leading to learn

Why transform schools as 21st century innovative learning environments?
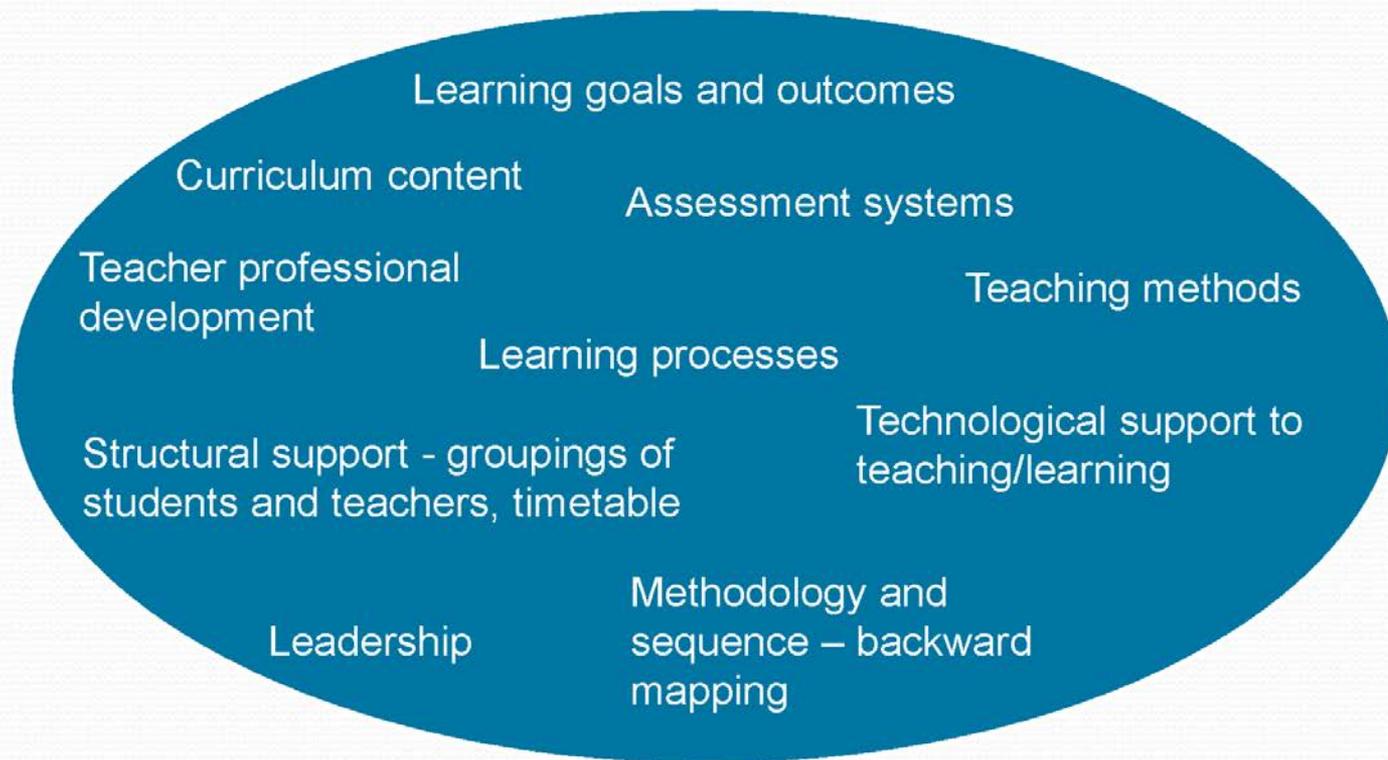
To enable schools to meet growing and increasingly diverse expectations and demands of society, students, parents, and employers

- To keep pace with changes in the workplaces of 21st century organisations, including changes in technology that demand new knowledge, skills and values
- To focus more on the 'soft' skills (teamwork, leadership, communication, problem-solving) alongside the present emphasis on academic performance
- To enable young people to relate successfully to others in increasingly diverse ethnic societies
- To address widening wealth and income gaps threatening social mobility and social cohesion, hence a greater emphasis on *equity* and *opportunity to learn* irrespective of ethnicity, social class, gender, age etc.

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What are fundamental principles of transforming schools?

1. Politicians and system may provide policy platform to boost school transformation; but *onus to make transformation happen is on each school*
2. *Principals and school leadership* are crucial to transformation and its success
3. Piecemeal tinkering – lots of *unconnected small innovations – will not work*
4. *Transformation* is school-wide, school-deep, holistic, relies on coherence and synergy of innovations and takes time – *strategic planning and courageous leadership – ie. school design is central* to it
5. D*esign* is a meaningful concept – it implies - *deliberately architecturing an organisation and its parts in order to achieve certain ends*
6. *Design* underpinning school transformation involves –
   - *Recognition of key elements that need change*
   - *Recognition of interconnectivity between elements*
   - *Decisions about the changes needed to these elements*
   - *A methodology –known as backward and iterative mapping - to underpin the processes and sequence of making the changes*
   - The School Design process itself shapes new configurations of leadership
7. THE SCHOOL DESIGN MODEL meets these specifications

KEY ELEMENTS OF THE *SCHOOL DESIGN MODEL*

Learning goals and outcomes

Curriculum content

Assessment systems

Teacher professional development

Teaching methods

Learning processes

Structural support - groupings of students and teachers, timetable

Technological support to teaching/learning

Leadership

Methodology and sequence – backward mapping

WHAT IS BACKWARD-MAPPING METHODOLOGY?

History of school reform is littered with failure – ie. top-down reform

Richard Elmore (Harvard) – first suggested to reverse this; the planning of policy should start with changes desired to practice in the classroom and school

Stephen Covey added – "Begin with the end in mind" – better chance of policy being successfully implemented

Backward mapping is a BOTTOM-UP approach to planning and policy

THE QUESTIONS FRAMING BACKWARD MAPPING IN SCHOOL DESIGN

What learning goals/outcomes in 21st century do we want for our students?

What curriculum content will deliver these outcomes?

What learning processes, values, skills and knowledge will enable students to achieve the outcomes?

How do different students best learn?

What assessment systems best gauge students' achievement of the outcomes – cognitive, affective, moral, physical?

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What pedagogic practices best enable students to learn?

What part does technology play in the new learning/pedagogy?

What are the best ways to configure classrooms, timetable and student/teacher groupings in supporting learning?

What new ways of teacher professional development are needed to up-skill teachers?

What new forms of leadership are needed to trigger, maintain and sustain innovation in all of the key elements of the School Design Model?

Figure 1: The School Design Model with Backward-Iterative Mapping: A Framework for 21st Century Learning Leadership
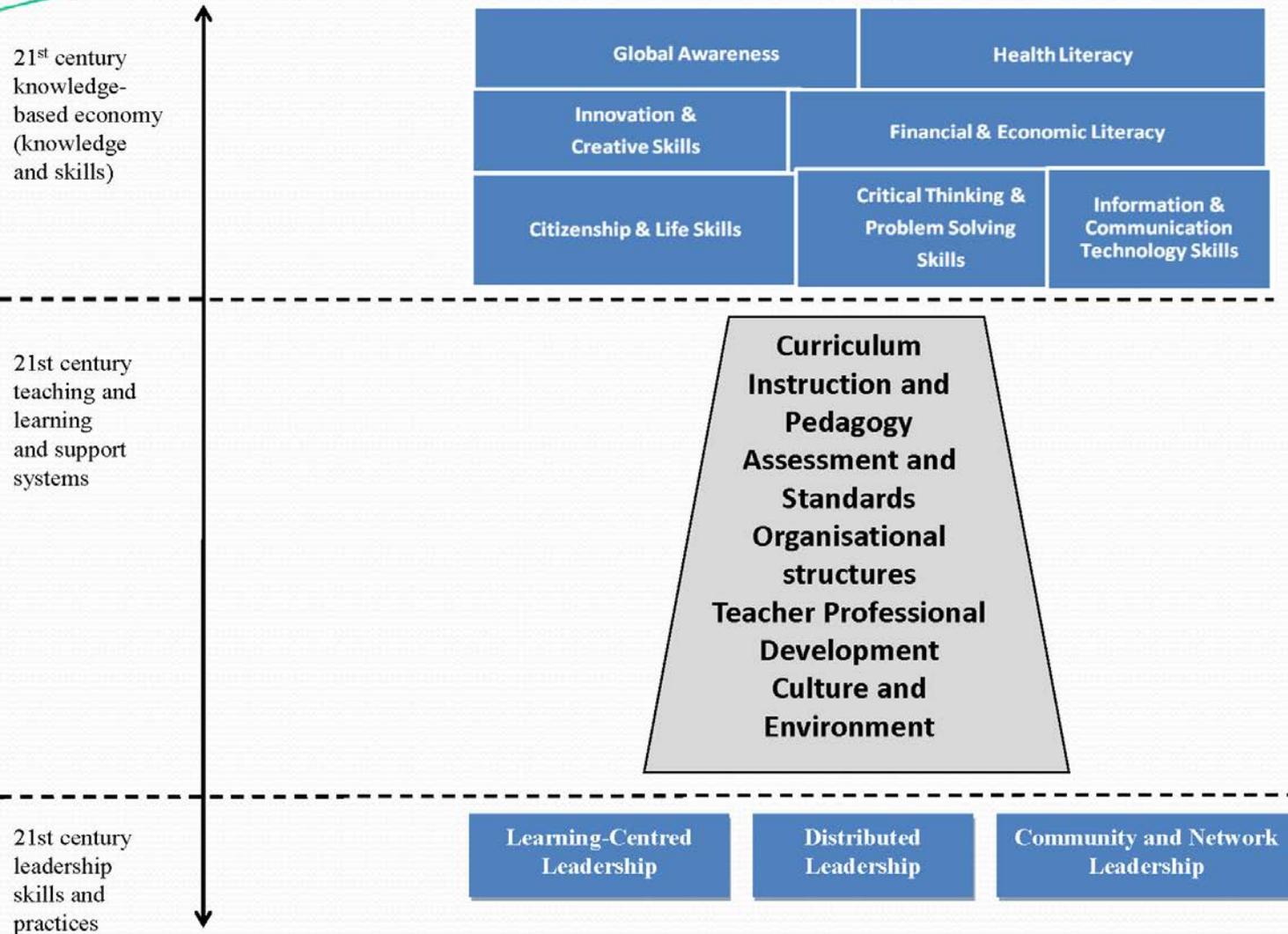
21st century learning outcomes for knowledge-based economies

• Acknowledge globalized competitive world economy – global awareness and literacy

• 21st century workplaces – 'soft' skills – new values, knowledge and skills – problem solving, team work, communicating

• Growing wealth and income gaps, ethnic pluralism – need for citizenship

• Less dependency on the State – financial and economic literacy

• Live longer – health education

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Curricular and learning experiences that deliver learning outcomes

Backward mapping -

Core subject disciplines – maths, sciences, history etc.

But add trans-disciplinary knowledge – enabling application to real world problems

Skills of learning and thinking eg. meta-cognitive and thinking skills, learning in teams, problem solving, communicating spoken and written word, creativity, entrepreneurialism etc.

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New Curricular experiences

1. Holistic education – soft skills – independent and collaborative learning, technological literacy

2. Trans-disciplinary, integrated, problem-based, project-based activities needed to create learning experiences for the above skills

Pedagogy to deliver the curriculum and learning experiences

Backward mapping –

• Teachers and leaders model the knowledge, skills and dispositions to be acquired by students

• Teachers widen repertoire of skills – employ both teacher-centred and student-centred methods - improve their decision making as to when and with whom to use which

• Teachers employ individualised, group and whole-class teaching

• Teachers not just subject experts, but competent in links to inter-disciplinary approaches – eg. PBL and IBL

Technology and 21st century learning environments

Growing central role of technology –

• increasingly embedded across curriculum, and
• adopted by most teachers, and
• accessed by all students, even poorest

Enables –

• Acquisition of higher-order skills
• Flexible teaching and learning – individualised/group/whole class
• Extends boundaries of learning beyond classroom – esp. mobile technology

Although increasingly a skill in its own right, it should still be seen primarily as serving Teaching and Learning

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Wider forms of assessment

Backward mapping - new curricular emphases on holistic education, trans-disciplinary knowledge and 'soft' skills require appropriate changes to assessment systems

These new curricular areas are less amenable to traditional, summative quantitative measurement; they require formative, and qualitative judgements

Teachers only likely to accept and implement changes to curricula and pedagogy if new, appropriate forms of assessment are officially adopted by examination bodies, governments and employers – alongside traditional, summative, testing

Supporting organisational structures

Backward mapping –
- new forms of teaching and learning demand more flexible structures

Teacher/student grouping
- teacher core teams able to teach disciplinary and trans-disciplinary knowledge
- teacher teams stay with a cohort of students moving through the school

Timetable
- blocking and more flexible time periods than standard 45 minute lesson time allow for PBL and IBL
- more flexible school year, term and day

Configuration of classroom physical space
- more innovative pedagogy requires flexible use of classroom space and furniture
- wi-fi enables flexibility of movement and classroom layout

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Teacher professional development (PD) and leadership

Backward mapping – for school-wide, school-deep transformation, rigorous professional development is required that -

• Enables Teachers to acquire new pedagogical and assessment skills

• Emphasises whole-school PD – the Professional learning community (PLC)

• Develops 'teachers as researchers' – collegial and collaborative researching, learning and teaching

• Makes full use of school data to inform PD and professional practice

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Leadership

Principals' and school leaders' responsibilities for PD - ensuring all school staff experience appropriate PD to acquire practices necessary to underpin the school as an innovative learning environment; these responsibilities include –

- Promoting, sustaining and evaluating the school as a PLC
- Ensuring that the school's PD programme is aligned with school vision, goals and learning outcomes
- Providing sufficient resources for PD eg. time, finance and space
- Ensuring that all teachers are researching, evaluating, and putting improved pedagogy into practice, where feasible
- Participating directly in PLC activities with other leaders and all teachers and teacher aides
- Nurturing and preparing leadership in younger, less experienced staff

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Dimensions of leadership for school design

Backward mapping –

Implementing sequenced and timely innovations in the key elements of whole-school design and transformation requires courageous, High-Performing Leadership, aimed at capacity building, including the following key characteristics –

- *Learning-centredness*
- *Distributed or shared power and authority*
- *Networked and connected leadership across own community and to other schools and learning organisations*
- *Strategic planning and design leadership* - *a capacity for understanding the complex connections between organisational design elements and cultures and practitioners in schools – how these best interrelate and function to secure high leverage strategies of teaching and learning*

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Learning-centred leadership

Leadership that focuses on improving teaching and learning directly and indirectly

Embraces competencies ranging from macro-level setting school-wide goals to micro-level supporting and advising individual teachers in their practices

Requires technical pedagogical and curriculum knowledge and skills in order to communicate with teachers and learners

Distributed or shared leadership

Distributed or shared leadership empowers and builds school capacity

Leadership is a variable-sum, not zero-sum concept

Empowering others to lead at senior, middle and teacher levels harnesses maximum energy and talent

Flatter structures unite leaders and teachers

Role of principal leadership adjusts to orchestrate, co-ordinate and cohere policy and practice across the school

Networked community leadership

Powerful means of tapping into, and sharing, expertise and resources with the school's own community, and with other schools

Can be a major driver for school improvement – especially where partner schools offer expertise and good practice

Exemplars of other schools undertaking successful transformation provide useful models and offer reaffirmation

WHAT ARE THE CHALLENGES FOR LEADERS IN IMPLEMENTING THE SCHOOL DESIGN MODEL?

1. Leadership weaknesses

If school leaders (through their leadership) lack vision, energy, passion and enthusiasm, as well as capacity for strategic planning and 'making things happen' – then enacting school design model unlikely

2. Complexity of school design model

The elements of the school design model are generic – apply across all cultures and systems; however, the model is comprehensive and complex – school leaders, as agents of change, may find it difficult to embrace all of the elements and where and how they interrelate; they may lack a conceptual as well as organisational capacity to strategically plan and lead based on all the elements. Existing theories and models of pedagogy, curriculum and leadership may help leaders conceptualise how the school design elements are interconnected

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3. The model is teleological and applicable across cultures, while offering flexible and different pathways

The backward mapping methodology aims to ensure goals and outcomes of student learning are achieved; however, in reality, there are many different pathways followed by schools in transformation; the pathway taken by each school may compromise the backward mapping sequence, depending on the present status quo of each school, its strengths and weaknesses, and the drivers for change.

4. Leaders must carry community with them

School leaders may face challenges in convincing their stakeholders – parents and teachers - to commit to even minor innovations, let alone whole school transformation; this most likely when schools have track record of 'success' in examinations

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5. Leadership sustainability is essential

Continuity and sustainability of school leadership are necessary for re-design to be successful, given that the process is long term – even 10 years; different principals may feel they want to make their mark

6. Scaling-up of processes and practices is essential

Difficulties of transforming school design elements in a scaled-up way across the school is especially problematic where high turnover of teachers, and where teacher 'buy-in' is variable

7. System support helps and/or hinders

The policy environment may or may not be conducive to school re-design eg. resources – time and money; advisory, inspectorial and consultant support etc.

However, these problems are surmountable with High-Performing leadership, as exemplified by case studies from Singapore and elsewhere