Ministry of Education
SINGAPORE

mp3: Student-centred learning

26 Nov 2010

SINGAPORE QUALITY CLASS

PEOPLE DEVELOPER SINGAPORE

Integrity, the Foundation ▪ People, our Focus ▪ Learning, our Passion ▪ Excellence, our Pursuit

I will be sharing …

- Student Centred Learning (SCL)
- Background on our Masterplan (mp) Journey
- Approach to promote SCL
  - Ideas to Practice
  - Capacity Building
- Examples
- Challenges

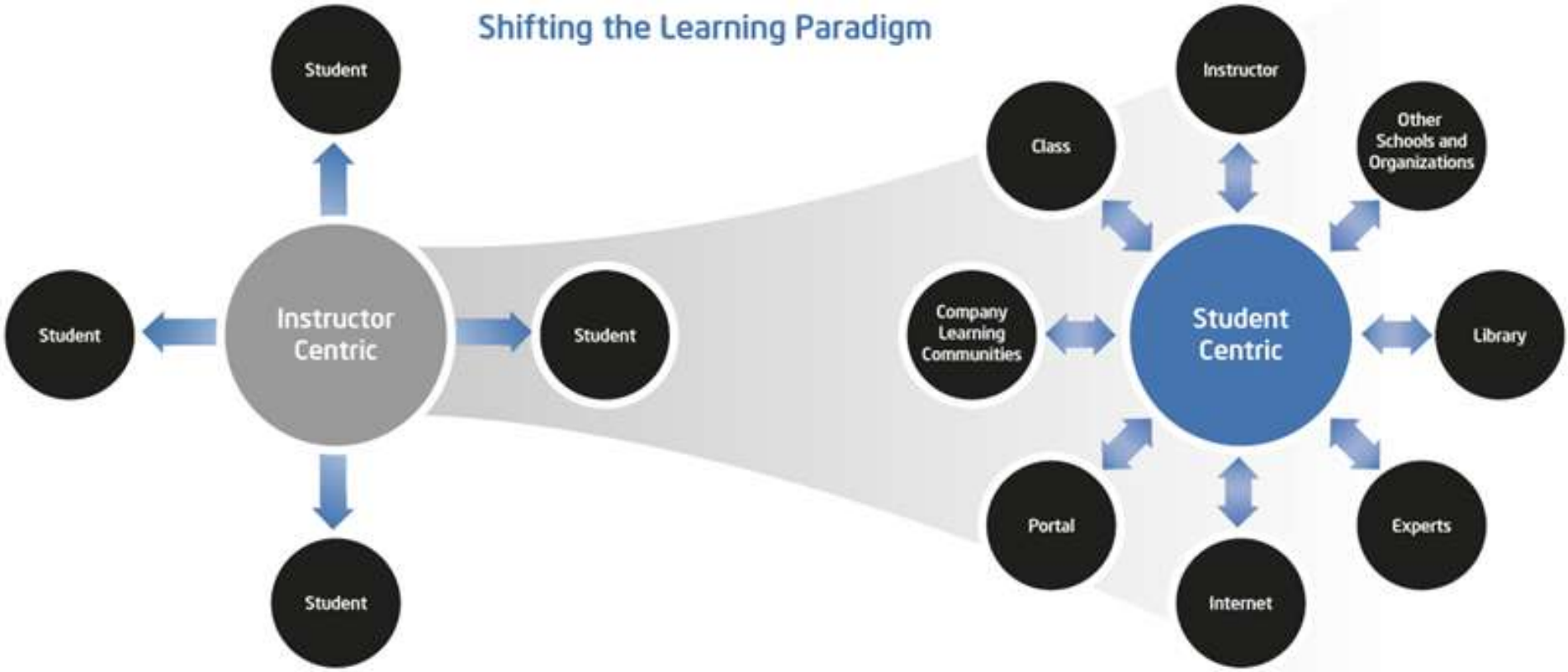
Student-Centred Learning?

Created using www.wordle.com

Why Student-Centred Learning?

- Strengthens student motivation
- Promotes collaboration and communication
- Promotes discovery/active learning
- Take responsibility for one's own learning
- Teachers as guide and facilitator of learning
- Self and peer assessment
- Long term perspective: lifelong learning

Shifting the Learning Paradigm (Student-centered)



Student-Centred Learning: Implications

- not simply methods, nor strategies
- philosophical paradigms that reflect different views about nature of learning, teaching and knowledge
- has implications for curriculum and syllabus design, and assessment
- processes of learning taken into account apart from just the content to be ‘taught’.
- continuous academic and professional development is paramount

Student or Teacher Centred?

- There is a place for either
- Fit-for-purpose
- Pragmatism
- Needs and contextual factors

So how does Student-Centred Learning fit in our ICT Masterplan?

The ICT Masterplan Journey

1997

Masterplan 1:
Building the Foundation

2003

Masterplan 2:
Seeding Innovation

2009

Masterplan 3:
Strengthening & Scaling

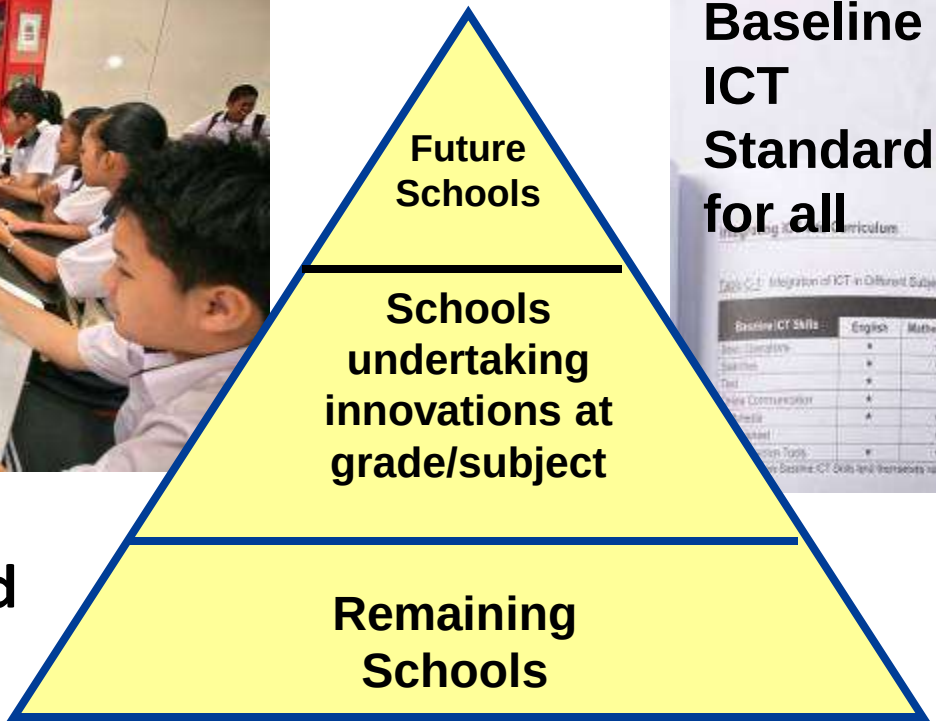
ICT Infrastructure & Support for all schools

Core ICT Training for all teachers

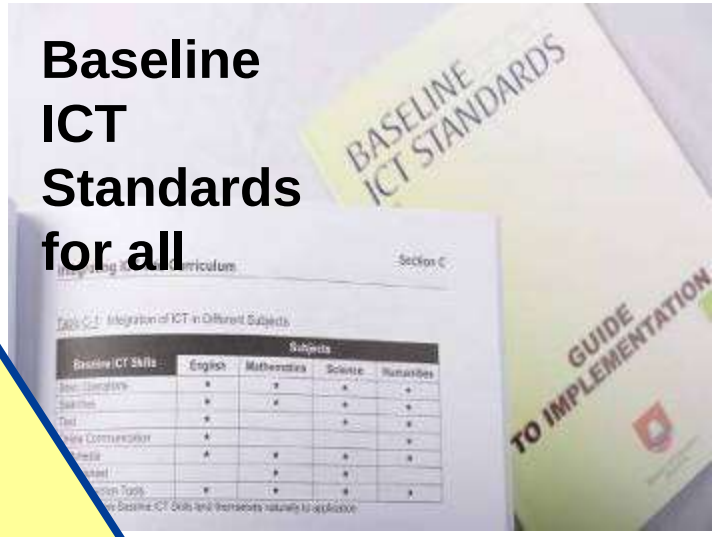
Educational Software & Resources for relevant subjects

1997: Masterplan 1
Building the Foundation

Gave autonomy through devolved ICT funds



Generate innovative practices through schemes

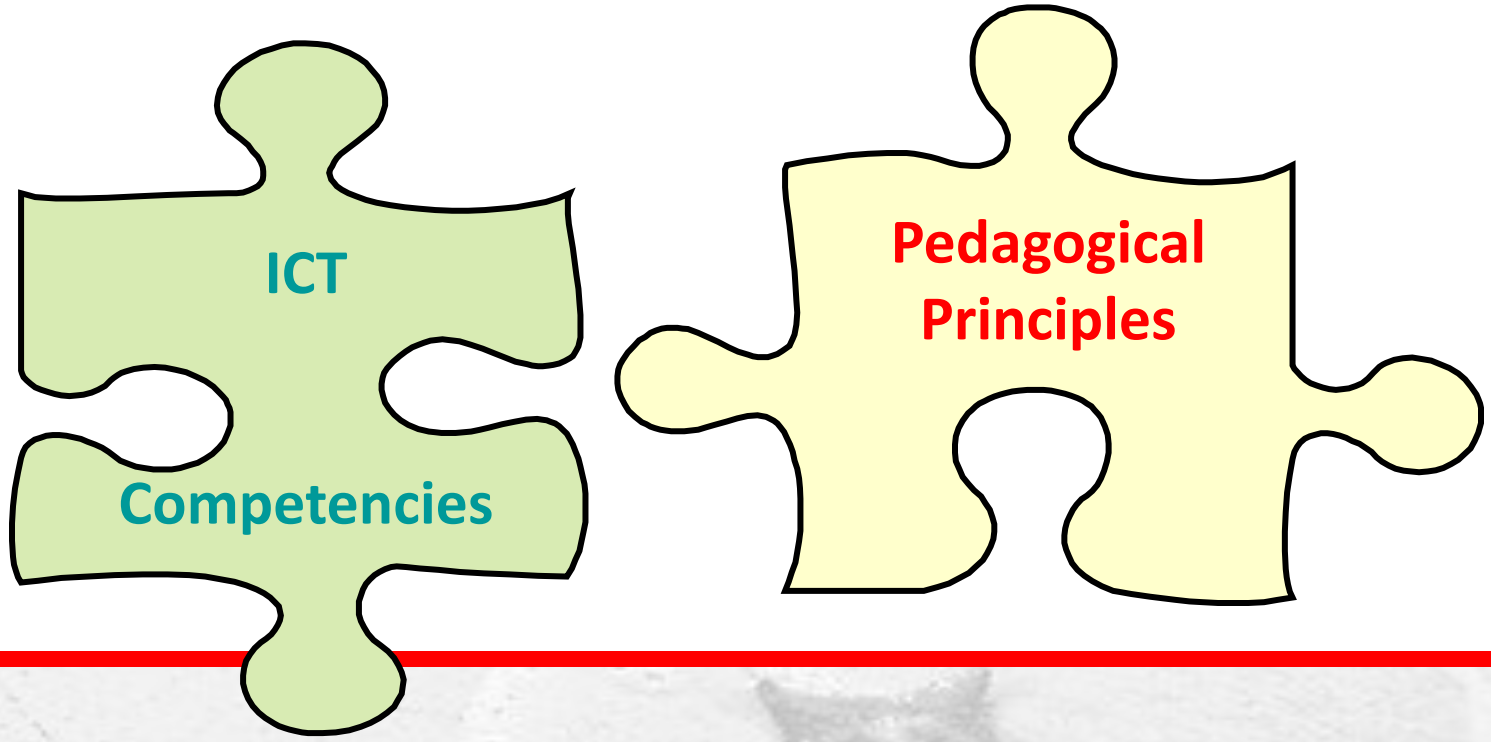


Established Baseline ICT Standards for pupils

2003: Masterplan 2
Seeding Innovation

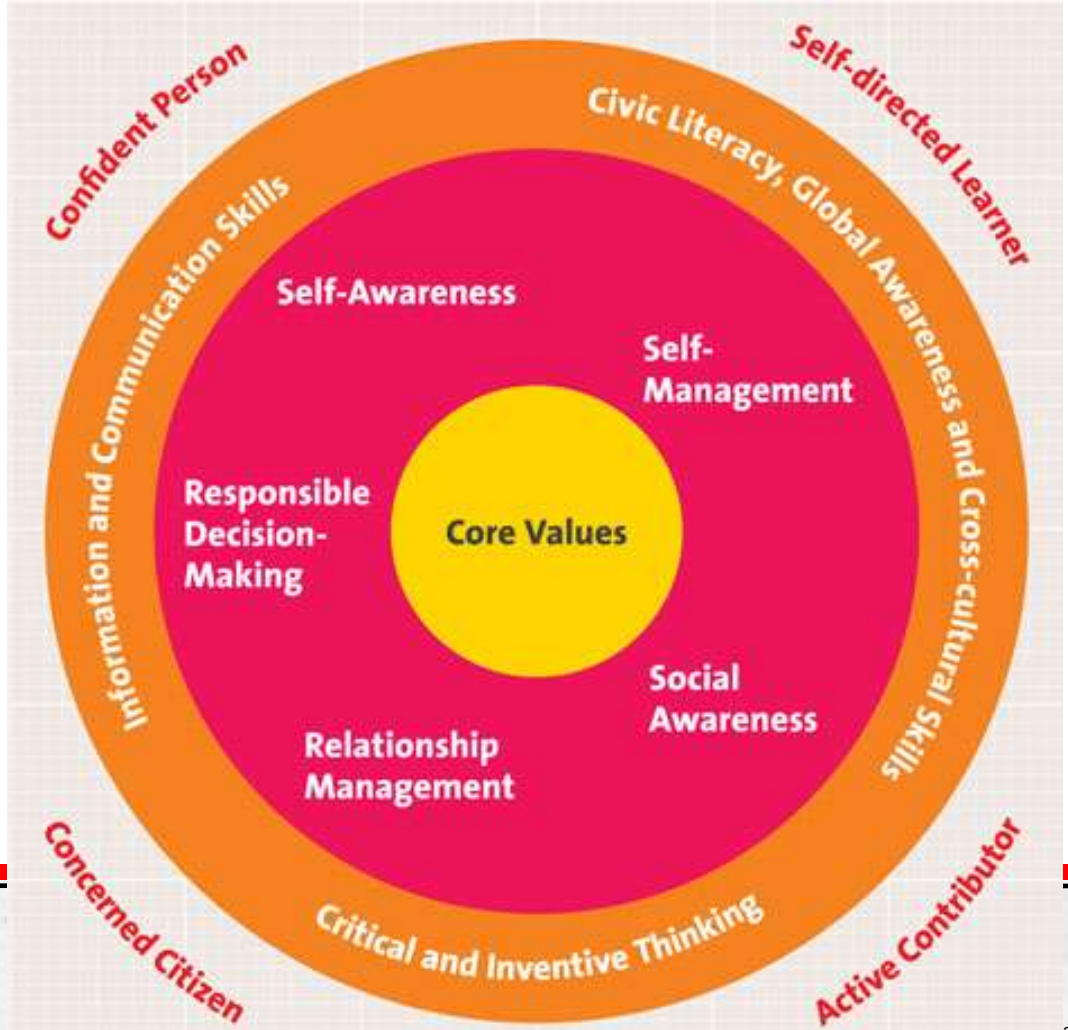
2009: Masterplan 3
Strengthening and Scaling

- Integrating ICT competencies and effective teaching
- Scale innovative practices



Nurturing Future-Ready Singaporeans

Developing 21st century competencies



mp3 Vision and Goals

Vision

Harnessing ICT, Transforming Learners

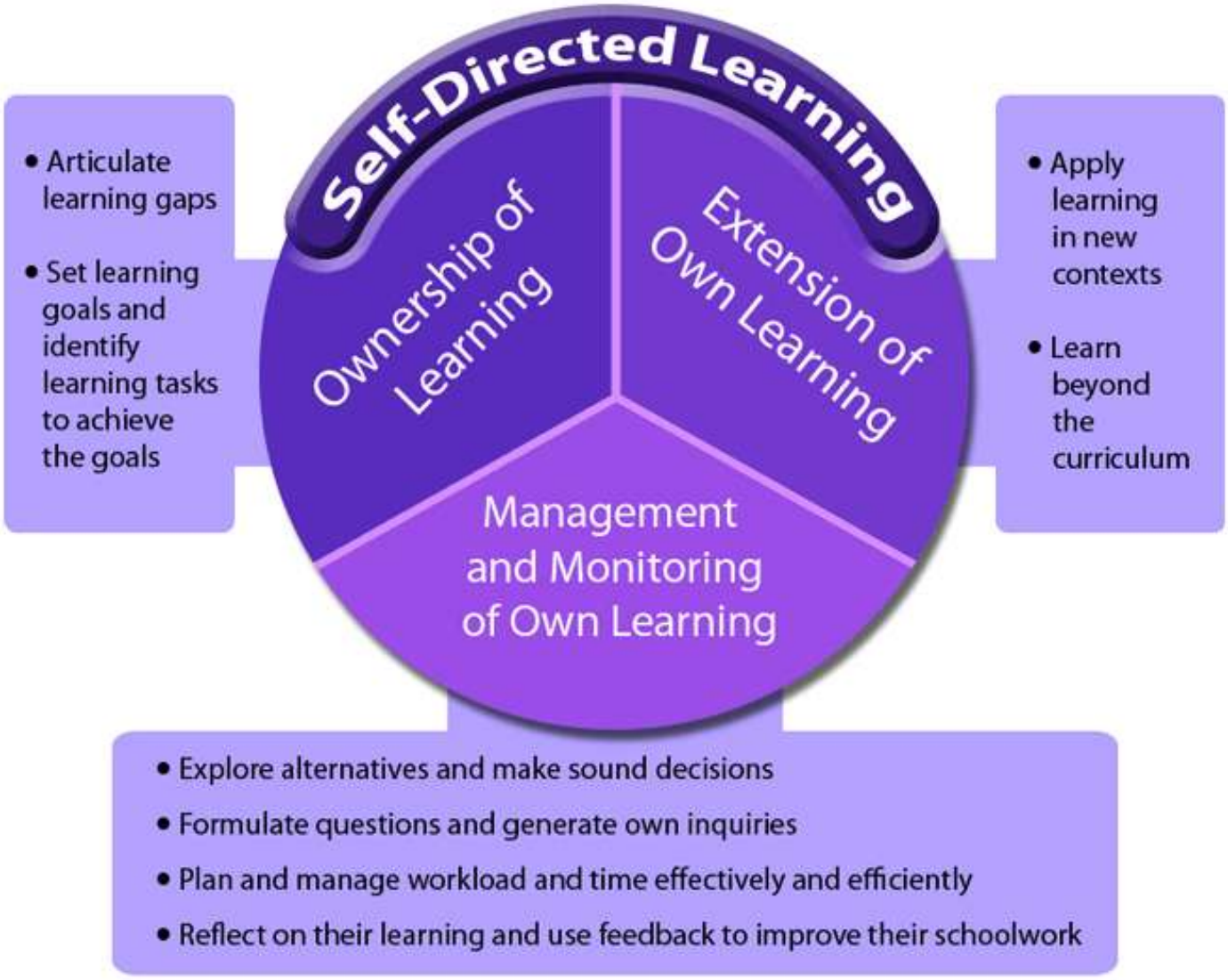
Outcome Goal

Students develop competencies for self-directed and collaborative learning through the effective use of ICT as well as become discerning and responsible ICT users

Enabler Goals

- School leaders provide the direction and create the conditions to harness ICT for learning and teaching
- Teachers have the capacity to plan and implement ICT-enriched learning experiences for students
- ICT infrastructure supports learning anytime, anywhere.

Self-Directed Learning



***Source: The ICT Connection** [http://ictconnection.edumall.sg]*

Collaborative Learning

***Source: The ICT Connection** [http://ictconnection.edumall.sg]*

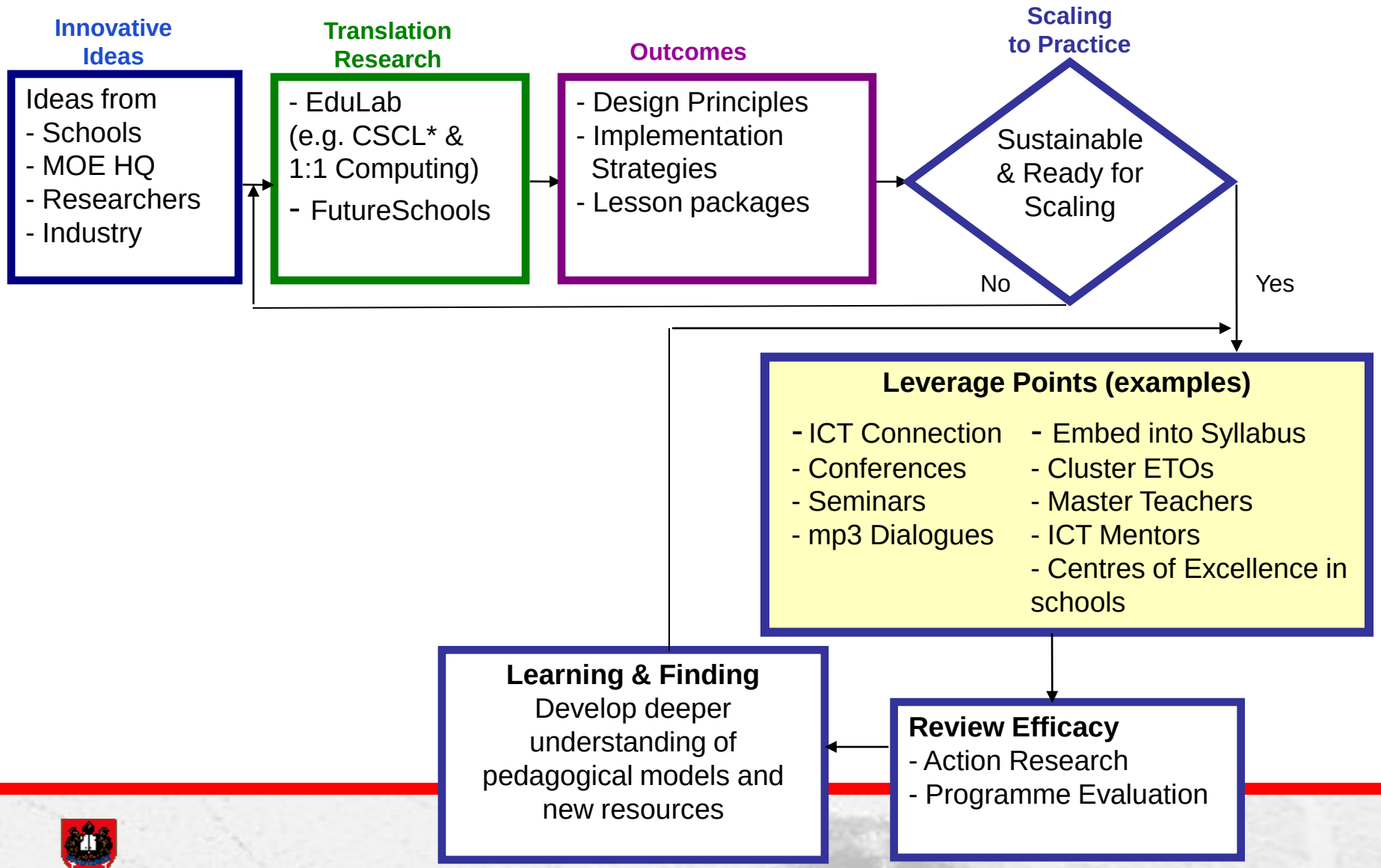
The ICT Masterplan Journey

	1st Masterplan Build Foundation	2nd Masterplan Seed Innovation	3rd Masterplan Strengthen & Scale
Curriculum, & Assessment	~ ICT supporting curriculum	~ ICT integrated into curriculum & assessment ~ Differentiated	~ ICT embedded into syllabuses & teaching guides
Professional Development	~ Core training for all teachers and school leaders	Prof Development ~ Consultancy to school	~ ICT Mentorship ~ Professional Learning Communities
Research & Development	~ Spearheading R&D efforts in collaboration with industry & schools	~ Seeding innovation in schools	~ Translating research to influence classroom practices
Infrastructure for Learning	~ Central provision to equip all schools ~ One-size-fits-all	~ Flexible provision to suit schools needs	~ Closer alignment to curriculum changes and schools needs

Supporting Student-Centred Learning

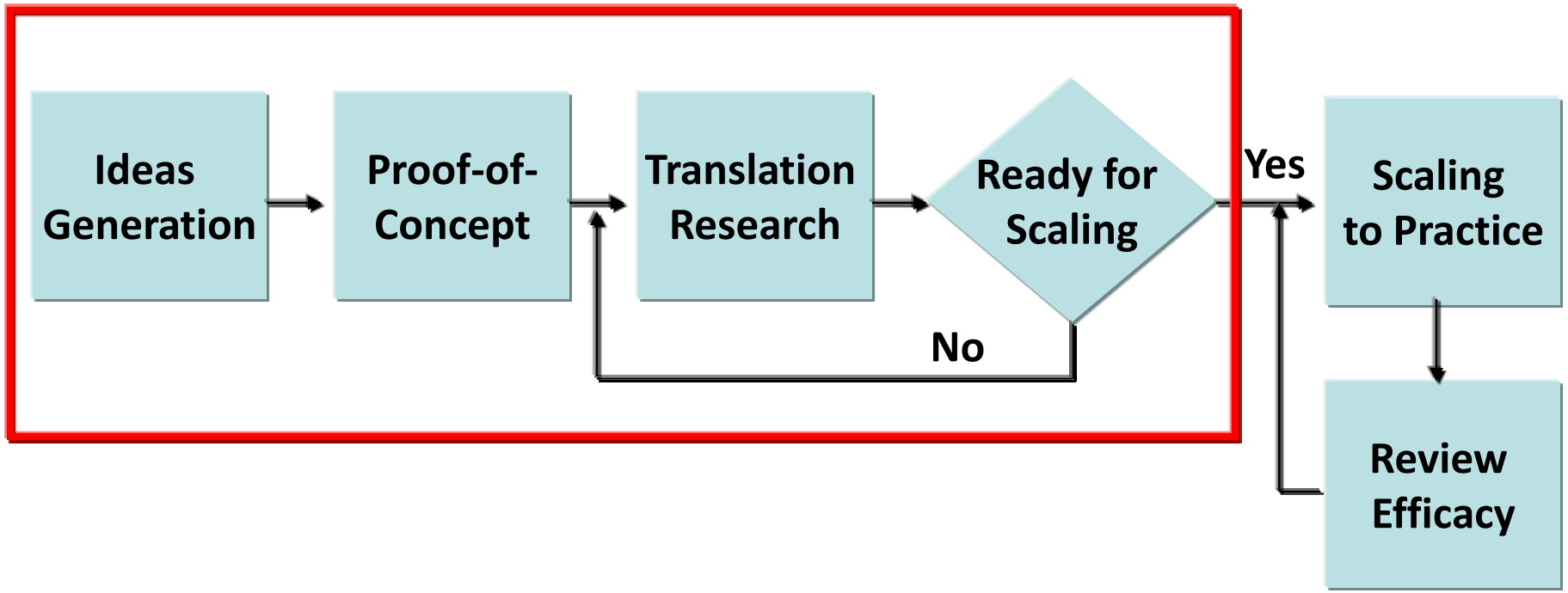
- "Ideas to Practice"
- Building teacher capacity

From Ideas to Practice

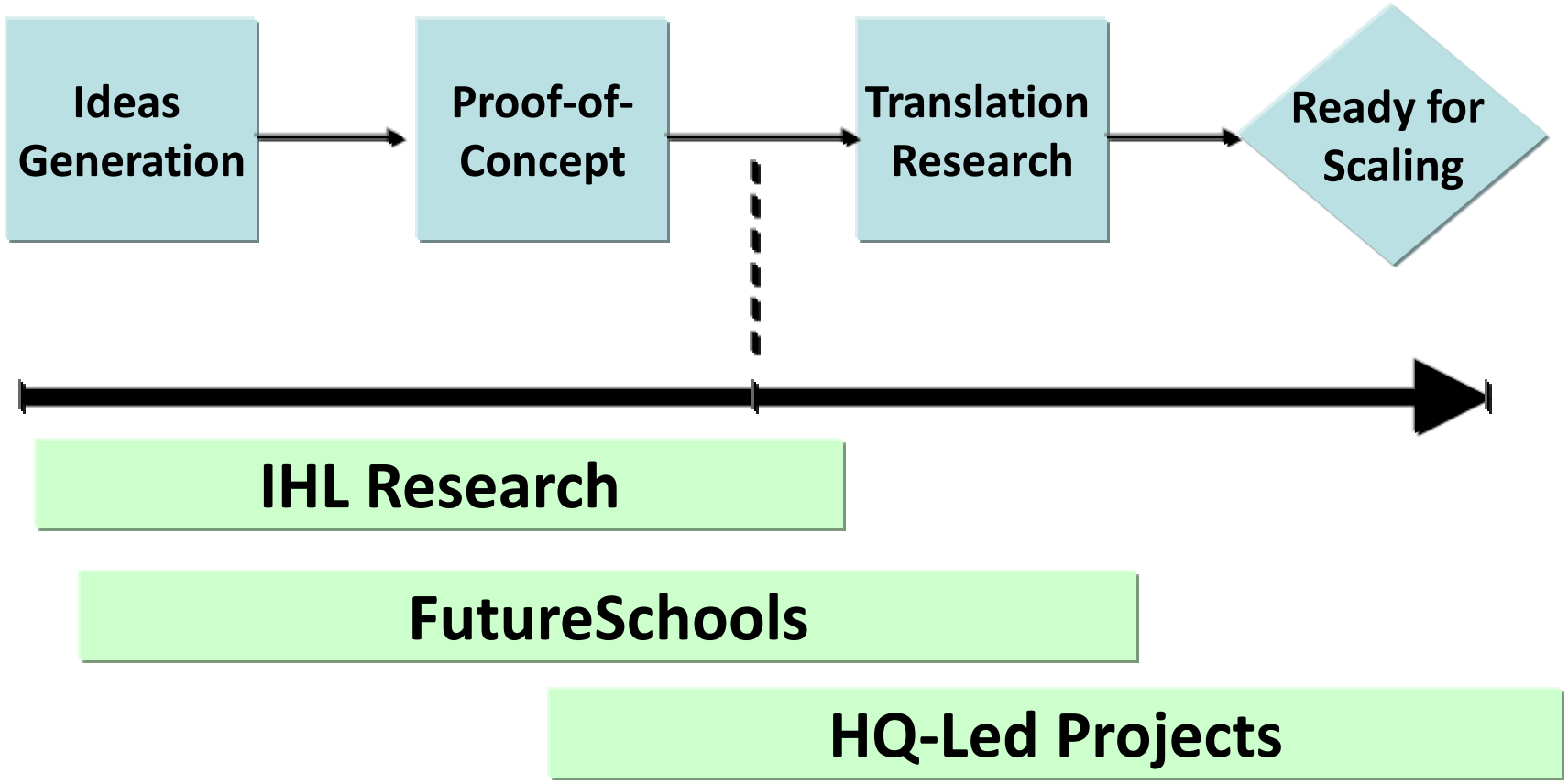


*CSCL is *Computer Supported Collaborative Learning*

Ideas to Practice



Ideas to Practice



Ideas to Practice

Innovative Ideas

- From teachers, researchers, companies, etc

R&D Programme

- FutureSchools
- 10'C/M/T
- EduLab
- IHL Research: Game-based Learning InitiativeeduLab

Outcomes

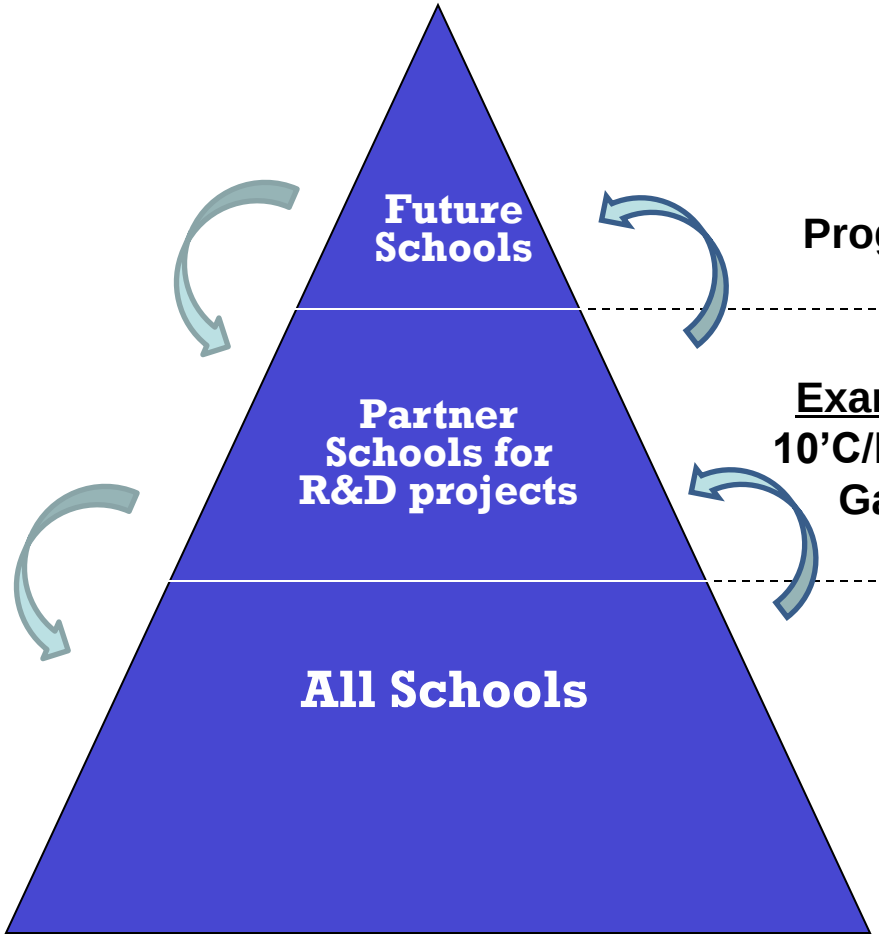
- Pedagogical models
- Design principles
- Implementation strategies
- ICT tools /applications

Supporting mp3 goals

✓ Build students' competencies & teachers' capabilities for self-directed & collaborative learning & teaching

✓ Inform policy decisions at school/national level

Strengthening and Scaling



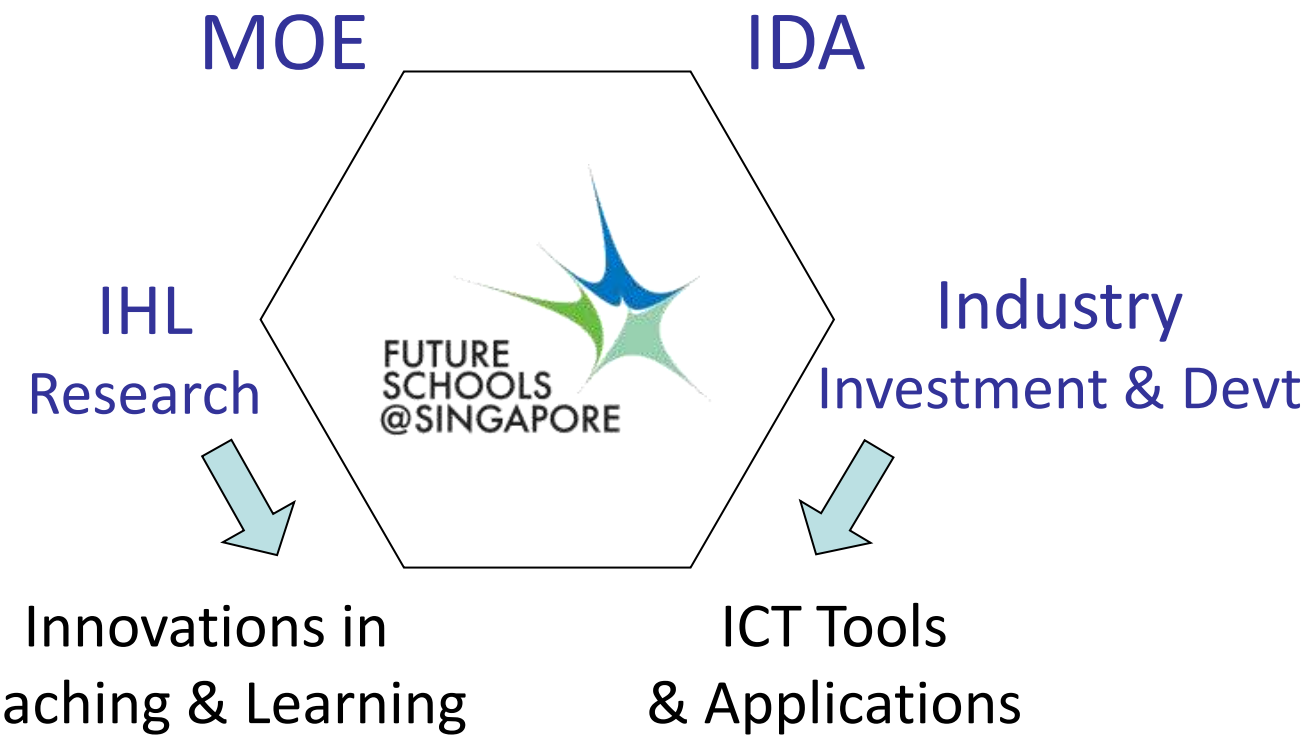
FutureSchools Programme@Singapore

<u>Examples of R&D projects</u>
10'C/M/T, MOE Virtual World, Game-based Learning Initiative

FutureSchools

- Experiment and push the frontiers of ICT use to transform L&T
- A vibrant and pervasive culture of meaningful use of ICT for L&T
- Strategic partnerships with IHLs & Industry
- Scale up evidence-based practices & learning points to a wider community

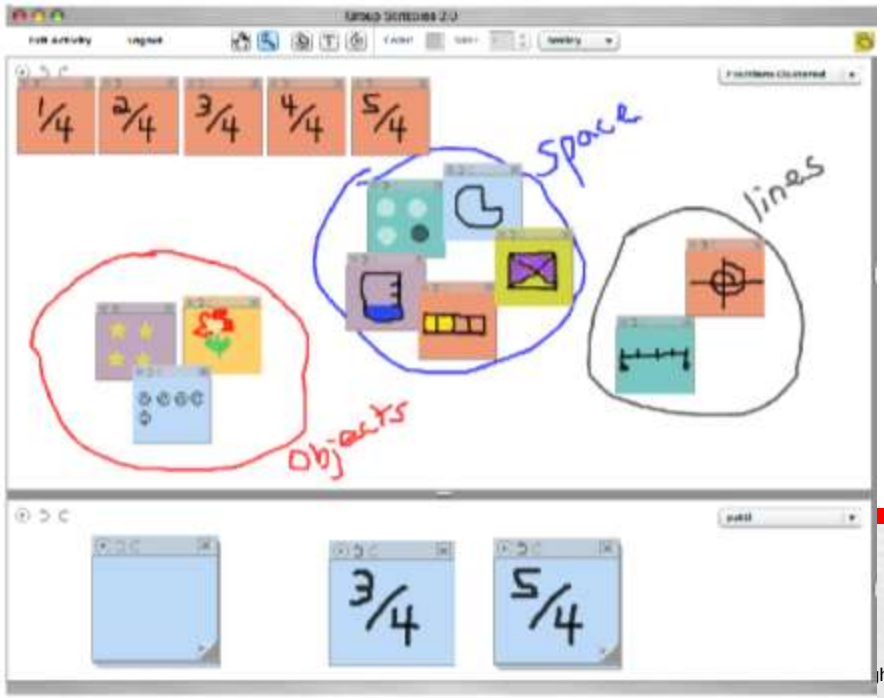
Partners with FS



FutureSchools@SG

Problem Based Learning

1 to 1 Learning Environment



Knowledge Building

Different focus for different schools

Beacon Primary School
Diverse digital learning spaces (i.e. 3D virtual learning environment), holistic development

Canberra Primary School
Play as pedagogy through immersive games and interactive learning trails integrated curriculum

Crescent Girls' School
Student-centric learning, teaching and assessment, integrated curriculum

FUTURE SCHOOLS @SINGAPORE

Hwa Chong Institution
Independent and diverse learning in a borderless world

School of Science & Technology
Leverage on 1-to-1 networked computing to design of pedagogical practices that support 21st century learning and foster critical thinking, collaboration and communication.

Jurong Secondary School
e-problem-based learning, media literacy, communities of practice, assessment of 21st Century skills

School of Science and Technology

SST Student Outcomes: 3 out of 10Cs
Critical Thinking
Collaborative Skills
Communication

- **Could leverage on existing IDM tools and strategies**
- **High relevance among school programmes**

SST's belief:
1-to-1 technology-rich learning environment to
- Elevate Performance
- Stretch Potential

Partnership with LSL
- **Relevant Research Expertise and Knowledge**

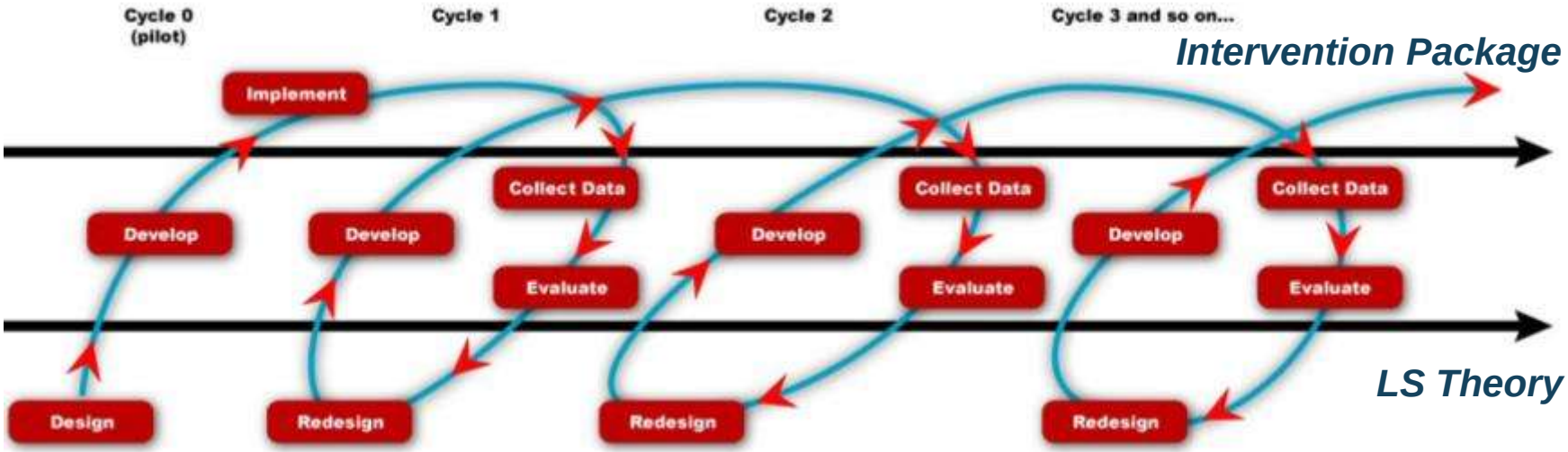
the Approach…

Approach

Conceptual Framework

Design research approach

- **Addresses complex problems in real contexts in collaboration with practitioners**
- **Integrates known and hypothetical design principles**



Multi-faceted data (including observations, artefact, discourses and interviews) will be collected & analysed.

Research Focus

1. How do we design pedagogical practices that support 21st century learning and foster critical thinking, collaboration and communication?

2. How do we leverage on 1:1 networked computing to provide pervasive learning environments?

some Research Initiatives…

Knowledge Building

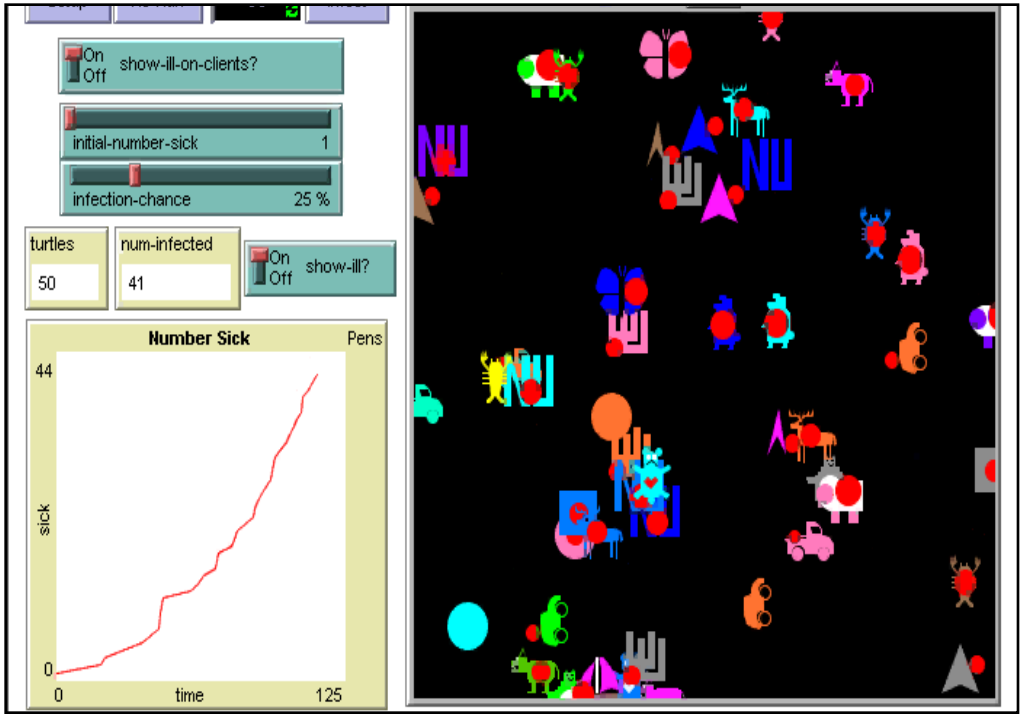
Mobile Learning Activities to Foster Critical Thinking Skills and In-situ Knowledge Building in Integrated Humanities

- Pedagogy that leverages on 1:1 computing
- Bridge conceptual gaps between theories and real world observation
- Bridge formal and informal learning

Participatory Simulations

Classroom Networks - Educational Collaboration Technology for Mathematics:

CN-ECT for Mathematics



- Pedagogy that harnesses the collective intelligence of the class for mathematics learning
- Optimised pedagogical practices & questioning techniques inherent in generative activities
- Curricular packages & software models

Collaborative Learning

Classroom Networks - Educational Collaboration Technology for Language Learning:

CN-ECT for Language Learning

- Pedagogy that harnesses the collective intelligence of the class for language learning
- Strategies & collaborative activities to transform existing language learning

10’C, 10’M & 10’T

10’C, 10’M & 10’T

- Provide differentiated, self-paced learning and peer interaction in a web-based interactive environment

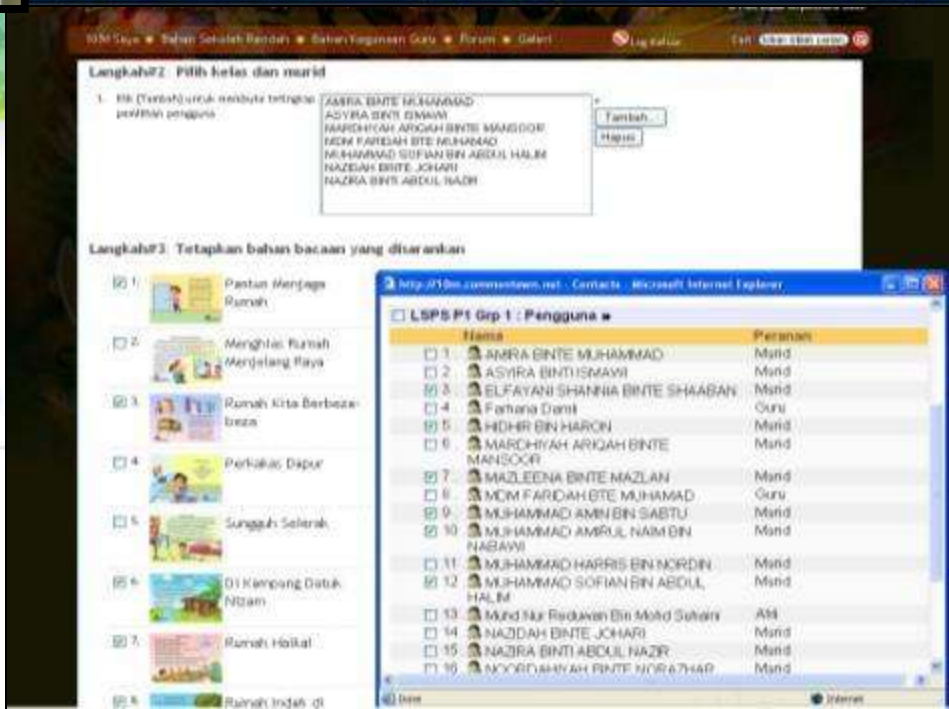
- Promote pupils’ interest in MTL and improve their language competencies


10C 华文教学网
ONG SHUN PING 王顺平 » 写一写 »
我有话说
我来评分
过新年
2009-02
我去我的外婆的家拿红包说谢谢。


ONG SHUN PING 王顺平 » 写一写 »
我有话说
我来评分
三只小猪
2009-07
有一天，大灰狼心里想吃掉三只小猪。三只小猪听说大灰狼要吃掉它们。猪大哥做了草屋。猪二哥做了木屋。猪小弟做了砖块屋。有一天，大灰狼来到了猪大哥的家吹倒他的屋子。它很难过赶快跑走了。大灰狼又去找猪二哥大灰狼又吹倒了它的屋子。它们很难过的跑走了。它们赶快跑去猪小弟的屋子。大灰狼怎么吹也吹不倒它的屋子。大灰狼想到了一个好办法。大灰狼爬到屋顶。它到了屋顶就跳进它们的家的时后。三只小猪把热水放在屋顶的下面。这时大灰狼掉进热水了。大灰狼热死了。


சிகரம்
Extensive reading resources of varied difficulty levels are created for pupils with different language abilities


10C 华文教学网
POON SHAO HING JUSTIN » 写一写 »
当我在房间里的时候……
2010-03
我有话说
我来评分


Langkah#2 Pilih kelas dan murid
Langkah#3 Tetapkan bahan bacaan yang disarankan
LSPS P1 Grp 1 : Pengguna

Game-based Learning

http://gli.lsl.nie.edu.sg/index.html

Statecraft X

- A social studies learning programme which is centred on the use of an online multi-player game.

- Students take on the role of governors in the fantasy kingdom of Velar to learn and apply the principles of governance.

Legends of Alkhimia

- Learn Science through the process of scientific inquiry in this multi-player game played

- Students take on the roles of apprentices to a master alchemist attempting to save the town of Alkhimia from invading chemical-based creatures and other chemical disasters.

Supporting Student-Centred Learning

- "Ideas to Practice"
- Building teacher capacity

"The quality of an education system cannot exceed the quality of its teachers"

"The only way to improve outcomes is to improve the quality of instruction"

McKinsey Report, Sep 2007

Teacher is Key

Strategies to Build Capacity

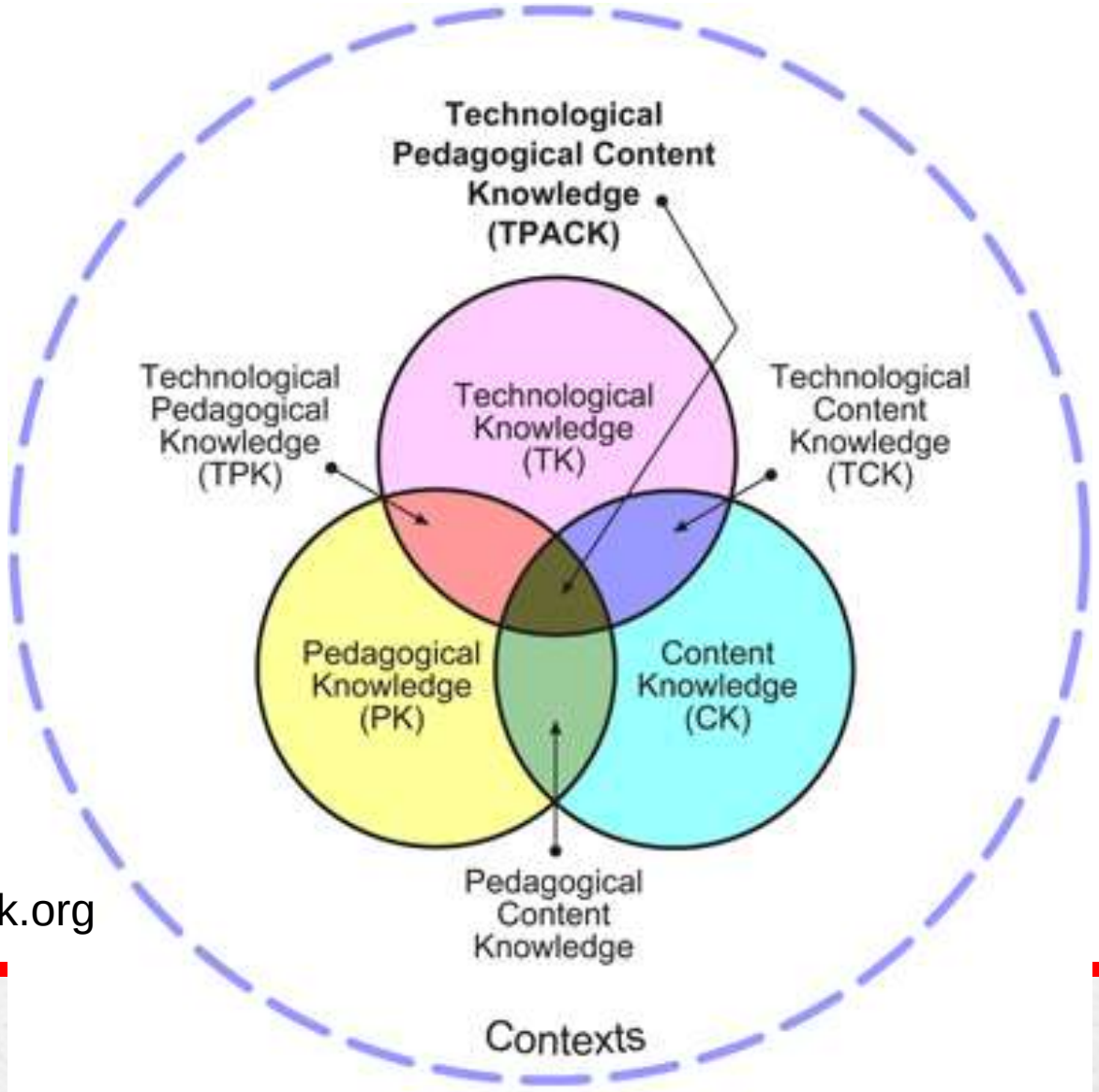
School Leaders

- Capacity to plan and sustain effective school-wide ICT practices
- Tools to assess progress and put in place structures and processes

Teachers

- Learning roadmaps and differentiated support to design ICT learning experiences
- Structures for “ICT mentors” to champion and share the use of ICT in self-directed and collaborative learning

Build TPCK of Teachers



http://www.tpck.org

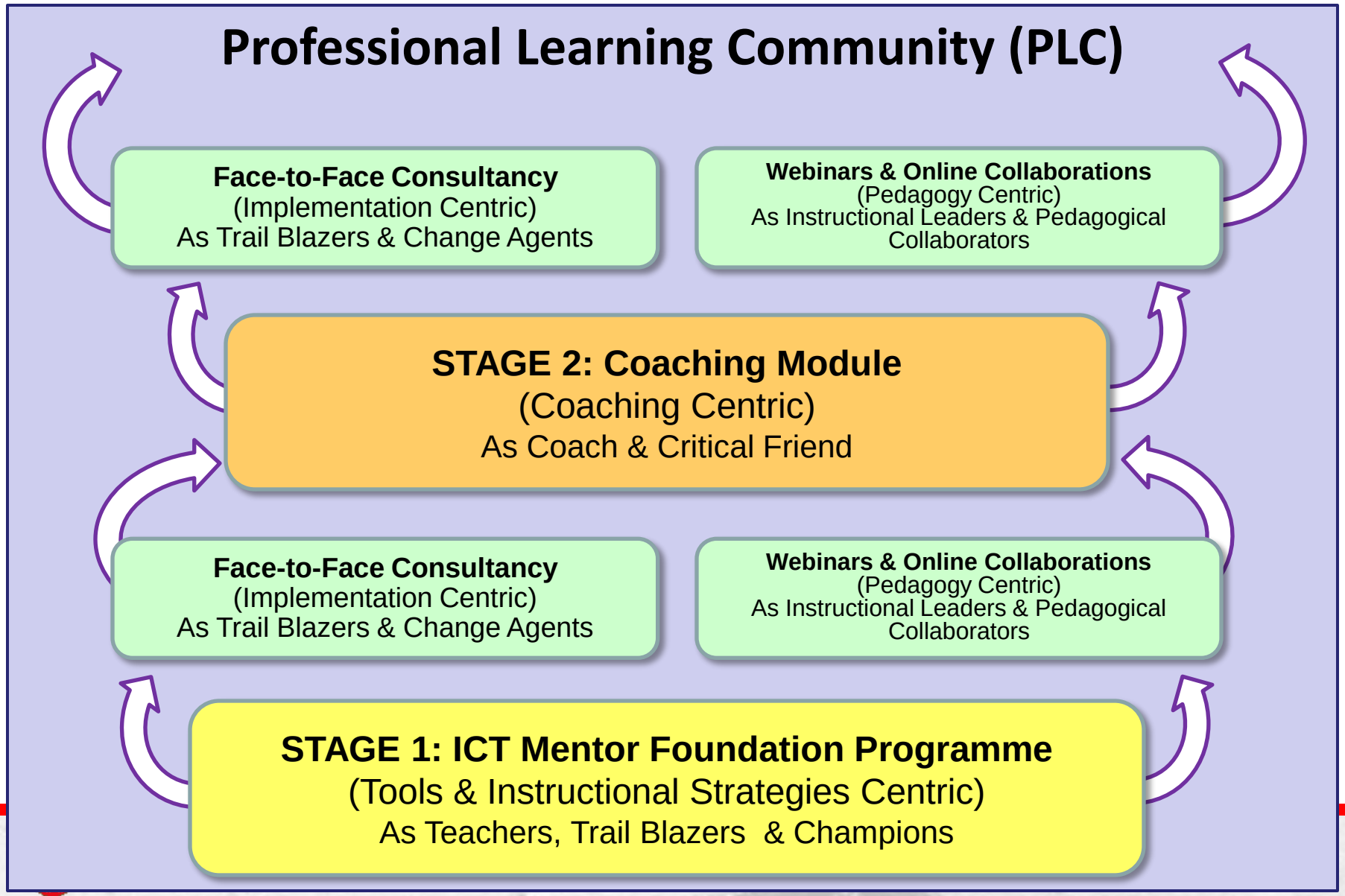
ICT Mentor Programme

- Develop critical mass of teachers to ensure sustainability and growth of ICT implementation in schools
- Identify and select effective users of ICT for learning and teaching as “ICT Mentors”
- Spread good practices and experiment with the use of effective ICT pedagogical models

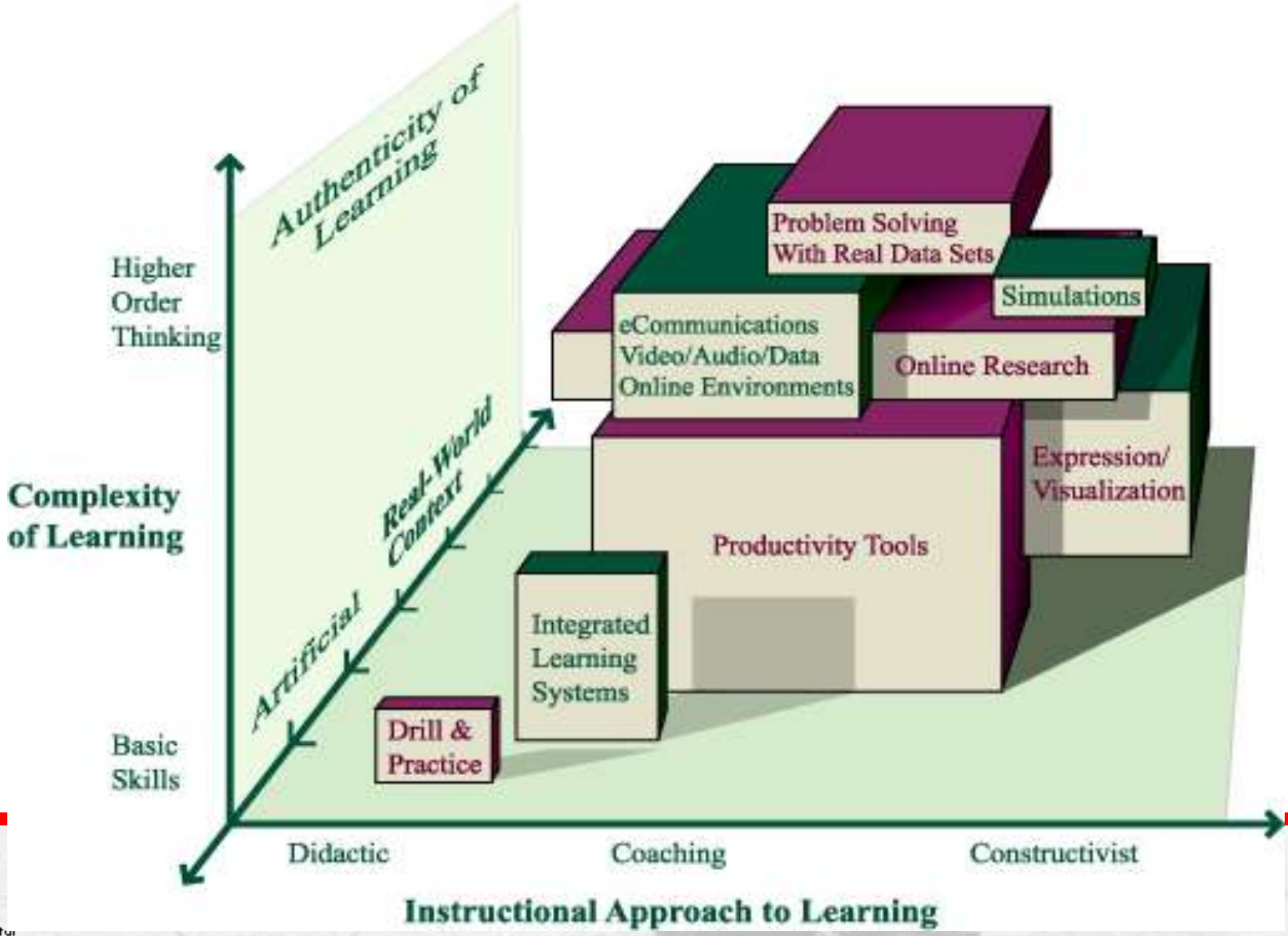
ICT Mentor Approach

- **Model** instructional and assessment approaches which result in self-directed learning and collaborative learning
- **Carry Out** authentic task throughout the professional development experience
- **Develop** resources which will support the ICT Mentor Initiative and their learning experience

ICT Mentor Programme



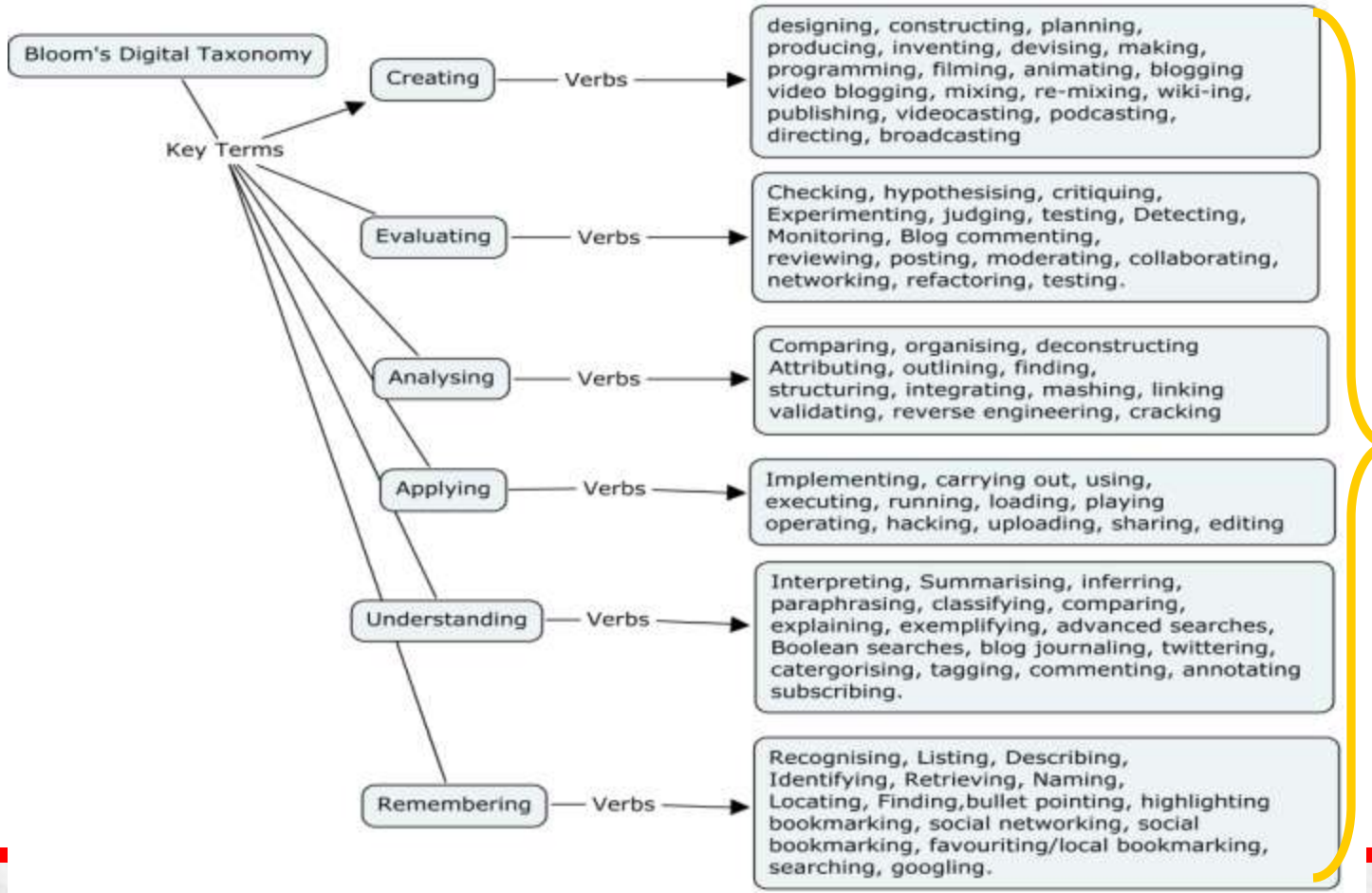
Range of Use



Authenticity of Learning

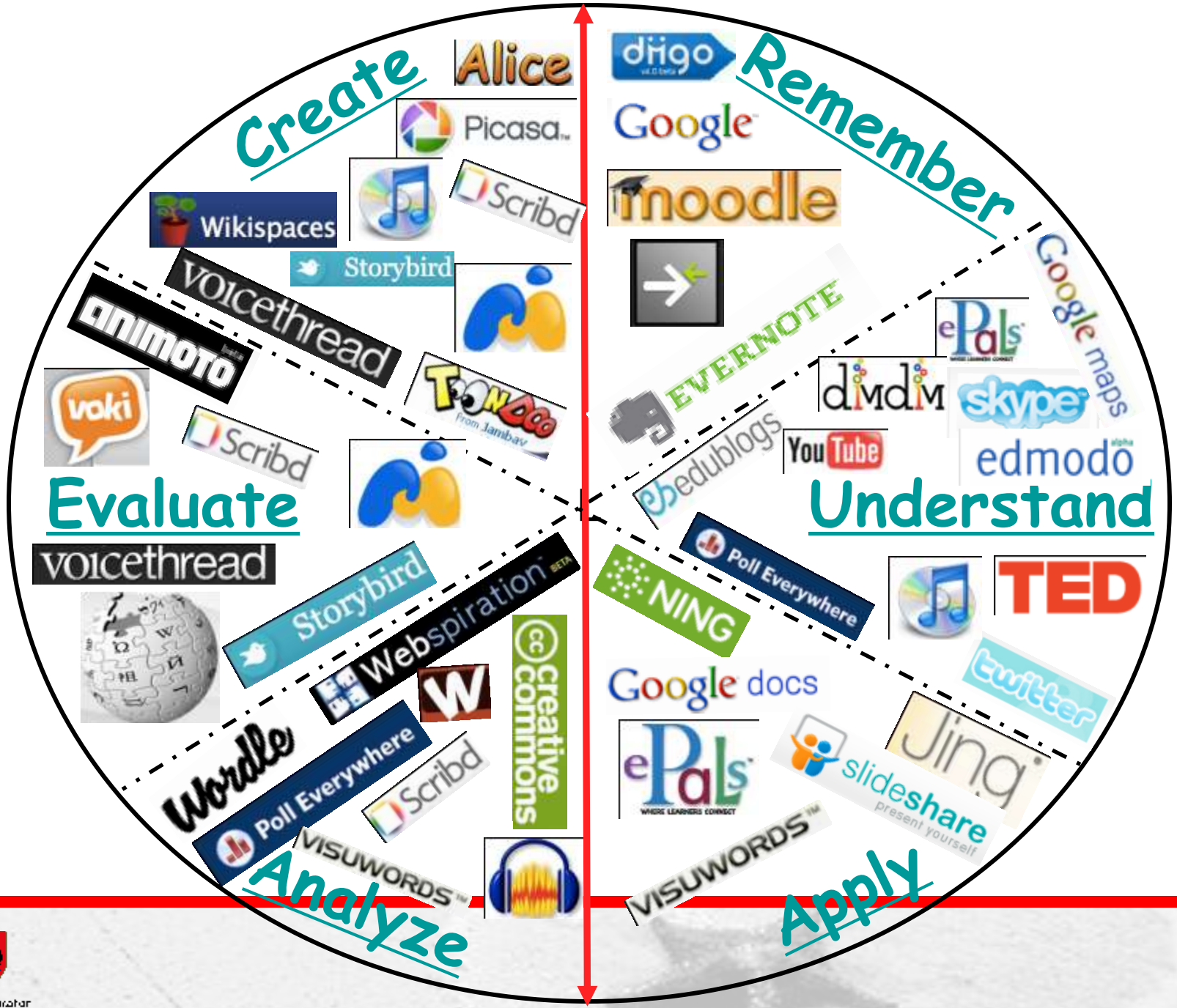
- **Higher Order Thinking**
- **Depth of Knowledge**
- **Connectedness to the World Beyond the Classroom**
- **Substantive Conversation**

Complexity of Thinking



Collaboration

- Debating
- Negotiating
- Commenting
- Video conferencing
- Skyping
- Networking
- Emailing
- Chatting



Challenges

- Time is limited
- Pedagogical and paradigm shifts not easy
- High stakes examinations
- Incorporate assessment of 21st century skills

Reflections on Educational Change

- Goal is not to innovate the most
- Not enough to have the best idea
- Appreciate the implementation dip
- Redefine resistance
- Reculturing is the name of the game
- Never a checklist, always complexity

Fullan, Leading in a Culture of Change, 2001, p 34

Thank you