Pivot points for technology integration

Joan E. Hughes, Ph.D.
The University of Texas at Austin

joanh@austin.utexas.edu | @techedges

Work licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.
Initiation of an innovation idea

Implementation

Institutionalization
Teaching and learning with technology is not rocket science!

It’s actually harder than rocket science.

Photo: Library of Congress
Why is teaching and learning harder than rocket science?

#tltechlive
“The Black Box of the Classroom”

Photo: Joan Hughes
“...a complex, dynamic, and very messy multilevel system”

“...a tangled maze of structures, events, and relationships”
Research-based SUCCESS Factors

∧

classroom-based

school-based
#1
Technology Leadership
What leadership practices matter for technology integration?

#tltechlive
✓ Technology Leadership
✓ Students per computer
✗ Internet
✗ Hardware $/student
✗ Software $/student

Anderson & Dexter, 2005
48 of 50 states

NO technology preparation for future school leaders

Schrum, Galizio, & Ledesma, 2011
Distributed technology leadership
✔ Supportive principal
✔ Collaborative teachers
✔ Professional organizations
✗ Competitive instructional technologist
✗ Unsupportive principal
✗ Uncollaborative teachers

Photo by Jesse Dittmar, used w/ permission

Johnston, 2012
Farmer, 2013
#2
Technology Vision
What’s your technology vision?

#tltechlive
“Superintendents have been pressed to purchase new hardware and software, in the belief that if technology were introduced to the classroom, it would be used, and if it were used, it would transform schooling.”

Cuban, 2001; 2013
Zhao & Conway, 2001
✓ Learner-focused
✓ Curricular-focused
✓ Pre-planned

Dexter, 2011
Hughes, De Zeeuw, & Ok, in press
Students are a constituent group that is often neglected, ignored, or forgotten.

Photo: Wesley Fryer (CC BY-SA)

Fullan, 2007
Top-down

Bottom-up

Anderson & Dexter, 2000
Schrum & Levin, 2013
Hughes et al., in press
DEAD or ALIVE?

Photo: TorenC
#3
Technology Professional Learning
What are the keys to professional learning that lead to successful technology integration?

#tltechlive
Meaningful Change (transforming student learning)

- Change in materials
- Change in teacher beliefs
- Change in teacher practices
adoption of innovations

Rogers, 2003

Source: Everett Rogers Diffusion of innovations model

Photo: Natebailey (CC BY)
✓ Technology specialists
✓ Learning opportunities
✓ Teacher bonuses
✓ Early release days
✓ Substitutes

Lin & Chiou, 2008
Dexter, 2011
Schrum & Levin, 2013
One-shot workshops
Tool focus “50 apps...”

General tech =
“replacement” pedagogy

Dexter, 2011
Lawless & Pellegrino, 2007
Lin & Chiou, 2008
Schrum & Levin, 2013
Content-specificity
Ongoing, long-term

POPs + Tech = Transformative learning

Hughes, 2003; 2004; 2005
Hughes, Kerr, & Ooms, 2005
Hughes & Ooms, 2004
“[Leaders] uniformly stressed that the role of the school leader is essential in helping teachers establish a culture that values risk taking, promotes exploration, and celebrates innovation.”

Schrum, Galizio, & Ledesma, 2011
grammar of schooling

Selwyn, 2011
grammar of schooling:

a school’s engrained educational format and goals

Selwyn, 2011
“…we [math team] all need to do the same because everybody needs to have the same thing and equal and all the same time.

If you don’t do that material and you don’t give them that quiz and that test, well that’s not fair. Your kids are making some frilly little project they’re going to get an “A” on, and my kids have to factor something which is hell.…”
Top 5 Pivots!

✓ Include leaders in prof learning
✓ Drive change w/ librarians
✓ Enact tiered visioning
✓ Nurture content-specific tech PLCs
✓ Support real risk-taking
Slide 2 (Picture array of technologies):
1. Radio: Gaschurnpartenen at the German language Wikipedia [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0)], from Wikimedia Commons; http://upload.wikimedia.org/wikipedia/commons/8/89/Minerva_Radio_PERFECT_W_0524.jpg
2. TV: By Roketo2000 (Own work) [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC BY-SA 4.0-3.0-2.5-2.0-1.0 (http://creativecommons.org/licenses/by-sa/4.0-3.0-2.5-2.0-1.0)], via Wikimedia Commons; http://upload.wikimedia.org/wikipedia/commons/d/d7/Televisi%C3%B3n_peque%C3%B1o_%C3%B1a_blanco_y_negro.JPG
3. Computer: Tandy – public domain
4. Computer Lab: By Michael Surran (Flickr) [CC BY-SA 2.0 (http://creativecommons.org/licenses/by-sa/2.0)], via Wikimedia Commons; http://upload.wikimedia.org/wikipedia/commons/c/c8/Students_working_on_class_assignment_in_computer_lab.jpg
5. Interactive Whiteboard: By svonog (flickr)[CC BY 2.0 (http://creativecommons.org/licenses/by/2.0)], via Wikimedia Commons http://upload.wikimedia.org/wikipedia/commons/a/a2/Interactive_whiteboard_at_CeBIT_2007.jpg
7. iPad: http://www.flickr.com/photos/intelfreepress/6310585622/sizes/o/in/photostream/

Slide 4 (Rocket)

Slide 6 (Butterfly)
Butterfly – Joan E. Hughes, Copyright 2015.

Slide 7 (Maze)

Slide 14 (Principal)
Thomas Jefferson Middle School Principal Sharon Monde, by Cliff; (CC BY 2.0) https://www.flickr.com/photos/nostri-imago/5049583135

Slide 15 (Small Group)
Committee Meeting, By Iolanda Pensa (Own work) [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0), via Wikimedia Commons, 
https://commons.wikimedia.org/wiki/File%3AWikipedia_Primary_School_meeting_in_Cape_Town_June_2014_04.jpg

**Slide 16 (Librarian)**
Kristina Holzweiss, SLJ Librarian of the Year

**Slide 21 (Children with iPads)**
CC BY 3.0

**Slide 22 (Children with teachers)**

**Slide 23 (Map)**
GoogleMaps; Created by Joan Hughes

**Slide 25 (Dead or Alive?)**
Filing Cabinets: Photo by TorenC: [https://www.flickr.com/photos/torenc/61396515](https://www.flickr.com/photos/torenc/61396515) CC BY 2.0

RSS: By User:ZyMOS [Public domain], via Wikimedia Commons;
[https://upload.wikimedia.org/wikipedia/commons/d/d9/Rss-feed.svg](https://upload.wikimedia.org/wikipedia/commons/d/d9/Rss-feed.svg)

All others – public domain, used with permission from companies.

**Slide 29 (Diffusion of innovations)**

**Slide 30 (Money)**
By Jericho [CC BY 3.0](http://creativecommons.org/licenses/by/3.0), via Wikimedia Commons; 

**Slide 31 (Large group)**
By Јелена Продановић (Own work) [CC BY-SA 4.0](http://creativecommons.org/licenses/by-sa/4.0), via Wikimedia Commons

**Slide 32 (Small group of women)**
Referenced Research

While most of these articles exist behind publisher pay-walls, your librarians can help you secure free copies of them through your own library services or through community libraries that offer lending and inter-library loan. If you’d like to read any of my research, contact me directly at joanh@austin.utexas.edu.

Technology Leadership


Technology Vision


Technology Professional Learning


