Preparing For The Future: Rethinking The Education Delivery Model

Associate Professor Thomas Cochrane
Technology Enhanced Learning in higher education
Melbourne Centre for the Study of Higher education

- https://orcid.org/0000-0002-0192-6118
- @thomcochrane

Learning designs should focus upon what the learner does (Building graduate Capabilities) and the Teacher as designer of real world learning environments (Authentic Learning) that build students capacity to navigate the unknown.

Outline

- The COVID-19 Impact on education
- The reality of Hybrid or Dual Delivery
- TEL strengths and weaknesses
- Designing TEL environments
- Examples
References

The COVID-19 Impact on education

4 Phases

JISC 2020/2021 Survey

A 2020/2021 Jisc (UK) survey of 27,069 higher and further education students reveals that most are pleased with their digital learning experience, but areas needing more attention include:

- wellbeing
- mental health
- and staff digital skills

Summary page: https://www.jisc.ac.uk/news/over-27000-students-share-how-colleges-and-universities-could-improve-digital-learning-08-mar-2021

The reality of Hybrid or Dual Delivery

What have we learnt through main-streaming eLearning?

Digital Capabilities JISC (2017), VandR (White & Le Cornu, 2011)

Digital Divide

Supporting Infrastructure (Cochrane & Munn, 2020)
Design for Online First and explicitly link to the F2F environment
Beyond Zoom - social immersive reality?


**TEL strengths and weaknesses**

- Build on the strengths
- Mitigate the weaknesses (Selwyn, 2015)
  - Build in Socio-Cultural interaction - facilitate authentic learning communities

**Designing TEL environments**

- TPACK (Voogt et al., 2012)
- SAMR (Hockly, 2012; Puentedura, 2006)
- DBR (McKenny & Reeves, 2019)

**Ontological Pedagogies**

- PAH Continuum (Luckin et al., 2010; Hase & Kenyon, 2007)
- Social Constructivism (Vygotsky, 1978)
- Communities of Practice (Wenger et al., 2009)
- Connectivism (Siemens, 2005)
- Rhizomatic Learning (Cormier, 2008)
- Authentic Learning (PBL) - linking theory to real world practice (Herrington et al., 2009)
- Learner-Centric Ecologies of Resources (Luckin, 2008; Blaschke & Hase, 2019) e.g. ePortfolios
Redefinition
Tech allows for the creation of new tasks, previously inconceivable

Modification
Tech allows for significant task redesign

Augmentation
Tech acts as a direct tool substitute, with functional improvement

Substitution
Tech acts as a direct tool substitute, with no functional change

https://sites.google.com/a/msad60.org/technology-is-learning/samr-model
The four phases of Design-Based Research adapted from McKenney and Reeves (2019)

**What might an EoR built upon the foundations of Rhizomatic Learning, Connectivism, and Heutagogy look like?**

- A negotiated set of resources/tools that work together towards supporting the building of core graduate capabilities

**EoR Diagram**
Examples
The Authentic Mobile Learning Triangle
The Bionic Limb transdisciplinary curriculum design project

The Authentic Mobile Learning Triangle (Cochrane, 2019; 2020)

Creativity, collaboration, and the capacity to navigate the unknown are key attributes for our student graduates, therefor we can use these three key attributes to derive three core principles for designing mobile learning: utilise user-generated content (UGC), user-generated contexts (UGCX), and authentic experiences (AE). This can be represented by a simple authentic mobile learning (AmL) ‘triangle’ where AE are built upon UGC and UGCX.
UGC leverages the user-content creation capabilities of mobile devices.

UGX leverages the contextual and geolocation capabilities of mobile devices.

AE leverage the mobility of mobile devices to enable interaction in real world situations beyond the classroom, and to bring these experiences into the classroom.

The Bionic Limb

Table 1: Collaborative curriculum design project team details

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<thead>
<tr>
<th>Team Member</th>
<th>Department/Subject Area</th>
<th>Role in Research Project</th>
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</thead>
<tbody>
<tr>
<td>Vijay Rajagopal</td>
<td>Biomechanics (3rd year)</td>
<td>Project lead, biomechanics curriculum design</td>
</tr>
<tr>
<td>Lionel Lam</td>
<td>Applied Computation in Bioengineering (2nd year)</td>
<td>Programming curriculum design</td>
</tr>
<tr>
<td>Katie Davey</td>
<td>Circuits &amp; Systems (3rd year)</td>
<td>Circuits &amp; systems curriculum design</td>
</tr>
<tr>
<td>Sam John</td>
<td>Biosystems Design (3rd year)</td>
<td>Biosystems design curriculum design</td>
</tr>
<tr>
<td>Thomas Cochrane</td>
<td>Melbourne Centre for the Study of Higher Education</td>
<td>Educational technology design</td>
</tr>
<tr>
<td>Shaktivegh &amp; Saamprasad Ganesan</td>
<td>Student Designers</td>
<td>Bionic limb prototype development</td>
</tr>
</tbody>
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Bionic Limb Activities

Ecology of Resources

Project Team Collaboration
* MS Teams
* Canvas
* Zoom

Student ePortfolios & Collaboration
* Wordpress – individual eportfolios
* Jupyter Notebook – project collaboration
* GitHub – project collaboration
* MS Teams – project collaboration
* Canvas – course hub/s
* Adobe Spark – collaborative project presentations


Lam, Lionel; Cochrane, Thomas; RAJAGOPAL, VIJAYARAGHAVAN; DAVEY,
Conclusion:
Learning designs should focus upon what the learner does (Building graduate Capabilities) and the Teacher as designer of real world learning environments (Authentic Learning) that build students capacity to navigate the unknown.

References


McKenney, S., & Reeves, T. (2019). Conducting educational design research (2nd ed.). London:
Routledge.


