Podcasting Photogrammetry – A Contribution to Life-Long Learning

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1. Introduction

Vision of mankind: „Locations of diversified knowledge“

- Ancient library of Alexandria / Egypt (288 BC – 642 AD)
  served as: academy, research center, meeting point of intellectuals

1. Introduction: The Memex of V. Bush

Vision of V. Bush (1945)

- Rapid Selector: microfilm storage and retrieval device led to
- Memory Expander (Memex): A prototype hypertext system, foreshadowed modern computer and hypertext linking

Memex performance

- electronically linked to a library
- able to display books and films
- follows automatically cross-references (links)
1. Introduction: Internet trends

- Evolution of the Internet, the Web and Web-based services
  - Largest mankind’s knowledge depository – Google Books
  - Web 2.0
  - Localized content
  - Easy access to content and services of all kind
  - 3D Imagery/Map interfaces: Google Earth, Microsoft Virtual Earth
  - Joining 3D Digital worlds and augmented worlds
  - News, music, movies, videos, teaching units, etc.

- Excellent mobile communication networks (2G, 2.5G, 3G)

- Broadband Internet access (LAN, WI-FI, WIMAX)

- Human Computer interaction and user generated content (YouTube - MySpace – Flikr – Digg - Facebook/StudIvZ/Xing, SecondLife)

1. The Apple iPod hype

The iPod family and the iTunes MusicStore

Copyright: Apple
1. Introduction: University teaching

- **Past:** "Teaching was not sexy!" (for most of the professors)
  - too time-consuming
  - more burden than fun and interest (for both, the profs and students)
  - prevents from research (where the profs get their acknowledgements)
  - often delegated to the professors associates
  - teaching material was hardcopy and often old-fashioned

- **Present:** "Teaching is as important as research!"
  - too less students in engineering and sciences
  - computer kid generation expects state-of-the-art teaching
  - today’s students are very flexible and mobile, use mobile devices
  - student’s don’t like the ‘dictatorship’ style teaching
  - teaching material must accessible anytime and anywhere

- **Future:** "Advanced teaching is a driving force to fill the universities!"
  - teaching units are rated (by worldwide student peers)
  - teaching/lecture archives generate business and revenues
  - Life long learning has to be TRAINED by advanced university teaching

2. What is Podcasting?

Podcasting

- Mobile Access
- Database
- Deliver and Access resources
- audio
- video
- ppts
- pdfs
- ... Anywhere! Anytime!

Delivering

- iPod

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2. Podcast devices

- The iPods, notebooks and other computers
- Further devices
- Devices tomorrow
  - hidden in your suit and shirt
  - Small display devices for your regular glasses

3. Models for Podcasting – University Podcasts

- Curriculum
  - In Class: Course Podcast, Languages, Slides & Notes, USB Key
  - Aggregation: Documentaries, Newspapers, RSS Blogs, Edu Podcasts
- Academics
  - On Campus: Class Schedule, Announcements, Dean's message
  - Infrastructure: Campus Tour, Driving Directions, Cafeteria Menu
- Collaboration
  - After Class: Clubs, Group Work, Sports, School Radio
- Leisure

Copyright: Apple
Models for Podcasting (video podcasts)

create → distribute → access  ... the podcast

ad 1)

create

(a) audio + screen: annotates the softcopy lecture notes (txt, doc, ppt, pdf files)
... all you need: presentation computer, 10 US$ micro, SW (record, software generation)

(b) audio + video: renders the (annotated) teaching unit with audio and video (although ext. of (a) by video)
... all you need: blackboard (or presentation computer), video camera, SW (video processing, podcast generation)

(c) multiplexed classroom computer's podcast: Instruction and students look at individual computers, which are synchronized
... all you need: SW for computer synchronization (and possibly (a) or (a) + (b))

ad 2)

distribute

- decide about the video format

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- Process the raw recording and generate the podcast
3. Models for Podcasting – Access through iTunes U

4. Podcasting photogrammetry + related disciplines

- **Visions:** „KISS (Keep It Simple Stupid)”
  - Avoid completely blackboard writing and notes
  - Deliver asap the annotated lecture notes in pdf format
  - Create two podcast formats: QVGA and VGA

- **Tools:** “Off-the-shelf HW and SW”
  - Notepad computer (to allow for digital notes)
  - Camtasia Studio 4 (of TechSmith) SW for recording
  - “off-the-shelf” micro for € 4.95

→ Poor man’s podcast production environment
4. Podcasting photogrammetry + related disciplines

**ifp workflow for podcast creation**

1. select the portion of the lecture notes (any data format) and convert it to a journal file (.jnt)
2. start Camtasia Studio 4 recording SW, sampling ≥ 7 fps
3. present your lecture in front of the students, annotate the notes
4. store the annotated lecture in *.jnt, print a *.pdf and put it on the Web – store the raw video file for editing, postprocessing and podcast production

→ Examples: Annotated lecture notes, Podcast 640*480

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5. Conclusion

**Present: Experiences**

Pilot phase winter semester 2006, most of the lectures and exercises in photogrammetry, digital signal processing, statistical inference and geoinformatics were podcasted in summer semester 2007

- Excellent feedback by the students (extra student eval)
- Students don’t miss the lectures, we present on-campus
- Just in case student cannot participate in the oral lecture the download help

Very simple, efficient with good echoe!

**Future: Archive of teaching units, contribute to the “Best-of …”**

- Every presentation can be digitally archived (in any podcast format)
- New business models or Open Course Ware free-of-charge?
- Life-long-learning on demand, anytime and anywhere is easy to realize