



**Evolutionary Trajectories of
Indigenous Leadership
through the Lens of
Innovation Scale and Diffusion**

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An Institute of  **NANYANG
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Indigenous

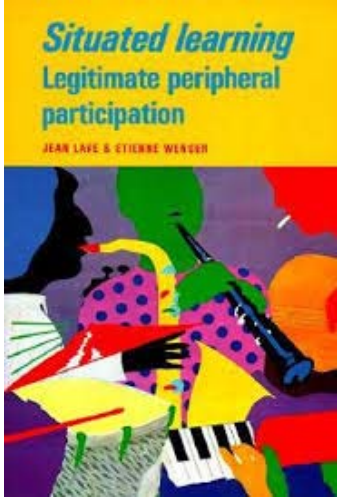

- **Indigenous in terms of 'native' characterizations**
 - recognition of variations in the functioning of education systems and that their **historical, national and regional policy contexts** that will exert **different degrees of influence on institutions' work** and therefore on the role of leaders in schools (Day & Sammons, 2013)
- **Indigenous knowledge as local knowledge** that is unique to a culture or society
 - Other names for it include: 'people's knowledge', 'traditional wisdom' or 'traditional science'...." (Nakashima, Prott, & Bridgewater, 2000)

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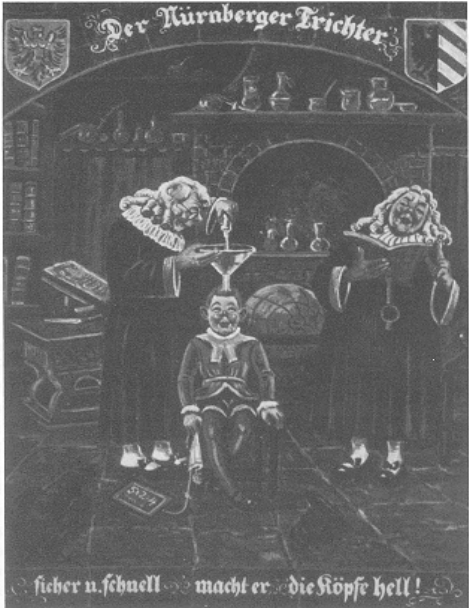



Context and its significance


Can knowledge be pulled out from its context?



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Background

- Inquiry-based learning as a reform agenda
- Process-skills embedded within Inquiry-based practices:
 - Questioning
 - Problem solving
 - Critical thinking
 - Argumentation
 - Metacognitive thinking
 - Knowledge construction
 - Creativity & imagination
 - Aesthetics & design thinking

Performative Pedagogies

KB

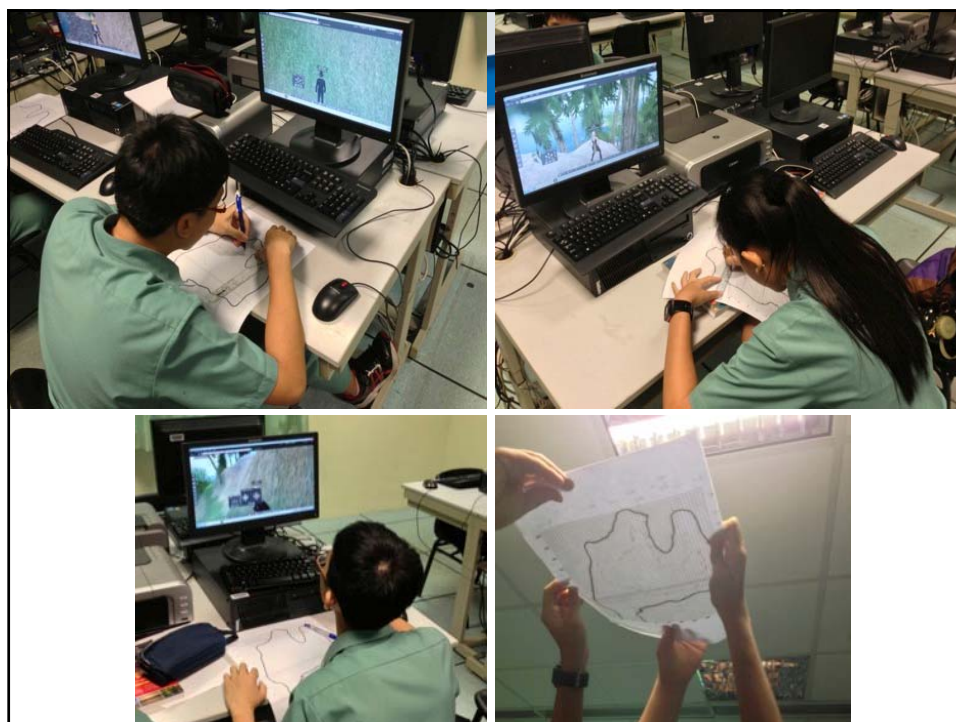
Adapted from David Hogan

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Disciplinary ways of seeing meanings





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Iterative cycles of **thinking-conceptualizing-designing-fabricating-testing-failing** → **thinking-conceptualizing-fabricating-testing-success-joy**



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Interplays between

- **Formal and informal Learning**
- **Physical and virtual spaces**

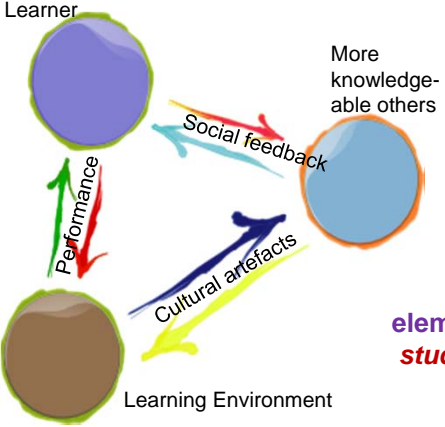


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Situated Cognition : Context is inextricably linked to cognition


seminal paper in *Educational Researcher* (1989) by Brown, Collins, Duguid



Learning in context changes the very context itself
(Spillane, 2006)

In any learning situation, three elements are dynamic - *the teacher, the student, and the learning environment*
(Adapted from Lev Vygotsky)

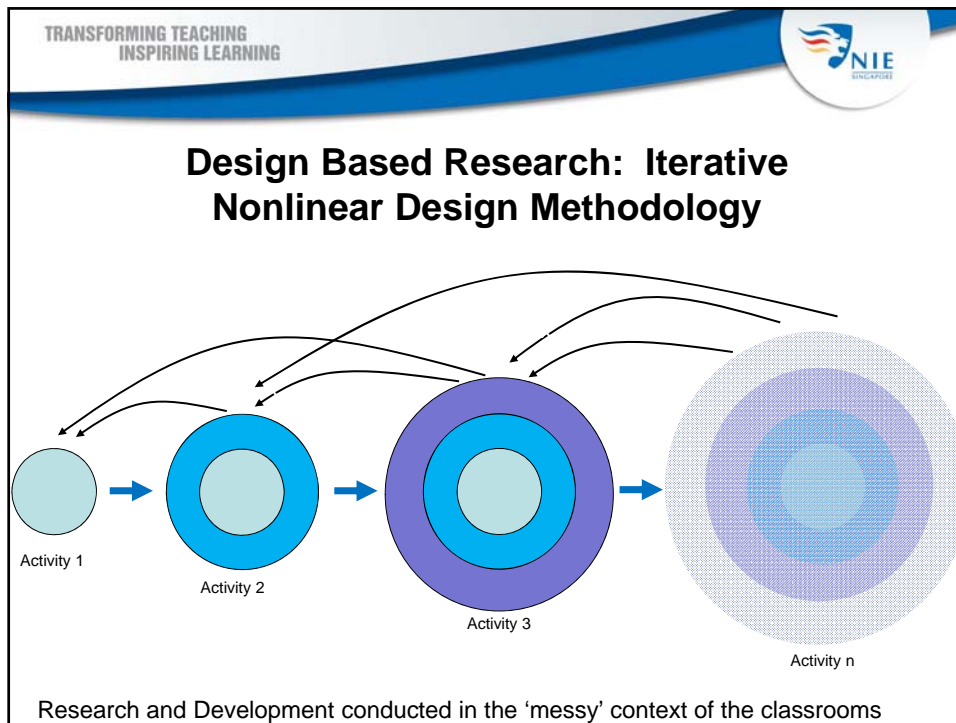
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From: How smart are you?

TO: **HOW ARE YOU SMART ...**

Howard Gardner




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Tension –
high performance
and *knowledge*
building

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Systemic Educational Change


Large-scale, **sustained** improvement in student outcomes requires a **sustained** effort to change school and classroom practices, not just structures such as governance and accountability. **The heart of improvement lies in changing teaching and learning practices** in thousands and thousands of classrooms, and this **requires focused and sustained effort by all parts of the education system and its partners** (Levin & Fullan, 2009, pp. 189-190)

↓

What we wanted is really a **systemic change in the classroom** for the school itself. Teachers can have very good ideas and translate them into the classrooms. **But the question is if it is really a good practice, we definitely want to sustain in the school and how we are going about to do that ...**

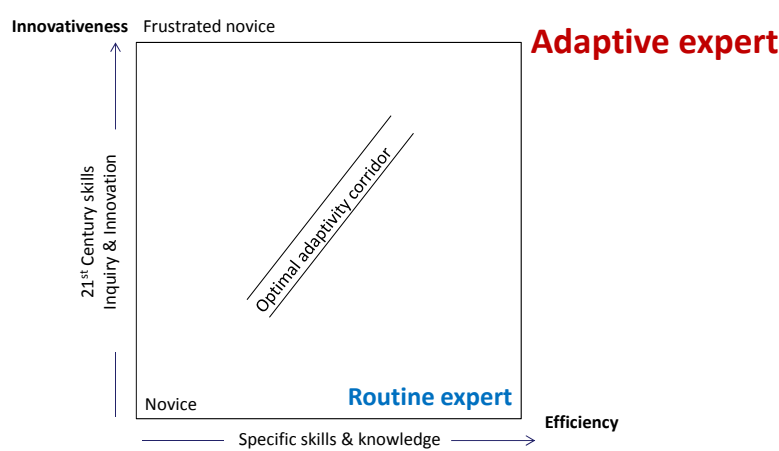
Interview excerpt from former Vice Principal of the nodal school

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Balance between efficiency and innovation

Adaptive Expertise



Innovativeness

21st Century skills Inquiry & Innovation

Frustrated novice

Adaptive expert

Novice

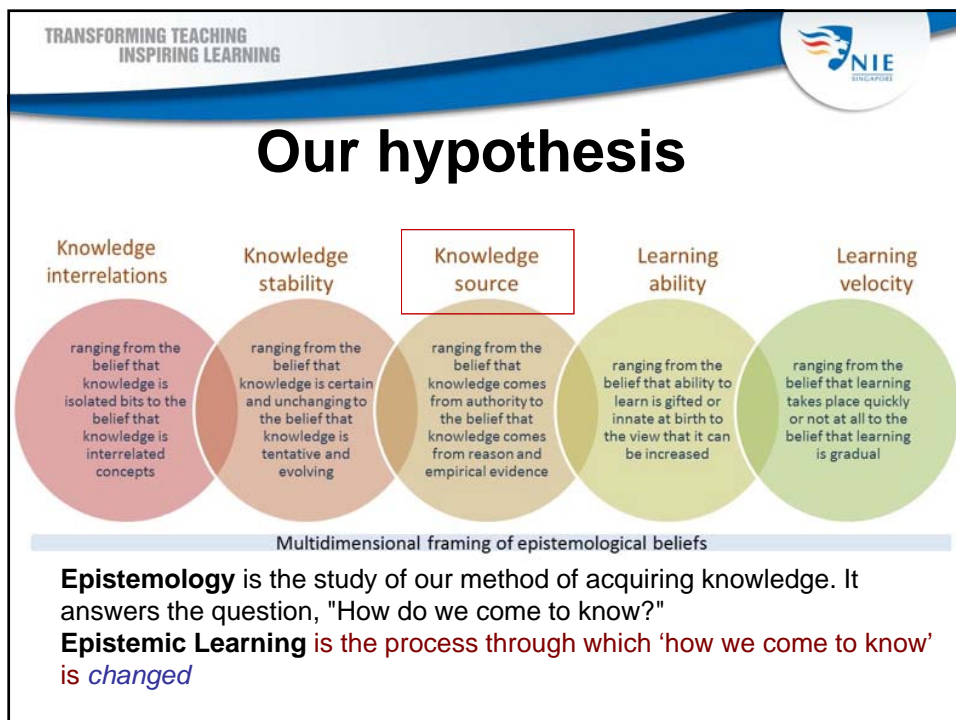
Routine expert

Specific skills & knowledge

Efficiency

Source: Bransford, J., Mosborg, S., Copland, M.A., Honig, M.A., Nelson, H.G., Gawel, D. et al. (2009)


Surfacing indigenous leader practices (knowledge)



Surfacing indigenous leader practices (knowledge)




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Examples of **epistemic change** in teachers


<p>My eyes were opened [to this pedagogy] when I saw my students ask questions ... when they saw connections to the concepts we were exploring and going beyond the covered syllabus. ... especially the quiet ones, I was very surprised at what they could do</p>	<p>I started to appreciate pedagogy better ... in fact I now buy in to pedagogy</p>	<p>When the teachers I work with see their students' change ... that's when it is the most powerful (Teacher mentor)</p>
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<p>... previously I just teach based on the syllabus ... now I will ask students to make authentic real world connections ...</p>	<p>it is OK if I cannot answer the students' questions ... students direct the learning</p>	<p>I used to like rote teaching, but now I facilitate</p>	<p>... the classroom environment is different...it is noisy. My students are asking questions ... My role as teacher changes ...I can say I don't know and encourage students to find out...</p>
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Sustainability

Cultures do not change by mandate; they change by the **specific displacement [hybridization or fusion?]** of existing norms, structures and processes by others; **the process of cultural change depends fundamentally on modeling the new values and behavior that you expect to displace the existing ones** (Elmore, 2004)

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Literature on Leadership models

- Varied researched approaches, each preceded by different 'adjectives':
 - Change leadership (e.g. Wagner et al, 2006),
 - Connective leadership (e.g. Lipman-Blumen, 1984; Walker, 2011)
 - Constructivist leadership (e.g. Lamber et al, 1995)
 - Curriculum leadership (e.g. Glatthorn & Whitehead, 1987)
 - **Distributed leadership (e.g. Harris & Spillane, 2008)**
 - **Ecological leadership (e.g. Brymer et al, 2010; Law et al, 2011; Toh et al, 2014)**
 - Educational leadership (e.g. Leithwood & Jantzi, 1999b; Dimmock & Walker, 2005)
 - Instructional leadership (e.g. Heck & Hallinger, 1999; Hallinger, 2000)
 - Sustainable leadership (e.g. Hargreaves & Fink, 2003)
 - System leadership (e.g. Caldwell, 2011)
 - **Teacher leadership (e.g. York-Barr & Duke, 2004)**
 - Transformational leadership (e.g. Bass, 1997; Howell & Avolio, 1993; Day & Sammons, 2013)
- **Our research indicates: no single model of leadership satisfactorily captures school and teacher leader enactments, rather leadership trajectories are evolutionary in nature within the context-of-change**


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Literature on East Asian Cultures

- Hierarchy and Collectivism seem paradoxical from a Western centric lens (e.g., Rowleya & Ulrich, 2012)
 - Respect for elders (hierarchical)
 - Collective good (Dimmock & Walker, 2002)
 - Acceptance and expectation of unequal power distribution (Hofstede, 1997)
- **High(er) power distance**
- East Asian leaders orientate towards harmony, **collectivism, social hierarchy and relationship-based trust** (Craven and Hallinger, 2012)
 - ... the social legacies of Confucianism can turn citizens toward communitarian democracy under which individual members collaborate instead of competing against each other (Sing, 2013, p. 563)

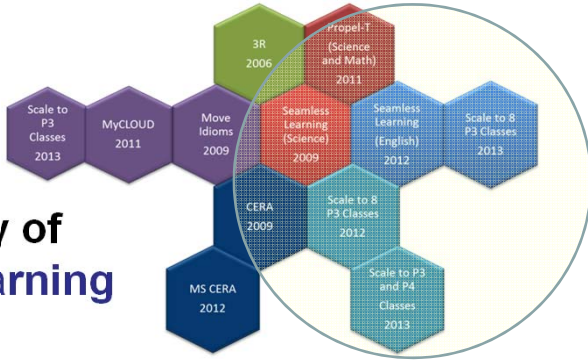

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Methodology

- Moving away from 'traits-based' approaches and behavioral models paradigm, leadership has increasingly been conceptualized as a complex and adaptive interactional process, with varied and multi-leveled demands (DeRue, 2011; Hallinger, 2011; Walker, 2012)
- Recognizing the contextual and complex nature of leadership (Alvesson, 1996; Bryman, Stephens, & Campo, 1996; Conger, 1998), we used **qualitative methods to study the contextually rich and socially embedded leadership phenomena** (Bass, 1998; Conger, 1998; Parry, 1998; Yukl, 1994; Yukl, 2002; Parry, 2004):
 - **Qualitative interviewing** (semi-structured, in-depth, and biographical interviewing)
 - **Document analysis** (e.g. school's mission, vision statements; school website; school innovation project proposals)
 - **Case study approach** (Yin, 2002) was used in conjunction with one innovation (**Seamless Learning**) as reported for this presentation
 - A dialogical meaning-making and reflective process with school leaders, key personnel and teacher leaders

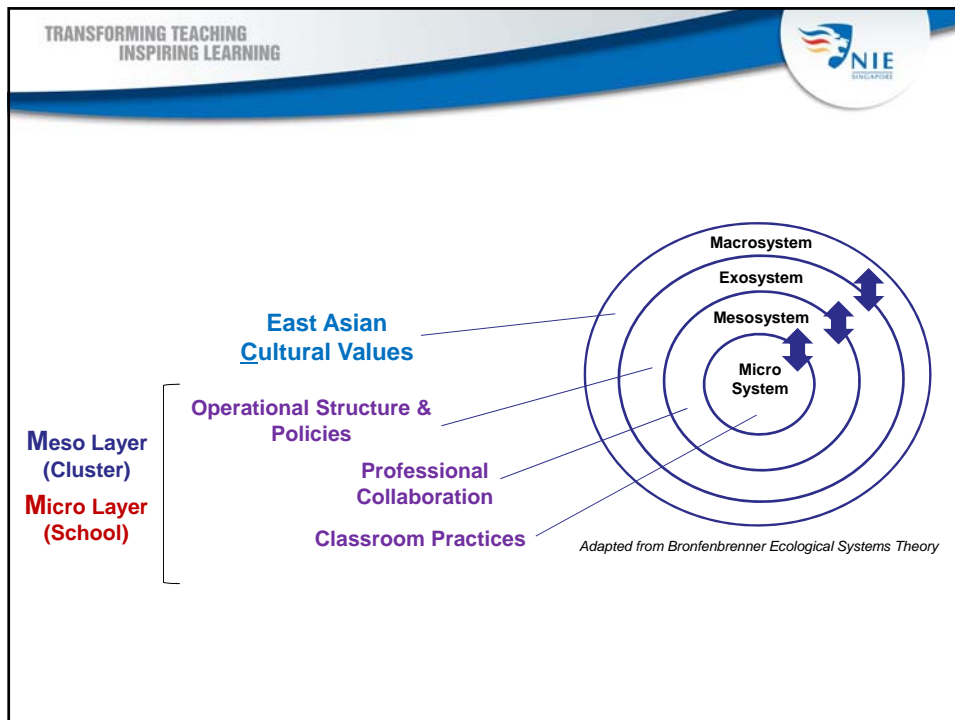
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Case Study of Seamless Learning

From a **one nodal school** inception to a diffusion of 5 (and subsequently to 6 more) schools





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Lee, S. S. & Hung, D. (2016). A socio-cultural perspective to teacher adaptiveness in teaching of curricular innovation in Singapore schools. *Learning Research and Practice, 3*(1), 1-21.

Cluster Superintendent's Steering


...My involvement signals the importance I place in this effort ... Together with the principals from all the 6 schools involved, we **steer and monitor** the curricular innovation efforts ... we want to encourage all our teachers who are undergoing the change process to take the journey in good stead ...

Interview excerpt from former Cluster Superintendent M

... I did not see my school as being 'assigned' to participate ... it was a **privilege to be selected** ... **it is like we have been called**, and that our school must have been selected by the Sup for a reason. ... I suggest that a terms of reference should be given to each participating school... I think I was the school leader that came for all the school leader sessions. ...

Interview excerpt from Principal of one of the five schools

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Adaptive Expertise in Singapore's *indigenous context*


It makes teachers understand that what (the new learning designs) they are doing is not just experimenting... Teachers need to understand that (it is) **experimenting with boundaries** ... Teachers need to change the ways they teach and yet meet curriculum objectives ...

Interview excerpt from **former Principal** of the nodal school

Comparing to other schools, School X has a core team of teachers [at the department level]. ... School X uses stories and teacher questions to engage students. We usually start with experiments to engage students. ... We are not just expecting teachers to carry out the lessons, they also need to know how to prepare and review... enhance the lessons by better considering needs of their students, and engage the students. **School X did very well in this area...**

Interview excerpt from **mentor Teacher** of the nodal school

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Important tenets for sustainability

Mindset/epistemic change:

...when we first started, it could have been easy for us to just deliver the 5 schools with our package. "Like I will throw this to you, this is my Science package, and all of you can do the same thing" but we didn't choose to do this right from the start...the rationale was to teach them [teachers] **how to get their hands dirty and how to redesign the whole package** ... how has our **teachers' mind-sets and their skills and classroom changed.**

Interview excerpt from **former Vice-Principal** of the nodal school

Evidence of student gains matters:

.... Before I got myself into this project, I was also very half-hearted ... I was not totally convinced **but results showed that they [students] improved** ... the pupils' responded not only in terms of examination; also in terms of vocal. **They were able to express themselves...**

Interview excerpt from **Teacher J** from one of the five schools

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across schools



within schools

actual classroom enactments

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Indigenous leadership knowledge – Upward first, then Downward Percolation

We decided by moving the school leaders first ... we did quite a fair bit with the school leaders [of the 5 schools] .. We did not first move the teachers ... If we don't get the buy in from school leaders, we will not be able to get sustainability ... Once we had the buy in of the school leaders ... **we then engaged the next level of the 5 schools ...** There was a **kind of mapping of the people needed – school leaders to school leaders; KPs to KPs; Teachers to teachers ...** **There was a leadership handholding process ...** the school leaders actually went back and they needed to put in place the vision they wanted to see in the classroom ... [plan for] the extent this thing can go – based on what they currently have.

Interview excerpt from **former Vice-Principal** of the nodal school

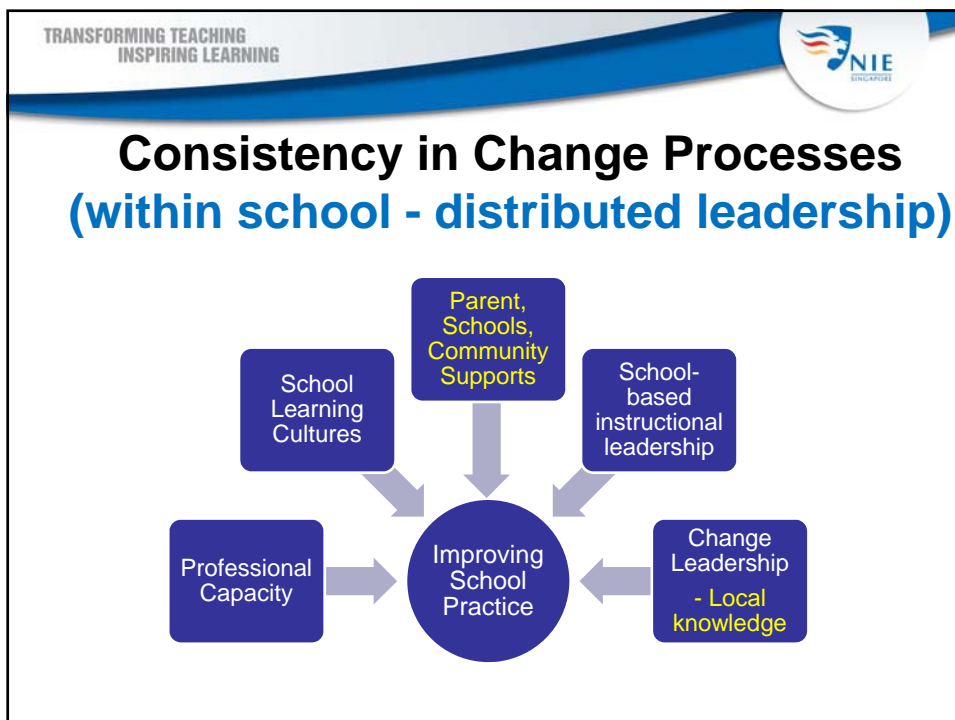
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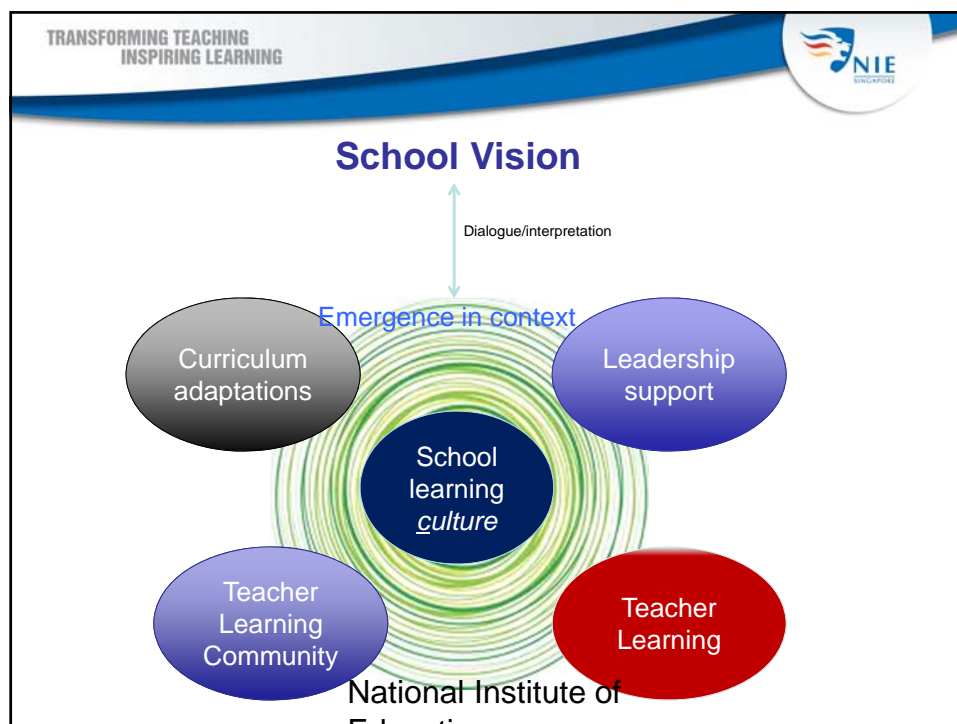


Consistency in terms of local *indigenous knowledge*

... It all starts with a commitment and belief to bring Science beyond the classroom...it is important to find a match to the targeted school's belief (as found in the early adopters) ... **First course of action is to convince the school leader of the other school, P and VP** ... Schools generally want to know what's the plan forward in terms of time, commitment, manpower, regular session – maintain consistency ... **Direct leadership support has implications on rate of decisions and school reform movement**, that schools with strong leadership to next layer HOD Science ... involved in all meetings and walking the walk with the teachers. Autonomy (space and time) given to J [the teacher leader-facilitator]. Partnerships - strong support and collaboration with NIE. ... **When meetings where school leaders are present, the decision would be very fast** ... **Efficacy of evidence based sharing – how students speak better, score better in terms of their results** ...


Interview excerpt from **new Principal** of the nodal school





The slide is titled "TRANSFORMING TEACHING INSPIRING LEARNING" and features the NIE Singapore logo. The main title is "Apprenticing leadership – after downward percolation". Below the title is a yellow box containing a quote: ".... I think Jane [the apprenticing teacher leader] plays a very important role, in the types of questions she asked her pupils. When I stepped into her lessons, I can see that her questions are scaffolds... she started from very simple questions, and she is very dynamic. She will respond accordingly to students' responses. So if pupils are able to show higher-order thinking, she will streamline the questions to ask more complex kind of questions to trigger their learning...". Below the quote is the text "Interview excerpt from Teacher R from one of the five schools". At the bottom, there is a citation: "Wu, L., & Hung, D. (2016). *Teacher Epistemic Learning in the Innovation Diffusion*. Paper to be presented at the 15th International Conference of the Learning Sciences (ICLS2016), Singapore."

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Apprenticing Leadership


A more experienced teacher (“mentor”) and a less experienced teacher (“apprentice”) will take turns in co-teaching a class. An apprentice teacher may not feel comfortable to say “I do not know” to students in class. **As a mentor, I will demonstrate how is done. I will teach the class and the [apprentice] teacher will be shadowed and observe how it goes. And in next lesson, she will teach and I will follow up to give feedback.** And as we are attached in the same class, we will go through the whole year curriculum. It’s like a “just in-time” training. Slowly, the [apprentice] teacher got the gist of how the lesson can be delivered in a self-directed way.

Interview Excerpt from **Teacher Leader** from nodal school exhibiting apprenticing leadership

Every school has its own pedagogical niche. ... **there is a transference of expertise** ... less about resources but more about PD ... less about skills of seamless learning **but more about the mindset of our teachers.** ... It is not just application of old knowledge. **It is a certain thinking approach** here. If teachers have this ... it will scale to other things. They will share it with other people [when they have the mindset]

Interview Excerpt from **Principal** of one of the 5 schools


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Downward percolation (in a distributed leadership sense) is observed to be significantly higher compared to upward percolation

Ecological leadership exhibits the characteristics of forging alignments and convergences in the different ecological layers, mitigating systemic paradoxes as well as local and cross-school tensions ... (Toh et al, 2015)

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Peer Apprenticeship Learning


Tolerance → Acceptance → Signs of Epistemic Change

.... I think for me, before I could move into being very open about listening to other people ... I find that it's [I come to] an **acceptance**. Because it's different from **tolerance**. You **tolerate...every week, you come and you tolerate**. You are not taking joy in it. You will not want to **participate in it but once you accept it ... it's part of learning as a teacher**. And you have to look at it as my students benefit. It's not just me. But, if I don't translate all these information or share it with my students, my students do not have the chance. **So, why should I be a blocked vessel?** So, I would rather take in whatever is good. Of course, I could make my own judgement and then if it is applicable to my class and it benefits them, then why not. **Taking joy in acceptance ...**

Interview excerpt from **Teacher M** from one of the six schools

Hung, D. (1999). Activity, Apprenticeship, and Epistemological Appropriation: Implications from the writings of Michael Polanyi. *Educational Psychologist*, 34(4), 193-205.

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Peer Apprenticeship Learning (Hung, 1999)

Timeline →

<p style="text-align: center;">June/July 2014</p> <p style="text-align: center;">Tolerance</p> <ul style="list-style-type: none"> • Goal of the network was "to co-design lessons for enactment" • Potential challenges brought by the participants, indicating dissatisfaction about the goal. Issues about parents, homework, etc. • Unwilling but "tolerate" (teacher ownership not established yet) • Teacher leaders orchestrating for common goals 	<p style="text-align: center;">Oct/Nov 2014</p> <p style="text-align: center;">Acceptance</p> <ul style="list-style-type: none"> • Seeing inquiry classrooms in action by teacher leaders • Peer facilitation -- promote ownership, trust, and accountability • Discourse to share experiences in refining actions towards the goal • Gradual "acceptance" (submission) of others' epistemology • Imitate desired pedagogy 	<p style="text-align: center;">July 2015</p> <p style="text-align: center;">Signs of Epistemic Change</p> <ul style="list-style-type: none"> • Initial indications of epistemic learning – "willingly" offered constructive suggestions from personal experience to improve on the lesson plan", display some confidence • Reflective discourse with more focused on refining lessons • Signs of enjoyment in reenacting the "refined" lesson plan • Signs of sharing with others • Gradual fading-out by teacher leaders & fostering 'construction' and 'ownership' transfer
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Extending Peer Apprenticeship Learning (PAL)

Mentor's Regulatory Actions	Learner's Regulatory Actions	Learner Changes	Epistemic learning Stages
Orchestrating	Tolerating/ Submitting	Beliefs	Acquisition
Modeling	Accepting/ Mirroring	Actions	Participation
Coaching	Constructing/ Reflecting	Beliefs and Actions	Transformation
Fading out	Enjoying/ Spreading	Beliefs, Actions, Identity	Dialectical Percolation

Hung, D. (1999). Activity, Apprenticeship, and Epistemological Appropriation: Implications from the writings of Michael Polanyi, *Educational Psychologist*, 34(4), 193-205.


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Foregrounding indigenous school leadership practices

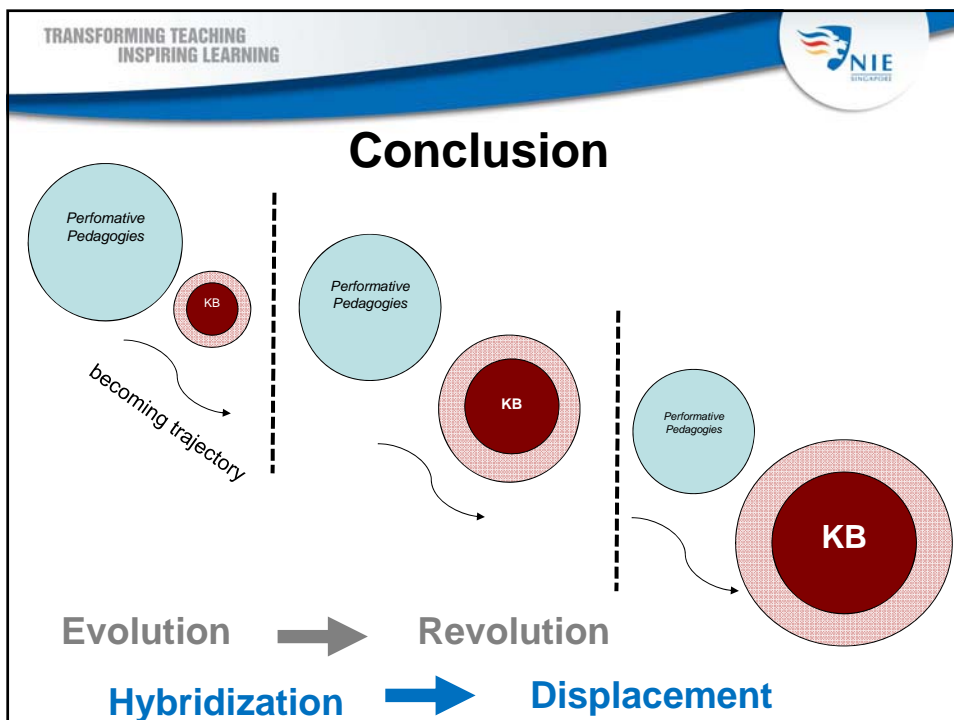
Power Distance	Being Privileged	Collectivism
<ul style="list-style-type: none"> • Apprenticing Leadership (<i>horizontal percolations</i>) <ul style="list-style-type: none"> • Initial 'involuntary' assignment (high power distance) does have a place here, but good facilitation is needed to achieve collectivism towards teacher learning and change <ul style="list-style-type: none"> ▪ Being privileged to be called as an alternative interpretation to power distance • Ecological Leadership (<i>vertical percolations</i>) <ul style="list-style-type: none"> • School leaders' intentional reaching-out to teachers to bridge 'power distance' between levels – 2 directional percolations <ul style="list-style-type: none"> ▪ Upward percolation by teacher leaders is particularly necessary to situate 'what works' (with evidence to support) as a means of achieving alignments for the benefit of students overcoming multiple misalignments which may arise through the system 		

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Context matters

- **Change changes the very context itself**
 - Culture (*stable*) – cognizant of **power distance** issues and **collectivism**
 - **Ecological leadership mitigates high power distance**
 - **Apprenticing leadership facilitates collectivism**
- **Co-evolutionary leadership trajectories**
 - Leadership trajectories in the making (*context - evolving*)
 - **Need for upward percolation or *distributing leadership upwards***
 - **Sustain adaptive expertise** in teachers through fostering school- and cluster- wide innovation-learning cultures
 - **Position (including creating formal appointments of) teacher- and school- leaders in lateral networks**



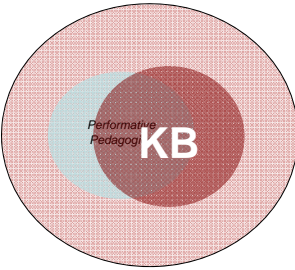
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How *are we become* an Indigenous Fusion Pedagogy?

...the innovation addresses the challenge.....now the engagement level is high ...**the patience is in seeing through**...for a start we see that the engagement is high and **there is greater learning, depth of understanding, and we found out that in addition to improving the conceptual understanding and the engagement, there was also 21st century competencies being developed** ...there were other by products being developed...


Interview Excerpt of P in a KB school



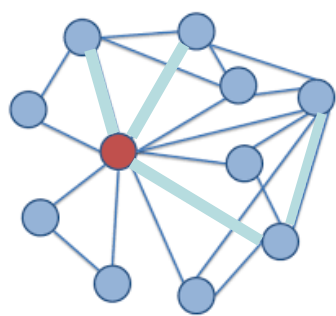
I do not see any problem ... if we do [KB] well, students [should be] able to also perform for the test. ...



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Next steps: Laterality and sustainability



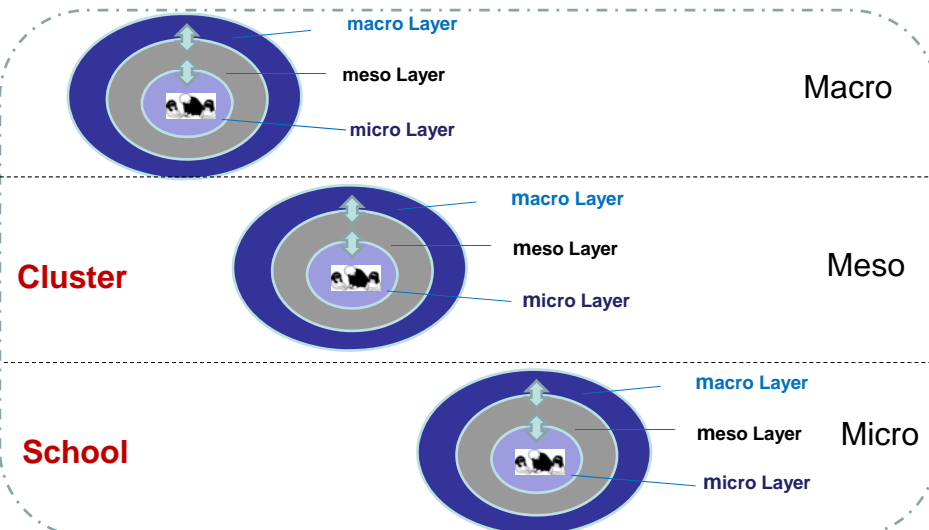
- Ecological Leadership**
 - *Vertical percolations* (upwards and downwards)
- Apprenticing Leadership**
 - *Horizontal percolations* (transference of expertise and ownership)

School improvement requires **lateral capacity building** in which schools and groups of schools learn from each other (Muijs et al, 2010)

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Three-m Layers



Macro

Cluster

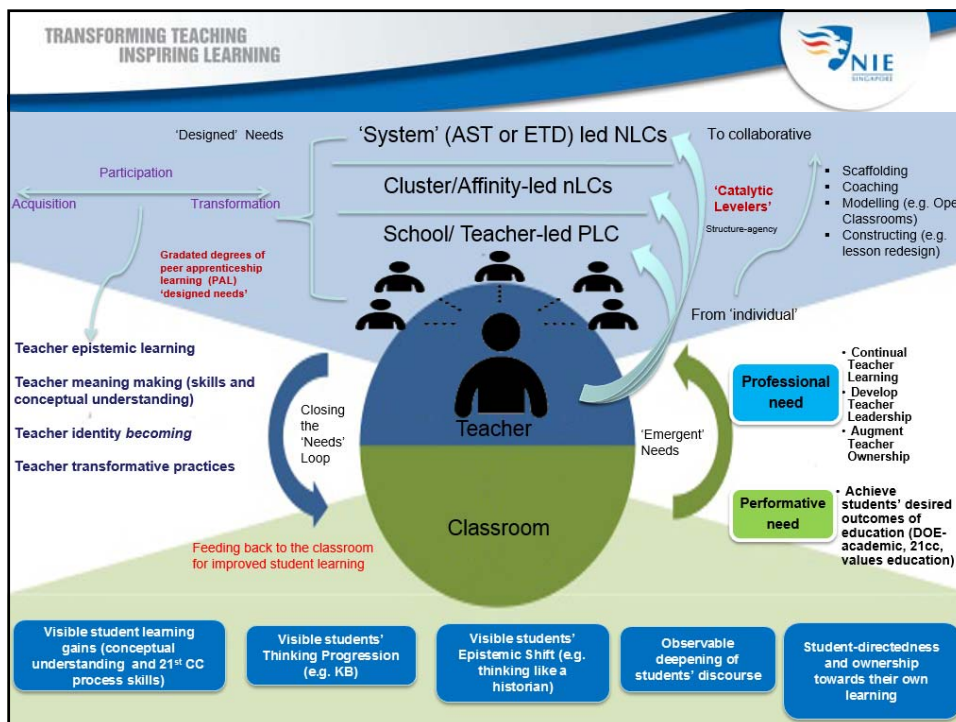
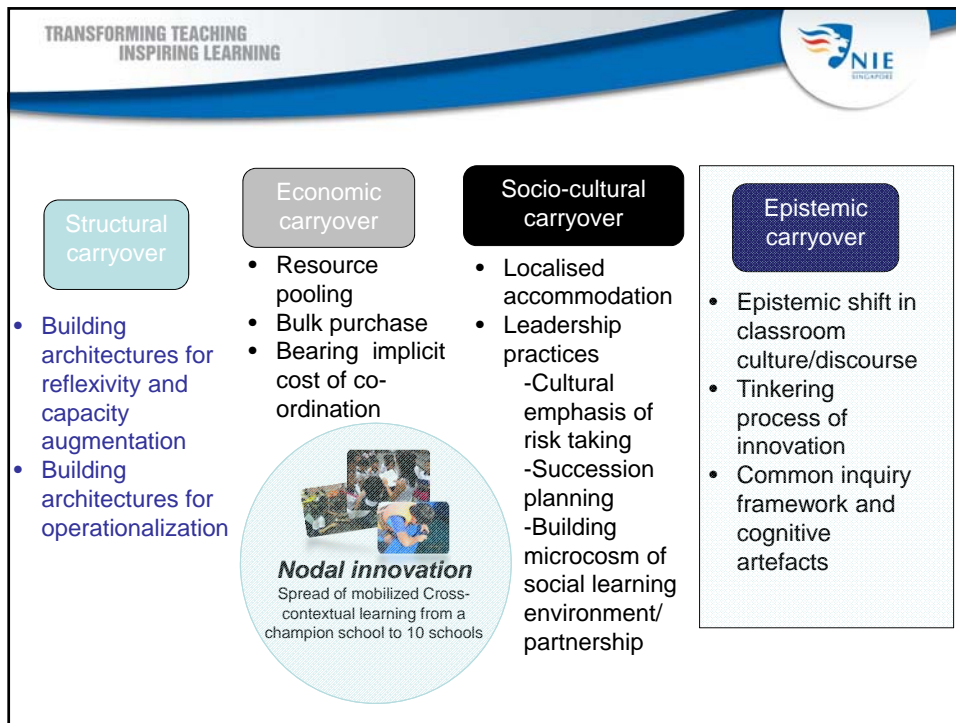
Meso

School

Micro

3m exists at the various levels of the system (3M)

Surfacing indigenous leader practices (knowledge)



Key Speech: Evolutionary Trajectories of 'Indigenous' Leadership through the Lens of Innovation Scale and Diffusion
by Prof. David Hung (National Institute of Education Singapore)

Surfacing indigenous leader practices (knowledge)

