

# 21<sup>ST</sup> CENTURY LEARNING BY DESIGN :

*It does not happen by magic!*

By Chen Kee TAN

Principal

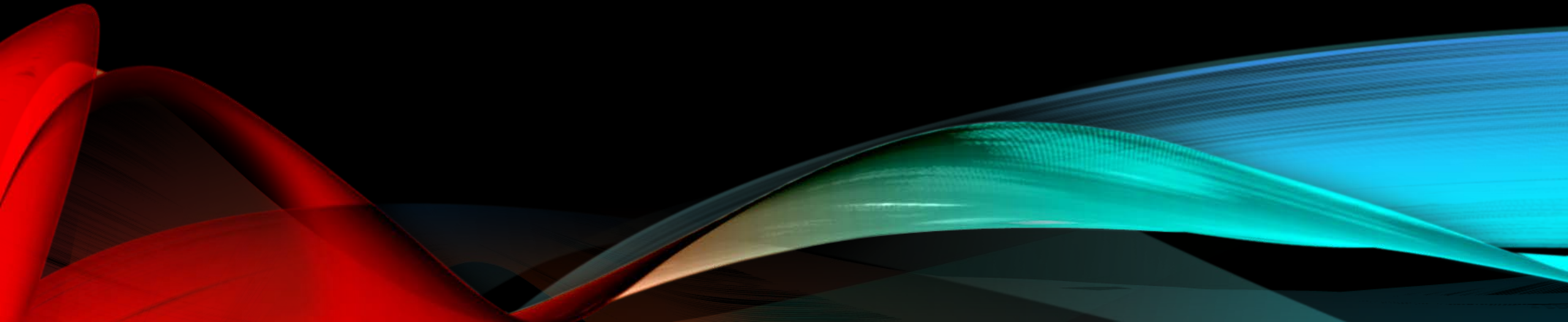
Crescent Girls' School, Singapore

# OUTLINE

- The **PROMISE** of technology
- The **PROBLEM** with reform
- The **PRACTICE** of 21<sup>st</sup> Century Learning by design

# THE PROMISE OF TECHNOLOGY

*What are current technology trends?*



# CURRENT TECHNOLOGY TRENDS



Pervasiveness of smartphones



Cloud Computing



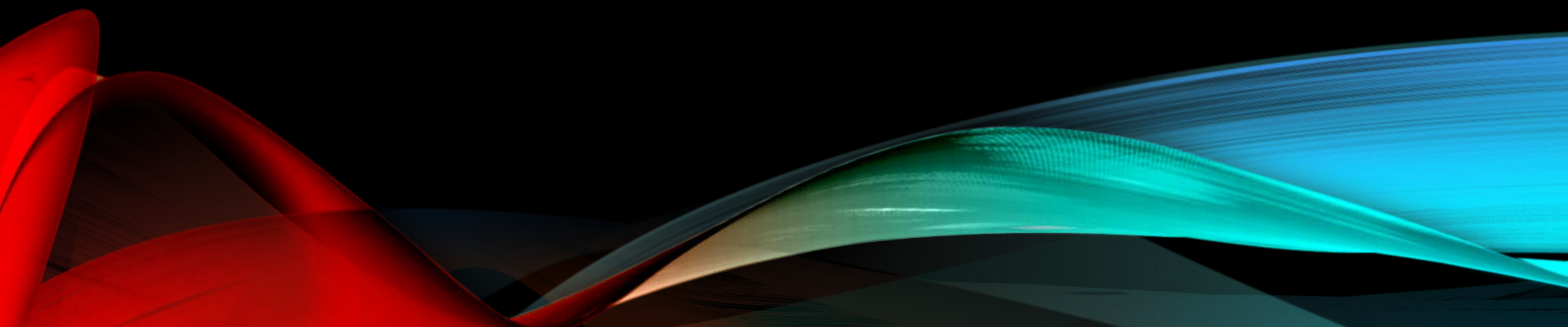
Social media



Use of big data

# THE PROMISE OF TECHNOLOGY

*What are current technology trends for Education?*





# TECHNOLOGY TRENDS FOR EDUCATION



Collaborative  
knowledge  
creation



Learning and Creation  
on-the-go  
(Active learning)



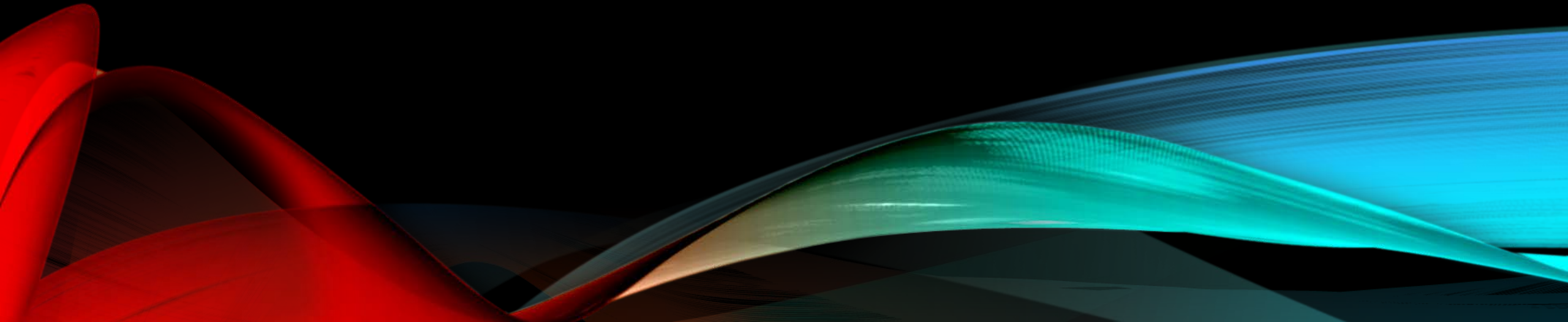
Bite-sized  
information



Gamification

# THE PROMISE OF TECHNOLOGY

*What are some projected usage scenarios for education?*





**CREATE**

*Thriving in an  
Innovation  
Economy*

Personal Identity  
*Race . Language .  
Religion . Ethics*

Personal

Personal Profile  
*Aspirations . Style .  
Interests . Aptitude*

Core  
Purposes  
of Education

Economic

**CONNECT**

*Navigating a  
multicultural  
heterogenous  
global  
neighbourhood*

Social /  
Cultural



# SNAPSHOTS OF THE PROMISE OF TECHNOLOGY



## Personalization

Pace . Content . Pedagogy

Personal learning roadmap for each term : what, when, how.

Learning analytics provide data on profile and progress

Fundamentals to cover, beyond which students choose depth/breadth of coverage

# SNAPSHOTS OF THE PROMISE OF TECHNOLOGY



## Learning 3.0

Anytime . Anywhere . Anyone

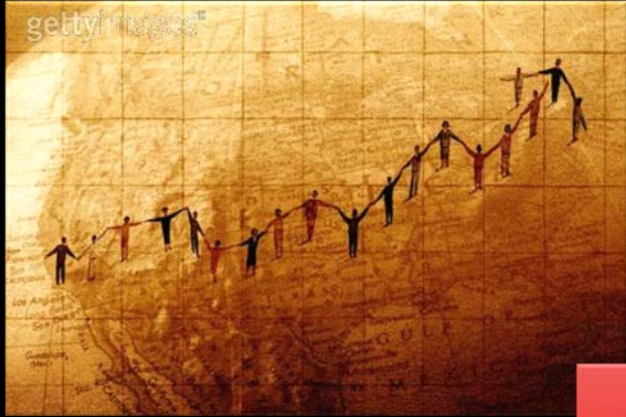
Content on mobile & the web.

Augmented reality apps situate learning in the environment

Collaborative learning apps connect students to each other

Emphasis on collaborative problem-solving *in situ*

# SNAPSHOTS OF THE PROMISE OF TECHNOLOGY



## Breaking barriers **Building bonds**

Collaborative learning with students  
within the same continent  
(same time zone)

Video & augmented reality apps  
allow real-time transnational  
interaction

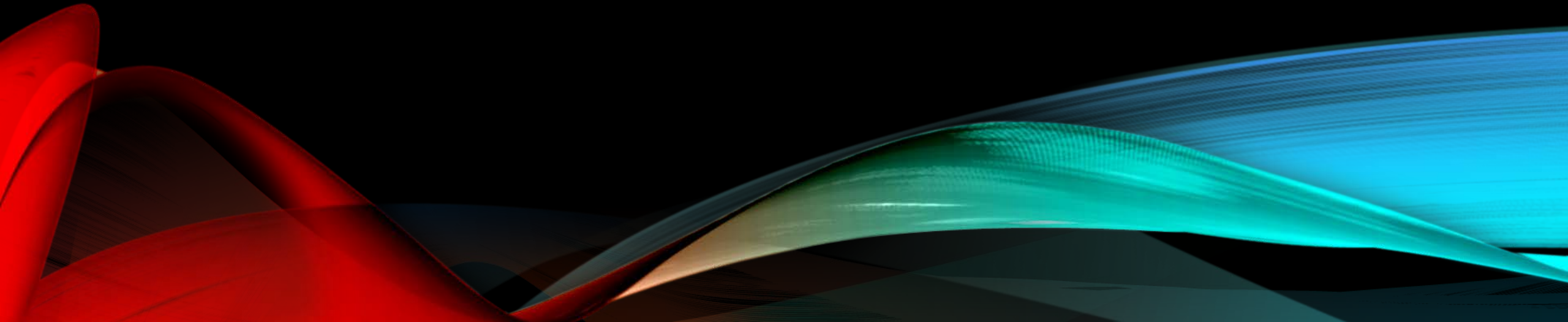
# SNAPSHOTS OF THE PROMISE OF TECHNOLOGY



## Blended Learning

Face-to-Face & Online  
Formal school & informal  
learning environments  
Virtual & physical worlds  
Individual & collaborative

# THE PROBLEM WITH REFORM

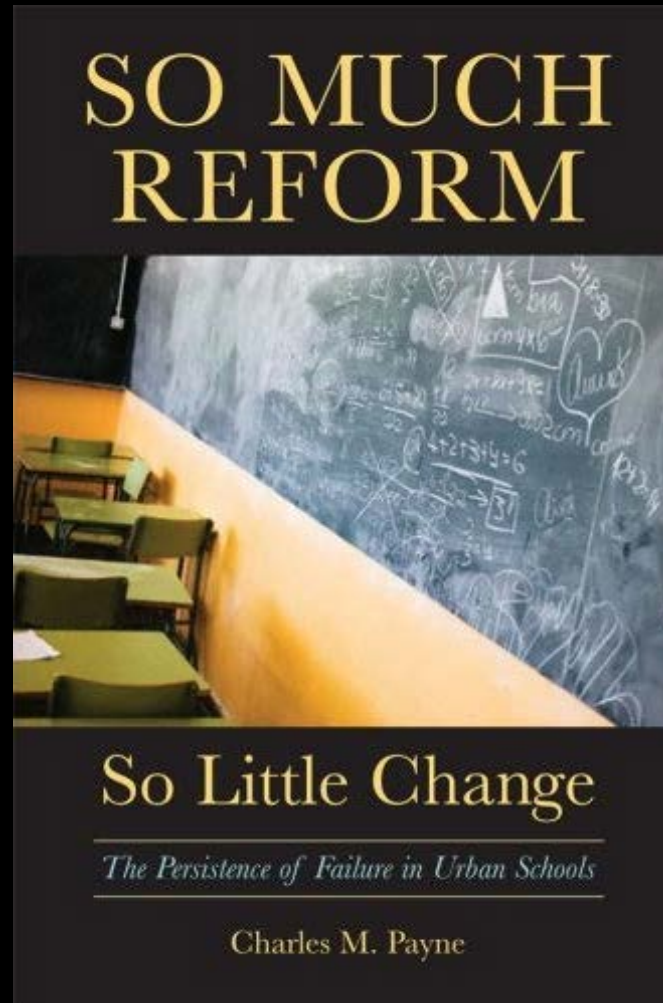




# So Much Reform, So Little Change

(Payne, 2008)

“We continue to see attempts to improve systems in ways that are manifestly unlikely to work.”



# Why Education Reform Fails

“Reforms that do not take account of what happens **in the classroom** have a similar effect to that of a storm on the ocean – the surface is agitated and turbulent, while the ocean floor is calm and serene (if a bit murky)”

(Cuban, L. *How teachers taught : Constancy and Change in American classrooms*)

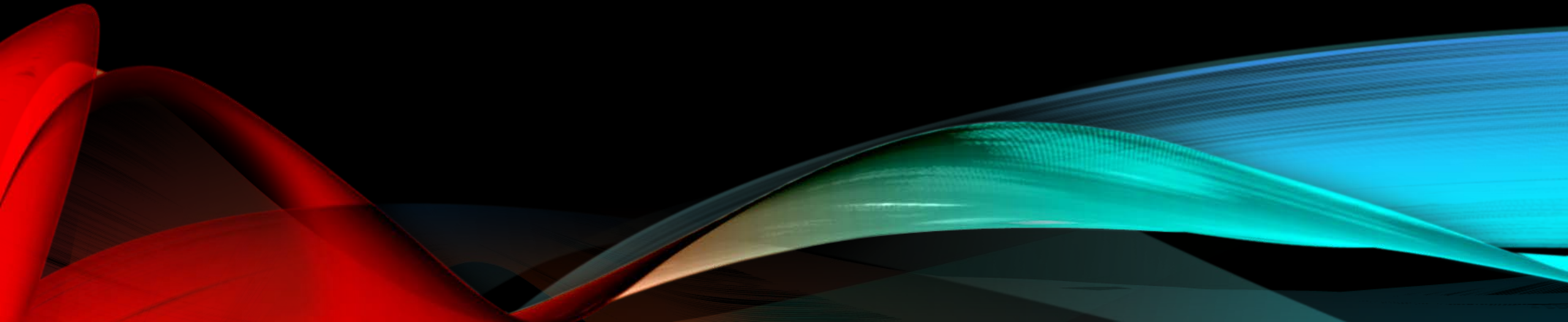
# Failed Improvement

(Harris and Chrispeels, 2008)

- **Implementation** underestimated
- Too fast
- **Imposed** (from the top or outside)
- Insufficient leadership **capacity building**

# THE PRACTICE OF 21<sup>ST</sup> CENTURY LEARNING BY DESIGN

*What does research say?*





# INNOVATIVE TEACHING AND LEARNING (ITL) RESEARCH

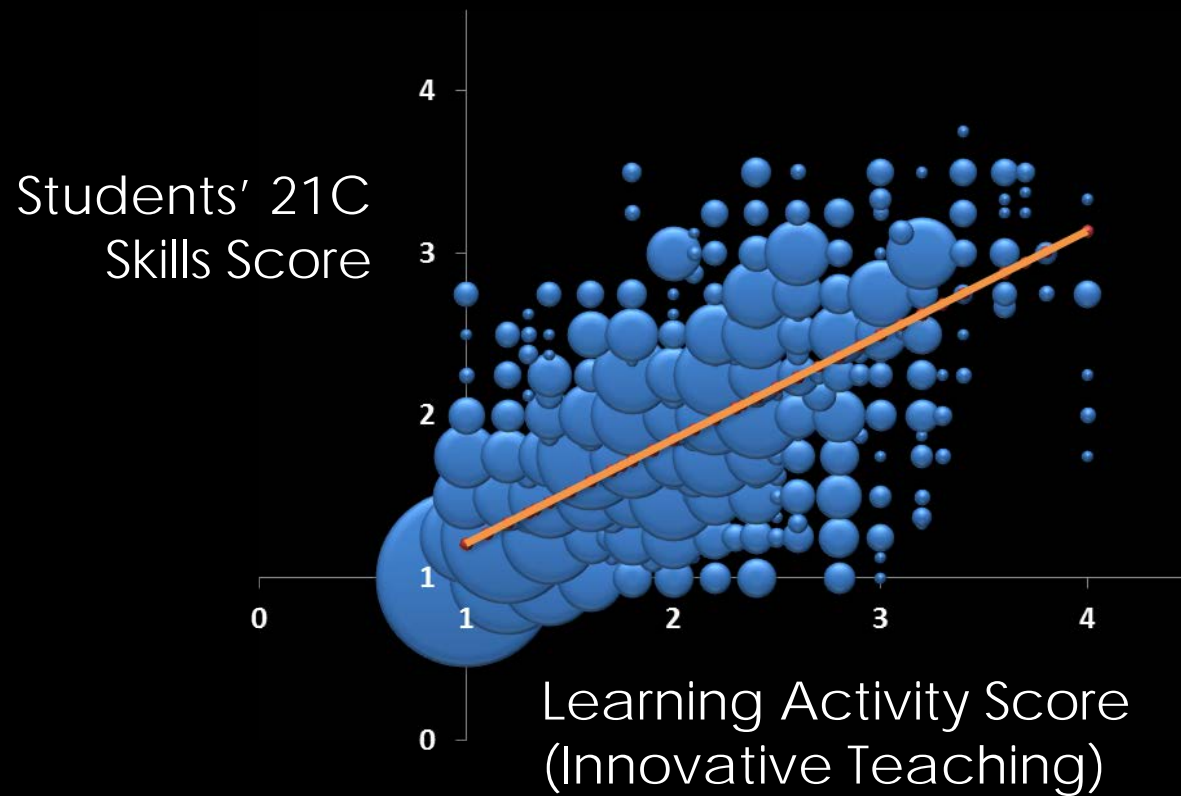
*A multinational research collaboration between SRI International and Microsoft*

- 8 countries: Australia, Finland, Indonesia, Mexico, Russia, Senegal, the United Kingdom, and the United States
- 650 teachers and 24 school leaders in each country
- Classroom observations, and qualitative case studies at selected schools recognized for innovative teaching practices.



# INNOVATIVE TEACHING AND LEARNING (ITL) RESEARCH

*A multinational research collaboration between SRI International and Microsoft*



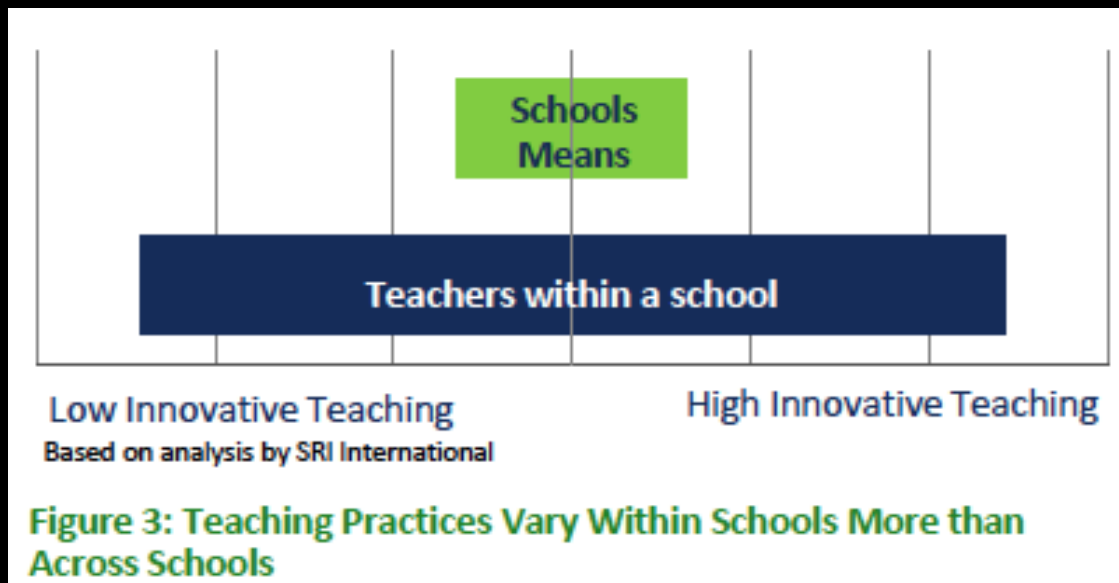
If you didn't design for it,  
don't expect it to  
happen!

*Source: ITL 2011, LASW method,  
based on analysis by SRI International*



# INNOVATIVE TEACHING AND LEARNING (ITL) RESEARCH

*A multinational research collaboration between SRI International and Microsoft*



Student opportunities to develop 21<sup>st</sup> Century Skills vary more within a school than between schools

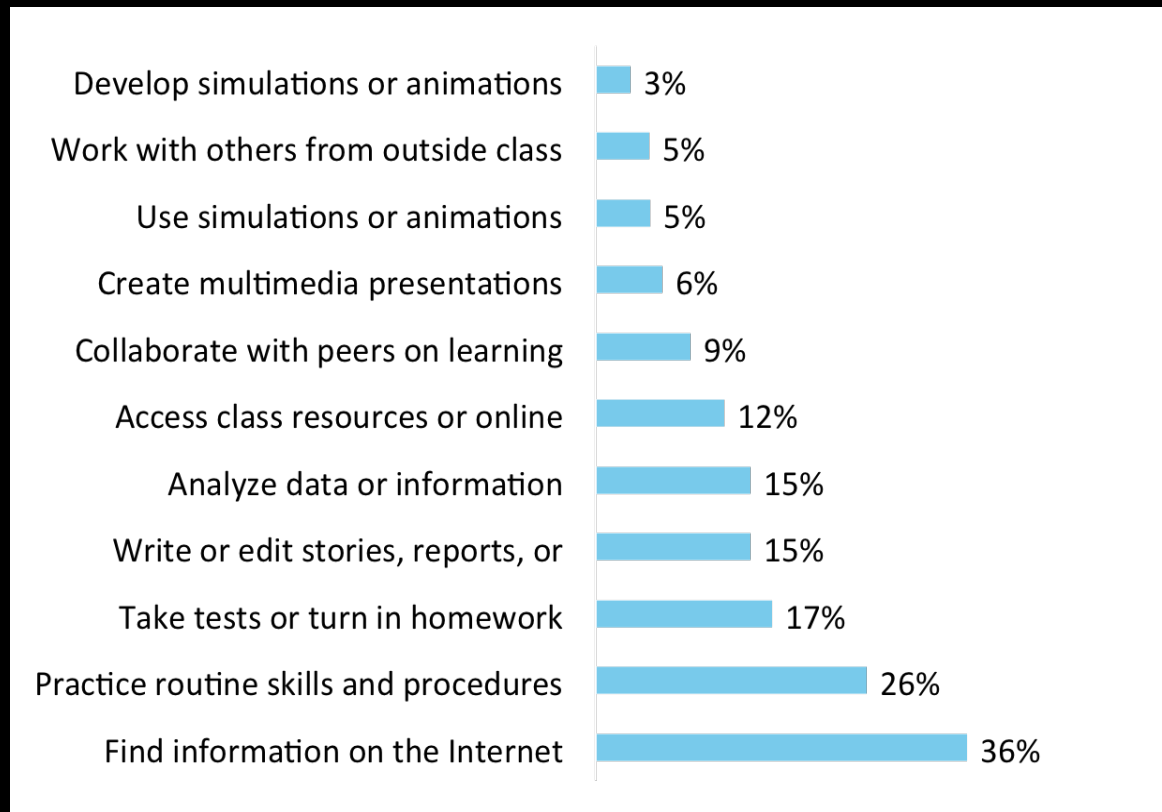
Source: ITL 2011, based on analysis by SRI International



# INNOVATIVE TEACHING AND LEARNING (ITL) RESEARCH

*A multinational research collaboration between SRI International and Microsoft*

## Technology use in schools ...



CREATE



CONSUME

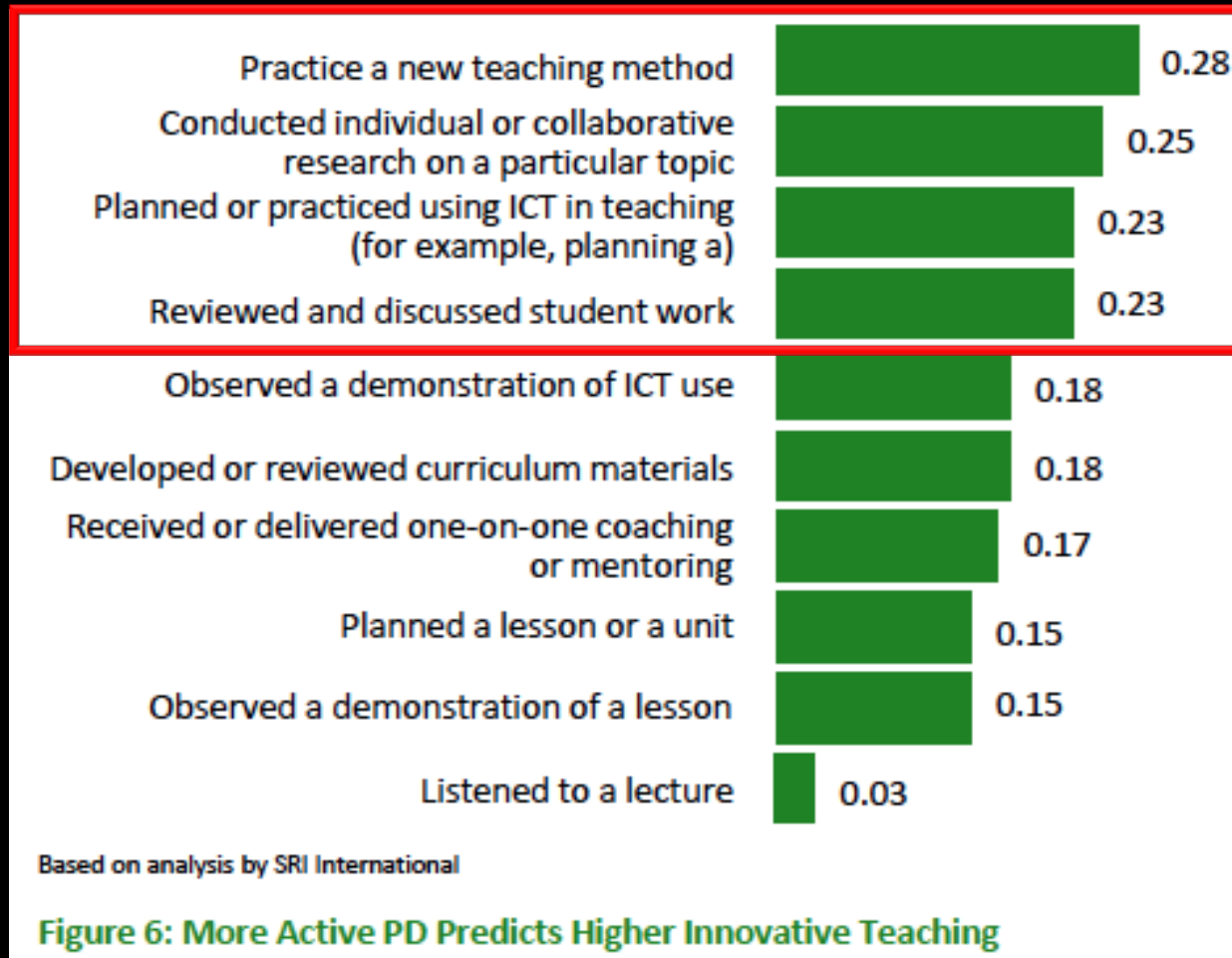
Technology is still  
largely used for  
consumption  
rather than  
creation

*Source: ITL 2010-11  
Teacher Survey, across 7  
countries; based on  
analysis by SRI  
International.*



# INNOVATIVE TEACHING AND LEARNING (ITL) RESEARCH

*A multinational research collaboration between SRI International and Microsoft*



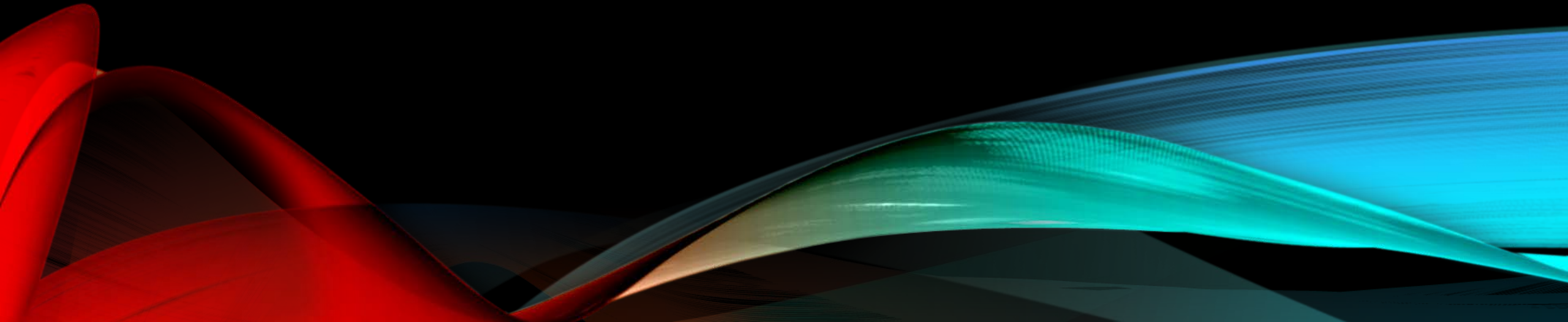
Effective professional development involves active practice and collaboration

Source: ITL 2011, ITL Teacher Survey, based on analysis by SRI International



# THE PRACTICE OF 21<sup>ST</sup> CENTURY LEARNING BY DESIGN

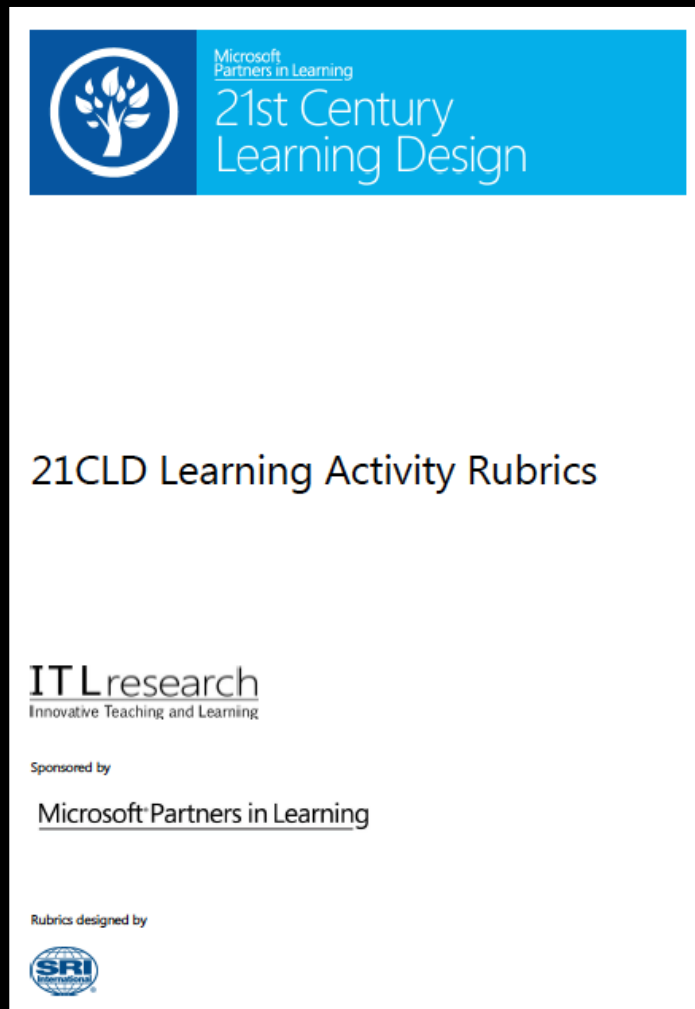
*21CLD : 21<sup>st</sup> Century Learning Design Framework*





# 21CLD

## 21<sup>ST</sup> CENTURY LEARNING DESIGN *A teacher professional development framework*



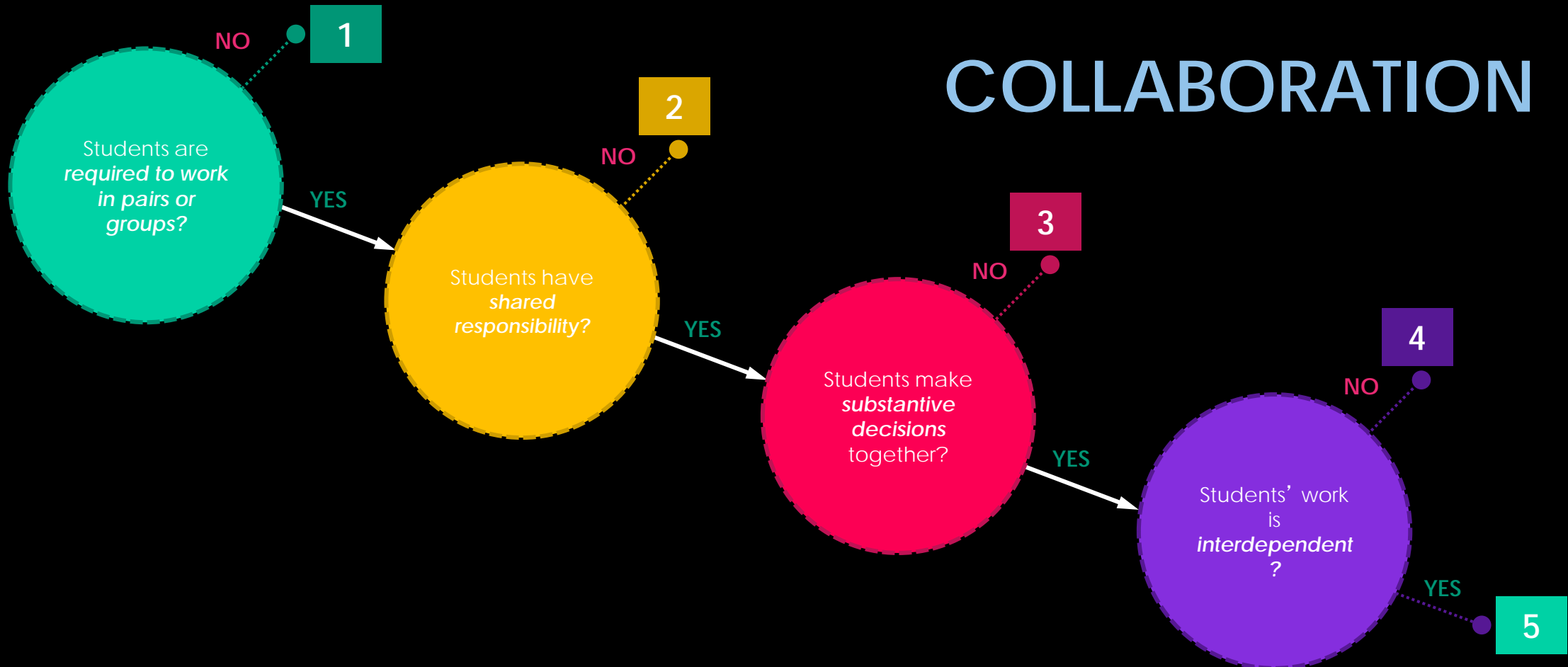
### 6 Dimensions for 21<sup>st</sup> Century Learning :

- Collaboration
- Skilled Communication
- Self Regulation
- Real-world Problem Solving
- Knowledge Construction
- Use of ICT for Learning

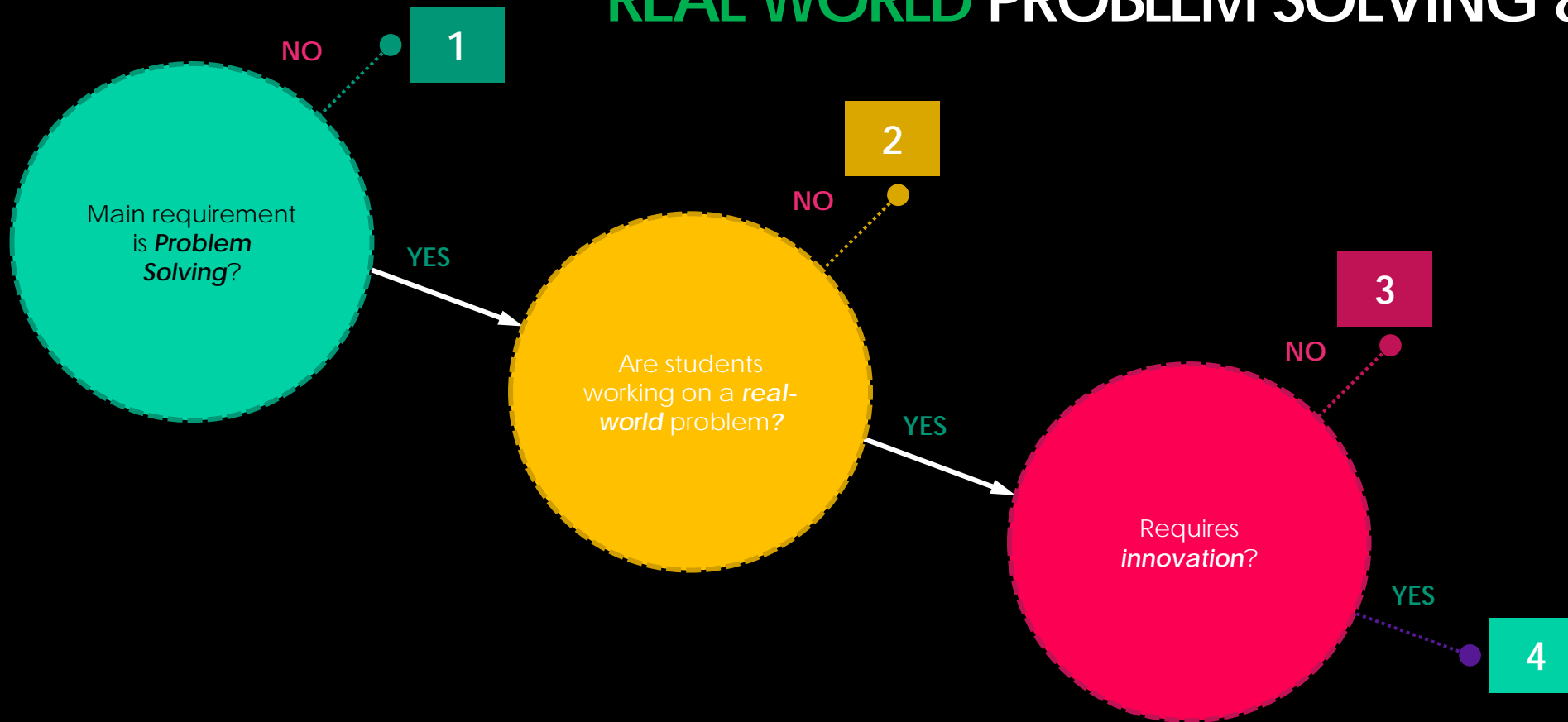
# 21CLD

## 21<sup>ST</sup> CENTURY LEARNING DESIGN A teacher professional development framework

### COLLABORATION

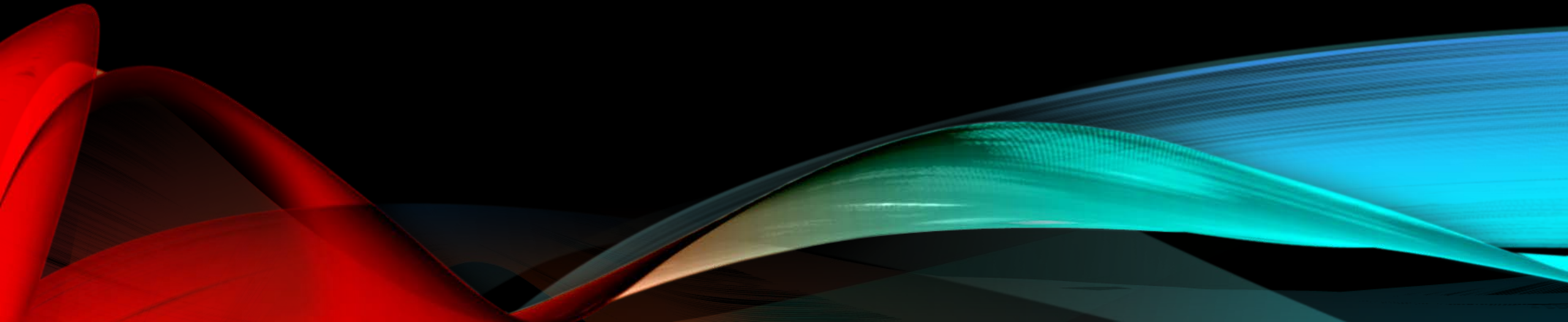


### REAL WORLD PROBLEM SOLVING & INNOVATION



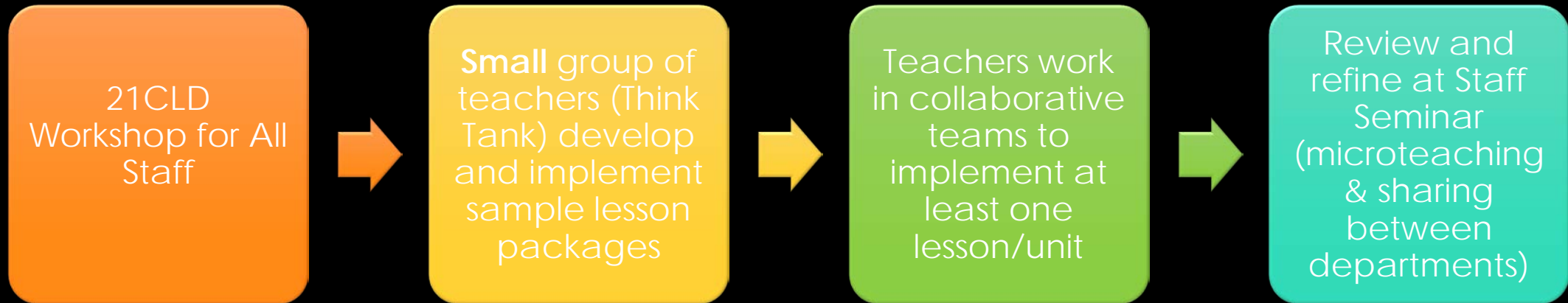
# THE PRACTICE OF 21<sup>ST</sup> CENTURY LEARNING BY DESIGN

*The Case of Crescent Girls' School*



# 21CLD IMPLEMENTATION @ CRESCENT GIRLS' SCHOOL

Discourse and engagement at EXCO Level

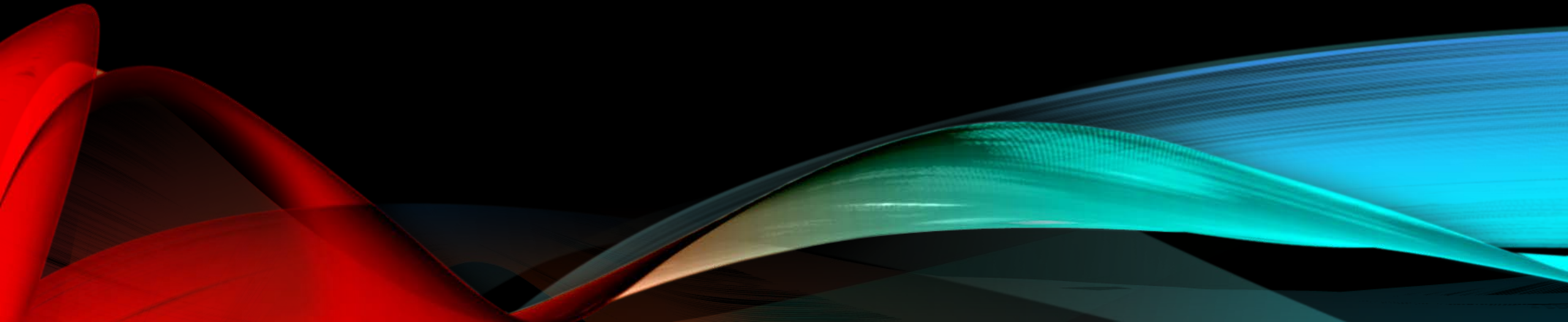


21CC Committee undertakes constant monitoring



# THE PRACTICE OF 21<sup>ST</sup> CENTURY LEARNING BY DESIGN

*Where does technology come in?*

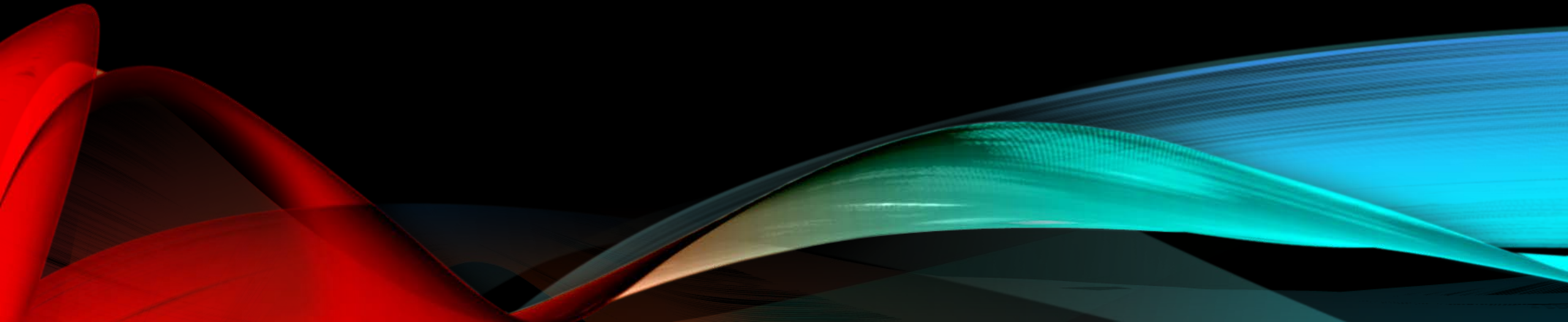


# Technology Roadmap

	Purpose	Administration	Communication	Collaboration	Knowledge Creation	Self-directness
DizCoverboard	Aggregator of services	*	*			
Trail Shuttle	Learning Trail toolkit			*	*	
Buffet	Cooperative Learning Tool			*	*	
Frappe	Mobile chat		*	*		
21CLD	Lesson Design Portal	*		*		
Merror	Reflection Tool	*				*
Spectrum	Learning Experience Creator	*			*	*
Chronos	Calendar & Workload Management System	*	*	*		*

# THE PRACTICE OF 21<sup>ST</sup> CENTURY LEARNING BY DESIGN

*So what has changed?*



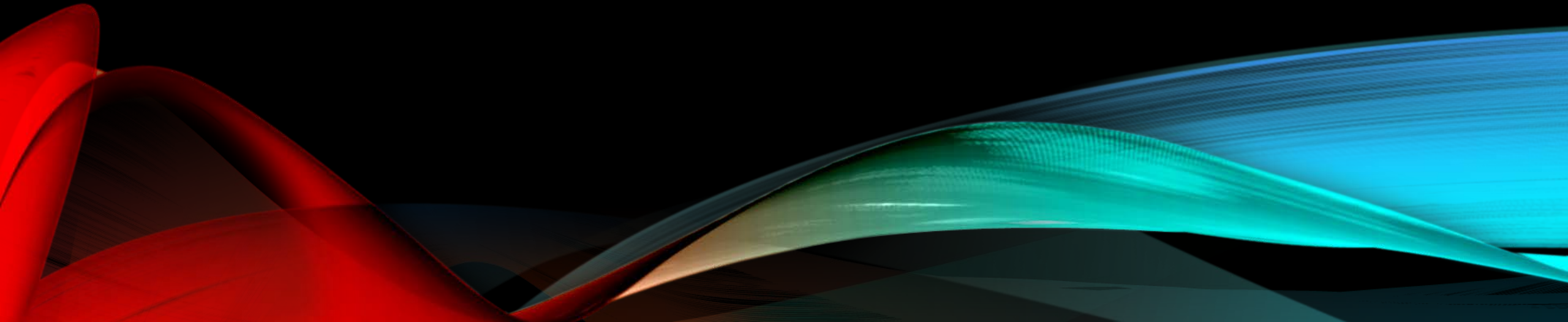
# 21<sup>st</sup> CENTURY LEARNING DESIGN : WHAT HAS CHANGED?



1. Student engagement in knowledge building
2. Student ownership of learning
3. Student-control vs Teacher-control
4. Student empowerment

# THE PRACTICE OF 21<sup>ST</sup> CENTURY LEARNING BY DESIGN

*LOOKING AHEAD ...*





# LOOKING AHEAD

## 21CLD : A 21<sup>st</sup> Century Lesson Builder

**21CLD**

Welcome to the 21CLD.com where educators connect and collaborate for 21st Century Learning Design

[Join 21CLD](#) [Sign In](#)

### 21CLD Learning Activity

**RUBRICS**

Use of ICT for Learning **2**

Students use ICT to learn or practice basic skills or reproduce information. They are not constructing knowledge.

Skilled Communication **3**

Students ARE required to produce extended communication or multimodal communication AND they ARE required to provide supporting evidence: they must explain their ideas or support a thesis with facts or examples OR They ARE required to design their communication for a particular audience BUT not both.

**Duration**  
40 mins

**Activity Description**  
Students compose their own hand poems of at least 6 lines based on someone close or important using SkyDrive Word or Google Doc. They should insert an image of the hand(s) of the person they are writing about.

### Lesson 2

**Lesson Information**

Topic  
Poetry-Hand Poems

**Duration**  
60 mins

**Lesson Objectives**

1. Seek feedback from peers on the effective use of figurative language. 2. Refine the poem. 3. Perform the poem and seek feedback based on oral communication rubrics.

**Students' Prior Knowledge**

1. Oral Communication Rubrics 2. Figurative Language - Simile and Metaphors

**Instructional Approach**

1. Facilitating Assessment for Learning 2. Enabling Application

### 21CLD Learning Activity

**RUBRICS**

Collaboration **2**

Students DO work together BUT they DO NOT have shared responsibility.

Knowledge Construction **2**

The learning activity DOES require students to construct knowledge by interpreting, analysing, synthesizing, or evaluating information or ideas BUT the activity's main requirement is NOT knowledge construction.

**Duration**  
10 mins

**Activity Description**  
Students identify the use of figurative language in another classmates' poem and review the effectiveness of the figurative language being used. Comments should be given in the SkyDrive Word or Google Doc.

### 21CLD Learning Activity

**RUBRICS**

Use of ICT for Learning **2**

Students use ICT to learn or practice basic skills or reproduce information. They are not constructing knowledge.

**Duration**  
10 mins

**Activity Description**  
Students refine their poems based on feedback given and get ready for their performance.

### 21CLD Learning Activity

**RUBRICS**

Use of ICT for Learning **3**

Students use ICT to support knowledge construction BUT they could construct the same knowledge without using ICT.

**Duration**  
35 mins

**Activity Description**  
Students perform their short poems with focus on articulation and projection. Peers to evaluate their classmates using a SkyDrive Excel Form.

**URL**  
Peer Evaluation Form

**Conclusion**

**Duration**  
5 mins

**Activity Description**  
Share with the girls an exhibition that is taking place at NLB about Hands: Gift of a Generation.

**21CLD** [Navigate](#)

[Edit](#) [Publish](#) [Share It](#) [Creator Profile](#) [Bookmark](#) [0 comments](#)

# LOOKING AHEAD

From "1-1" learning to "1-m" learning

The screenshot displays the Spectrum LMS interface for a course titled "HEALTHCARE IN SINGAPORE". The interface includes a sidebar with navigation options like "Create New", "LE Experience", "Progress & Report", "LE Gallery", "WMS", and "Help". The main content area shows a course overview with a description, an "ACTIVE" status indicator, and a progress bar. Below this, there are several activity cards, each with a title, a date range, a progress indicator (e.g., 30/30), and a score (e.g., 9.5/10). The interface also features a dashboard with various icons representing different metrics and activities.

## 21<sup>st</sup> century learning experience creator

- Bite-sized learning activities
- Created, experienced and assessed on the go
- Learning anytime, anywhere and with anyone

THANK YOU!

Email me at [tan\\_chen\\_kee@crescent.edu.sg](mailto:tan_chen_kee@crescent.edu.sg)

