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Big Issues in Mobile Learning

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Visions of Mobile Learning, 2005

"Learners in the future will be able to download interactive courses and learning modules from the backseat of a cab or in an airport terminal"

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Optimizing Your Sales Workforce through Mobile Learning,

Christopher von Koschembahr, IBM, 2005

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Visions of Mobile Learning, 2000

"New technology offers the opportunity for children and adults to communicate with teachers and fellow learners around the world… to call on information and knowledge when needed to solve problems and satisfy curiosity"

Mike Sharples

The Design of Personal Mobile Technologies for Lifelong Learning, 2000

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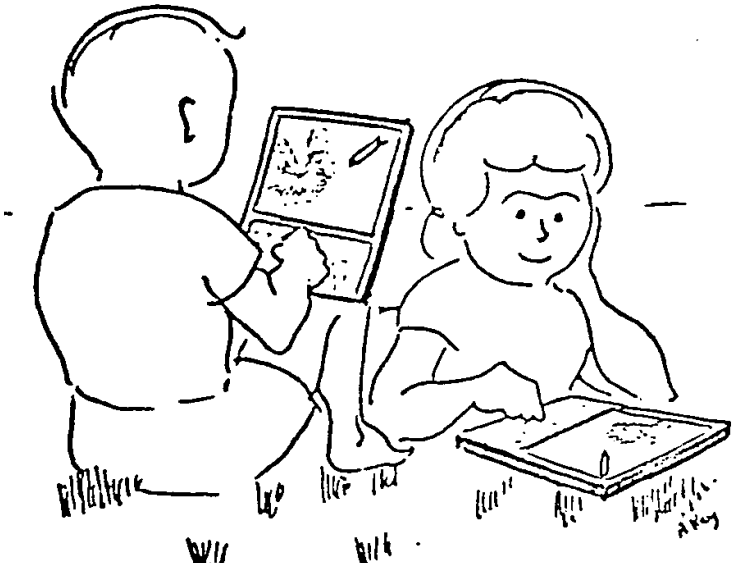
Visions of Mobile Learning, 1972

"Zap, with a beautiful flash and appropriate noise, Jimmy's spaceship disintegrated. Beth had won Spacewar again. The nine year olds were lying on the grass of a park near their home, their DynaBooks hooked together to allow each of them a viewscreen into the space world where Beth's ship was now floating triumphantly alone."

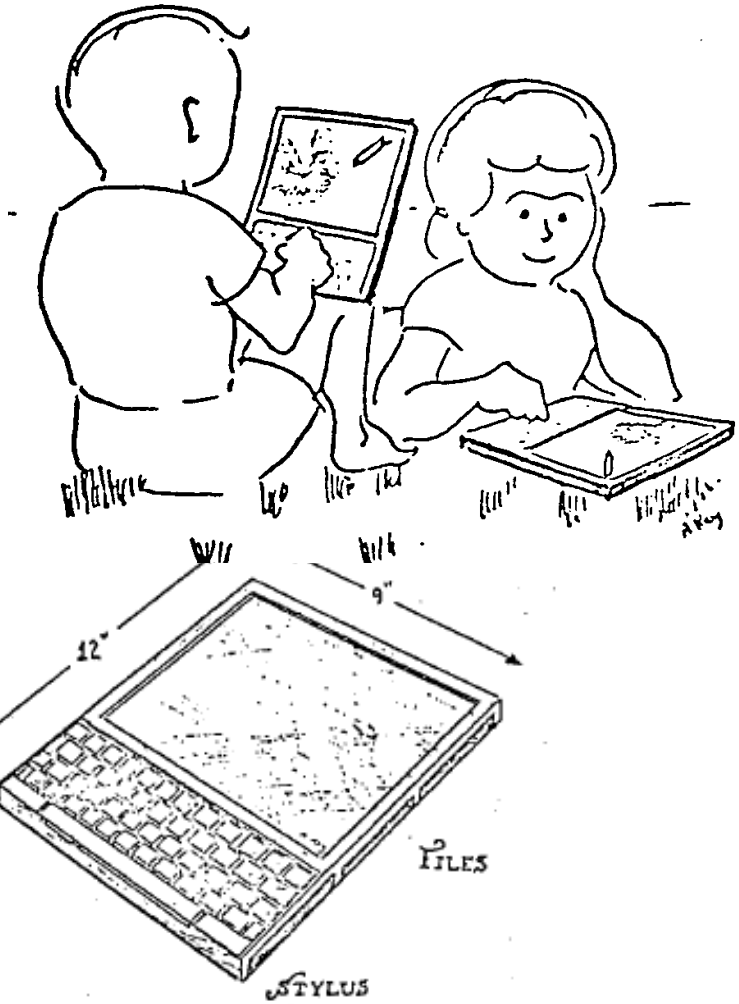


Visions of Mobile Learning, 1972

"Jimmy connected his DynaBook to his class's LIBLINK and became heir to the thought and knowledge of ages past…It was like taking an endless voyage through a space that knew no bounds."

Alan Kay

A Personal Computer for Children of all Ages, 1972



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Visions of Mobile Learning, 1972

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Visions of Mobile Learning, 1963

As Antarctic glaciers went it was a fairly large one… The sad masses of rock were heavily scarred where the ice flow had once rubbed them, for in this year of 1994, the glacier was smaller than it had been even a century ago.

Jed grinned up at his father. "Now for a bit of real work," he said.

"You don't know what real work is," his father smiled. "When I was a boy, back in the nineteen-sixties, I'd have been at school at your age… in those days, anything you wanted to learn, you had to get into your own head. We didn't have miniputers in those days. Computers had been invented, and they were getting smaller, but it wasn't until the great developments in microtechnology in the seventies that portable computers were made".

The Thing Under the Glacier, Brian Aldiss, 1963

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Visions of Mobile Learning, 1963

Instinctively [Jed] switched over to his miniputer to review the situation.

It was a simple thing to do. Many of the parts of the miniputer were synthetic bio-chemical units, their "controls" built into Jed's aural cavity; he "switched on" by simple neural impulse. At once the mighty resources of the machine, equal to the libraries of the world, billowed like a curtain on the fringes of his brain…Its "voice" came into his mind, filling it with relevant words, figures, and pictures.

"…Of all continents, the Antarctic has been hardest hit by ice."

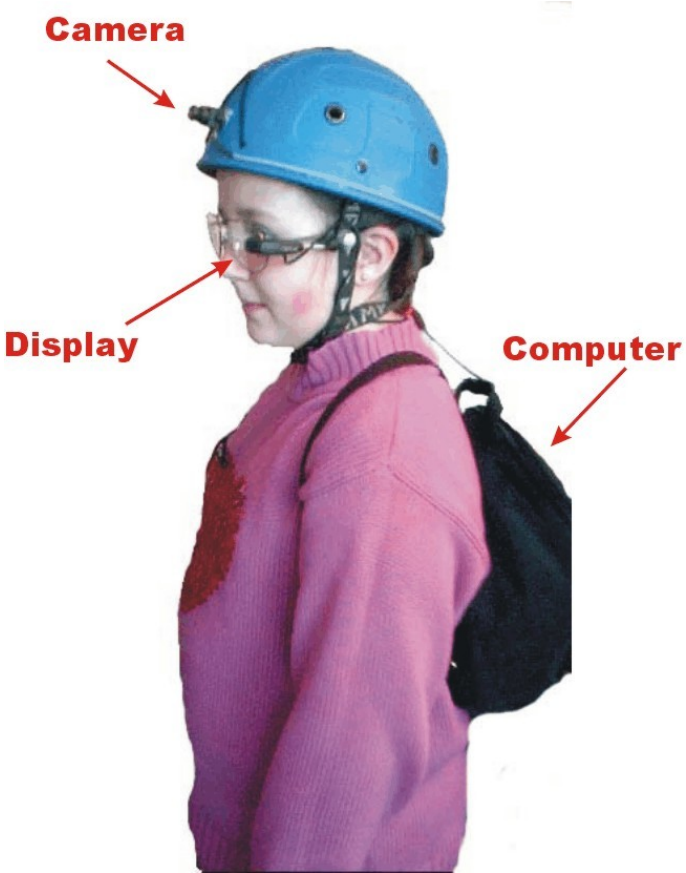
As it spoke, it flashed one of its staggeringly vivid pictures into Jed's mind. Howling through great forests, slicing through grasslands, came cold winds. The landscape grew darker, more barren; snow fell.

The Thing Under the Glacier, Brian Aldiss, 1963

'Micro-ear' invisible earpiece

'Brain-gate' neural interface

'Micro-optical' high resolution display



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Big Issues in Mobile Learning

- What is mobile learning?
- Does mobile learning work?
- What have we learned about mobile learning over the past ten years?
- What is the future of mobile learning?

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What is mobile learning?

- Learning with portable technology
  - Focus on the technology
  - Could be in a fixed location, such as a classroom
- Learning across contexts
  - Focus on the learner
  - Could use portable or fixed technology
  - How people learn across locations and transitions
- Learning in a mobile world
  - Focus on the mobile society
  - How to understand people and technology in constant mobility
  - How to design learning for the mobile society

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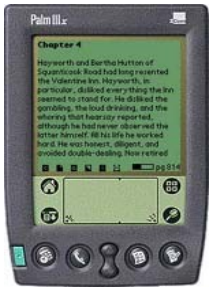
First phase: classroom handhelds

- Classroom response systems
- E-books
- Handheld computers in classrooms
- Data logging for schools

- *Focus on handheld technology for formal education and training*



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Does mobile learning with classroom handhelds work?

- Classroom response systems (Draper,Dufresne, Roschelle)
- Laptops and tablets for students with standard software
- Group learning with wireless mobiles and phones (Nussbaum et al., Dillenbourg)
- Classroom handheld simulation games (Collella, Virus Game)

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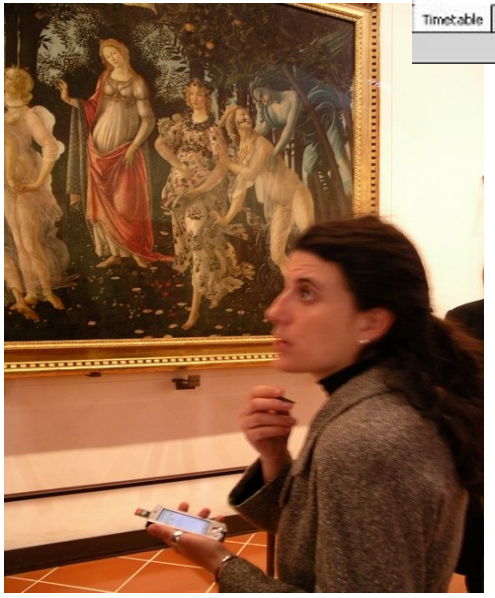
Second phase: learning across contexts

- Field trips
- Museum visits
- Bite-sized learning
- Professional updating
- Personal learning organisers
- MOBIlearn and M-Learning European projects

- *Focus on learning outside the classroom*



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Does mobile learning across contexts work?

Aldiss, 1963: Children learn effectively when

- they are in a rich and challenging environment
- they are investigating an open question of real interest
- they are accompanied by an adult guide
- mobile technology gives them rich and relevant information in context
- they can make connections between formal knowledge and personal experience

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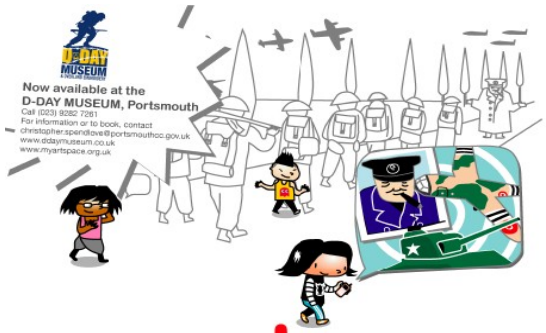
MyArtSpace project

- Funded by DCMS, Culture Online
- Aim: to make school museum visits more engaging and educational
- Combines
  - physical space (museum, classroom)
  - virtual space (online store and gallery)
  - personal space (mobile phones)
- Children as curators, create their own interpretations
- They use mobile phones to collect content, take photos, make recordings, share notes
- They create, share and publish online collections
- Full-scale deployment in test sites over one year



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MyArtSpace

- Rich and challenging environment
  - D-day museum
- Open question of real interest
  - Were the allied landings a success or failure
- They are accompanied by an adult guide
  - Teacher and museum guide
- Mobile technology gives them rich and relevant information in context
  - Audio and picture presentations on the phone in context
- Connections between formal knowledge and personal experience
  - Classroom – museum – home - classroom


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Initial results: D-Day Museum

- The mobile phones worked
  - Photos, information on exhibits, notes
- Students liked the 'cool' technology and enjoyed the experience more than previous visit
- Made a connection between learning in classroom and museum
- Teachers were pleased that students engaged with the task (to create an argument either for or against the D-Day landings being a success)
- Some minor usability problems with the online store and web presentations
- More work needed on collaboration and sharing of results

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What have we learned about mobile learning?

- MOBIlearn project final brainstorming session
- What we didn't know at the start, but we know now (after 33 months and €7.4 million)
  - It's the learner that's mobile
  - Mobile learning can both complement and conflict with formal education
  - The importance of context, constructed by learners through interaction
  - How learning is interwoven with everyday life

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Big Issues

- Conflict between mobile social networking and formal school learning
- Ownership – who owns the technology, and the learning
- Privacy, in an always-connected world

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Third phase: learning for the mobile society

- Ambient learning
- Learning-enabled objects, buildings, cities
- Support for communities of mobile learners

- *Focus on*
  - *Mobility of the learner*
  - *Design of learning spaces*
  - *Informal learning*
  - *Social learning*
  - *Lifelong learning support*

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Vision of Mobile Learning, 2006

Learning-enabled city

Mary looked out of the window of the tram. “This is my city”, she thought. She touched the display screen by her seat to bring up a Google Map. It indicated streets bright with trails and notes left by her friends, all converging on a design space near the park. A streetcam showed the crowds arriving there for the SimCity festival. “This year,” she said to herself, “we’re going to design a city that’s really cool”.