Mobile Devices & Distributed Learning

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Mobile Device Capabilities

• Already exceed the desktop and laptops!

• Networking – 2G, 2.5/3G, WLAN and Bluetooth built in to every single smartphone of today

• Content capture – Pre-equipped with photo (12 Mpixels this year!) and Video (HDTV capture coming!) camera, audio

• Sensors – GPS, Accelerometer already built in, more sensors coming
Opportunities

• Learning on the go
• Learning on demand
• Collaborative Learning
  – Learning from One Another
• Preparing for a new mission – military, first responders etc
  – Time is precious
  – Information changes in real-time – out of date material can be dangerous, especially in irregular warfare

• Every soldier can become a collector of data
  – Collect pics / vids using handhelds
  – Auto meta-data tagging with manual options
  – Disseminate to all who need info in real-time
• Unit turn over – when a current unit is turning over a territory to a new unit

• Knowledge transfer is critical

• As the situation changes, the information needs to be updated frequently and in real-time

• Nothing suits the needs better than mobile devices
On Demand Learning

• We have become used to on demand everything!
• We don’t want to wait and like to get things when we want or need them
  – Learning process takes place in context and on demand (as opposed to “organized page turning”)
• Enables workers to access training when they need it, reducing classroom training expense, and producing an immediate impact on performance.
Space & Time Dimensions for Learning

- Same space & same time – Synchronous (e.g., classroom, face to face meetings)
- Different space & different time – Asynchronous (e.g. stored and remotely accessible)
- Same time & different space – Synchronous in time (e.g., live broadcast)
- Same space & different time – (e.g. shift work)
- It is possible to develop a single system that caters to all three!
Collaborative Note Taking

• Enable students to
  – Receive power point slides complete with the sound track
  – Annotate slides with their notes
  – Share notes with group members in real-time and on their handhelds.
Collaborative Note Taking

Diagram showing a note-taking web server with users connecting and sharing text from slides.
Different levels of Collaboration

• Same time and same location
  – In the classroom

• Same time and different location
  – Students who are offsite can receive slides and notes in real-time

• Different time and different location
  – Receive slides and notes after class anywhere

• Same space and different time
  – Subsequent class benefits from the slides and notes
• Students accessed slides and notes just before exam – standard behavior 😊

• Completed in 2005
• Productized by Fuji-Xerox
• Content creation has become easy
  – Phones are a good way to capture pictures, videos and sounds

• Sharing is tedious
  – Push by email or MMS (Multimedia Messaging)
    • Time consuming
    • Wasteful of resources
  – Upload to portals (flickr, youtube etc)
    • Extra steps
    • Privacy issues
    • Inform intended recipients

• For first-responders (or other busy people), this won’t work.
What is TwiddleNet?

- Turns smartphones into personal mobile servers
- Personal servers host user’s content – images, videos, audio, other real-time sensor data
- TwiddleNet gateway ties the personal mobile servers into a network
Why TwiddleNet?

• Immediate content capture and publish
• Full owner control of content
• Harness the power of mobile devices twiddling most of the time
• Allow access to content which is otherwise inaccessible
TwiddleNet Architecture

- Gateway to personal mobile servers
- Allows search, viewing and download of content hosted on personal servers
- Content access statistics for smart caching
- Accessible from handhelds and desktops
- Match the end-user device capability
• Phones can work as personal content servers or content requesters.
  – In the server mode, they capture content, tag it and send alerts to the portal.
  – In the content requester mode, they get updates from portal and request desired content from servers.
• Devices can perform both roles simultaneously.
Summary

• Mobile devices have come a long way
  – Exploit the content capture, connectivity and sensing capabilities

• Best match for delivering Advanced Distributed Learning
  – Low cost
  – Convenient
  – Effective
Thank you

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My Mission

Live without a Laptop
and
Be able to do more!!
Sony Ericsson Cybershot 12MP
http://www.youtube.com/watch?v=rQa9nP4yym