Getting Started with Educational Technology Research

3:45 PM - 5 PM Eastern Time, Friday, June 12, 2020

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Agenda

Speaker Introductions

Attendee Introductions (if group is small)

What this session is about

Common Misconceptions or Myths (one each) (for example)

    Learning Styles

    Media Comparison Studies

    Technocentric research or digital natives

Questions and Answers

Introductions

Dr. Charles Hodges, Georgia Southern University

Dr. John H. Curry, Idaho State University

Dr. Michael M. Grant, University of South Carolina

What this is about/Who it's for

People who want to do ed tech research, but have not had professional preparation for it

Early career or established professors

Get you started with some common misconceptions and point you to places for good starts like [AECT Handbook](#) or [Major Reference Work, AECT](#)

Common Misconceptions

- Learning Styles
  - Learning Sciences current consider "learning styles" as a learning myth
  - Measures are not valid or reliable
  - Research has shown that teaching according to learning style is does not improve learning
  - American Psychological Association press release:
    - "Belief in learning styles may be detrimental"
- Research vs Evaluation
  - What is your goal of your inquiry?
  - Knowing how a particular technique/technology/approach works in your local context? -> Evaluation
  - Generalization to population or creating new knowledge -> research
- New to you, doesn't mean it's new
  - Do your lit review! Read a lot!

Media Comparison Studies

- "…the researcher seeks to determine if learners using one instructional delivery medium attain higher levels of achievement in a particular content area than learners using a different instructional delivery medium" (Surry & Ensminger, 2001).
- The delivery truck argument
- So why do researchers still do them?
  - It's easy to understand the variables
  - It's easy to set up
  - Technology always changes
  - Funding agencies want information on how media works
  - The design, development, and use of media is at the core of our field

So how can we research the effect of media?

- Intra-medium studies (changes within the media)
  - Navigation
  - Mayer's multimedia principles (segmenting, personalization, etc.)
- Treatment interactions (how does the media interact with other factors that affect learning?)
  - Motivation
  - Engagement
  - Anxiety
  - Satisfaction

Digital natives v. digital immigrants

Characterized as "Students who grew up with the internet and technologies are inherently better at using technology."

Introduced by Barlow (1996). Described by Tapscott (1998). Made famous by Prensky (2001).

Prensky (2001) claims that digital natives "think and process information fundamentally differently from their predecessors" (p. 1).

Quantitative comparisons (Guo et al., 2008; Lai & Hong, 2015), mixed methods studies (Wang et al., 2014), survey research (Thompson, 2013), and theoretical critiques (Kirschner & van Merriënboer, 2013; Smith, 2012) question and/or report little or no differences among generations.

Researching technologies v. educational problems

Characterized by "_[insert technology]_ will revolutionize education."

Criticized by Reeves and Reeves (2015a, 2015b) for research that studies "things" (i.e., technologies) instead of educational problems that would improve learning and achieve learners' goals.

Clark (1983) calls for the identification of the *active ingredient* within a research study. Like above, Herrington et al. (2010) question technologies' impacts and comparing media.

Cognitivism/behaviorism v. Constructivism

Characterized by "Direct instruction is bad. Lecturing is bad. Students constructing their own interpretations of knowledge is the best method."

Behaviorist, cognitivist, and constructivist research and pedagogical approaches have merit (and flaws).

Constructivist pedagogies do not always help learners and can place additional load on working memory (Kirschner & van Merriënboer, 2013; Kirschner et al., 2006; van Merriënboer et al., 2003). Approaches can be successfully combined (Wijnia et al., 2014).

NINE EVENTS OF INSTRUCTION

by Robert Gagne

01	GAIN THE STUDENT'S ATTENTION
02	INFORM STUDENTS OF OBJECTIVES
03	STIMULATE RECALL OF PRIOR LEARNING
04	PRESENT THE CONTENT
05	PROVIDE LEARNER GUIDANCE
06	ELICIT PERFORMANCE
07	PROVIDE FEEDBACK
08	ASSESS PERFORMANCE
09	ENHANCE RETENTION AND TRANSFER TO THE JOB

What/How should we be researching?

- Research educational/learning problems, like poor learner motivation, inadequate use of higher order thinking, or weak communication skills.
- Identify technology affordances
- Evaluation (not research) to know how techniques, strategies, etc. work in various contexts.
- Replicate already published research studies -> great way to start
- Use & define learning theories or pedagogical models
- See Hannafin et al. (2005) for a for studying the learning effects of and with technology
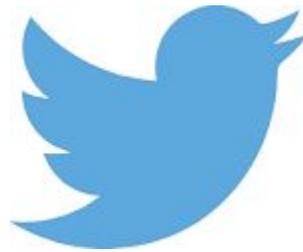
Questions and Answers

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Thank you!

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