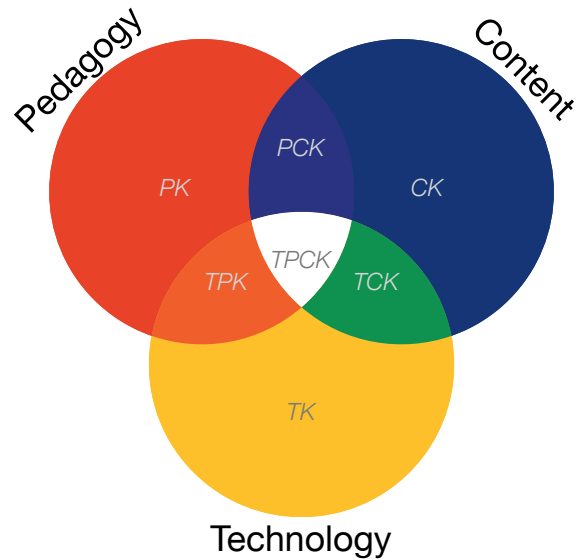


Technology, Change, and Process

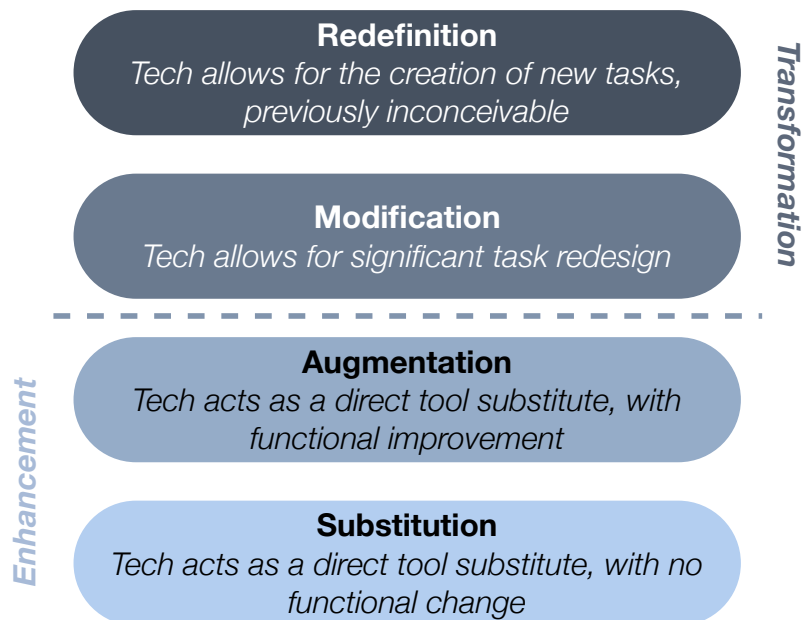
Ruben R. Puentedura, Ph.D.

TPCK and SAMR

TPCK (Mishra & Koehler)



SAMR (Puentedura)



The Individual Perspective

New Tools Involve Four Key Dichotomies (Don Ihde, *Consequences of Phenomenology*)

- an **ampliative/reductive** aspect:
 - new tools make previously difficult or impossible tasks possible
 - however, they also involve tradeoffs
- a **fascination/fear** reaction:
 - fascination results from focus on the ampliative aspects of the technology
 - fear results from focus on the reductive aspects of the technology
- an **embodiment/otherness** component:
 - a skilled user comes to see the tool as an extension of their body or mind
 - an unskilled user sees the tool as an alien, non-intuitive element
- a **focus/action** shift:
 - how a task is visualized is affected by the aspects of a task that are made salient (or hidden) by a specific tool
 - how a task is executed is affected by the aspects of a task that are made easy (or difficult) by a specific tool

A Simple Example

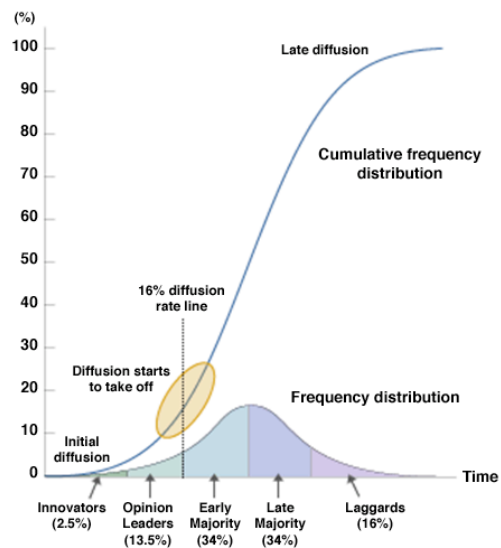
- an **ampliative/reductive** aspect:
 - “With this stick, I can pick fruit that was previously out of reach.”
 - “The stick does not let me determine how ripe the fruit is beforehand.”
- a **fascination/fear** reaction:
 - “I’ll be able to pick the fruit that animals could not reach!”
 - “I’ll get a stomach ache from unripe fruit!”
- an **embodiment/otherness** component:
 - “The stick feels like it’s part of my hand.”
 - “I keep poking holes in the fruit - I can’t feel when I’m touching it.”
- a **focus/action** shift:
 - “The stick leads me to think about picking individual pieces of fruit, rather than a volume of fruit.”
 - “I use the stick to pick fruit visible in a straight line, but stay away from the more challenging fruit in between branches.”

A (Somewhat) More Modern Example

- an **ampliative/reductive** aspect:
 - “Google allows me to find many more resources than the card catalog!”
 - “Google does not list the books and journals in the college library.”
- a **fascination/fear** reaction:
 - “I can access many more up-to-date sources than ever before!”
 - “Those sources cannot compare with the reliability of the college library!”
- an **embodiment/otherness** component:
 - “I use Google as an “exomemory” for just about anything.”
 - “I’m overwhelmed by the volume of information I get from Google, and can’t do much with it.”
- a **focus/action** shift:
 - “With Google, I think about gathering first, organizing second.”
 - “I generally only look at the first page of results from Google, and leave the rest alone.”

The Group Perspective

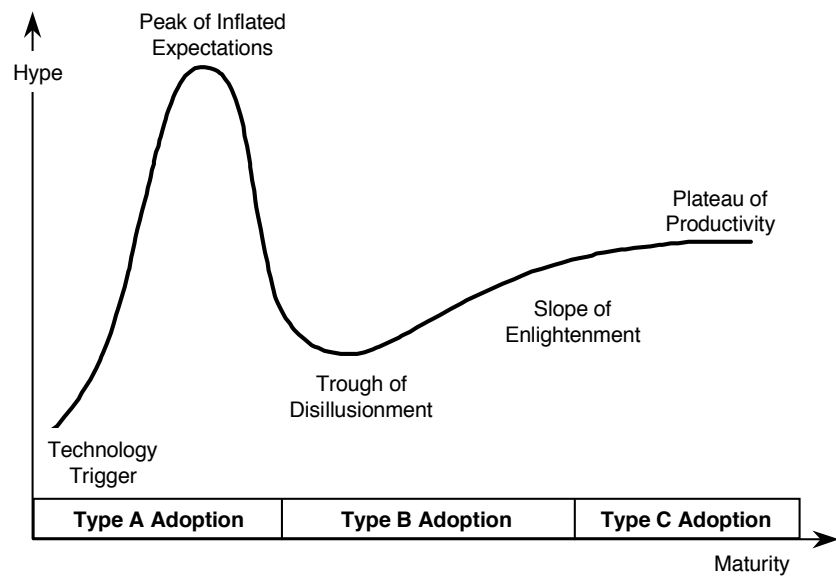
How Innovations Spread (Everett M. Rogers, *Diffusion of Innovations*)



Source: *The Innovator Theory*. Online at <http://www.mitsue.co.jp/english/case/concept/02.html>

The Technology Perspective

The Gartner Hype Cycle



Source: GartnerGroup

The Gartner Hype Cycle: Phases and Adoption Types

- **Five Phases:**

- *Technology Trigger*: a new technology generates significant press and industry interest;
- *Peak of Inflated Expectations*: a flurry of well-publicized activity results in some successes, but more failures;
- *Trough of Disillusionment*: the technology becomes unfashionable, and the press abandons the topic;
- *Slope of Enlightenment*: focused experimentation and solid hard work lead to a true understanding of the technology's applicability, risks, and benefits;
- *Plateau of Productivity*: the real-world benefits of the technology are demonstrated and accepted.

- **Three Adoption Types:**

- *Type A*: technologically aggressive organizations.
- *Type B*: technologically low risk organizations, focused on maintaining competitiveness.
- *Type C*: technologically cautious organizations, focused on cost reduction.

The Toolkit

The Horizon Report

(<http://www.nmc.org/horizon>)

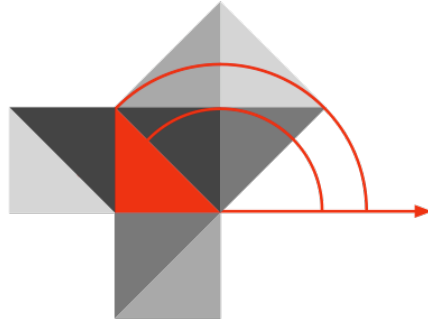


7 Things You Should Know About...

(<http://www.educause.edu/7Things>)

This is a screenshot of the Educause Learning Initiative website. The header features the 'EDUCAUSE Learning Initiative' logo on the left and the tagline 'ADVANCING LEARNING THROUGH IT INNOVATION' on the right, along with navigation links for 'EDUCAUSE Home', 'Contact', and 'Login'. Below the header is a navigation menu with links for 'Major Initiatives', 'Resources', 'Professional Development', 'Community', and 'About EDUCAUSE'. The main content area is titled '7 Things You Should Know About...'. It includes a sub-header 'The EDUCAUSE Learning Initiative's (ELI's) 7 Things You Should Know About... series provides concise information on emerging learning technologies and related practices. Each brief focuses on a single technology or practice and describes:' followed by a bulleted list: 'What it is', 'How it works', 'Where it is going', and 'Why it matters to teaching and learning'. Below this is a section 'Use ELI's 7 Things You Should Know About... briefs to:' with another bulleted list: 'Enhance faculty development activities', 'Open a dialogue with senior administrators about emerging technologies and their implications for your institution', and 'Stay up-to-date on emerging technologies'. A paragraph follows: '7 Things You Should Know About... pieces provide quick, no-jargon overviews of emerging technologies and related practices that have demonstrated or may demonstrate positive learning impacts. Any time you need to explain a new learning technology or practice quickly and clearly, look for a 7 Things You Should Know About... brief from ELI.' The page is numbered '1 of 3'. The current article is titled '2009 7 Things You Should Know About Collaborative Annotation (Oct 2009)'. The text describes collaborative annotation tools as expanding social bookmarking by allowing users to share bookmarks and digitally annotate web pages. The next article is '7 Things You Should Know About Telepresence (Sep 2009)', which describes the application of complex video technologies to give geographically separated participants a sense of being together in the same location.

Hippasus



<http://hippasus.com/rrpweblog/>
rubenrp@hippasus.com

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