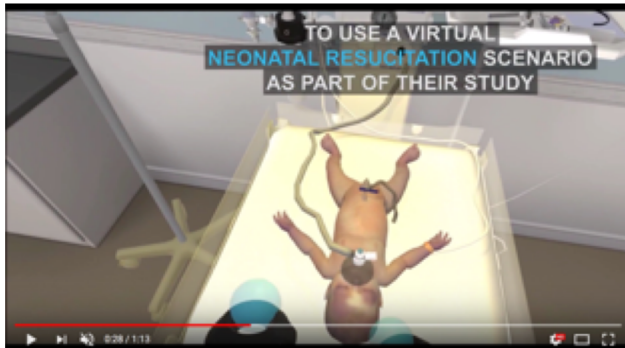


Choosing a Technology that Makes a Difference to Learning – Getting Past the Hype



Dr. Tony Bates
Research Associate
Contact North

Arguments about the role of technology in education go back at least 2,500 years. To understand better the role and influence of technology on teaching, we read a little history, because as always there are lessons to be learned from history. Paul Saettler's "The Evolution of American Educational Technology" (1996) is one of the more extensive historical accounts, but only goes up to 1989. A lot has happened since then. Tomma Lottman also has a good blog post on the more recent history (for a more detailed account see Lottman, 2010). See also this infographic: The Evolution of Learning Technologies.

What I'm giving you here is the prototype script version of all tech history, and a personal one at that.

6.2.1 ORAL COMMUNICATION

One of the earliest means of formal teaching was oral – though human speech – although over time, technology has been increasingly used to facilitate or "back up" oral communication. In ancient times, stories, fables, histories and songs were transmitted and maintained through oral communication, making accurate memorization a critical skill, and the oral tradition is still the case in many aboriginal cultures. For the ancient Greeks, oratory and speech were the means by which people learned and passed on learning. Homer's Iliad and the Odyssey were recitative poems, intended for public performance. To be learned, they had to be memorized by listening, not by reading, and transmitted by recitation, not by writing.

Nevertheless, by the 6th century B.C., written documents existed in considerable numbers in ancient Greece. If we believe Socrates, education has been on a downward spiral ever since. According to Plato, Socrates caught one of his students (Phaedrus) pretending to recite a speech from memory that in fact he had learned from a written version. Socrates then told Phaedrus the story of how the god Thoth offered the King of Egypt the gift of writing, which would be a "recipe for both memory and wisdom". The king was not impressed. According to the king,

“ [Writing] will implant forgetfulness in their souls; they will cease to exercise memory because they will rely on what is written, creating memory not from within themselves, but by means of external symbols. What you have discovered is a recipe not for memory, but for forgetting. And it is no fairer to those who do not use your device, but only to outsiders, for by selling these magic things without teaching them anything, you will make them seem to know much, while for the most part they will know nothing. And as men fill out with wisdom but the context of wisdom, they will be a burden to their fellow men.

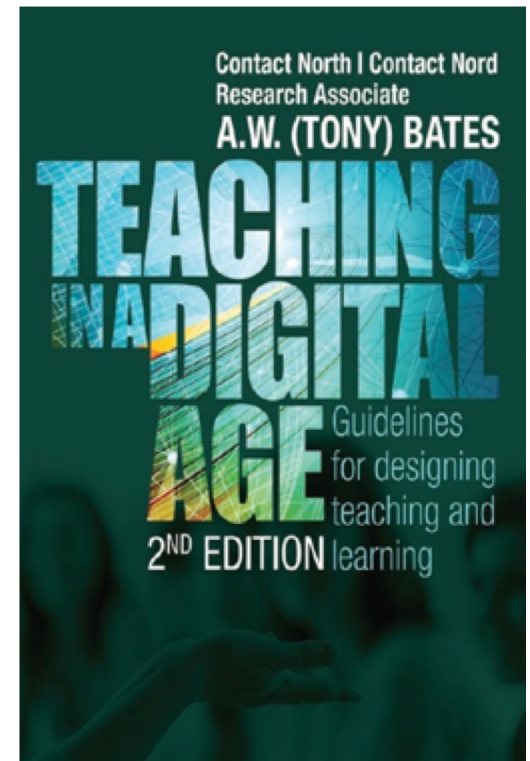
Webinar Format

Aim of series:

- Discuss issues raised in Teaching in a Digital Age
- Draw on your experiences in addressing these and related issues

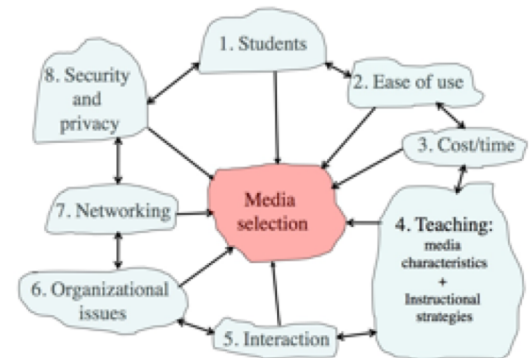
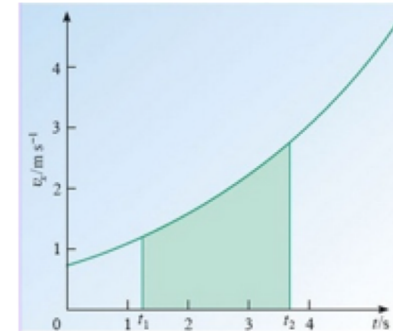
This webinar:

- Choosing appropriate technology (Chapters 7, 8 and 9)



Topics to Discuss

- The difference between media and technology
- Types of media
- Pedagogical differences between media
- SECTIONS: a decision model
- General questions on the use of media in education



Technology or Media?

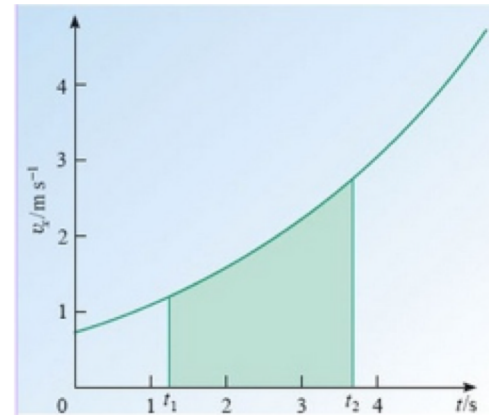
Technology = tools/things without messages:

- Printing press; TV studio; computers; networks;

Media = systems for the **intermediation** or **interpretations** of meaning/reality

- Books; TV programs; lectures; seminars; online courses; MOOCs

4 core components: creator – message –
technology – interpreter



Different Media

Text: books, newspapers, journals;

Graphics: tables, pictures, cartoons

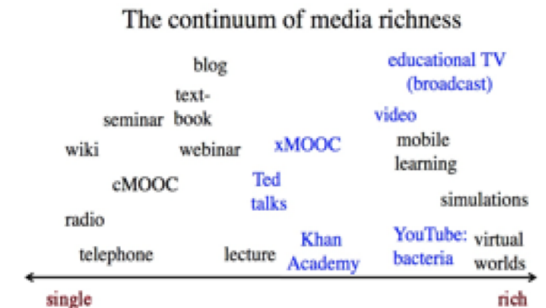
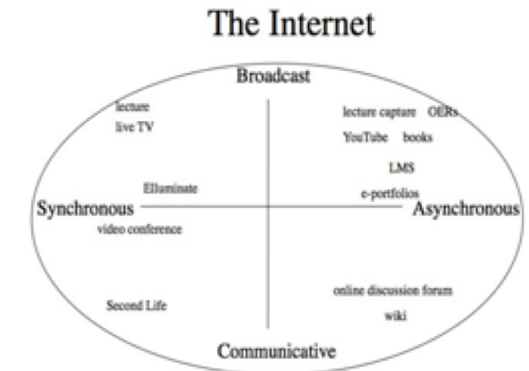
Audio: radio programs; music cassettes

Video: TV shows; movies; YouTube; documentaries; talking heads; demos

Computing: adaptive learning; AI; animation; simulation; virtual reality

Social media: Twitter; Facebook;

Internet: encompasses all media



Questions and Comments

- How useful (for teaching) is the distinction between technology and media?
- Is face-to-face teaching a medium of communication?
- How useful (for teaching) is it to categorize the different media in this way?
- Other questions and comments

Pedagogical Differences Between Media

- No significant differences between media?
- Depends very much on design
- Potential or uniqueness
- Concrete ----- abstract
- Learners can now create rich media easily: to demonstrate learning (assessment?)



Affordances of Media?

(content + skills)

Text: abstract ideas;

Graphics: role models;

Audio: language learning;

Video: dynamic change; ...

Computing: objective assessment; ...

Social media: collaboration;...

Face-to face: ????

Arguments about the role of technology in education go back at least 3,000 years. The endorsement before the rise and influence of technology on teaching, the work of 19th Century, however, is always there and known to be the Harvard Book Review, Paul Hirstler's "The Evolution of American Educational Technology" (1998) is one of the most accessible historical accounts, but only goes up to 1998. A far less frequent view than "The Evolution of Learning Technologies" (2010) has also this infographic: [The Evolution of Learning Technologies](#).

What I'm giving you here is the average usage version of all such history, and a personal one at that.

6.1.1 ORAL COMMUNICATION

One of the earliest modes of formal teaching was oral - through human speech - although over time, technology has been increasingly used to facilitate or "back up" oral communication. In ancient times, stories, histories, literature and laws were transmitted and maintained through oral communication, including various communication-related skills, and the oral tradition is still the most important medium for the ancient Greeks, many oral speech was the means by which people learned and passed on learning. Christ's oral and the Library were exclusive powers, reserved for public performance. To be learned, they had to be memorized by listening, and by reading, and transmitted by recitation, or by writing.

Nevertheless, by the 19th century, oral - written documents related to communicable methods in ancient Greece. It was before Aristotle, education had been on a downward spiral ever since. According to Plato, Aristotle taught one of the earliest (Plato) oral traditions, to write or speak those documents that a learner had learned from a written version. Because then oral traditions like any of how the great Platonist offered the King of Egypt the gift of writing, which would be a "wonder for both memory and wisdom". The King was not impressed. According to the King:

“... Learning will require discipline in their study, they will never be satisfied unless because they will rely on written memory, not their own. Therefore, the King of Egypt, for the sake of national security, when you have discovered a single part for memory, but for recording, and it is no more useful than you offer your disciples, but only in conditions, by the writing those many things without reading them, recording, you will make them waste in their study, while for the most part they will have nothing, but you must not let me with you for the sake of memory, they will be a burden to their fellow men.



Analysis by Pedagogy

Objectivist		Constructivist		Connectivist
Tests	Artificial intelligence	Essays	E-portfolios	FaceBook
Books	Simulations		Google	YouTube
	LMSs (e.g. Moodle)	Discussion forums		Serious games
Lectures		Seminars		Flickr
	Webinars			Wikis
			Virtual reality	Blogs
<i>Credit</i>			Second Life	<i>Non-credit</i>
Teacher control			Learner control	

Questions and Comments

- Are there actually any real *pedagogical* differences between media? Scientific basis?
- What determines the pedagogical power of a medium? For instance what makes text powerful or weak in teaching?
- Is it valid to relate different media to different teaching methods?

Arguments about the role of technology in education go back at least 2,000 years. To understand better the role and influence of technology on teaching, we need a little history. Because as always there are lessons to be learned from history. Paul Saenger's "The Evolution of American Educational Technology" (1996) is one of the most extensive historical accounts, but only goes up to 1990. It has been surpassed since then. Tessa Lorenzen also has a good blog post on the more recent history (for a more detailed account see Lorenzen, 2019). See also this infographic: [The Evolution of Learning Technology](#).

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5.1.1 ORAL COMMUNICATION

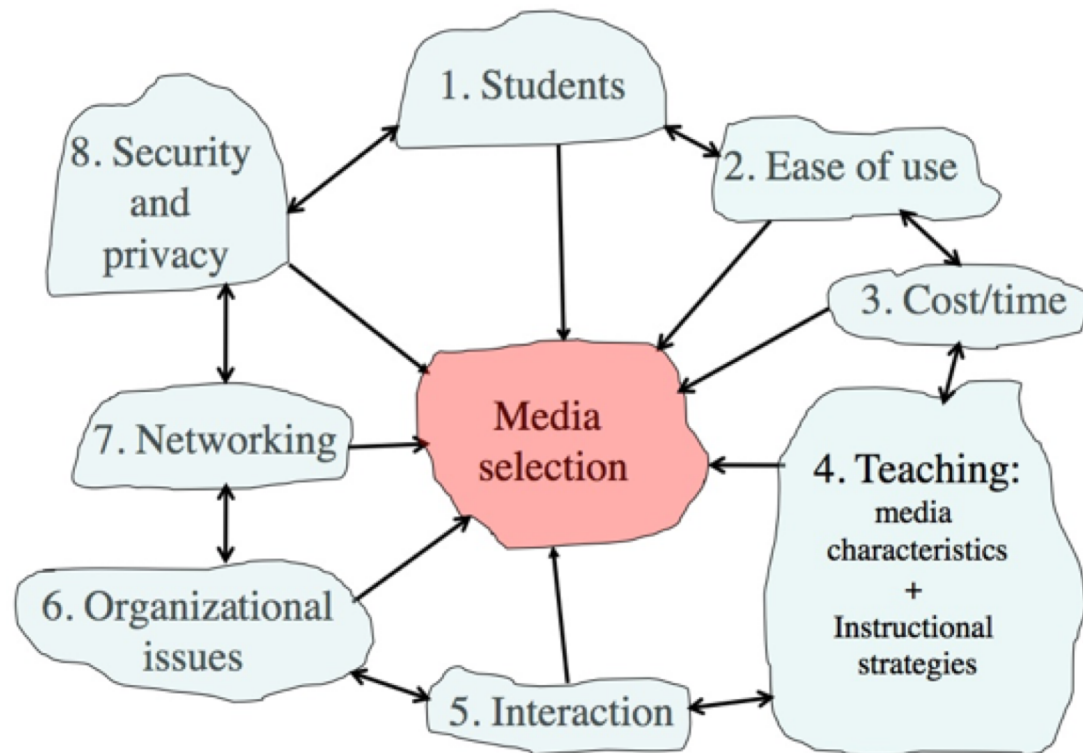
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Nevertheless, by the 5th century B.C., written documents existed in considerable numbers in ancient Greece. If we believe Tacitus, education has been on a downward spiral ever since. According to Plato, Socrates caught one of his students (Phaedrus) pretending to recite a speech that memory that he had learned from a written source. Socrates then told Phaedrus the story of how the god Thoth offered the King of Egypt the gift of writing, which would be a "recipe for both memory and wisdom." The king was not impressed. According to the king:

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	Objectivist	Constructivist	Connectivist
Tests	Artificial intelligence	Essays	E-portfolios FaceBook
Books	Simulations	LMSs (e.g. Moodle)	Discussion forums Serious games Flickr
Lectures	Webinars	Seminars	Wikis Virtual reality Blogs
Credit			Second Life Non-credit
	Teacher control		Learner control

Media Selection: The SECTIONS Model

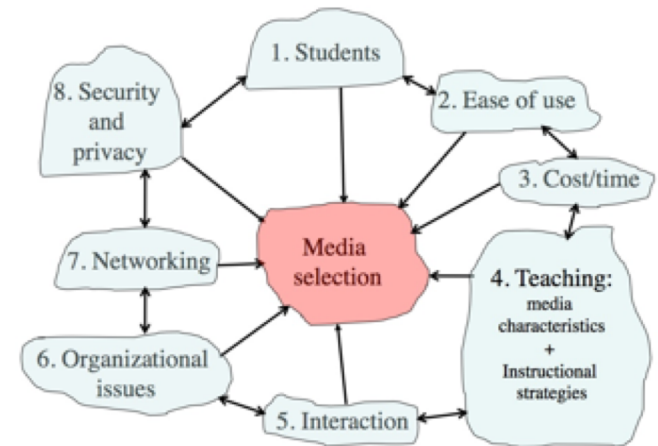


Media Selection: The SECTIONS Model

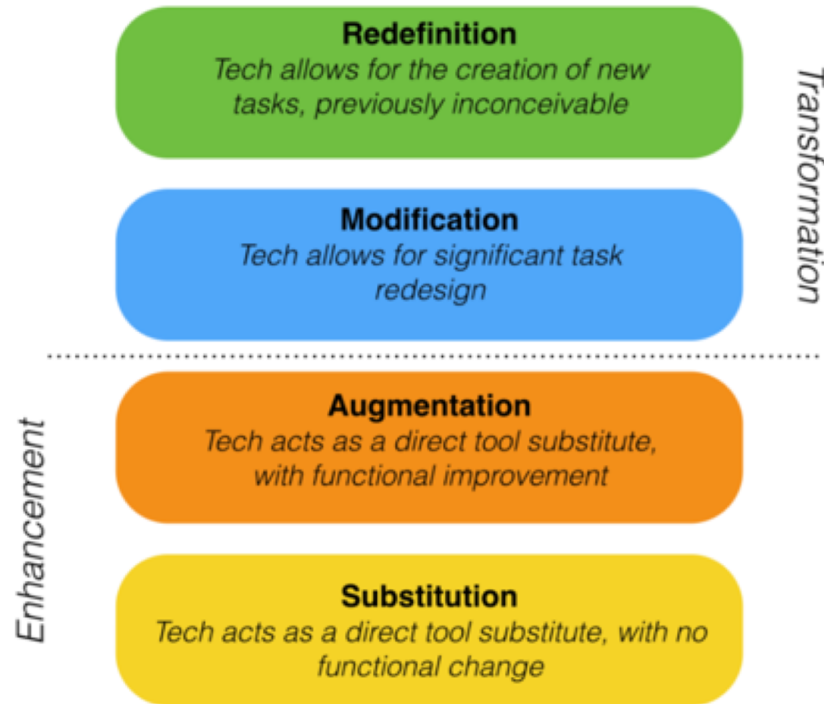
Intuitive, based on thinking about all these factors: art more than science

Start with 'gut' feeling then check against the SECTIONS criteria

Embed SECTIONS model within an overall design approach (e.g. ADDIE or agile).



The SAMR Model (Reuben Puentedura)



Questions and Comments

- Other models/ways of selecting media? Does it really matter to have a ‘model’ or theory?
- ZOOM lectures or ADDIE-based LMS courses: which is best for online learners? Does the ‘Bates’ approach help in making such decisions?
- Difference between SAMR and SECTIONS?
- Other questions/comments

General Discussion: Questions/Comments

