Training researchers with Sakai

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Outline

1. Introduction
2. Why Sakai for research?
3. Centre for Doctoral Training
4. SEWPROF Initial Training Network
5. Electronic Laboratory Notebooks
6. Conclusions

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Who am I?

- Computer scientist & mathematician by training
- Brief flirtation with computational systems biology
- At University of Bath:
  - Academic Digital Technologist, CSCT
  - *Technical Data Co-ordinator, Research360 project (secondment, now over)*

Centre for Sustainable Chemical Technologies

- Cross-disciplinary research centre
- Develop new molecules, materials and processes for sustainability
- EPSRC-funded Centre for Doctoral Training

Centre for Sustainable Chemical Technologies

bath.ac.uk/csct

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Research vs Learning & Teaching

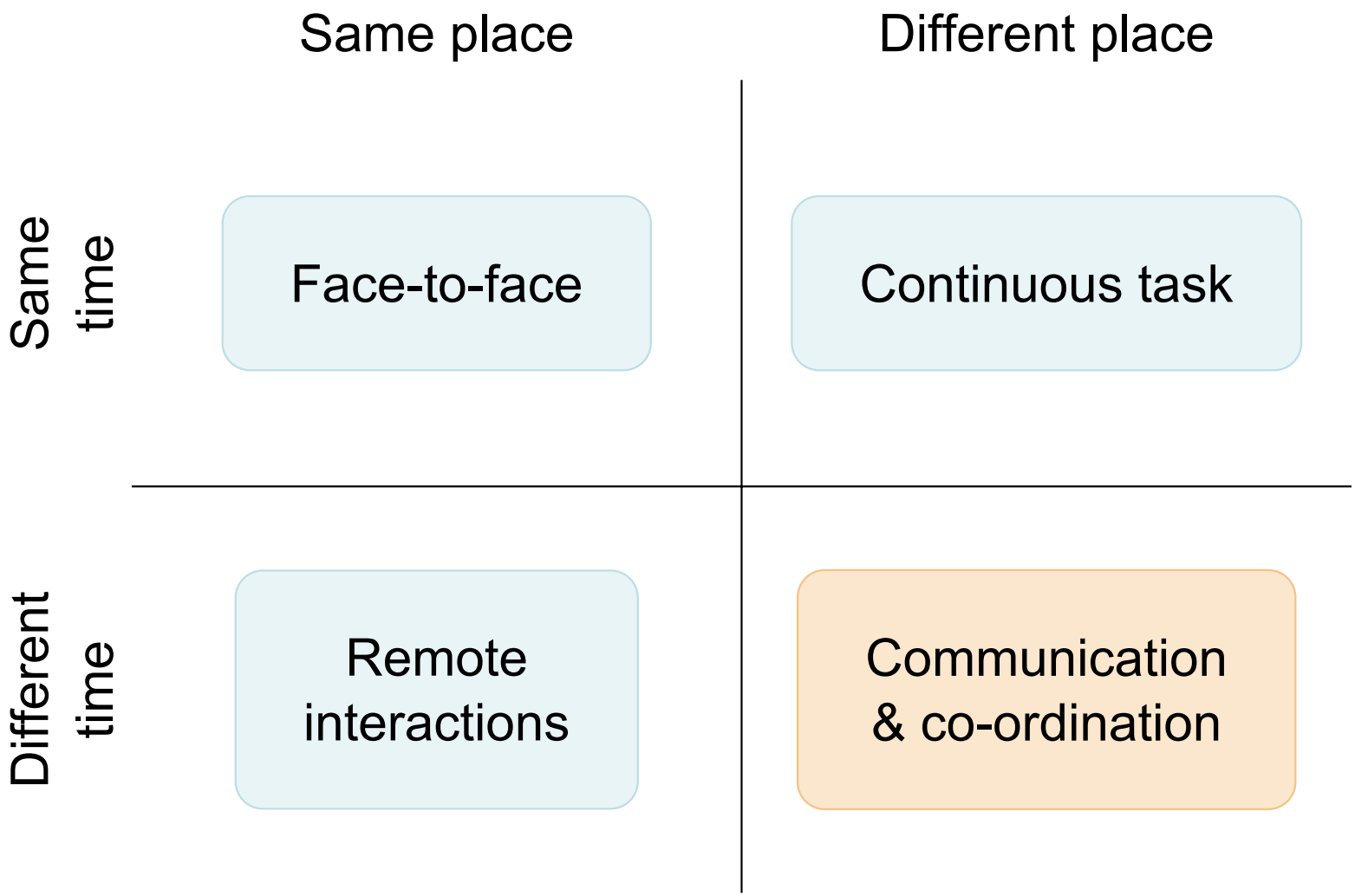
Similarities

- Busy, busy users!
- Diversity of technical inclination

Differences

- Relationships between users
- External collaborators (within and outside higher education)
- Longevity of information
- Highly user-led

Where are we looking?



Requirements

Virtual Research Environment

- Robust file sharing ✓
- Collaboration options ✓
  - Wikis, forums, mailing lists, calendar, …
- Fine-grained access control ✓
- Integration with enterprise systems ✓
- Ability to shrink wrap the problem ✓
  - i.e. as simple/complex as required

Our Sakai installation

- App server: virtual machine hosted by Computer Services (BUCS)
- Database server: centrally-managed shared MySQL5 service
- Mostly unmodified Sakai CLE
- Straightforward integration with central services:
  - LDAP/CAS for user information and single sign-on
- Temporary/external user accounts managed by BUCS
- Default site roles: Owner, Organizer, Member, Observer
- Customized skin with our branding

Very little customization required

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What is a CDT?

Centre for Doctoral Training

Centre for Sustainable Chemical Technologies

- Funded by a Research Council
  — EPSRC
- Train PhD students in cohorts
  — 12–18/year
- Strategic research area
  — Sustainable chemical technologies
- Highly collaborative
  — 18 commercial partners
- Integrated (“1+3”) PhD course
  - Year 1: small research projects & intensive training
  - Year 2–4: main PhD research & additional training

bath.ac.uk/csct/dtc

Centre administration

- General knowledge base
- Research project proposal submission and allocation
- MRes project report archive
- Public engagement coordination
- Events:
  - Weekly student seminars
  - Occasional larger events
- Meeting room diary

Research groups and projects

- Project worksites for each PhD student & co-supervisors
- Customization on request for research groups
- Ad-hoc user-created worksites for particular projects

Examples

- Research groups:
  - Hill
  - Scott
  - Chuck
  - Walsh
- Research sandpits
- Research360 project

Typical research group use

- **File sharing (Resources)**
- Wiki
- Mailing list (Email archive)
- Schedule
- *Forums*
- *Drop box*
  - Not to be confused with DropBox…
- *Polls*

Computational materials group

Central knowledge base for research group

- Minutes of group meetings
- Documentation on codes and clusters used
- Diary of group meetings
- Archive of presentations, documents, data and other files

Customizations

- Enable jsMath processing for wiki
- Add additional programming languages for syntax highlighting

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What is SEWPROF ITN?

"SEWPROF aims to develop inter-disciplinary and cross-sectoral research capability for the next generation of scientists working in the newly-emerging field of sewage epidemiology."

- €4m, 4-year project
- 16 Partners (including University of Bath)
- 11 Early Stage Researchers
- 3 Experienced Researchers
- 11 countries across the EU

www.sewprof-itn.eu

SEWPROF ITN

Requirements

Across 11 countries:

- Co-ordinate activities
- Share data, documents and other information
- Plan meetings
- Keep up-to-date with each other's research

SEWPROF ITN

Implementation

- Wiki: general knowledge base
- Resources:
- Forum: social space for students
- Groups allow control over who can access what:
  - Management team
  - Researchers
  - Core and non-core partners

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Why Electronic Lab Notebooks?

Paper lab books are:

- Easy to damage accidentally (e.g. liquid, fire)…
- …and easy to lose (e.g. public transport)…
- …yet difficult to back up!

Also:

- Supervisors want easy access to students' notebooks
- Research groups and collaborators need better access to shared knowledge
- Institutions want more protection for their main asset
- Funders and publishers are pushing for data publication

Sakai as an ELN?

Key requirements:

- Access control ✓
- Attach files ✓
- Remote access ✓
- Predefined templates ✓
- Robust storage ✓
- Structured import & export ?
- Mathematical formulae ?
- Visualise data ✗
- Alternative taxonomies ✗
- Chemistry-specific functions ✗

Options:

- Wiki
- Blog (Clog)
- Portfolio
- Resources (plus OSP forms)

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Observations

Sakai as a Virtual Research Environment

- Slow but steady uptake
- Plenty of interest from across campus
- Positive feedback from users
- Simple introductory documents & screencasts help
- Some interesting spontaneous innovations
  - OneNote synchronisation via WebDAV works
  - Student baking competition

Challenges

- Data curation & wiki gardening
- Confusing array of access control options
- Tablet/smartphone access not perfect

The future

Would like:

- Easier entry, manipulation & display of structured data
- Integration with institutional services:
  calendar, data archive, …
- Shallower learning curve for developers
- Better documentation for REST web services

That's all folks…

Any questions?

Blog	`erambler.co.uk`
Work stuff	`people.bath.ac.uk/jc619`
Twitter	`twitter.com/jezcope`
Google+	`gplus.to/jezcope`