School Planning and Instructional Design with Technology Workshop

~ ICT Leadership in Edtech And Design (iLEAD) ~

Day 2

Briefing for SSD & HOD ICT
Recap Day 1
<table>
<thead>
<tr>
<th>No.</th>
<th>Themes</th>
<th>Questions to address for school teams</th>
</tr>
</thead>
</table>
| 1   | Provide leadership on technology in learning                         | • How can the school tap on technologies to realise the mp4 vision of the future ready and responsible digital learner student outcome?  
• How can we guide teachers to design for quality teaching and learning with ICT?  
• How can you play a strategic role as an aggregator to systematically use technology to capture learning? |
| 2a  | Harness Technology for Curriculum, Assessment and Pedagogy Sub-theme: Design for deep learning & acquisition of 21CC | • What is quality learning with ICT? What learning processes do students undergo for deep learning and to develop 21cc?  
• How can teachers tap the affordances of technology to improve teaching and learning and align to curriculum goals?  
• How can teachers design and facilitate active learning with technology, taking into consideration what students bring to learning and what learners need?  
• How can teachers leverage on technology to monitor and assess learning? |
| 2b  | Harness Technology for Curriculum, Assessment and Pedagogy Sub-theme: Design for formative assessment |                                                                                                         |
| 3   | Support professional learning with technology to nurture collaborative & reflective practices | • How can teachers tap on technology for collaborative inquiry and professional discourse?  
• How can we tap on technology to engender teachers’ ownership of learning? |
Day 1 Workshop Objectives

At the end of the workshop, participants will be able to:

- create a common understanding in the school team on their respective roles to bring about pervasive and effective use of ICT in learning.
- create/refine a vision for the role of technology:
  - for deep learning and development of 21CC & new media literacies
  - to support different pedagogies
  - for assessing learning
- leverage technologies for teachers’ professional learning and collaborative inquiry in professional learning communities in the school.

Your experience:

- Participants will be provided with local exemplars of technology use and be engaged in hands-on activities and conversations.
- Members of the school team will collectively shape the school vision for technology in learning and begin to refine and develop the school plan for ICT in learning.
Deliverables for Each School Team

Day 1 Workshop

School leaders will lead the school team to refine/develop the school’s Teaching and Learning and Professional Development Plan with Technology.

- [IP HOD] Department’s approach, goals and strategies in integrating technology for curriculum, assessment and pedagogy to improve teaching and learning;

- [SSD] School’s professional development approach, goals and strategies in harnessing technology to support collaborative and reflective practices;

- [ICT HOD] School’s direction on technology use for teaching and learning, and ICT learning environment to support effective implementation of teaching and learning with technology.
## Everyone Matters

<table>
<thead>
<tr>
<th>SCHOOL TEAM</th>
<th>ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Leaders</strong></td>
<td>Creating a vision for quality teaching &amp; Learning with technology as a <strong>Culture Builder</strong></td>
</tr>
<tr>
<td><strong>HODs/IP, SSDs</strong></td>
<td>Plan for and align department plans to school’s vision on ICT in T&amp;L (Department curriculum plans with technology for subject and 21\textsuperscript{st} cc outcomes)</td>
</tr>
<tr>
<td></td>
<td>Plan for professional learning to support collaborative and reflective practices with technology</td>
</tr>
<tr>
<td></td>
<td>(School professional development plan for enhancing teachers’ design with technology)</td>
</tr>
<tr>
<td><strong>HODs/ICT</strong></td>
<td>Plan for systematic integration of ICT into T&amp;L framework and create ICT-enhanced Learning environment (Technology planning with ICT)</td>
</tr>
<tr>
<td><strong>Lead/Snr Teachers</strong></td>
<td>Design &amp; mentor for quality T&amp;L in class to realise school’s vision of ICT in T&amp;L as <strong>Designers of Learning Experiences</strong> (Lesson design &amp; mentoring)</td>
</tr>
<tr>
<td><strong>Teachers</strong></td>
<td>Design quality learning experiences in class to realise school’s vision of ICT in T&amp;L as <strong>Designers of Learning Experiences</strong> (Lesson design)</td>
</tr>
</tbody>
</table>
### SLS Pedagogical Scaffold

<table>
<thead>
<tr>
<th>Lesson Preparation</th>
<th>Lesson Enactment</th>
<th>Assessment and Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1</strong> ESTABLISH LEARNING OUTCOMES</td>
<td><strong>Phase 2</strong> DESIGN &amp; FACILITATE ACTIVE LEARNING WITH TECHNOLOGY</td>
<td><strong>Phase 3</strong> ASSESS QUALITY OF LEARNING</td>
</tr>
</tbody>
</table>

**Q1.** What are the key concepts essential to my students’ understanding of this topic?

**Q2.** What are the skills, values and attitudes, including 21CC, that are important for my students to develop?

**Q3.** What are the success criteria that can inform me that my students are learning?

**Q4.** What evidence would I use to know my students are learning?

**Q5.** What is the pedagogical approach in relation to the identified learning outcomes?

**Q6.** What are technologies that can be harnessed to:
- promote learning of the key concepts;
- develop skills, values and attitudes, including 21CC;
- check for student understanding;
- monitor student learning; and
- provide feedback?

**Q7.** How would I design learning activities that promote the following active learning processes with technology?
- Activate learning
- Promote thinking and discussion
- Facilitate demonstration of learning
- Monitor and provide feedback

**Q8.** How would I facilitate student-content, student-student and teacher-student interactions in the active learning processes?

**Q9.** How did the evidence of learning with technology show that learning outcomes were met?

**Q10.** How effective is the design of the learning activities with technology?

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**Active Learning Processes with Technology**

- **Interactions:**
  - Student-Content
  - Student-Student
  - Teacher-Student

- **Monitor & Provide feedback**

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Constructive Alignment

- In designing learning with technology, focus on what the learner is actually doing and placing the learning activities at the heart of the design.

- Ensure alignment of:
  - **Clarity of Learning outcomes** *(define what is really important)*
  - **Choice of teaching process** *(based on sound learning principles)*
  - **Design learning activities** *(based on active learning processes in which students are engaging with the content, teacher and peers)*
  - **Assess deep learning** *(conceptual understanding, see connections across concepts)*

Active Learning Processes

Activate Learning

- How will students’ focus and interest be oriented towards the learning objectives?

Promote Thinking and Discussion

- How will students think about ideas and concepts?
- What skills and processes will students perform?
- How will students build on their current understanding?

Facilitate Demonstration of Learning

- How will students demonstrate their understanding and new learning?

Monitor and Provide Feedback

- How can students’ learning be advanced?

Role of ICT

- How will students’ focus and interest be oriented towards the learning objectives?
- How will students think about ideas and concepts?
- What skills and processes will students perform?
- How will students build on their current understanding?
- How will students demonstrate their understanding and new learning?
- How can students’ learning be advanced?
## Themes – Focus Areas

<table>
<thead>
<tr>
<th>No.</th>
<th>Themes</th>
<th>Questions to address for school teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Provide leadership on technology in learning</strong></td>
<td>• How can the school tap on technologies to realise the mp4 vision of the future ready and responsible digital learner student outcome?  &lt;br&gt; • How can we guide teachers to design for quality teaching and learning with ICT?  &lt;br&gt; • How can you play a strategic role as an aggregator to systematically use technology to capture learning?</td>
</tr>
<tr>
<td>2a</td>
<td><strong>Harness Technology for Curriculum, Assessment and Pedagogy</strong></td>
<td>• What is quality learning with ICT? What learning processes do students undergo for deep learning and to develop 21cc?  &lt;br&gt; • How can teachers tap the affordances of technology to improve teaching and learning and align to curriculum goals?  &lt;br&gt; • How can teachers design and facilitate active learning with technology, taking into consideration what students bring to learning and what learners need?  &lt;br&gt; • How can teachers leverage on technology to monitor and assess learning?</td>
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<td>2b</td>
<td><strong>Harness Technology for Curriculum, Assessment and Pedagogy</strong></td>
<td>• What is quality learning with ICT? What learning processes do students undergo for deep learning and to develop 21cc?  &lt;br&gt; • How can teachers tap the affordances of technology to improve teaching and learning and align to curriculum goals?  &lt;br&gt; • How can teachers design and facilitate active learning with technology, taking into consideration what students bring to learning and what learners need?  &lt;br&gt; • How can teachers leverage on technology to monitor and assess learning?</td>
</tr>
<tr>
<td>3</td>
<td><strong>Support professional learning with technology to nurture collaborative &amp; reflective practices</strong></td>
<td>• How can teachers tap on technology for collaborative inquiry and professional discourse?  &lt;br&gt; • How can we tap on technology to engender teachers’ ownership of learning?</td>
</tr>
</tbody>
</table>
Day 2 Workshop Objectives:

At the end of the workshop, participants will be able to:

- acquire the principles of design with technologies,
- apply design principles in technology integration into subject areas,
- apply strategies to assess learning impact with technologies.

Your experience:

For this workshop, teacher leads and HODs will have plenty of hands-on opportunities to design and assess learning with technology with actual students’ learning artefacts.
Deliverables for School Team

Day 2 Workshop

SSD, HOD/ICT and HOD/IP to consolidate their learning and present to their SLs:

• Teaching & Learning Plan with Technology
  o *Plan for technology integration across subjects*;

• Professional Development Plan with Technology
  o *Plan for professional development to enhance teachers’ design with technology*; and

• Impact of ICT practices on learning
  o *Plan for capturing the shifts in classroom practices and teachers’ learning with technology to study the impact of ICT on teaching and learning.*
<table>
<thead>
<tr>
<th>Time</th>
<th>Duration</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800</td>
<td>25 min</td>
<td><strong>Briefing for HOD ICT &amp; SSD</strong></td>
</tr>
<tr>
<td>0830</td>
<td>30 min</td>
<td><strong>Welcome &amp; Context Setting</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Individual Learning Log 2B (from Day 1)</em></td>
</tr>
<tr>
<td>0900</td>
<td>65 min</td>
<td><strong>Harnessing technologies to bring about the deepening of subject disciplinary thinking and development of 21CC</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Harnessing n technologies to monitor and check for student understanding</em></td>
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<tr>
<td></td>
<td></td>
<td><em>Individual Learning Log 1 (from Day 2)</em></td>
</tr>
<tr>
<td>1005</td>
<td>25 min</td>
<td>Tea-break</td>
</tr>
<tr>
<td>1030</td>
<td>60 min</td>
<td><strong>Designing ICT-enriched learning experience</strong></td>
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<tr>
<td></td>
<td></td>
<td><em>Individual Learning Log 2 (from Day 2)</em></td>
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<tr>
<td>1130</td>
<td>90 min</td>
<td><strong>Experiencing active learning with technology</strong></td>
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<tr>
<td></td>
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<td><em>Individual Learning Log 2 (from Day 2)</em></td>
</tr>
<tr>
<td>1300</td>
<td>60 min</td>
<td>Lunch</td>
</tr>
<tr>
<td>1400</td>
<td>90 min</td>
<td><strong>Assessing learning using students’ work</strong></td>
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<tr>
<td></td>
<td></td>
<td><em>Individual Learning Log 3 (from Day 2)</em></td>
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<tr>
<td></td>
<td></td>
<td><em>Personal Reflection Log (from Day 2)</em></td>
</tr>
<tr>
<td>Time</td>
<td>Duration</td>
<td>Activity</td>
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<td>-------</td>
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</tr>
</tbody>
</table>
| 1530  | 30 min   | **Tea Break**  
Note: Main facilitators to show room allocation for school-based discussion |
| 1600  | 80 min   | **Putting It In The School Context**  
Theme 1: Provide leadership on technology in learning  
Theme 2: Harness Technology for Curriculum, Assessment and Pedagogy  
Theme 3: Support Professional Learning with Technology to nurture Collaborative & Reflective Practices  
*School Mindmap & Impact Cycle* |
| 1720  | 10 min   | **Putting It All Together**  
Workshop Evaluation |
<table>
<thead>
<tr>
<th>During subject-based discussion (0830 – 1530 hr)</th>
<th>Role of HOD ICT I/C of Theme 1 (School Mindmap)</th>
<th>Role of SSD I/C of Theme 3 (School Mindmap)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• [Instructional leader] Understand how technology can be harnessed to bring about quality learning through a subject discipline</td>
<td>• Cull ideas from Learning Log 2B (Day 1) • Update Theme 1 of School Mindmap</td>
<td>• Cull ideas from Learning Logs 1, 2 &amp; 3 (Day 2) • Update Theme 3 of School Mindmap</td>
</tr>
<tr>
<td>During school-based discussion (1600 – 1730 hr)</td>
<td>Facilitate the table discussion: • ask each participant to share their experience • pull out common themes/ ideas • Link themes/ ideas to school focus/ programmes • Probe the possibility of the use of technology in achieving school outcomes • Update Theme 1 of school mindmap</td>
<td>• Listen to the learning needs/ activities/ ideas pertaining to teachers’ PD • Update Theme 3 of School Mindmap</td>
</tr>
<tr>
<td>Consolidation by HOD ICT &amp; SSD:</td>
<td>• Share the updated mindmap with the team • Agree on the new directions/ discussion/ practices</td>
<td></td>
</tr>
<tr>
<td>Lead the team to</td>
<td>• discuss how to translate one outcome into actions using the Impact Cycle</td>
<td>• Update the Impact Cycle slides</td>
</tr>
</tbody>
</table>
## Primary Schools

<table>
<thead>
<tr>
<th>School Team</th>
<th>Individual Learning Log</th>
<th>School Mindmap</th>
<th>School Impact Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catholic High School (Primary)</td>
<td>Click here</td>
<td>Click here</td>
<td>Click here</td>
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<tr>
<td>Evergreen Primary School</td>
<td>Click here</td>
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<tr>
<td>Greendale Primary School</td>
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<tr>
<td>Horizon Primary School</td>
<td>Click here</td>
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<tr>
<td>Montfort Junior School</td>
<td>Click here</td>
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<tr>
<td>North View Primary School</td>
<td>Click here</td>
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<tr>
<td>Riverside Primary School</td>
<td>Click here</td>
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<tr>
<td>Seng Kang Primary School</td>
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</tbody>
</table>

http://tinyurl.com/nz4-ilead
### Individual Learning Log 2B

<table>
<thead>
<tr>
<th>Use of ICT</th>
<th>Use of ICT to ...</th>
<th>Use of ICT to ...</th>
<th>Use of ICT to ...</th>
<th>Use of ICT to ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate Learning: How will students focus and interest be oriented</td>
<td>Current state of ICT practice in my</td>
<td>Envisioned state of ICT practice in</td>
<td>Current state of ICT practice in my</td>
<td>Envisioned state of ICT practice in</td>
</tr>
<tr>
<td>- How will students be engaged in thinking?</td>
<td>department</td>
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<td>- What skills and processes will students perform?</td>
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<tr>
<td>- How will students build on their current understanding?</td>
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<tr>
<td>Promote Thinking &amp; Discussion: How will students demonstrate their</td>
<td>How will students demonstrate their</td>
<td>How can students’ learning be</td>
<td>How will students demonstrate their</td>
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<tr>
<td>- How will students be engaged in thinking?</td>
<td>understanding and new learning?</td>
<td>advanced?</td>
<td>understanding and new learning?</td>
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<tr>
<td>- What skills and processes will students perform?</td>
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<tr>
<td>Facilitate Demonstration of Learning: How will students demonstrate their</td>
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<tr>
<td>Monitor &amp; Provide Feedback: How can students’ learning be advanced?</td>
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<td>- What skills and processes will students perform?</td>
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<td>- How will students build on their current understanding?</td>
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</table>

### Focus Area:
- Current state of ICT practice in my department
- Envisioned state of ICT practice in my department
Theme 1: Provide leadership on technology in learning

Guiding Questions:

- **School Direction on ICT Use for Learning** – What are the goals and student outcomes, role of teachers, role of students, role of technology to support student interactions with technology, and role of technology to monitor and assess learning?

- **ICT-enriched Learning Environment** – What are the digital resources and tools to support students and teachers? How can we design learning spaces to support student-centric pedagogies?
Theme 2: Harness Technology for Curriculum, Assessment and Pedagogy

Guiding Questions:

- What are the key questions that I need to ask to elicit teachers’ responses during the various phases of design?
- What are the knowledge and skills that are important for teachers to design active learning with technology?
Theme 3: Support Professional Learning with Technology to nurture Collaborative & Reflective Practices

Guiding Questions:

- How do we tap on technology to design for differentiated professional learning and engender teachers’ ownership of learning?
- How do we tap on technology to support teachers’ collaborative inquiry and professional discourse in learning teams?
- How do we leverage technology to capture the shifts in classroom practices and teachers’ learning?
Day 2 - Subject-based Discussion

Focus Area
<table>
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- Activate learning  
- Promote thinking and discussion  
- Facilitate demonstration of learning  
- Monitor and provide feedback | Q9. How did the evidence of learning with technology show that learning outcomes were met? |
| Q2. What are the skills, values and attitudes, including 21CC, that are important for my students to develop? | Q8. How would I facilitate student-content, student-student and teacher-student interactions in the active learning processes? | Q10. How effective is the design of the learning activities with technology? |
| Q3. What are the success criteria that can inform me that my students are learning? | | |
| Q4. What evidence would I use to know my students are learning? | | |
| Q5. What is the pedagogical approach in relation to the identified learning outcomes? | | |
| Q6. What are technologies that can be harnessed to:  
- promote learning of the key concepts;  
- develop skills, values and attitudes, including 21CC;  
- check for student understanding;  
- monitor student learning; and  
- provide feedback? | | |

**Active Learning Processes with Technology**

- Promote thinking & discussion
- Activate learning
- Facilitate demonstration of learning
- Monitor & Provide feedback

Interactions: Student-Content  
Student-Student  
Teacher-Student

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Active Learning Processes

Activate Learning
- How will students’ focus and interest be oriented towards the learning objectives?

Role of ICT

Promote Thinking and Discussion
- How will students think about ideas and concepts?
- What skills and processes will students perform?
- How will students build on their current understanding?

Role of ICT

Facilitate Demonstration of Learning
- How will students demonstrate their understanding and new learning?

Role of ICT

Monitor and Provide Feedback
- How can students’ learning be advanced?

Role of ICT
<table>
<thead>
<tr>
<th>ACTIVE LEARNING PROCESSES</th>
<th>Role of Student</th>
<th>Role of Teacher</th>
<th>Role of Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activate Learning</strong></td>
<td><em>Set own or group learning goals</em></td>
<td><em>Clarify learning objective and success criteria</em></td>
<td>Multimodal representation of a concept e.g. multimedia resources, websites, podcasts, webcasts, animations, videos</td>
</tr>
<tr>
<td>How will students’ focus and interest be oriented towards the learning objectives?</td>
<td><em>Connect prior knowledge to the task</em></td>
<td><em>Design trigger activity to elicit students’ prior knowledge</em></td>
<td>1</td>
</tr>
<tr>
<td><strong>Promote Thinking and Discussion</strong></td>
<td><em>Engage in thinking through discussion, negotiation and meaning making</em></td>
<td><em>Design tasks to connect, challenge, deepen or extend students’ thinking</em></td>
<td>Facilitate planning, participation and development of ideas e.g. wikis, email, online calendar</td>
</tr>
<tr>
<td>How will students think about ideas and concepts? What skills and processes will students perform? How will students build on their current understanding?</td>
<td><em>Use peers’ and teacher's ideas and concepts to refine own understanding</em></td>
<td><em>Provide thinking routines or scaffolds</em></td>
<td>2</td>
</tr>
<tr>
<td><strong>Facilitate Demonstration of Learning</strong></td>
<td><em>Articulate understanding of concepts</em></td>
<td><em>Design performance tasks for students to apply their learning in various ways</em></td>
<td>Task environments that represent and simulate real-world problems, situations and contexts e.g. microworlds and simulations, virtual/augmented reality, role-play simulations, serious games and immersive environment, manipulatives to facilitate problem-solving</td>
</tr>
<tr>
<td>How will students demonstrate their understanding and new learning?</td>
<td><em>Demonstration of skills</em></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><em>Apply learning by creating a digital product</em></td>
<td></td>
<td>Analysis and synthesis e.g. graphic organisers, mindmap, spreadsheets, computational tools or software</td>
</tr>
<tr>
<td><strong>Monitor and Provide Feedback</strong></td>
<td><em>Provide feedback to peers</em></td>
<td><em>Check for understanding using students’ works</em></td>
<td>Collection of data e.g. data-logging devices, online survey</td>
</tr>
<tr>
<td>How can students’ learning be advanced?</td>
<td><em>Use feedback from peers and teacher to refine own understanding</em></td>
<td><em>Give targeted feedback</em></td>
<td>Access to information for research e.g. online libraries, databases, search engines</td>
</tr>
<tr>
<td></td>
<td><em>Reflect on goals and learning process</em></td>
<td><em>Provide opportunities for feedback from peers or experts</em></td>
<td>Access to learning partners or experts e.g. email, web conferencing, social media tools, online learning network, webinars, online courses, MOOCs</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Ensure learning objectives and success criteria are met</em></td>
<td>Creation of digital products e.g. video editing, infographics, slideshows, animations, website, blog, e-books</td>
</tr>
<tr>
<td></td>
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<td>Tracking and assessing e.g. clickers to gather responses to questions, online quizzes, classroom management system</td>
</tr>
<tr>
<td></td>
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<td>Communicate feedback e.g. email, web conferencing, social media tools, annotation tools</td>
</tr>
</tbody>
</table>
Types of Learning Experience

**ACQUISITION**
Students learn new knowledge through analysing, comparing, organising curated information to acquire and deepen understanding of concepts.

**DISCUSSION**
Students share ideas and engage in peer critique to refine understanding of these ideas.

**INQUIRY**
Students form an informed prediction to an inquiry task. They investigate by exploring, clarifying and analysing information sources and data. They formulate an explanation based on evidence and evaluate and reflect on their findings and new learning.

**COLLABORATION**
Students plan and establish group goals and processes, ideate, discuss, negotiate and generate a consensus as a group. The group co-creates new knowledge contributing towards the production of a shared output.
Example of a learning experience

Students plan and establish group goals and processes, ideate, discuss, negotiate and generate a consensus as a group. The group co-creates new knowledge contributing towards the production of a shared output.

**Establish group learning goals**
Understand issue and context, Negotiate and set common goals and actions

**Co-construct meaning and propose solution**
Explore, Ideate, Discuss, Synthesise, Negotiate, Analyse

**Refine group understanding**
Reflect, Revise, Modify

**Role of ICT:**
Facilitate planning, participation and development of ideas

**Role of ICT:**
Analysis and synthesis Iterative discussion

**Role of ICT:**
Create digital product

**Apply understanding and new knowledge through a shared output**
Represent, Present, Explain

**CL Subject**

**Group**

**Assess and synthesise learning**
Facilitate peer and self assessment

**Clarify, Critique, Reflect, Evaluate**

**Role of ICT:**
Tracking and assessing Communicate feedback

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ACQUISITION

Students learn new knowledge through analysing, comparing, organising curated information to acquire and deepen understanding of concepts.

Example of a learning experience

**Gather information**

- Read, Watch, Listen

**Role of ICT:** Multimodal representation of concept

**Identify structures and patterns in information to see contrasts, variations and connections in ideas and concepts**

- Analyse, Compare, Organise

- Refine own understanding

- Reflect, Revise, Modify

**Role of ICT:** Analysis and synthesis

**Promote thinking & discussion**

- Articulate and apply understanding and new learning

- Represent, Present, Explain

**Facilitate demonstration of learning**

- Create digital product

**Reflect, Revise, Modify**

**Activate learning**

**Promote thinking & discussion**

**Facilitate demonstration of learning**

**Assess and synthesise learning**

Facilitate peer and self assessment

Clarify, Critique, Reflect, Evaluate

**Role of ICT:** Tracking and assessing

Communicate feedback

**Role of ICT:**

- Create digital product

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**EL & Math Subject Groups**

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Students form an informed prediction to an inquiry task. They investigate by exploring, clarifying and analysing information sources and data. They formulate an explanation based on evidence and evaluate and reflect on their findings and new learning.

**Role of ICT:**
- Access to information for research
- Collection of data

**Role of ICT:**
- Access to information for research
- Collection of data, Analysis and synthesis
- Access to learning partners and experts

**Role of ICT:**
- Create digital product

**Monitor & provide feedback**
- Assess and synthesise learning
- Facilitate peer and self assessment
- Clarify, Critique, Reflect, Evaluate

**Pri & Sec Science, Sec Geography Subject Groups**
Students share ideas and engage in peer critique to refine understanding of these ideas.

**DISCUSSION**

**Activate learning**
- Take a position
  - Generate ideas and Perspectives

**Promote thinking & discussion**
- Justify own position
  - Consider alternative views
- Rationalise, Explain, Provide evidence
- Refine own understanding
  - Reflect, Revise, Modify

**Facilitate demonstration of learning**
- Articulate final position and apply understanding
  - Represent, Present, Explain

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**Role of ICT:**
- Iterative discussion

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**Role of ICT:**
- Create digital product

---

**Role of ICT:**
- Tracking and assessing
- Communicate feedback

---

**Assess and synthesise learning**
- Facilitate peer and self assessment
  - Clarify, Critique, Reflect, Evaluate
School-based Discussion

Putting It In The School Context
School based Discussion led by HOD ICT & SSD

Sharing HOD IP Experiences

Consolidation Refined School mindmap

Translation Impact Cycle
Understanding Impact Cycle
MEASURE what Counts
Measure Technology Impact on Learning

*Hattie said to ask 3 fundamental questions:*

**NATURE** *(Are we assessing the right thing?)*
Are we assessing deep learning and the acquisition of 21cc?

**MAGNITUDE** *(To what extent are we achieving the intended outcome?)*
To what extent do the teachers’ designs bring about deep learning & 21cc acquisition?

**PERVASIVENESS** *(Are we making what counts routine?)*
Has the impact reach every student in the school? Have some students missed an opportunity to extend themselves?

*(Ref: John Hattie (2016), Visible Learning into Action: International Case Studies of Impact.)*
Quality learning and teaching with technology in action

What are my plans to improve/sustain/scale quality practices with technology?

What are the desired student outcomes?

What are the new actions I want to see in myself, my teachers & students for classroom practice & professional learning?

What evidence can I gather to monitor & evaluate the impact of teaching on learning?

What are the knowledge and skills my teachers need?

How does technology support active learning and formative assessment?

How can technology support professional learning?

Where are we going?

How are we doing?

Where to next?

(Adapted from Hattie (2016), Visible Learning Impact Cycle)
**Quality learning and teaching with technology in action**

**WHAT ARE THE STUDENTS OUTCOMES?**

**Linking to school’s VMV…**

**Example: Student Outcomes**
- Effective communicator
- Effective collaborator

1. Communicate own ideas coherently and clearly to influence and impact on what needs to be learned
2. Collaborate with others to build on ideas and critically evaluate knowledge to explain new ideas / understandings
3. Reflect & modify own role in contributing to group’s goals
4. Manage, create, and share digital information ethically and responsibly
5. Take responsibility for and ownership of learning

**How does technology support active learning and formative assessment?**

1. Refer to role of technology in active learning

(Adapted from Hattie (2016), Visible Learning Impact Cycle)
Quality learning and teaching with technology in action

WHAT ARE THE KNOWLEDGE & SKILLS TEACHERS NEED?

1. Work with fellow teachers understand curriculum, pedagogy and assessment alignment to achieve identified student outcomes
2. Knowledge on technology affordances and pedagogical approaches
3. Develop design knowledge and skills using the Pedagogical Scaffold to design lessons
4. Facilitate and focus on using students’ ideas and questions
5. Learn to assess student learning using students’ works
6. Understand the changed relationship between teacher and student
7. Knowledge on effective questioning, formative feedback, scaffolding and reflection strategies

HOW CAN TECHNOLOGY SUPPORT PD?
Experience collaborative inquiry process in PD, focusing on reflection, adaptation and refinement based on students’ work

(Adapted from Hattie (2016), Visible Learning Impact Cycle)
WHAT ARE THE NEW ACTIONS
I want to see in myself, my teachers & students for classroom practice & professional learning?

Teachers:
1. More open to students’ ideas and questions
2. More concerned with the learning process than the completion of activity or performance, e.g. allow students to build ideas, avoid ‘answering’ and introduce questions and relevant information instead
3. More focused on development of thinking skills not final product, designed scaffolds for creative thinking;
4. See connections across topics for designing open-ended, authentic tasks
5. Scaffold student learning based on learners’ profile
6. Design performance task to assess student thinking
7. Activate students as learning resources
8. Engage students in thinking about, talking about and assessing own learning
9. More reflective about own practice

(Adapted from Hattie (2016), Visible Learning Impact Cycle)
Quality learning and teaching with technology in action

Adapted from Hattie (2016), Visible Learning Impact Cycle

WHAT ARE THE NEW ACTIONS
I want to see in myself, my teachers & students for classroom practice & professional learning?

SLs & HODs:
1. Encourage questions, discussion & inquiry in teachers
2. Build common language for professional discourse on learning and teaching with technology
3. Harness technology to document teachers’ learning and sharing
4. Harness technology to build personal and professional learning networks
5. Develop a learner culture among teachers – one of resourcefulness, resilience, reflective, and reciprocal
6. Build a growth mindset for learning
7. Shift focus from record books, classroom observations to emphasis on reflecting & documenting student learning process
8. Redesign PLC session on evidenced-based practice using students’ works
9. Activate teachers as learning resources to one another
10. Plan & monitor development of teachers’ knowledge building
11. Capture good practices to build a shared commitment towards school’s ICT vision

DETERMINE STUDENT OUTCOMES

BUILD TEACHERS’ KNOWLEDGE & SKILLS

IDENTIFY CHANGED ACTIONS

IMPROVE CLASSROOM PRACTICES

IMPACT ON STUDENT LEARNING

Evaluate impact

Where are we going?
How are we doing?
Where to next?
WHAT EVIDENCE TO GATHER TO MONITOR & EVALUATE IMPACT OF TEACHING ON LEARNING?

1. Evidence of Learning Impact:
   - types of S-S, S-T, T-T & SL-T feedback
   - students’ rubrics for self & peer assessment
   - students’ articulation of their understanding of learning intentions & success criteria
   - shift in levels of feedback
   - students’ reflections/artefacts

2. Evidence to Monitor & Evaluate Shifts in Classroom Practices:
   - teachers and students’ reflection logs
   - surveys
   - lesson enactment
   - student interviews
   - quality of students’ responses & participation in discussion
   - quality of students’ thinking

(Adapted from Hattie (2016), Visible Learning Impact Cycle)
School-based Discussion @ Music Studio:
1. Bowen Secondary
2. North Vista Secondary
3. Seng Kang Secondary
4. Yishun Town Secondary
5. Anderson Secondary
6. Greendale Primary

Workshop Website:
http://tinyurl.com/nz4-ilead
<table>
<thead>
<tr>
<th>School Name</th>
<th>School Level</th>
<th>Class Room</th>
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<tbody>
<tr>
<td>Catholic High (Pri)</td>
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<td>3</td>
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<td>Montfort Pri</td>
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<td>North View Pri</td>
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<td>Deyi Sec</td>
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<tr>
<td>Christ Church Sec</td>
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<tr>
<td>Riverside Pri</td>
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**School-based Discussion @ Music Studio:**
1. Catholic High (Pri)
2. Catholic High (Sec)
3. Horizon Pri
4. Montfort Pri
5. Nan Chiau High
6. Evergreen Pri
7. Woodgrove Pri
8. Deyi Sec
9. North View Pri
10. Christ Church Sec
11. Riverside Pri

**Workshop Website:**
[http://tinyurl.com/nz4-ilead](http://tinyurl.com/nz4-ilead)
## Subject-based Discussion

<table>
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<tr>
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<th>Learning Studio (N1-4)</th>
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<td>Pri Science Subject Group</td>
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<th>SR4</th>
<th>Learning Studio (N1-5)</th>
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<tbody>
<tr>
<td>CL Subject Group</td>
<td>Sec Science Subject Group</td>
<td>Sec Geography Subject Group</td>
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THANK YOU

Any questions?