Aligning education, digital and learning space strategies: an ecological approach

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The first part of this talk will summarise outcomes from a set on in-depth interviews with senior leaders from across the Australian university system. Interviews were held with 54 leaders from 39 universities. In almost all cases, the person interviewed was responsible for shaping and implementing the educational, digital or space strategy: DVC(E)s, Chief Information Officers and Directors of Estates. I will use an analysis of this data to illustrate some of the issues that make it difficult to get good alignment between education, digital and space strategies. In the second part of the talk, I will outline an ecological approach to understanding some of the complex inter-relationships between educational activities and the digital and physical tools, resources and infrastructure on which those activities depend. This ecological approach has two main elements: (1) a shift of focus from product design to the co-design of services, and from the 'student as managed customer' to activity systems; (2) fostering participatory approaches to understanding local learning systems.

Peter Goodyear

Two main parts to the presentation

1. Interviews with university leaders shedding light on difficulties of integrating strategies

2. Educational ecology as an applied science: understanding and improving educational ecosystems

‘Ecology’ is a double-barrelled term.

It both refers to systems *in themselves* that have an internal unity, the coherence of which could be threatened in some way, and also refers to a *study* of such systems in the world.

This dual headedness applies also to the university, for the university lives amid ecologies (they have real substance in the world) and also has helped bequeath the formation of ecology as an academic field of study
(Barnett, 2018, 18, original emphasis)

1. Interviews with university leaders shedding light on difficulties of integrating strategies

2. Educational ecology as an applied science: understanding and improving educational ecosystems

The concept of ecology has a subtle *ought-ness*.
If an ecosystem is found to be impaired, then one has a responsibility to help to restore it to good health.
And so it is with the university.
(Barnett, 2018, 8)

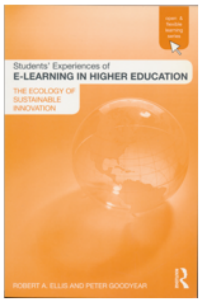
Barnett, R. (2018). *The ecological university: a feasible utopia*. London: Routledge.
See also: Barnett, R., & Jackson, N. (Eds.). (2019). *Ecologies for learning and practice: emerging ideas, sightings and possibilities*. Abingdon: Routledge.

My work .. over the last 30 years or so

How do the key participants in teaching and learning in HE make sense of the challenges and opportunities?

Especially with the added complexities of:

- digital technologies
- active and collaborative learning
- new learning spaces
- light (or no) direct supervision



Students

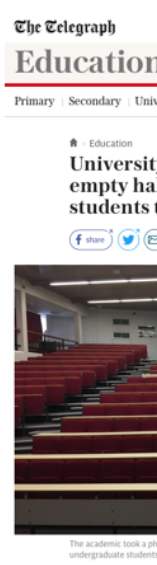
https://petergoodyear.net

University leaders

Ellis, R., & Goodyear, P. (2019). *The education ecology of universities: integrating learning, strategy and the academy*. Routledge.

Ellis, R., & Goodyear, P. (2010). *Students' experiences of e-learning in higher education: the ecology of sustainable innovation*. Routledge.

Ford, P., Goodyear, P., Heseltine, R., Lewis, R., Darby, J., Graves, J., . . . King, T. (1996). *Managing change in higher education: a learning environment architecture*. Buckingham: SRHE/Open University Press.


The Telegraph HOME | NEWS

Education

Primary | Secondary | University | League tables | Clearing

Education

University lecturer confronted with empty hall after none of her 400 students turns up

share

Save 188

The academic took a photograph of the empty lecture theatre and emailed it to all English undergraduate students

Aligning
educational, digital and learning space strategies

raises deep questions about the university itself, what university is for, what the campus is for, etc.

Doubts
Complexity
Risk

Photos by Mikael Kristenson Lucrezia Carnelos and Filip Bunkens on Unsplash


HYBRID LEARNING SPACES – DESIGN, DATA, DIDACTICS
Workshop @ EC TEL 2019

The spaces in which we teach and learn are changing. Technology is permeating physical spaces, augmenting and enhancing learning experiences. At the same time, mobile and pervasive internet-connected technologies create interfaces between virtual spaces and real-world phenomena and create data shadows of our actions in the physical world. These dynamics give rise to a growing presence of hybridity: the blurring of boundaries between distinct contexts of learning and activity, and the unexpected interleaving of experiences they engender.

Arguably, hybrid learning spaces drive a change that goes beyond the locus of learning.
A hybrid pedagogy fundamentally rethinks our conception of place.
Hybridity is multidimensional: it concerns the interleaving of formal and informal social structures of learning, the combination of physical and digital tools mediating each individual's interactions with the world and society, and more.

Education systems are beginning to recognise the potential of hybrid learning spaces in promoting significant learning, and increasingly use pedagogical hybrid learning models. Recent work has begun exploring the nature of hybridity from an educational design perspective.

CfP Hybrid Learning Spaces, *BJET* (with some tidying)

Education(al) Strategy – also known as Learning and Teaching Strategy

Relatively new and taking shape quite quickly

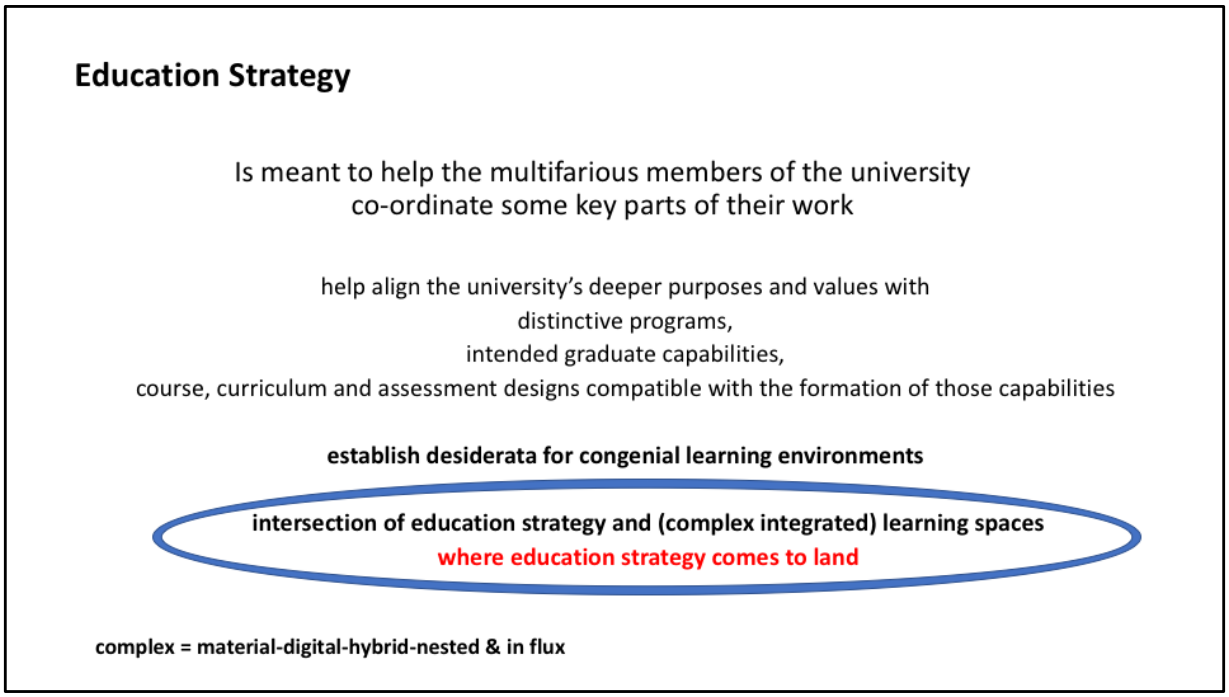
- The use of explicit education (L&T) strategies in universities is relatively new (early to mid 1990s in Australia & the UK)
- Originally understood and implemented in very diverse ways (Gibbs et al 2000)
- But now characterized by a great deal of convergence (policy sharing, benchmarking, national QA regimes etc)

Purpose of an education strategy is to:

focus attention, harness activity and resources,
galvanise people and processes into action,
align internal systems, and raise awareness of external pressures

all in order to achieve the education mission

Gibbs, G., Habeshaw, T., & Yorke, M. (2000). Institutional learning and teaching strategies in English higher education. *Higher Education, 40*(3), 351-372.



Goodyear, P. (2019). Creating productive spaces for developing employability. In J. Higgs, G. Crisp, & W. Letts (Eds.), *Education for employability: the employability agenda*. Leiden: Sense-Brill.

Goodyear, P., Ellis, R., & Marmot, A. (2018). Learning spaces research: framing actionable knowledge. In R. Ellis & P. Goodyear (Eds.), *Spaces of teaching and learning: integrating perspectives on research and practice* (pp. 221-238). Singapore: Springer Nature.

The Study: Semi-structured interviews with 3 kinds of leaders

Education leaders ≋ Deputy Vice-Chancellor (Education) DVC(E)

IT leaders ≋ Chief Information Officer (CIO)

Facilities leaders ≋ Director of Estates (DoE)

Ellis, R., & Goodyear, P. (2019).
The education ecology of universities: integrating learning, strategy and the academy. Routledge.

Achieved Sample (approx. 50%)

DVCEs:	19		
CIOs:	18		54
DoEs:	17		
Universities:	39		(of 42)

Interviewing Team

Nick Klomp
(formerly DVC Academic U Canberra; VC Central Queensland University)

Bruce Meikle
(formerly CIO University of Sydney)

Kenn Fisher
(Educational architect Woods Bagot & academic, U Melbourne)

Rob Ellis
(formerly Director of eLearning at The University of Sydney;
Dean L&T, Arts, Education & Law Group, Griffith U)

Semi-structured interview questions: DVCEs

1. What university-wide **frameworks guide course design** at your university?
   [Note: 'course design' interpreted broadly, to include program, course and credential design.]

2. What do the changes and challenges arising in this area mean for university teachers and students?

3. What strategies exist in your institution to address these challenges?

4. What institutional impediments need to be overcome for an effective university teaching and learning system that supports innovative course design?

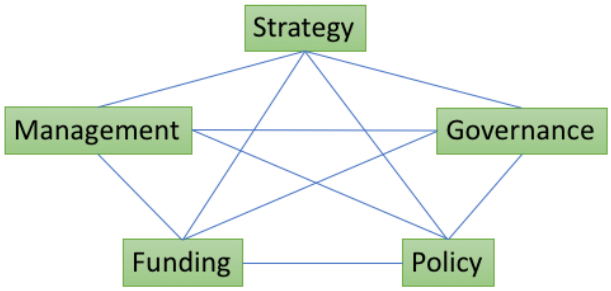
5. How are **effective relations made between new course designs and integrated learning spaces**?
   [Note: 'integrated learning spaces' - integrations of physical and digital spaces, tools, resources etc, with the aim of supporting more 'seamless' learning and teaching.]

Semi-structured interview questions: CIOs and DoEs

1. How would you define 'learning space'? To what extent is that definition understood across your institution?
2. What **strategies** does your institution adopt to **plan and develop learning space**?
3. What can impede the effective development of learning space?
4. What things would you resolve to **improve effective learning space innovation and planning**?

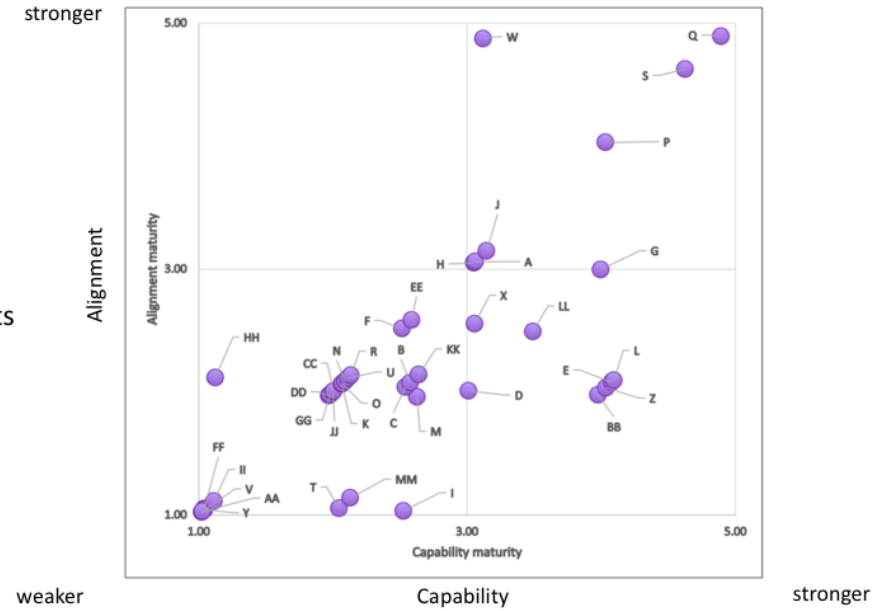
CIOs generally took this to mean both digital and material

Thematic analysis of interview transcripts:
five emerging themes, aka 'organisational elements'



Strategy readiness
(n=39 universities)

Capability
and
Alignment with other
Organisational Elements



Three major problems in aligning educational strategy with (integrated/hybrid) learning space strategies

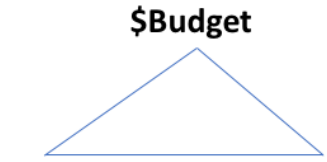
In the context of major projects, esp management & funding issues, CIOs and Directors of estates mention:

1. Disputed ownership (lack of clarity about the most relevant stakeholders – shared facilities; local use etc)

2. Vague requirements (insuffient detail to map education to space requirements; stakeholders rarely have language & concepts to clearly specify what is needed)

3. Mistakes in structuring budgets

Three major problems in aligning educational strategy with (integrated/hybrid) learning space strategies



Slipperiness of language
vs
the concreteness of infrastructure

Structure of Budgets

Easier to get capital for a one-off project than the recurrent funding needed to ensure it works & keeps working properly

Central budgets for new capital devs vs delegated & uncertain recurrent budgets for e.g. professional development of teaching staff

Three major problems in aligning educational strategy with (integrated/hybrid) learning space strategies

"The problem is strategy development for learning space is not coordinated. So the university does have a vision 2020 for learning and teaching but that doesn't specify the physical space. It talks about the activities they want for students and the academics to engage in in the future, but it doesn't have enough detail to inform the spaces we build. It says we want more real world activities, and says we want less lectures and more collaboration-type activities, but it's not sufficiently detailed to inform the development of learning space. The IT strategy also does not specify what physical spaces we have to provide"

(Director of Estates)

Language in organizational life

"A good part of the job, then, consists of 'a constant interpretation and reinterpretation of events that constructs a reality in which it is difficult to pin blame on anyone, especially oneself' … This gives rise to the art of talking in circles. Mutually contradictory statements are made to cohere by sheer forcefulness of presentation, allowing a manager to 'stake out a position on every side of an issue. Or one buries what one wants done in a string of vaguely related descriptive sentences that demand textual exegesis' .. The intent of this kind of language is not to deceive, it is to preserve one's interpretive latitude so that if the context changes, 'a new, more appropriate meaning can be attached to the language already used. In this sense the corporation is a place where people are not held to what they say because it is generally understood that their word is provisional'

Nothing is set in concrete the way it is when you are, for example, pouring concrete."

(Matthew Crawford, 2011, p139; with embedded quotes from Craig Calhoun and Robert Jackall)

Crawford, M. (2011). *The case for working with your hands*. London: Penguin

Broader Summary of Problematic Areas

1. Quality Assurance (QA) x (Educational) Innovation
2. Professional development of teaching staff
3. Difficulty of **integrating/aligning** the planning/design of new courses (etc), IT and physical spaces: need for students to be able to move seamlessly between learning spaces
4. Problems in **aligning** strategy, governance, policy, management and funding
5. Funding and **budgeting**
6. **Outcome measures x understanding processes** that produce the outcomes
7. **Lack of shared concepts and terminology** – esp. in relation to implications of new educational designs for IT and built infrastructure
8. Difficulty of pinning down user requirements:

   Configuring the user: managed customer; stereotypes & averages; folk psychology of teaching & learning

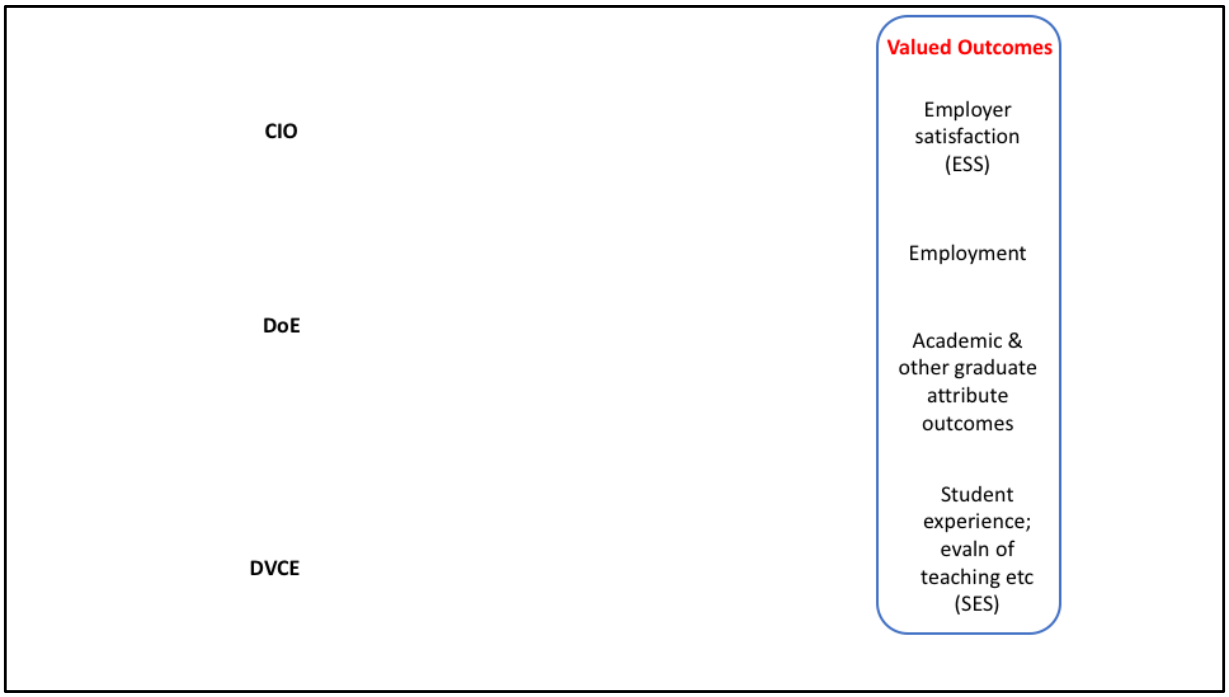
Focus on outcome measures at the expense of explanations of process

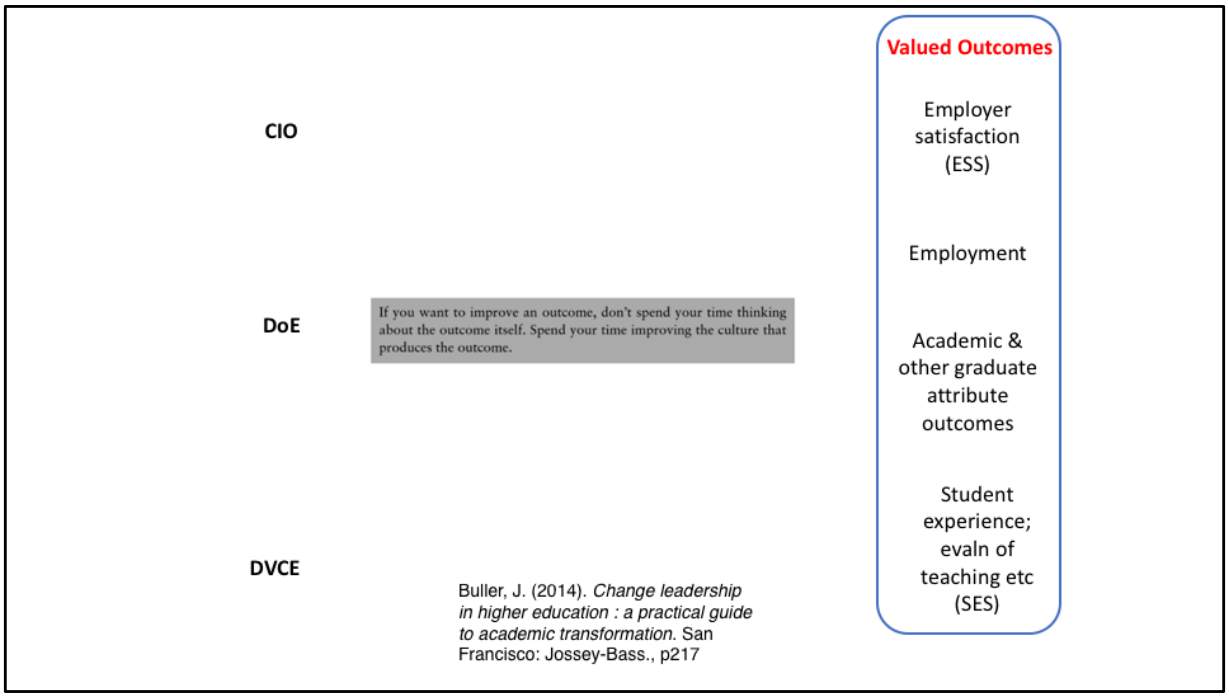
In short, the leaders did not appear to have a shared explanatory model of the processes through which students' activities lead to valued outcomes or how learning environments affect students' activities.

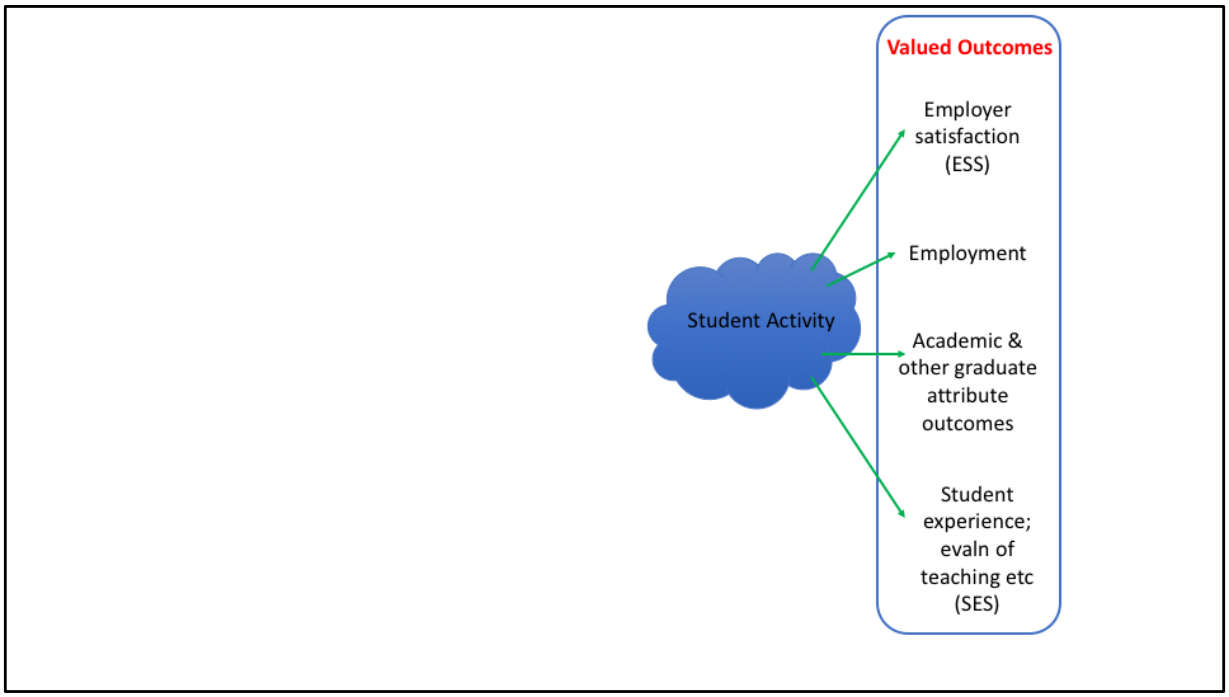
The leaders and the institutional documents with which they worked referred, in one way or another, to the centrality of 'the student experience' and the importance of taking a 'student-centred' approach to planning. The first of these is generally operationalized through measures of student satisfaction, retention rates, and, down the track, graduate employment statistics. University staff at all levels have become accustomed to using such data to provide evidence of success. However, these outcome measures have taken on a pre-eminent position, not least in the absence of shared explanations of process.

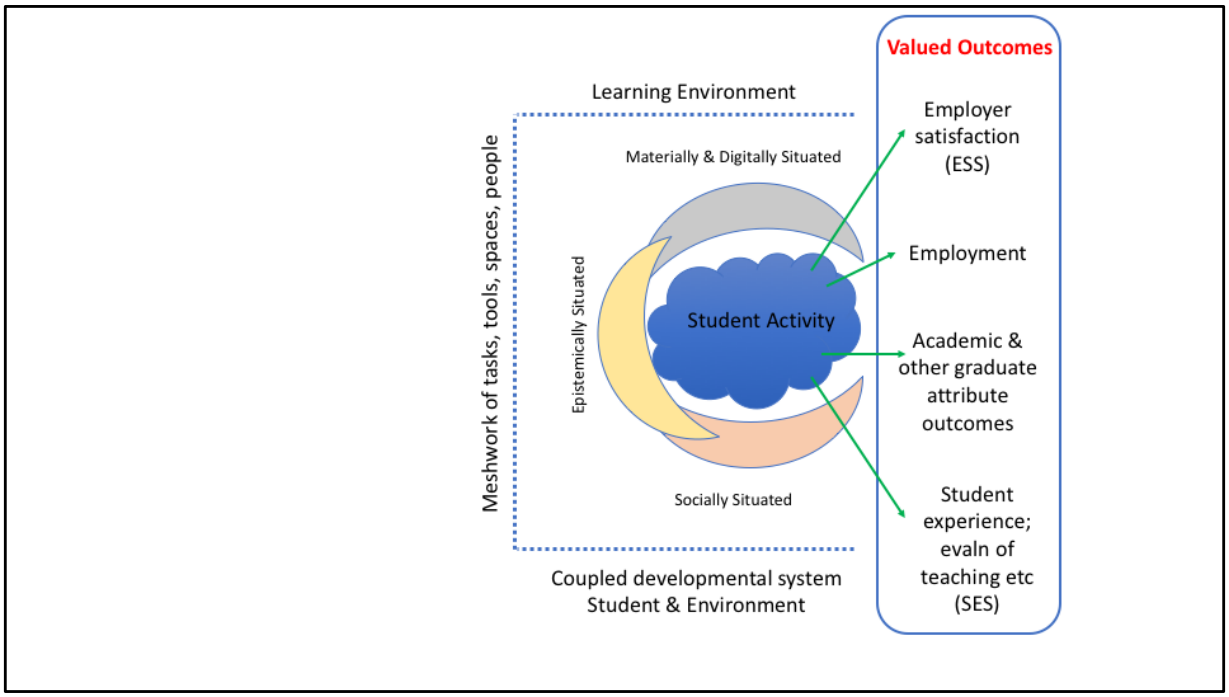
Leaders express the need to improve performance by increasing the thresholds for target outcome measures. But the processes that lead to the outcomes remain mysterious

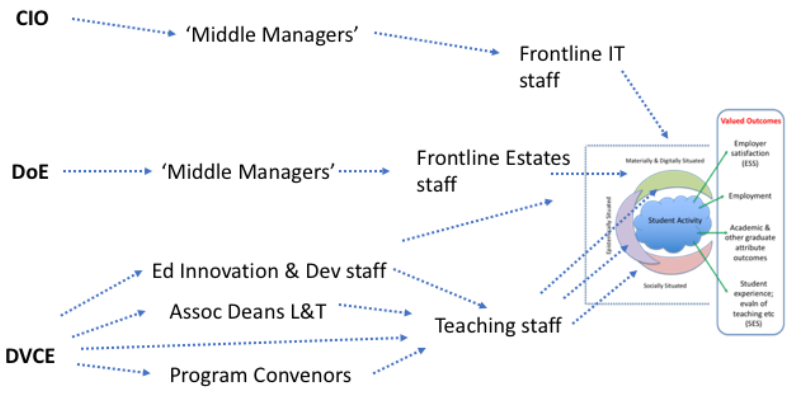
Goodyear, P., & Ellis, R. (2019). Ecological thinking about education strategy in universities. In R. Barnett & N. Jackson (Eds.), *Ecologies for learning and practice: emerging ideas, sightings and possibilities*. Abingdon: Routledge.


Valued Outcomes
CIO
Employer satisfaction (ESS)
Employment
DoE
Academic & other graduate attribute outcomes
Student experience; evaln of teaching etc (SES)
DVCE


Valued Outcomes
CIO
Employer satisfaction (ESS)
Employment
DoE
If you want to improve an outcome, don't spend your time thinking about the outcome itself. Spend your time improving the culture that produces the outcome.
Academic & other graduate attribute outcomes
Student experience; evaln of teaching etc (SES)
DVCE
Buller, J. (2014). Change leadership in higher education : a practical guide to academic transformation. San Francisco: Jossey-Bass., p217


Valued Outcomes
Employer satisfaction (ESS)
Employment
Student Activity
Academic & other graduate attribute outcomes
Student experience; evaln of teaching etc (SES)


Valued Outcomes
Learning Environment
Employer satisfaction (ESS)
Materially & Digitally Situated
Meshwork of tasks, tools, spaces, people
Employment
Epistemically Situated
Student Activity
Academic & other graduate attribute outcomes
Socially Situated
Student experience; evaln of teaching etc (SES)
Coupled developmental system
Student & Environment



Core challenge: understanding and (indirectly & partially) shaping learning environments & activity systems

Applied Educational Ecology

Concepts & methods for
understanding and shaping
local learning systems

Educational ecology is an applied science that studies and shapes learning systems. A learning system is a dynamic coupling of people and the multifarious resources on which they are drawing in order to learn.

People and environments change each other.

Educational Ecology as an Applied Science: four conceptual steps

- From product design to the co-design of services
- From 'student as managed customer' to activity systems
- Explaining how the university's main activity systems function
- Ways and means:
  - Participatory approaches to understanding local learning systems
  - Building capacity; institutional infrastructure: Research-practice partnerships

"Student as managed customer" is from Bruce Macfarlane - Macfarlane, B. (2017). *Freedom to Learn: The threat to student academic freedom and why it needs to be reclaimed*. Abingdon: Routledge.

Research-practice partnerships: see Penuel, W., & Gallagher, D. (2017). *Creating research-practice partnerships in education*. Cambridge MA: Harvard Education Press.

Other influential work from an ecological perspective

Barnett, R. (2018). *The ecological university: a feasible utopia*. London: Routledge.

Bain, A., & Zundans-Fraser, L. (2017). *The self-organizing university: designing the higher education organization for quality learning and teaching*. Singapore: Springer Nature.

Bronfenbrenner, U. (1979). *The ecology of human development: experiments by nature and design*. Cambridge MA: Harvard University Press.

Luckin, R. (2010). *Re-designing learning contexts: technology-rich, learner-centred ecologies*. New York: Routledge.

Educational Ecology as an Applied Science: 1

From product design to the co-design of services

- Design of e.g. specifications for assessment tasks; course web-pages; learning hubs – design of products to be handed over to the user
- Co-designed services – part-finished designs to be completed (co-produced) by students, teachers, others; education as a relational service

Carvalho, L., & Goodyear, P. (2018). Design, learning and service innovation. *Design Studies, 55*, 27-53. doi:https://doi.org/10.1016/j.destud.2017.09.003

Ellis, R., & Goodyear, P. (2019). *The education ecology of universities: integrating learning, strategy and the academy*. Abingdon: Routledge. – esp. Chapter 6

Educational Ecology as an Applied Science: 2

From 'student as managed customer' to activity systems

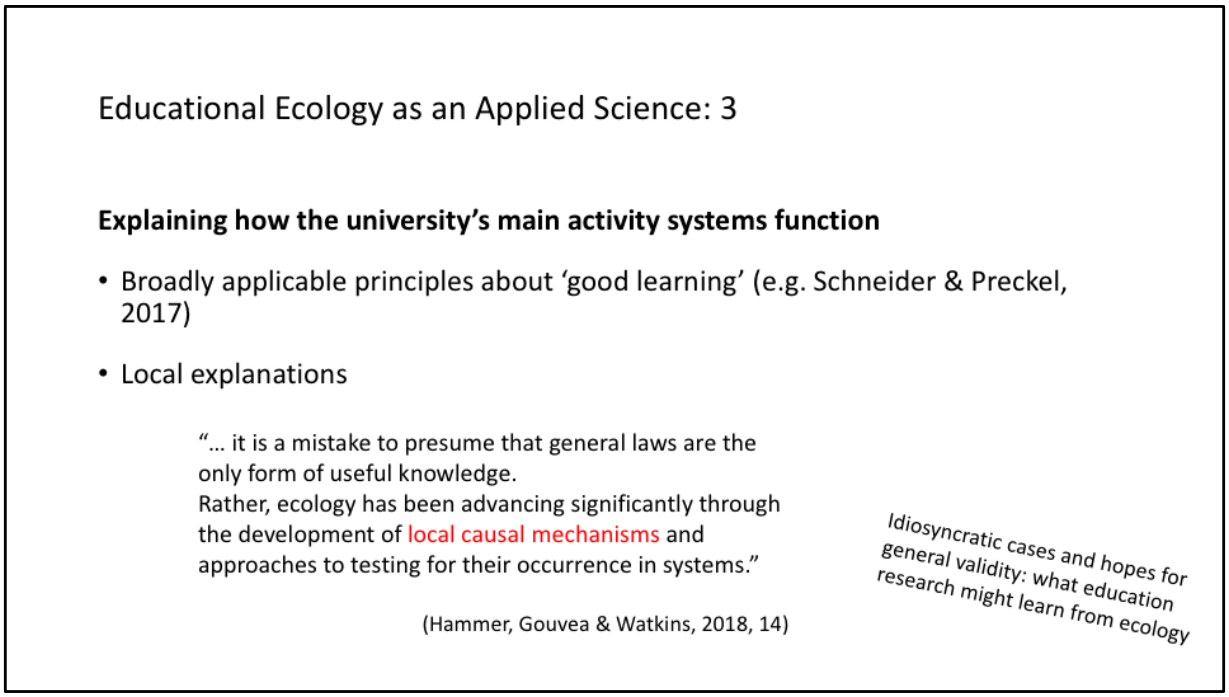
- Understanding process as well as outcome
- From manipulating correlates of outcomes to creating shared understandings how activity systems function

"The defining characteristic of a situative approach is that instead of focusing on individual learners, the main focus of analysis is on activity systems: complex social organizations containing learners, teachers, curriculum materials, software tools, and the physical environment."

(Greeno, 2006, 79)

Greeno, J. (2006). Learning in activity. In K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 79-96). Cambridge: Cambridge University Press.

Ellis, R., & Goodyear, P. (2019). *The education ecology of universities: integrating learning, strategy and the academy*. Abingdon: Routledge. – esp. Chapter 7



Schneider, M., & Preckel, F. (2017). Variables associated with achievement in higher education: a systematic review of meta-analyses. *Psychological Bulletin, 143*(6), 565-600.

Hammer, D., Gouvea, J., & Watkins, J. (2018). Idiosyncratic cases and hopes for general validity: what education research might learn from ecology / Casos idiosincrásicos y expectativas de validez general: lo que la investigación en educación puede aprender de la ecología. *Infancia y Aprendizaje*, 1-49. doi:10.1080/02103702.2018.1504887

Educational Ecology as an Applied Science: 3 (continued)

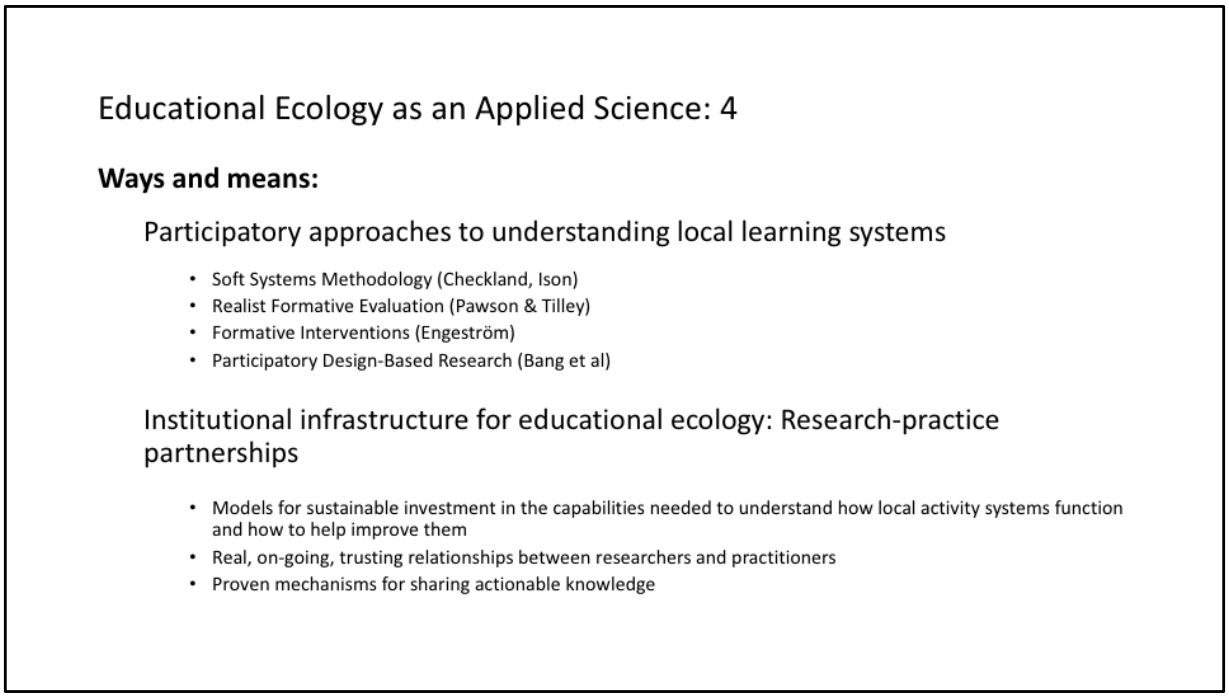
1. Activities within a university are enmeshed in (seven) much wider ecological zones (Barnett)
2. The university as a self-organising, self-improving system, noting that the capacities for self-regulation and self-improvement depend upon timely flows of actionable knowledge and the means to make and explain evaluative judgements about the quality of the educational work being done
3. Clearer recognition of the importance of materials and their properties: for a better understanding of how the physical (material, digital, hybrid) environment and its tools, artefacts, spaces etc function in educational ecologies.
4. Reimagining the acting and learning student: setting university discourse free from the limitations of individualistic folk psychology (and the 'managed student').

Barnett, R. (2018). *The ecological university: a feasible utopia*. London: Routledge.

Bain, A., & Zundans-Fraser, L. (2017). *The self-organizing university: designing the higher education organization for quality learning and teaching*. Singapore: Springer Nature.

Luckin, R. (2010). *Re-designing learning contexts: technology-rich, learner-centred ecologies*. New York: Routledge.

Bronfenbrenner, U. (1979). *The ecology of human development: experiments by nature and design*. Cambridge MA: Harvard University Press.



Ellis, R., & Goodyear, P. (2019). *The education ecology of universities: integrating learning, strategy and the academy*. Abingdon: Routledge. – esp. Chapter 9

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Checkland, P. (1999). *Systems thinking, systems practice*. Chichester: Wiley.
Ison, R., & Blackmore, C. (2014). Designing and developing a reflexive learning system for managing systemic change. *Systems, 2*(2), 119-136.

Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: Sage.

Engeström, Y., Sannino, A., & Virkkunen, J. (2014). On the methodological demands of formative interventions. *Mind, Culture, and Activity, 21*(2), 118-128. doi:10.1080/10749039.2014.891868

Bang, M., & Vossoughi, S. (2016). Participatory design research and educational justice: studying learning and relations within social change making. *Cognition and Instruction, 34*(3), 173-193. doi:10.1080/07370008.2016.1181879

Key messages: recursiveness & defragmenting academic life

The value of recursiveness in approaches to analyzing and designing/producing complex (local) learning systems (students, teachers, leaders)

Strategies that resolve rather than exacerbate tensions (esp. between teaching, research & service), e.g.

- Connected Curriculum
- Students as Partners
- Learning to co-design relational services & epistemic environments

Fung, D. (2017). *A connected curriculum for higher education*. Retrieved from London: http://www.ucl.ac.uk/ucl-press/browse-books/a-connected-curriculum-for-higher-education

Cook-Sather, A., Bovill, C., & Felten, P. (2014). *Engaging students as partners in learning and teaching: a guide for faculty* San Francisco: Jossey Bass.

Matthews, K. E., Cook-Sather, A., Acai, A., Dvorakova, S. L., Felten, P., Marquis, E., & Mercer-Mapstone, L. (2018). Toward theories of partnership praxis: an analysis of interpretive framing in literature on students as partners in teaching and learning. *Higher Education Research & Development*, 1-14. doi:10.1080/07294360.2018.1530199

Markauskaite, L., & Goodyear, P. (2017). *Epistemic fluency and professional education: innovation, knowledgeable action and actionable knowledge*. Dordrecht: Springer.

Key messages: Designing for learning; designing for change

National Centre for Student Equity in Higher Education

"The Best Chance for All"

> **Advancing Australia's future depends on all its people, whoever and wherever they are, being enabled to successfully engage in beneficial and lifelong learning.**
>
> **Contributing to:** A fair, democratic, prosperous, and enterprising nation; reconciliation with Indigenous Australia; and cultural, civic and intellectual life.
>
> **Achieved by:** An inclusively designed system with multiple entry and exit points; proactive removal of barriers to participation; and tailored support where needed.
>
> **Accountable through:** An integrated approach to measuring success at institutional and national levels to align performance with policy objectives.

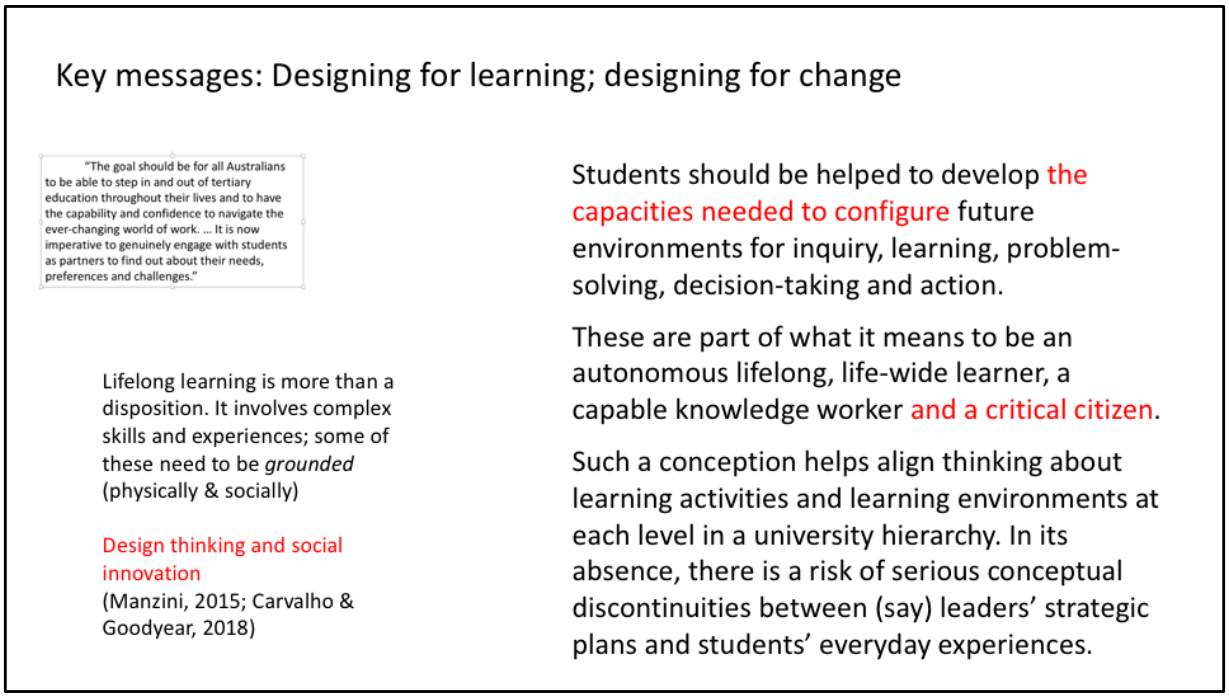
Connectedness 2.0: Towards a theory of HE connectedness for the best chance for all

What if our sector took responsibility for pursuing inescapable opportunities for connectedness – with and between all staff, students, students' families and communities, curricula, learning environments, sectors, industries and professions – with good purpose and empathy?

By SALLY KIFT

"The goal should be for all Australians to be able to step in and out of tertiary education throughout their lives and to have the capability and confidence to navigate the ever-changing world of work. … It is now imperative to genuinely engage with students as partners to find out about their needs, preferences and challenges."

https://www.ncsehe.edu.au/publications/the-best-chance-for-all/



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Carvalho, L., & Goodyear, P. (2018). Design, learning and service innovation. *Design Studies, 55*, 27-53. doi:https://doi.org/10.1016/j.destud.2017.09.003

Thanks & follow up:

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Thanks to:
Rob Ellis (Griffith U)
Alexi Marmot (UCL) & **Kenn Fisher** (U Melbourne)
Pippa Yeoman & **Feifei Han** (U Sydney)
Nick Klomp (CQU) & **Bruce Meikle**

Australian Research Council
ARC DP150104163 (Jan 2015 – Dec 2019)

Goodyear, P., & Ellis, R. (2019). Ecological thinking about education strategy. In R. Barnett & N. Jackson (Eds.), *Learning ecologies*. Abingdon: Routledge.