



# Using Mobile Technologies for Learning

Louise Mifsud

Oslo University College

Faculty of Education and International Studies

- Mobile Learning: Small devices, Big Issues
- Reconsidering Off-task: A comparative Study of PDA-mediated Activities in Four Classrooms

# Overview

- Mobile learning
  - Learning with mobile technologies?
- The study
  - Method and data collection
- Theoretical approach to learning
- Findings
- Re-defining off-task activities?



# Mobile learning

# Mobile learning

- Term mobile learning often used to refer to learning supported by mobile technologies
  - Criticized for having a techno-centric focus, and for ignoring the learning aspect
  - Recent definitions have turned the focus back towards learning (see for example Sharples (2009))

## Sharples' definition of mobile learning

- Characterized as “the *processes* (both personal and public) of *coming to know through exploration and conversation across multiple contexts* amongst *people* and *interactive technologies*” (Sharples 2009, p. 5, my italics)

# Designing mobile learning activities

- Sharples suggests that mobile learning activities should be
  - Driven by specific learning objectives (the use of the technology is not the target)
- Challenge
  - To attention (disruption)
  - Actions (new actions; new implications)

# Five criterial success factors for mobile learning (Naismith & Corlett)

- Access
- Ownership
- Connectivity
- Integration
- Institutional support

- Mobile learning for supporting learning outside school context (Taylor 2006)?
- Distinction between formal and non-formal learning blurred?
  - Accrediting learning outside the classroom not easy
  - Learning for its own sake?
- New activities



# MyArtSpace, AMULETS & Digital Narrative

- Seek to bridge the indoor and the outdoor
  - Outdoor here in the form of museum and history reenactment (scenarios), movie creation
- Novelty effect?

◦ **“off-task”...?**

# Can “off-task” activities be reconsidered?

- Finding:
  - Students in the classroom did not use their PDAs exclusively for the tasks defined by the teacher, but initiated their own activities, often described as off-task
  - Off-task often described in negative terms
  - Are off-task activities solely negative?
  - Suggest using “student-defined” rather than “off-task”, in contrast to “teacher-defined” activities (part of the curriculum defined by the teacher)

- What kind of PDA-mediated activities did the students engage in?
- What were the contexts of these activities?

# Theoretical approach

- Study approached from a *socio-cultural* approach
  - Learning understood as mastery and appropriation of cultural tools
- Also draws on a Human-Computer Interaction approach (*affordances* and *constraints*)

# Mastery and Appropriation

- Mastery
- Appropriation
  - Do these always go together?
  - Does mastery always precede appropriation?
  - Can there be appropriation without mastery?
    - What characterizes the latter?
    - Do we have indicators for this (Sharples calls this “accrediting”)?

# Tools – a SCA perspective

- All tools are cultural tools
  - Meaning and purpose given by the socio-cultural context to which they belong
- Mediating role of cultural tools crucial to understanding learning
  - All actions are mediated
- This perspective is not enough to understand as it “black boxes” the tool

# Tools – an HCI perspective

- Affordances (Gibson)
  - as “[...] what it *offers* the animal, what it *provides* or *furnishes* [...]” (italics in the original, p. 127).
- Constraints (Norman)
  - define physical, semantic, cultural and logical *hindrances* of a new technology
- This aspect provides the “what not” – what cannot be done



# Data

- Four 6<sup>th</sup> grade classrooms
  - Two in Norway, two in the USA
- Norway
  - Three + four weeks videoed observation during consecutive semesters; interviews (students and teachers); student concept maps; logs (access to PAAM)
- USA
  - Two + three weeks (over 2 years) videoed observation; interviews (students and teachers); student concept maps (access to PAAM)

 **PDA-mediated activities**

# How were the PDAs used?

- Teacher-defined activities
  - USA
    - Internet search, concept maps, animations
  - Norway
    - Sentence writing, weekly logs, simultaneous beaming for vocabulary and maths recall

# Example: Norway

The screenshot shows a Microsoft Internet Explorer browser window. The address bar displays the URL <http://paam.goknow.com> and the page title is "Freewrite - Microsoft Internet Explorer". The webpage content includes a large letter 'P' and the heading "107 engelsk, by". Below the heading is a list of idioms:

- as lucky as you
- as red as blod
- as good as
- as long as a snake
- as cold as ice
- as hot as sun
- as black as the darknes
- as blue as the heaven
- as white as snow
- as yellow as my swether

On the left side of the browser window, there is a sidebar with a tree view. On the right side, there is a "Trashcan" section with a "Sync" button and a list of items with timestamps:

Timestamp
005 5:24:26 AM
05 6:15:35 AM
05 6:15:23 AM
05 6:15:32 AM
2004 5:13:44 AM
05 6:15:29 AM
005 6:23:11 AM
2005 5:57:47 AM
2005 5:57:47 AM
005 6:23:10 AM
005 6:23:11 AM
005 6:23:11 AM

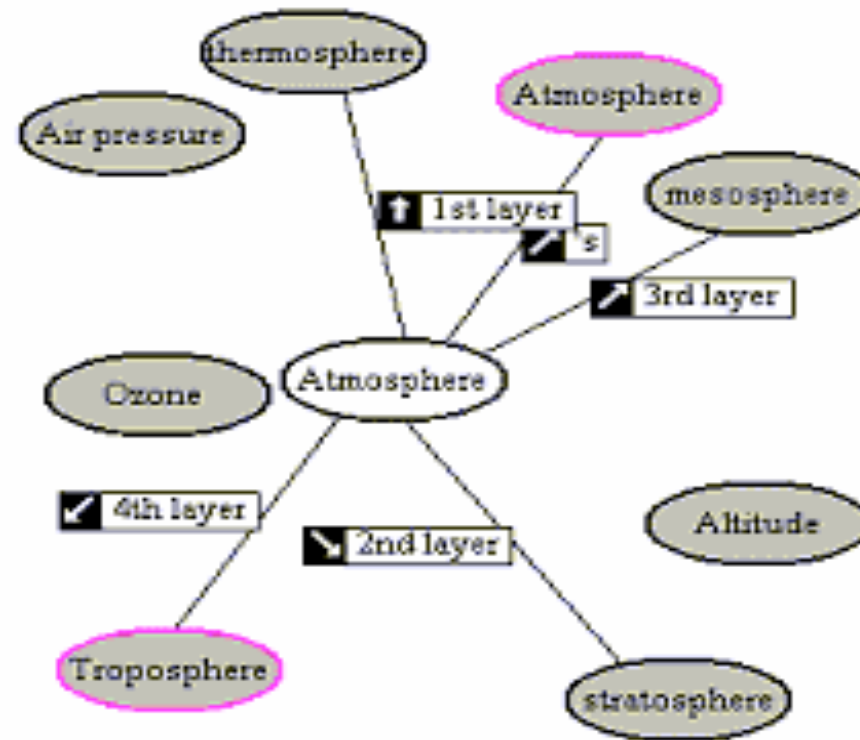
symmetriakse: det er en akse som går gjennom midten på en figur slik at vi har delt figuren i i to like deler.

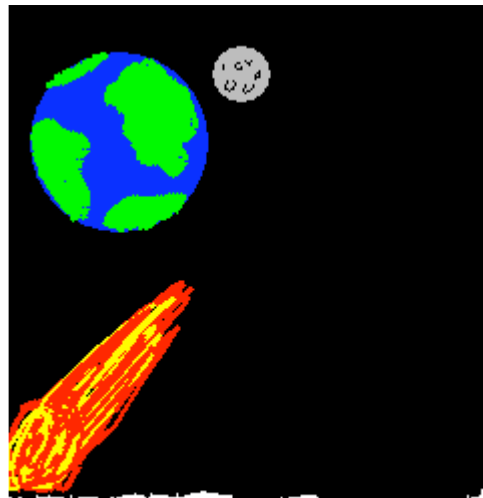
kvadrat: det er en firkant alle sidene er like lange og alle vinklene er (90grader)

radius: Det er en linje som går fra enden av sirkelen til midten av sirkelen.

vinkel: Vinkler er grader s punkt: det er midt punktet. av kristoffer!

# Example USA





## Troposphere



Airplanes fly here

# The student-defined activities

- Animations
- Personalising either using stickers (Norway) or through downloading backgrounds (USA)
- Exploration (Tried out different programs that were not used by the teachers)
- Games



# Personalisation



- Both in Norway and in the USA
- Different ways, but
- To show that your pocket pc is different...
- “Does it count?”

# Exploration

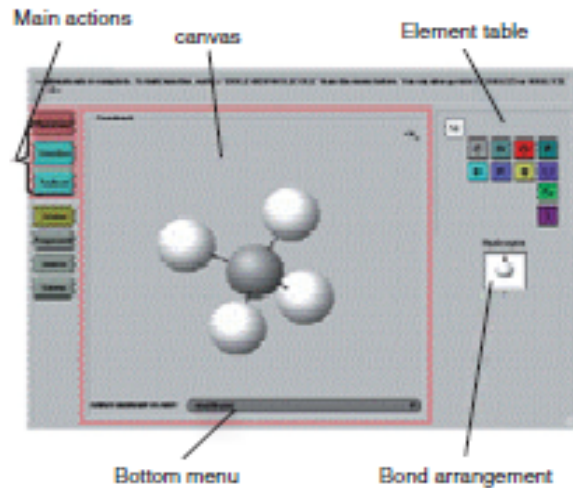
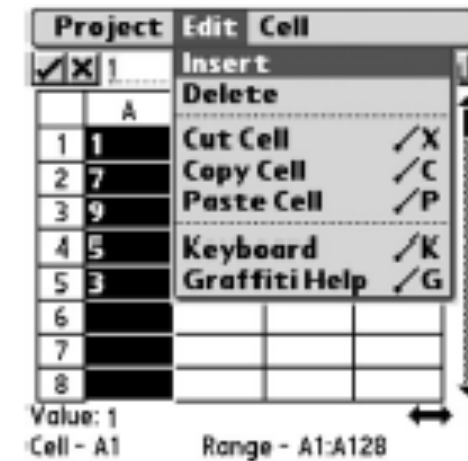


Fig 3 Screenshot of e-Chem (GoKnow).

- Appropriation of chemistry... an interest in the subject...?

- How does it start..?



# Discussion

- Indicators to understand appropriation
- SCA makes the analysis of students' contextual interactions possible
  - Student-defined activities complex – originating in one context, placed in another
- Affordance-constraint perspective gives and understanding of the “why”
- Borders between legitimate and non-legitimate actions porous?