Reaching out to students by Implementing Mobile Learning

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Mobile Learning Day
FernUniversität
November 8, 2012

Athabasca University
Canada's Open University™

TEKRI
Athabasca University
Technology Enhanced Knowledge Research Institute

Outline

- Global initiatives
- Why use mobile learning to reach out to learners?
- Mobile learning research at Athabasca University
- Designing for mobile learning
- Future trends

Athabasca University

- Athabasca University, Canada's Open University, is dedicated to the removal of barriers that restrict access to and success in university-level study and to increasing equality of educational opportunity for adult learners worldwide
- Distance delivery
- Approx. 39,000 students in 85 countries
- Undergraduate and graduate programs
- Over 900 courses in more than 50 undergraduate and graduate programs in a range of arts, science and professional disciplines

Technology Enhanced Knowledge Research Institute (TEKRI) – Areas of Research

- Open Education
- Social computing
- Mobile and ubiquitous computing
- Semantic technologies
- Adaptivity and personalization
- Learning and knowledge analytics

UNESCO

- UNESCO Mobile Learning Week (December 2011) to set policy and develop research agenda for Global Mobile Learning
- Second Mobile Learning Week (February 2013)

The World Bank

Washington, DC

Presentation on

Use of ICT and mobile devices to reach people around the world

South Korean Schools To Be Digital By 2015

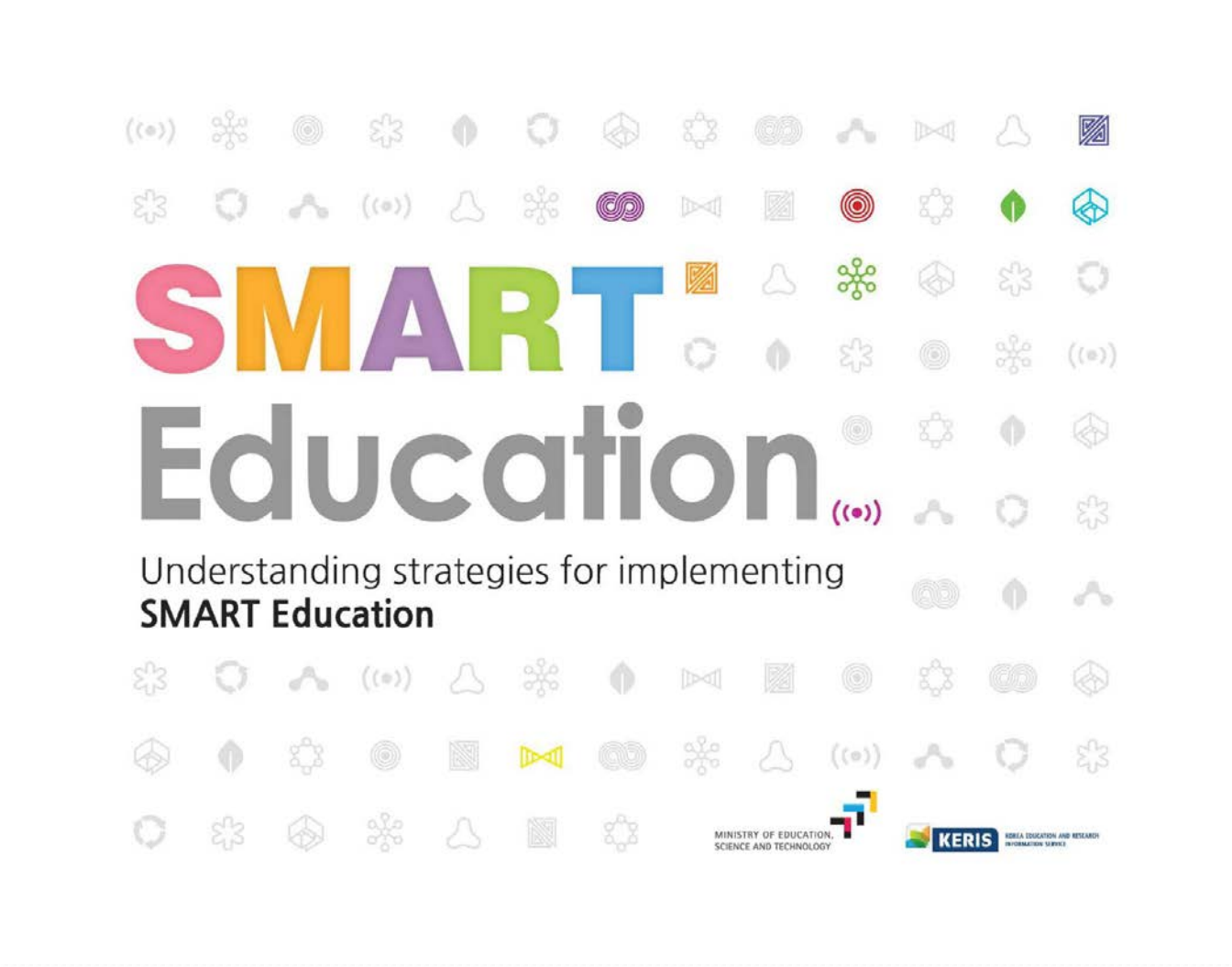
The Wall Street Journal

JULY 5, 2011, 7:53 AM GMT

South Korean Schools To Be Digital By 2015

- By 2015, the entire school-age curriculum in South Korea will be delivered on an array of computers, smart phones and tablets, and the government is going to spend $2.4 billion buying them.

Smart Education – South Korea



Globalization – Shift to Mobility

- E-Commerce to M-commerce
- E-government to M-government
- E-collaboration to M-collaboration
- E-library to M-library
- E-health to M-health
- E-games to M-games
- E-learning to M-learning

- “In the pocket banking”

The Economist

- “A library in everyone’s pocket”

- “A doctor in everyone’s pocket”
- Are we ready for “Learning in the pocket”

Problems with the current education system

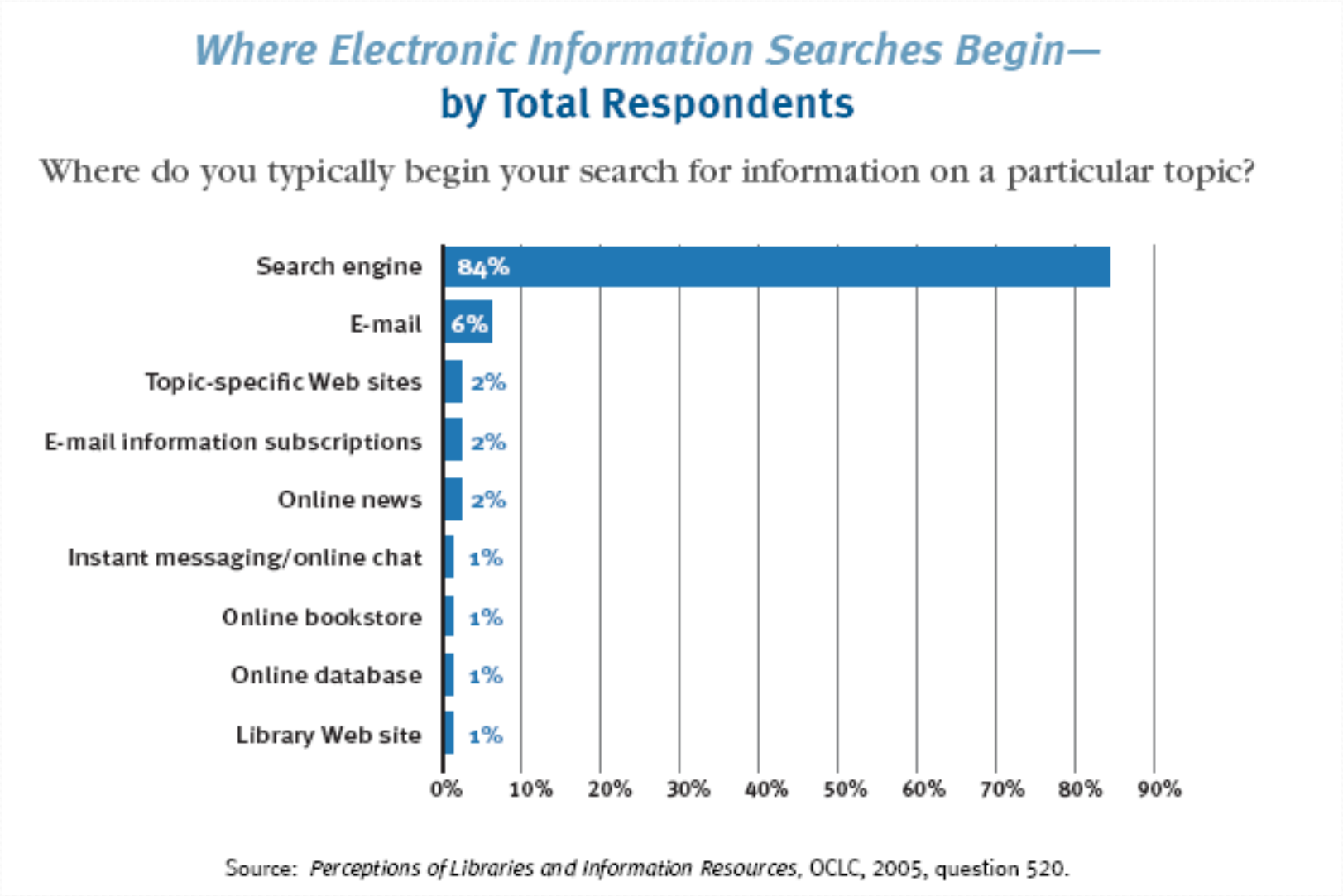
- Teacher centered rather than learner centered
- Learning materials not developed for different learning styles
- Not all citizens have access to education
- Large percent of budget spent on infrastructure rather than on learning
- High drop-out rate

How students prefer to learn?

- In groups (55%)
- Doing practical things (39%)
- With friends (35%)
- By using computers (31%)
- Alone (21%)
- From teachers (19%)

Becta, 2008

Saw, G. & Todd, H. (2007). Library 3.0: where art our skills? World library and Information: 73rd IFLA Conference and Council, August 2007, Durban, SA.



Ideal Situation

- All students will achieve mastery (100%) in all courses.

Thinking Process for Teacher Delivery

- Teacher learns the materials
- Teacher develops own knowledge base depending on existing schema
- Teacher becomes an expert in the field
- During teaching, teacher retrieves information (knowledge) from memory to transmit to students – teacher is the medium
- Students interpret the teacher information based on their existing schema which may be different from the teacher schema
- Students store the information in their personal knowledge base which is different from the teacher knowledge base

Thinking Process in Distance Learning (Self-paced) – Learner-centered

- Learner accesses the information using technology
- Learner interprets the information using existing schema to build knowledge base
- Learner accesses tutors for help during the learning process

Students 21st Century Skills (Ally, 2010)

A. **Communication**
B. Personal Skills
C. Project Management
D. **Continuous Improvement**
E. Conflict Resolution
F. **Problem Solving**
G. **Information and Communication Technology**
H. **Team Work**
I. Interpersonal Skills
J. Emotional/ Social Intelligence
K. Personal Well-being
L. Leadership
M. **Globalization**
N. **Research**
O. **Critical Thinking**

The Ultimate School in the 21st Century (Verizon Foundation, U.S.A.)

- Use of digital media
- Games as a learning strategy
- Online courses
- Mobile devices in learning

Definition of Mobile Learning

- Learning using information and communication technologies in mobile contexts - ISO/IEC 29140-2 (TR)
- Other definitions
  - Mobile learning is the delivery of electronic learning materials on mobile computing devices to allow access from anywhere and at anytime (*Ally, 2004*).
  - m-learning can be defined as learning using mobile and wireless computing technologies in a way to promote learners' mobility and nomadicity nature (*Shon, 2008*)

Why Mobile Learning to Reach Out to Learners

New Generations of Learners

New Generations of Learners

- Online presence
- Now generation
- Virtual generation
- Social networking
- Games
- Digital experts
- Adapt to technology quickly
- Technology is second nature

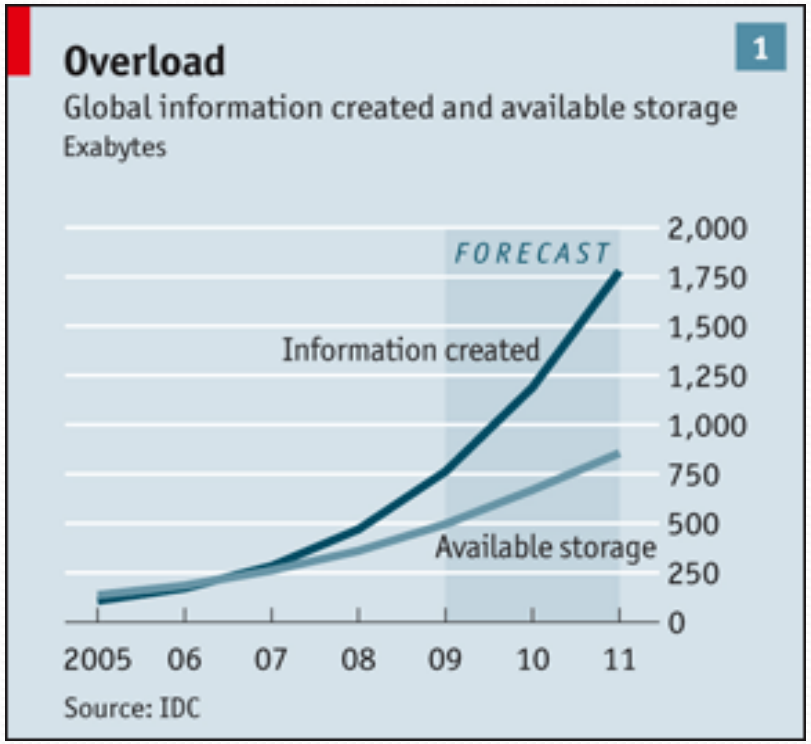
Stats on December 31, 2011

- **1,154,082** - New book titles published this year
- **486,969,372** - Newspapers circulated today
- **5,016,909** - Cellular phones sold today
- **170,621,232** - Money spent on videogames in the world today (US$)
- **2,300,698,564** - Internet users in the world
- **333,210,860,185** - Email messages sent today
- **3,887,154** - Blog posts today
- **158,628,950** - Tweets sent today
- **3,433,845,337** - Google searches today

A special report on managing information
The Economist, Feb 25, 2010

1 Exabyte = one billion gigabytes

5 Exabytes: All words ever spoken by human beings



Information is available on recorded media

- Students can access the information from anywhere and at anytime using technology to personalize the information create personal knowledge.
- What is the role of the professor/teacher if information is readily available and accessible using technology.

Emerging Technologies

- Mobile cellular has been the most rapidly adopted technology in history. Today it is the most popular and widespread personal technology on the planet, with an estimated 5 billion subscriptions globally by the end of 2011.

Virtual Keyboard

Future of Technology

- According to a recent Futurelab report, by 2020, digital technology will be embedded and distributed in most objects.
- Personal artefacts such as keys, clothes, shoes, notebook, and newspaper will have devices embedded within them which can communicate with each other.
- We will not be taking any devices with us, they will exist everywhere.

- Input to and feedback from digital technologies will become much more ‘natural’ by 2020, and we feel as though we are interacting with things and with people, not machines, screens and keyboards.
- Emotional computing

Emotional Computing

Why M-Learning?

- Remove barriers to learning
- Access from remote locations
- Students can learn from anywhere and at anytime
- Many learners already have the technology – they are bypassing the desktop/notebook phase
- Learn in context

Why M-Learning?

- Cater to different learning styles
- Learning is more learner-centered
- More affordable and portable
- Learning materials are easy to update and deliver
- New generations of learners
- Information explosion

Designing and delivering mobile learning

Use of Learning Objects

- Break content into small chunks
- Design as learning objects
- Store in repositories for easy access

Learning has to be interactive to engage learners
(Deep and Meaningful Learning)

Interactivity for Mobile Learning

- Object interactivity (proactive inquiry) - objects (buttons, people, things) are activated by using a pointing device.
- Linear interactivity (reactive pacing) - the user is able to move (forwards or backwards) through a predetermined linear sequence.
- Support interactivity (reactive inquiry) - generalized and context-sensitive support (help messages and tutorial supports).

Interactivity (cont'd)

- Update Interactivity - individual application components or events in which a dialogue is initiated between the learner and computer-generated content (practice with feedback)
- Construct Interactivity - the creation of an instructional environment in which the learner is required to manipulate component objects to achieve specific goals (assemble an apparatus).
- Reflective Interactivity - responses to prompts or questions where learners can reflect on their response and make their own judgment as to its accuracy or correctness.

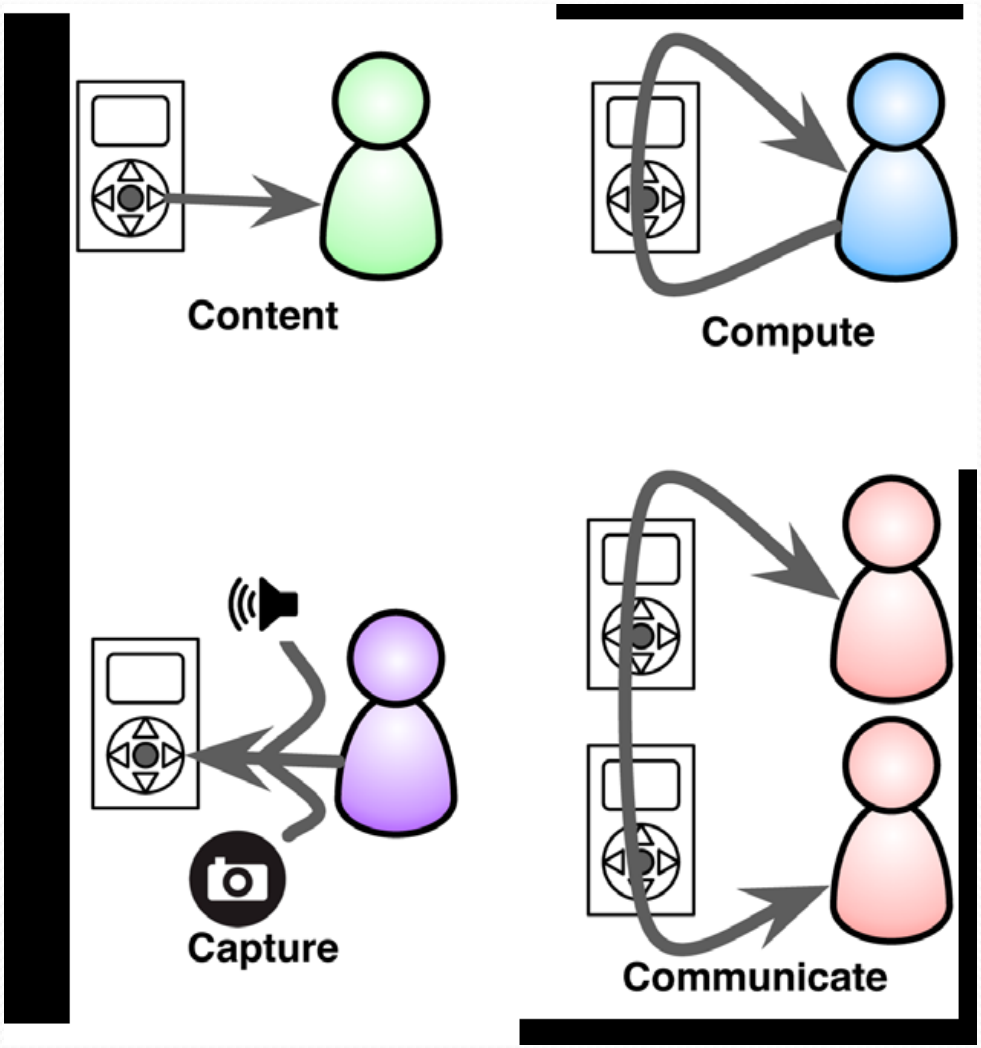
Interactivity (cont’d)

- Simulation Interactivity - extends the role of the learner to that of controller or operator, where individual selections determine the next learning sequence.
- Hyperlinked Interactivity (proactive navigation) - the learner has access to a wealth of information, and may "travel" at will through that information base.

Interactivity (cont'd)

- Immersive Virtual Interactivity - provides an interactive environment in which the learner is projected into a complete computer-generated world which responds to individual movement and actions.

Quinn (2011) – Four C's of mobiles



Current Research Initiatives at Athabasca University

- ESL training for workers
- Use of mobile devices by older adults
- Learners use of mobile devices in distance education
- Mobile technology in libraries
- State of mobile learning in Canada
- Mobile ESL training in Indonesia
- Mobile learning in the workplace

Course Delivery Using Mobile Devices

Mobile Course Delivery

- Study was directed to over 500 students in 3 different computer science courses (all are completely online and distance delivery)
- Students were asked to complete a unit of study using a mobile device then complete a survey
- Many students completed one or more units but only a sub-set of the students completed the survey to determine their experience with the mobile devices

Results

- No difficulties encountered in access using mobile devices.
- A variety of devices used by students:

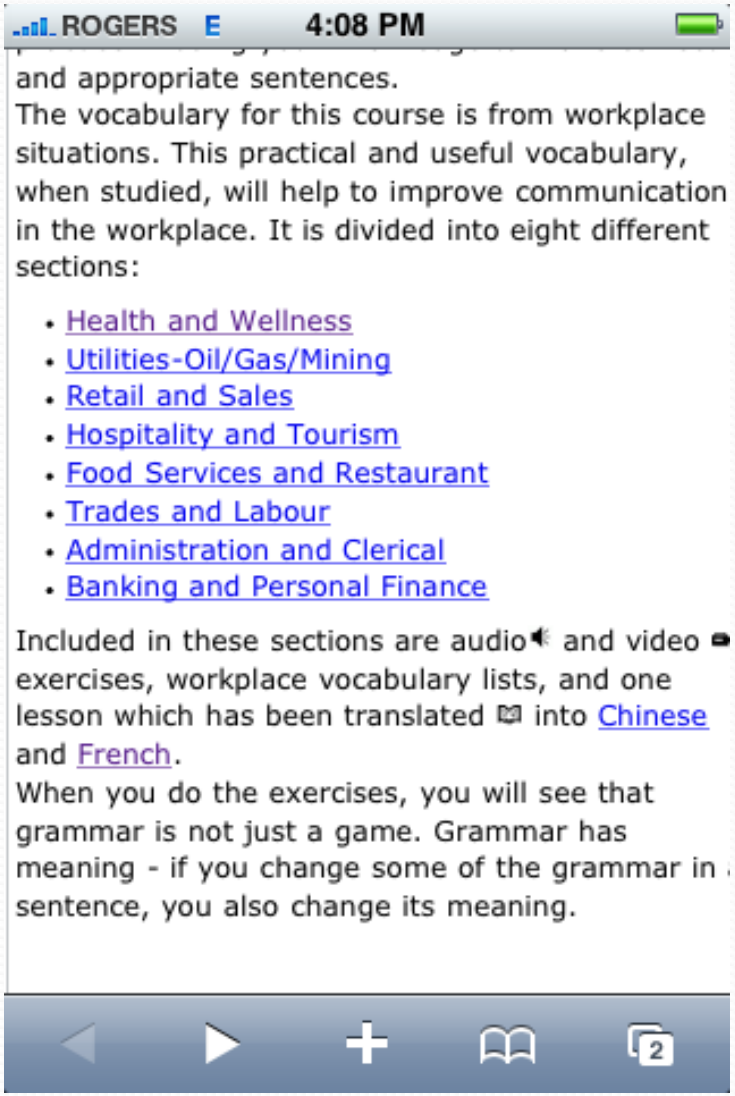
  iPaq, PalmOne Treo and Tungsten, Blackberry, Dell Axim, Pantech 3200, Motorola Razor, Samsung, UT Starcom, Toshiba Pocket PC e330, and even a PSP (Portable Sony Playstation).
- A complete range of connection plans including WiFi, phone plans, and desktop synchronization.

What Activities Should Mobile Devices Support

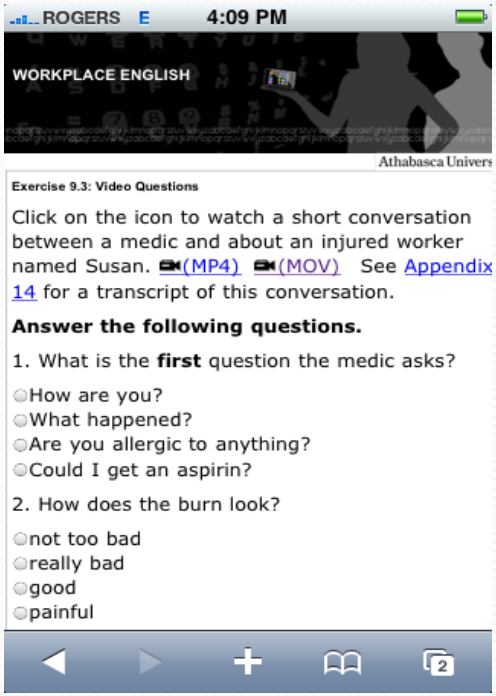
Access to Online Assignments	17
Login to courses and study materials	15
Peer-to-peer interaction	12
Course Forums	12
Access to Quizzes	12
Access to Helpdesk	11
Group interaction sites (Facebook)	8

Language Training

Mobile Learning Lessons in Different Sectors

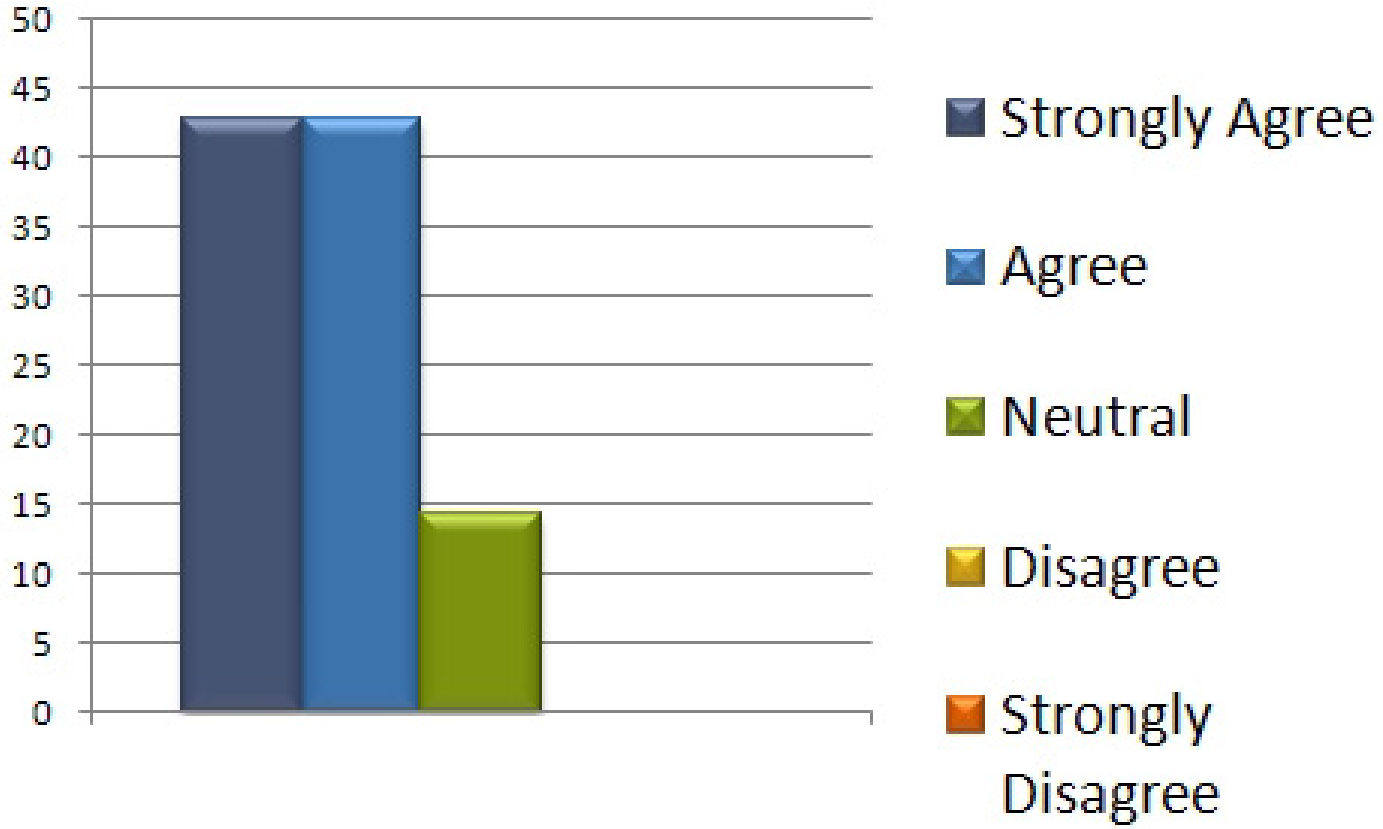


Multimedia Features -video

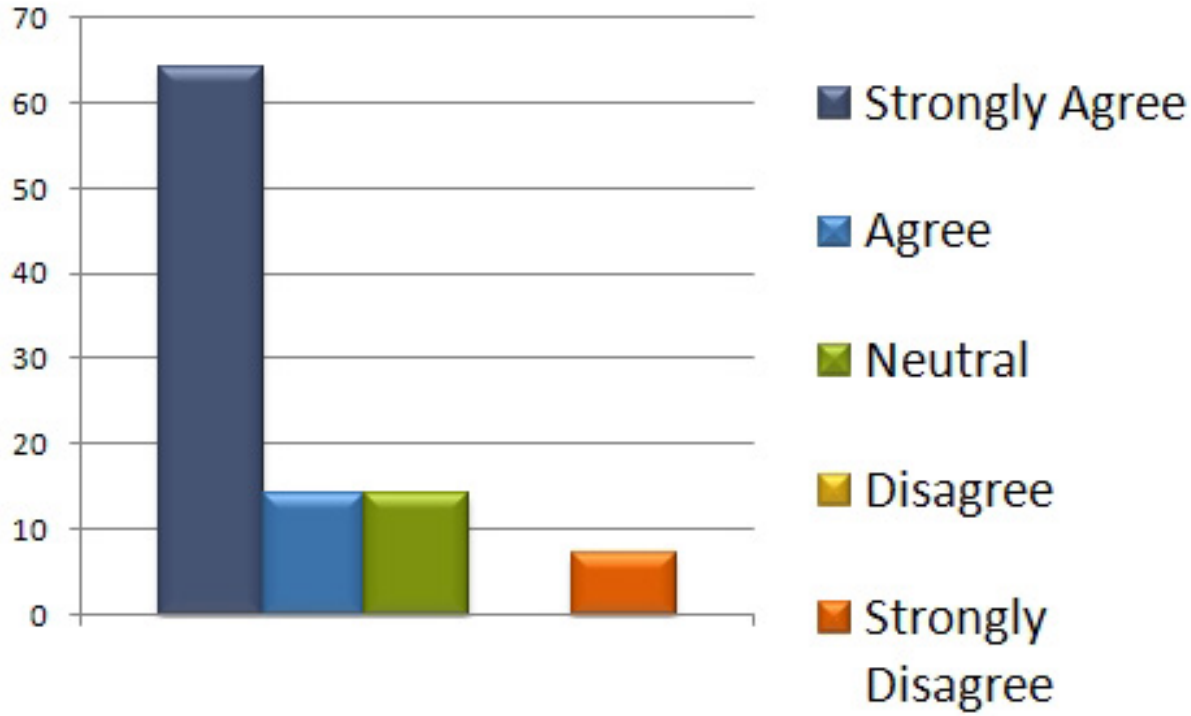


- Health and Wellness video followed by interactive questions

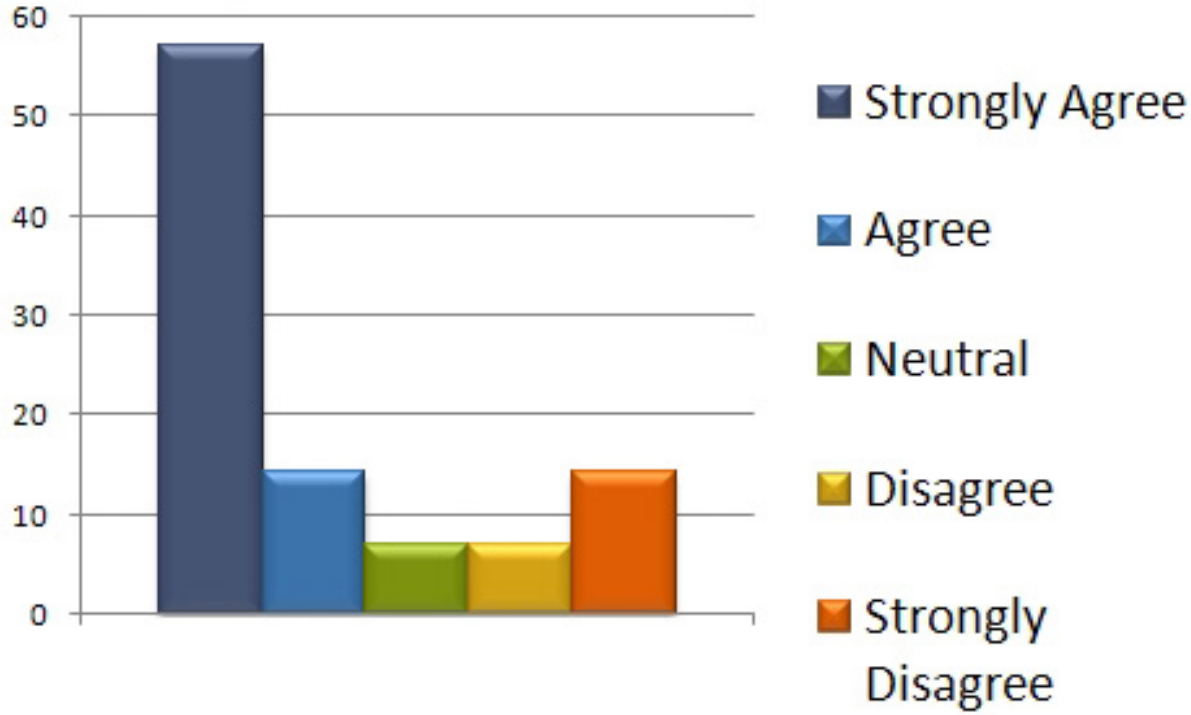
Q7 The technology provides flexibility for me to learn anywhere and at anytime.



Q14 The use of this type of technology could make learning materials more easily available.



Q26 I would like to take other lessons using mobile technology.



State of Mobile Learning in Canada and Future Directions

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Recommendations for Canada

- A ***national agency should be established*** or an existing agency should be used to coordinated mobile learning activities across Canada so that mobile learning developers, researchers, and mobile device manufacturers share best practices and research results.
- ***Develop standards for mobile learning*** so that learning materials can be developed and shared between organizations.
- Include mobile learning as a stream in the ***Tri-council research grant programs***.
- Develop ***training programs*** specializing in mobile learning .

Recommendations for Organizations

- Integrate mobile learning in strategic, business, and educational ***plans***.
- ***Create partnerships*** between industries and educational institutions to collaborate on the mobile learning research and the development of learning materials.
- Develop a ***research agenda for mobile learning***.
- ***Publish research studies*** so that all Canadians can have access to the results of the studies.

Mobile learning challenges

- Technology is changing at a rapid rate
- Developing standards for mobile learning
- Etiquette of using mobile devices when learning
- Not enough training programs to train teachers on how develop mobile learning materials

Mobile Learning Trends

- Virtual devices
- Immediate assembly of learning materials
- User generated content
- Intelligent agents to adapt the interface for the learner
- Intelligent learning materials (e.g. learning objects) to cater for individual learner needs
- Open Education Resources (OER)
- Less use of textual materials – more multimedia

Research Needed

- Design of open education resources for global use
- How to design for unknown technology
- How to design for learners on the move
- Most effective interfaces for virtual learning technology
- How to design information rich content for learning technology delivery
- What are the characteristics of learning technology for different cultures
- Interactive strategies using learning technology
- Intelligent learning materials
- Learner-generated content
- How to deliver vocational training in a mobile world?

MIT Event - 2013

We are pleased to announce that the 2013 MIT LINC Conference will take place ***June 16-19, 2013 on the campus of MIT in Cambridge, MA. U.S.A.*** The theme of this conference will be:

Realizing the Dream: Education Becoming Available for All.
Will the World Take Advantage?

Expanded Internet access, Open Educational Resources, MOOC's (Massive Open Online Courses) – all are changing access to quality education worldwide. Price is plummeting and quality is increasing. Such innovations in technology-enabled education (TEE) are finally bringing into view the possibility of realizing LINC's credo:

With today's computer and telecommunications technologies, every young person can have a quality education regardless of his or her place of birth or wealth of parents.

Thank you

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