate ILE use. Perceptions of own ILE use consistently identify two challenges that they address; teacher mind sets and lack of professional development.	ILETC	Promising	Published, public domain	Mahat, M., Grocott, L., & Imms, W. (2017). *"In the real world...": Teachers' perceptions of ILEs. ILETC phase 1 teacher workshops.* Melbourne: University of Melbourne, LEaRN, Retrieved from: http://www.iletc.com.au/publications/reports/
Teachers identify (1) more learning opportunities in ILEs compared to traditional settings, and (2) more potential 'learning opportunities' within ILEs, than the designers who created the spaces.	PhD Young	Robust	Published, peer reviewed, public domain.	Young, F., Cleveland, B. & Imms, W. (2019). The affordances of innovative learning environments for deep learning: Educators' and architects' perceptions. *The Australian Educational Researcher 47*(4), 693-720. https://doi.org/10.1007/s13384-019-00354-y
The majority of teachers indicate that (1) ILEs best support teaching practices; (2) ILEs are the preferred teaching space; (3) six months is the most frequently cited span of time it takes for teachers to transition to the new spaces.	ILETC	Promising		Upcoming technical report, ILETC Survey 2.

2.2

There is evidence that schools and teachers follow a reasonably common 'pathway' through this process. There are indications that this trend is consistent internationally.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
				Imms. W. & Mahat, M (in progress). *Preliminary analysis of the Teacher Transition Survey: ILETC Survey 2.* Technical Report X/2020. ILETC: Melbourne
				Mahat, M. & Imms, W. (2020). One journey, many pathways: Teachers' transformative journey into innovative learning environments. In W. Imms, & M. Mahat, (Eds.) *What is involved in making the journey from traditional to innovative learning environments?* Proceedings of international symposium Transitions19: One journey, many pathways. Retrieved from: http://www.iletc.com. au/publications/proceedings/
There is evidence this trend is consistent internationally, shown through validation of the Transitions Pathway 'grand themes' by teachers and administrators in the USA, Australia, New Zealand, UK and northern Europe.	ILETC	Promising		Upcoming report – Validation of the ILETC Teacher Transitions pathway.
Persistent principles (values-based, participatory, incremental, inclusive, distributed) were found to consistently underpin traditional to ILE change processes in schools. These support the concept of a common 'teacher transition pathway'.	PhD Osborne	Promising	Peer reviewed conference proceeding	Osborne, M. (2018). Change leadership and the transition to innovative learning environments. In W. Imms & M. Mahat (Eds.). *What are teachers doing (well) when transitioning from traditional classrooms to innovative learning environments? Proceedings of international symposia for graduate and early career researchers in Australasia, Europe and North America.* (pp. 157-161). Retrieved from: http://www.iletc.com.au/publications/proceedings/

2.3

This pathway is constituted of a wide variety of change strategies. In implementing these strategies, many teachers, either intentionally or inadvertently, are developing and using purposeful 'ILE change tools' that help them use these spaces well. These activities are highly individualised (both at the teacher or school level), depending on the unique needs of each. 'Teachers pedagogic growth' through this transition can be aligned to the mind frames identified in research into high-impact teaching.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
				Imms, W & Mahat, M. (2020). Fourteen factors impacting teacher transition to innovative learning environments. In W. Imms & T. Kvan, (Eds.), *Transition of teachers into innovative learning environments: A global perspective.* Melbourne, Australia: Springer
This change process has been found to consistently comprise three distinct phases – preparing, implementing and sustaining	PhD Osborne	Robust	Peer reviewed conference proceeding, PhD examination	Osborne, M. (2018). Change leadership and the transition to innovative learning environments. In W. Imms & M. Mahat (Eds.). *What are teachers doing (well) when transitioning from traditional classrooms to innovative learning environments? Proceedings of international symposia for graduate and early career researchers in Australasia, Europe and North America.* (pp. 157-161). Retrieved from: http://www.iletc.com.au/publications/proceedings/
Four factors characterize good organizational change practices; (1) Nudges (make explicit decisions to structure the ILE for example teachers desk); (2) Structure (organization of the day, timetable, planning time); (3) Expectations (educators knowing what is expected eg role and making explicit) and (4) Culture (risk-taking, reflective practices and support)	PhD French	Promising	Peer reviewed, published, case studies	French, R., Imms, W. & Mahat, M. (2019). Case studies on the transition from traditional classrooms to innovative learning environments: Emerging strategies for success. *Improving Schools.* https://doi.org/10.1177/1365480219894408

Co-creating and co-designing have potential to surface the tacit (implicit) and make more explicit (Wayfinding)	PhD Tuckwell	Emerging		Tuckwell, D. (2018). Making sense of design thinking. In W. Imms & M. Mahat (Eds.). *What are teachers doing (well) when transitioning from traditional classrooms to innovative learning environments? Proceedings of international symposia for graduate and early career researchers in Australasia, Europe and North America.* (pp. 207-212). Retrieved from: http://www.iletc.com.au/publications/proceedings/

2.4 Fourteen 'themes' can be identified that typify that journey.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
				Imms. W. & Mahat, M (in progress). *Preliminary analysis of the Teacher Transition Survey: ILETC Survey 2.* Technical Report X/2020. ILETC: Melbourne
				Imms, W & Mahat, M. (2020). Fourteen factors impacting teacher transition to innovative learning environments. In W. Imms & T. Kvan, (Eds.), *Transition of teachers into innovative learning environments: A global perspective.* Melbourne, Australia: Springer

2.5 Apart from two issues, teachers are receiving minimal support during this process.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**

				Imms. W. & Mahat, M (in progress). *Preliminary analysis of the Teacher Transition Survey: ILETC Survey 2.* Technical Report X/2020. ILETC: Melbourne
				Imms, W & Mahatt, M. (2020). Fourteen factors impacting teacher transition to innovative learning environments. In W. Imms & T. Kvan, (Eds.), *Transition of teachers into innovative learning environments: A global perspective.* Melbourne, Australia: Springer

2.6 While industry knowledge is high about many of the 'affordances' that support this transition (e.g. design, furniture, acoustics, technology), teachers are missing its quick dissemination into actual teaching situations.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**

2.7 The concept of 'spatial typologies' assists this dissemination.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**

Research question 3: What correlations can be established between ILEs and high levels of student deep learning, and high incidence of favourable teacher mind frames?

3.1 ILEs are linked to better teaching and the learning desired of many educational authorities.

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
Evidence exists that in ILEs, teachers are exhibiting the types of teaching that policies are demanding – teaching towards the 4Cs of collaboration, cooperation, critical thinking, creative thinking.	ILETC	Robust	Peer reviewed, published, public domain	Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne.
Those types of teaching coincide with 'curated learning' attributes in practice inother educational sectors like Museums, and that constitute a direct focus on deep learning.	PhD Villafranca			Villafranca, E. (under examination). *Curated learning: A pedagogical approach to maximise learning environments for students' deep learning* [Doctoral thesis, University of Melbourne]. Retrieve from Minerva once accepted. Villafranca, Ethel (2019): LEAD Framework. figshare. Figure. https://doi.org/10.6084/m9.figshare.10315385.v1
Teachers' demonstrate elevated capacity to identify attributes of ILEs that lead to quality education. Teachers and Architects identify ILEs as containing a substantially higher number of teaching and learning affordances, teachers more so than architects.	PhD Young	Robust	Peer reviewed, published, public domain	Young, F., Cleveland, B. & Imms, W. (2019). The affordances of innovative learning environments for deep learning: Educators' and architects' perceptions. *The Australian Educational Researcher.* https://doi.org/10.1007/s13384-019-00354-y

3.2 There exists statistical evidence that a correlation can be established between ILEs, higher levels of student deep learning, and 'high-impact' teaching strategies (teacher mind-frames).

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**

There exists a statistically significant difference between ILEs and traditional settings, when measured against levels of student deep learning and teacher mind frames. In a sample of secondary schools, ILEs have higher incidence of both.	PhD Murphy	Robust	Peer reviewed, published, public domain	Murphy, D. (Under examination). *Relationships between innovative learning environments, teacher mind frames and deep learning* [Doctoral thesis, University of Melbourne]. Retrieve from
There are strong indicators that while ILEs are correlated to high levels of student deep learning, they also have no impact on surface learning. In other words, ILEs improve deep learning with no adverse effcets on surface learning.	PhD Murphy	Emerging	Peer reviewed, published, public domain	Murphy, D. (Under examination). *Relationships between innovative learning environments, teacher mind frames and deep learning* [Doctoral thesis, University of Melbourne]. Retrieve from

3.3 There is evidence of a linear progression between spaces and teaching/learning – ***the more flexible the space, the more common the desired learning outcomes and teaching practices****.*

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**
A clear 'type A' to 'type D' linear progression links design types to increases in levels of desired learning outcomes and teaching practices. The exception is 'type E' (open plan) that rates lower than 'type D'.	ILETC	Robust		Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne
In broad terms, the more flexible the space, the more common the desired learning outcomes and teaching practices. In specific terms, traditional design of classrooms have higher levels of superficial learning and teacher-centred pedagogies. More flexible spaces	ILETC	Robust		Imms, W., Mahat, M., Murphy, D. & Byers, T. (2017). Type and Use of Innovative Learning Environments in Australasian Schools – ILETC Survey. Technical Report 1/2017. ILETC Project: Melbourne

3.4 While ILEs can be linked to greater deep learning by students, they have no impact on surface learning – ***ILEs assist deeper learning while not reducing surface learning.***

Sources

Findings	**Who**	**Degree of proof: Robust, Promising, Emerging**	**Type of proof**	**Citation**

While an effect was found for the impact of learning space design on student deep learning, on the same measure no effect was found for ILEs on surface learning. Deep learning was higher in ILEs, but surface learning stayed stable between the two design types.	PhD Murphy	Robust	Peer reviewed, examination	Murphy, D. (Under examination). *Relationships between innovative learning environments, teacher mind frames and deep learning* [Doctoral thesis, University of Melbourne]. Retrieve from

There exists a surprising lack of evidence on the impact of ILEs across a number of domains, most critically in terms of quality of teaching, student learning, and learning outcomes.	ILETC	Robust	Published, public domain	12	Byers, T., Mahat, M., Liu, K., Knock, A. & Imms, W. (2018). *Syst* *Environments on Student Learning Outcomes*. Melbourne: Uni from: http://www.iletc.com.au/publications/reports
				6	Bradbeer, C., Mahat, M., Byers, T. & Imms, W. (2019). A Syste Learning Environments on Teacher Mind Frames. Melbourne: http://www.iletc.com.au/publications/reports