Why e-Learning can actually be effective for learning – an understanding from psycho-cognitive science.

Intended Outcomes

• At the end of this presentation, participants should be able to:
  – Identify at least 3 common types of reason often quoted for use of e-learning with today’s students.
  – Describe the hard sciences behind these often quoted reasons.
  – Verify/Debunk these often quoted reasons with scientific research.
  – Suggest some approaches to effective e-learning pedagogies.

Haven’t we all seen this?
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Have you asked yourself the followings?
• Is being Digital Natives make a difference in their learning?
• Are they true multitaskers? How is this affects their learning?
• Collaboration (e.g. peer engagements) helps memory retention? How can we help our students to learn more effectively?

Common reason 1: Digital Natives vs Digital Immigrants
Is there a neurological basis for this?

How do human learn?
• Human brain retains information by association of neurons in the brain – memory.
• Often we learn something new best by associating this with what we already knew.
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What is technology?

“Technology are things that are invented after we were born.” – source Unknown

Why e-Learning makes sense for Digital Native?

• Technology and their use are part and parcel of the daily lives for our students.
• Engaging them in learning therein can help in their memory association.

Common reason 2: Generation Y are multitasking learners
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Requirement for learning

– Learning requires attention and focus.

Quality vs Quantity

• Human brain cannot multitask well (i.e. not giving each task at hand their required attention span – doubling the error rate and time required to switch between tasks).

Don’t text/dial and drive!

<table>
<thead>
<tr>
<th>CELL PHONE TASK</th>
<th>Risk of Crash or Near Crash event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Vehicle/Cars</td>
<td></td>
</tr>
<tr>
<td>Talking/Listening to Cell Phone</td>
<td>1.5 times as high as non-distracted driving</td>
</tr>
<tr>
<td>Reaching for object (i.e. electronic device and other)</td>
<td>1.4 times as high as non-distracted driving</td>
</tr>
<tr>
<td>Heavy Vehicles/Trucks</td>
<td></td>
</tr>
<tr>
<td>Talking/Listening to Cell Phone</td>
<td>5.9 times as high as non-distracted driving</td>
</tr>
<tr>
<td>Use/Reach for electronic device</td>
<td>5.7 times as high as non-distracted driving</td>
</tr>
<tr>
<td>Text messaging</td>
<td>23.2 times as high as non-distracted driving</td>
</tr>
</tbody>
</table>
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**What is the fact?**

- Human are better at serial tasking than true multitasking.
- Help our students to focus on doing one task at a time, and to do that well, i.e. reduce other distractions.

**Suggestion for e-Learning environment**

- Create focused environment for learning – less distractions, better learning.

**Common reason 3: Collaborations improve learning**
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Human are social beings.

How this helps learning?

• Collaboration tap into the multisensory parts of the human brain.
• Help our students to build associations between different sensory engaged in learning – better memory retention.

Suggestion for e-Learning

• Use e-tools for collaborative learning.
• Dedicated immersive e-learning platforms, such as BlackBoard etc., offer opportunities for students collaboration within focused context of learning.
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Summary of our discussion

<table>
<thead>
<tr>
<th>Often quoted reasons for adopting eLearning</th>
<th>Like?</th>
<th>Neuroscience findings</th>
<th>Suggestions</th>
</tr>
</thead>
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<tr>
<td>Digital natives</td>
<td>✅</td>
<td>Human brain retains information by association of neurons in the brain – memory.</td>
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</tr>
<tr>
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Tying these together

Reference sources

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Thank You!