Digital technologies - enhancing learning or shifting learning behaviours?

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My focus for this seminar

- What evidence suggests that using technologies might enhance learning?
- What evidence suggests that using technologies might actually not enhance learning?
- Why do teachers and learners continue to feel that there are enhancements occurring?
- Is wide evidence not identified or available?
- Do we need to reconceptualise our understanding and perception of the term – technology enhanced learning?
Evidence of impact

• A range of studies have identified statistically significant effects when technologies are used for learning (for example, Wenglinsky, 1998; Wood, 1998; Schachter and Fargnano, 1999; Harrison et al., 2002; The Metiri Group, 2006; Somekh et al., 2007)

• But average effect sizes from a second-order meta-analysis and from a validation study, both accounting for fixed effects and random effects, were low (or moderate at best); calculated effect sizes ranged only from 0.30 to 0.35 (Tamim, Bernard, Borokhovsi, Abrami, & Schmid, 2011)

• Reasons why this form of evidence is difficult to gather have been clearly discussed (Higgins, Xiao & Katsipataki, 2012; Passey, 2014)
Evidence of no (or negative) impact

- Very, very few published studies identify negative outcomes that are learning-focused.
- Reported negative findings are concerned more with technology reliability, technology application, pedagogical appropriateness, or applicability to learner activity - indicating a relationship between learning impact and additional factors.
- “aspects of the goals of instruction, pedagogy, teacher effectiveness, subject matter, age level, fidelity of technology implementation, and possibly other factors ... may represent more powerful influences on effect sizes than the nature of the technology intervention” (Tamim, Bernard, Borokhovsi, Abrami, & Schmid, 2011, p. 17)
The four origins of evidence

- Affordances
  - Of technologies
- Uses
  - Through pedagogies and activities
- Outcomes
  - From activities, for teachers and for learners
- Impact
  - On learning, for learners

Source: Passey (2014)
The state-of-play of the four origins of evidence

• **Affordances**
  – Of technologies

• **Uses**
  – Through pedagogies and activities

• **Outcomes**
  – From activities, for teachers and for learners

• **Impact**
  – On learning, for learners
What is happening at the important evidence interface?

- Affordances of technologies
- Perceptions of use
- Uses through pedagogies and activities
- Learning behaviours
- Outcomes from activities, for teachers and for learners
What is happening to the learning behaviour? (or learning?)

- Internet research – can easily apply search words or terms, add to or amend these, save links, save notes, search on demand, whenever and wherever there is internet connectivity
- Video capture – can easily view whenever and wherever there is access or connectivity, review, replay, save notes, highlight questions as and when applicable [ALT forum today]
- Clickers – can be asked questions at any point, can see how others respond, can have points discussed
- Learning by questions – can answer questions, can gain feedback, can re-try, can be monitored and supported by the teacher
What elements of learning are affected - and to what extent?

Source: Passey (2014)
How are teachers involved in this?

• Internet research – suggesting search words or terms, adding to these, checking links, feedback on notes, feedback on sources and outcomes or findings
• Video capture – checking use
• Clickers – checking answers at any point, seeing how students respond, discussing points arising
• Learning by questions – checking answers and numbers of answers, giving individual feedback, constantly monitoring and intervening
Where is the impact of digital technologies?

• Is it on?
  – Education (TEE)
  – Management of education (TEME)
  – Teaching (TET)
  – Management of teaching (TEMT)
  – Learning (TEL)
  – Management of learning (TEML)

• So what range of questions should/must we ask in the future, and how do we/should we conceive ‘technology enhanced learning’?
For ‘TEL’, what evidence we tend to lack currently

- Impacts on long-term memorisation, social and societal aspects of learning
- Uses, outcomes and impacts of project-based activities
- Megacognitive (‘expert’ learner) and metacognitive outcomes and impacts of online learning support
- Outcomes and impacts for specific groups of learners
- How lifelong learning is being supported
- How intergenerational learning is being supported


Thank you for listening!

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