A study of scholarly communication between chemists and of their use of Web 2.0 technologies

Dr William Town
Kilmorie Clarke Ltd
bill.town@kilmorie.com
ICIC
Sitges, Spain
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Overview of presentation

- Background to the study
- How we performed the study
- Principal results
- Advocacy plans

Background to the study

Methods of scholarly communication have changed rapidly in the past decade. Improvements in computing and social networking technologies, digital data capture techniques, powerful data and text mining techniques and other technological changes enable practices that are collaborative, network based and highly intensive.

Background to the study

Researchers, teachers and learners across academia are becoming increasingly familiar with a scholarly communication system that is digital, accessible and that enables digital preservation and sharing of materials and data.

JISC has recognised the need to increase the use of those new technologies and methodologies which will aid the use, reuse and sharing of content within the academic community, and they have recognised that advocacy programmes to encourage this use need to be discipline-based if they are to be effective.

Background to the study

- We researched the needs of academics in two specific areas, economics and chemistry.

- Recommendations were made on advocacy programmes for each discipline which will be most effective for encouraging optimum take up of useful technologies and other developments which improve scholarly communication.

Background to the study

- Study commissioned by JISC (UK Joint Information Systems Committee)
- Principal contractor was Publishing Directions (Deborah Kahn – project leader)
- Project team composed of Nicki Dennis, Lara Burns and me
- Started November ‘08, reported in April ’09

http://www.jisc.ac.uk/media/documents/aboutus/workinggroups/scadvocacyfinal%20report.pdf

How we performed the study

Project phases

- Understanding new and recent developments in scholarly communications
- Identifying the specific requirements of each discipline (i.e. chemistry and economics)
- Data analysis
- Creation of advocacy programmes
- Expert review of recommendations

Identifying and understanding the specific requirements of academics

Aim is to understand similarities and differences between the chemistry and economics.

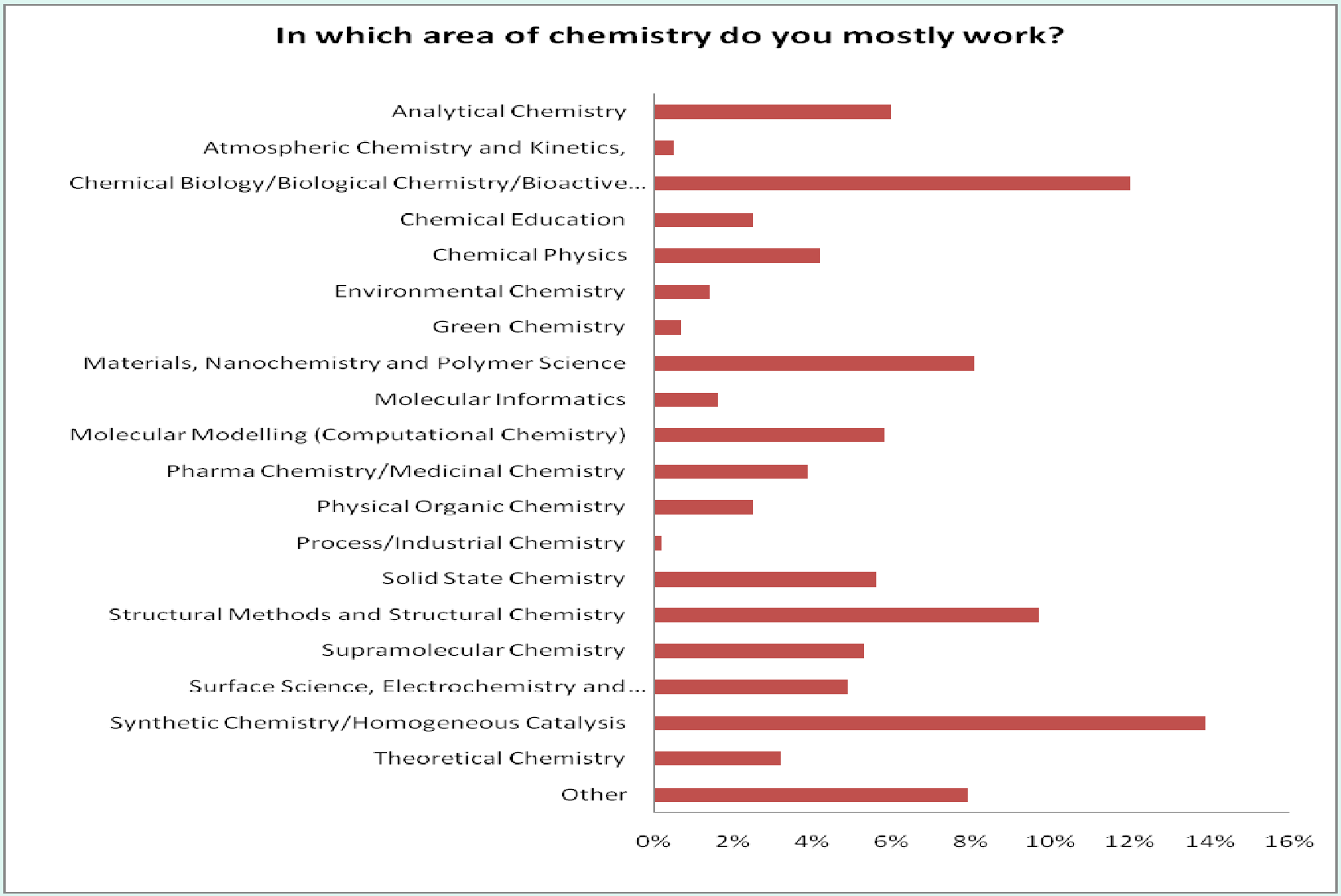
This was carried out through a combination of:

- Internal project team expertise captured through regular brainstorming within the team;
- Consultation (by phone and in person) with academics in both disciplines.
- Conducting a larger scale internet-based survey of academics in both disciplines.

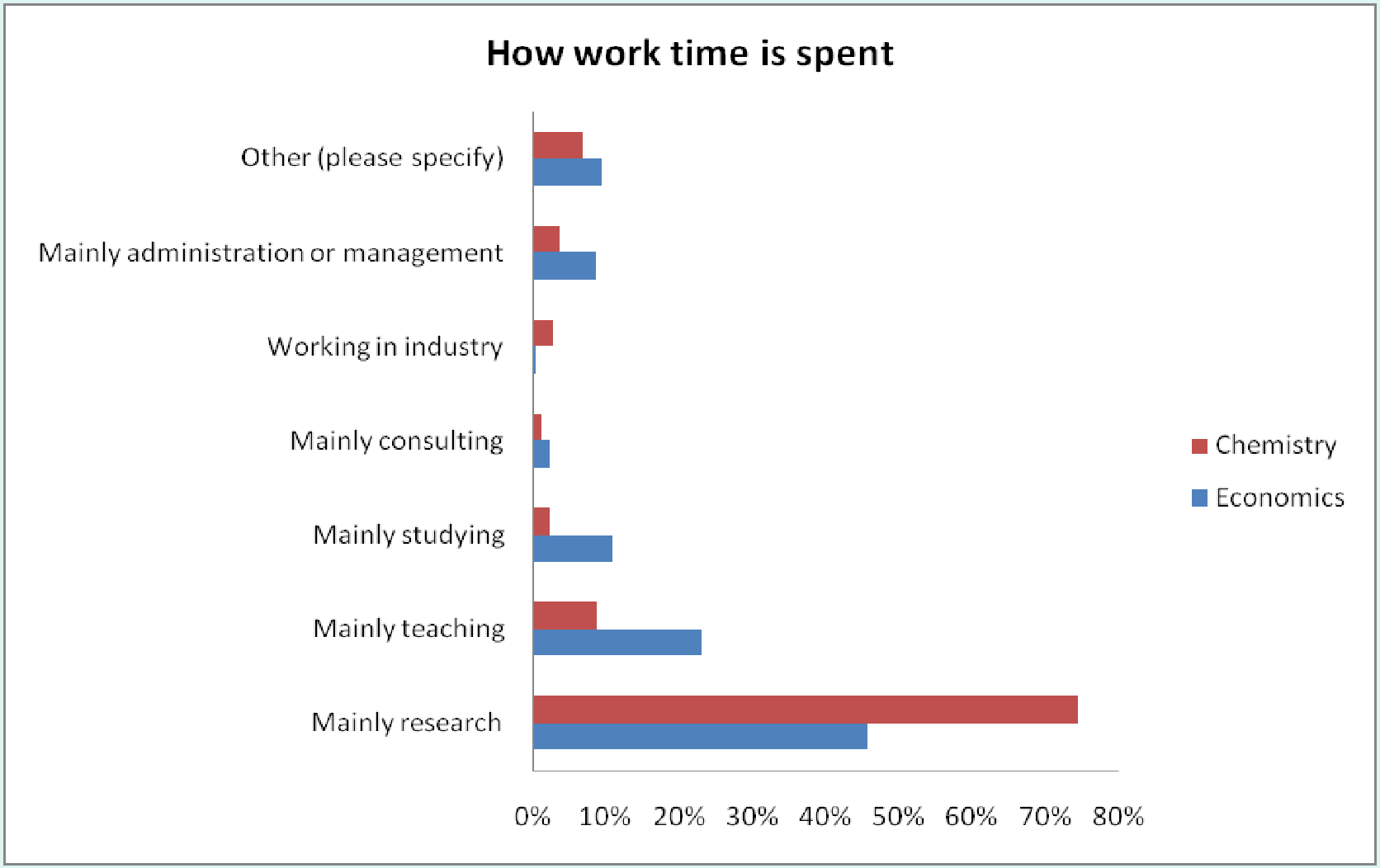
Chemistry survey

- Face to face and telephone interviews were conducted with 14 experts in chemistry to guide the online survey
- 440 responses were received to the online survey from the chemistry community.
  - The UK responses from chemists represented 1% of the UK community of chemists and students (total approximately 40,000) but over 3% of the UK community of academic chemists and students (total approximately 12,000).

Online survey sample



Online survey sample



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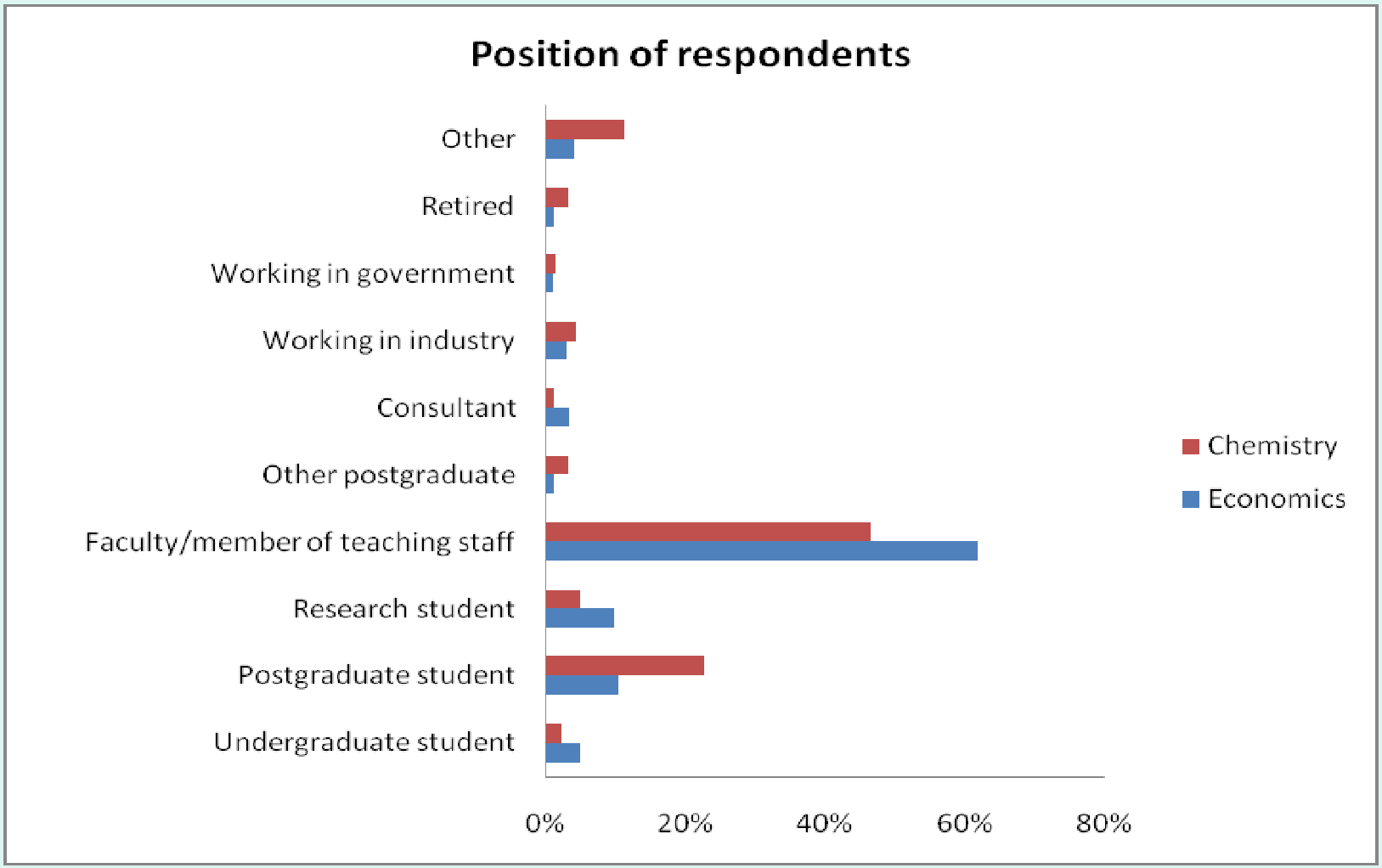

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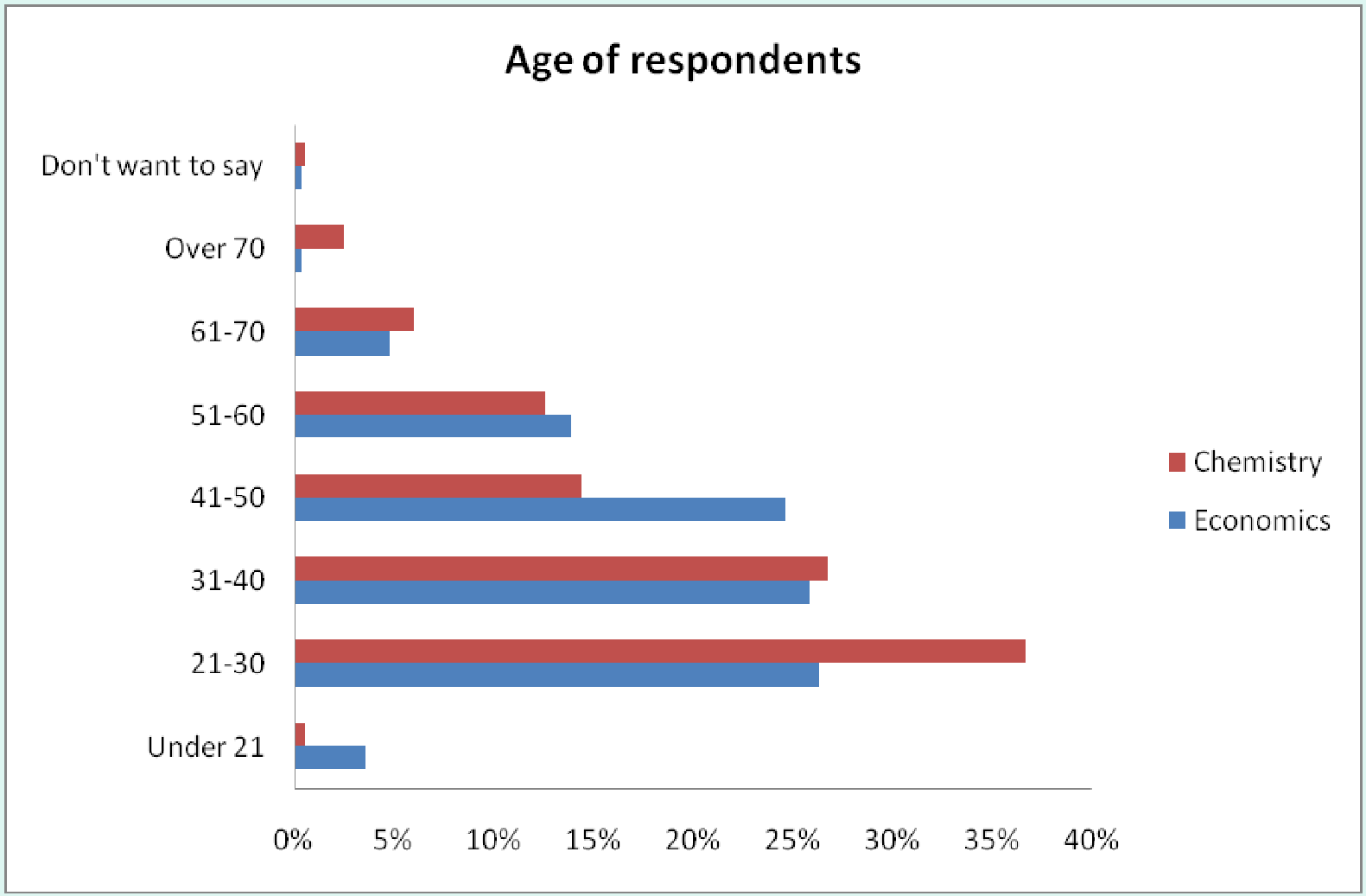

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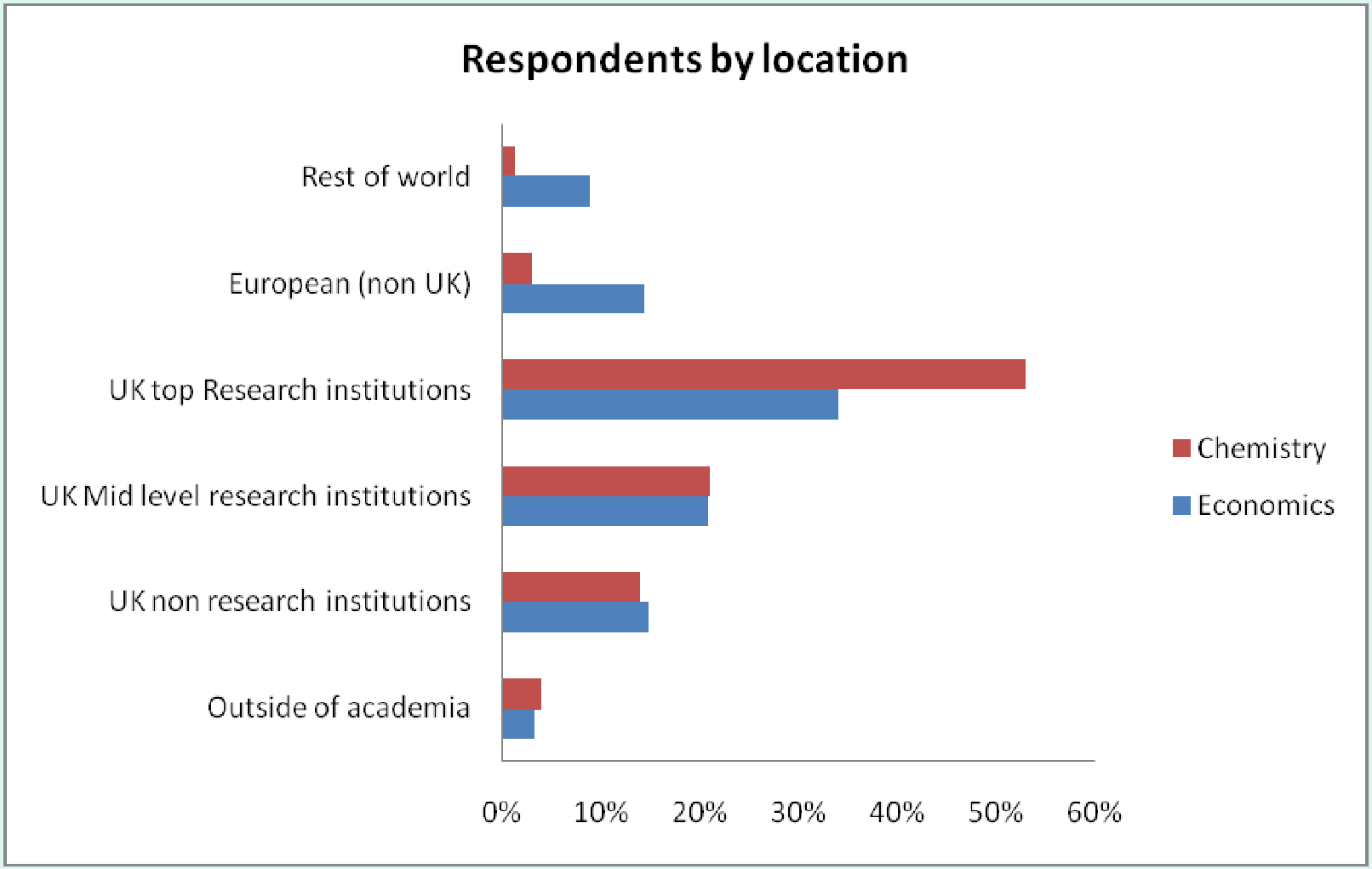
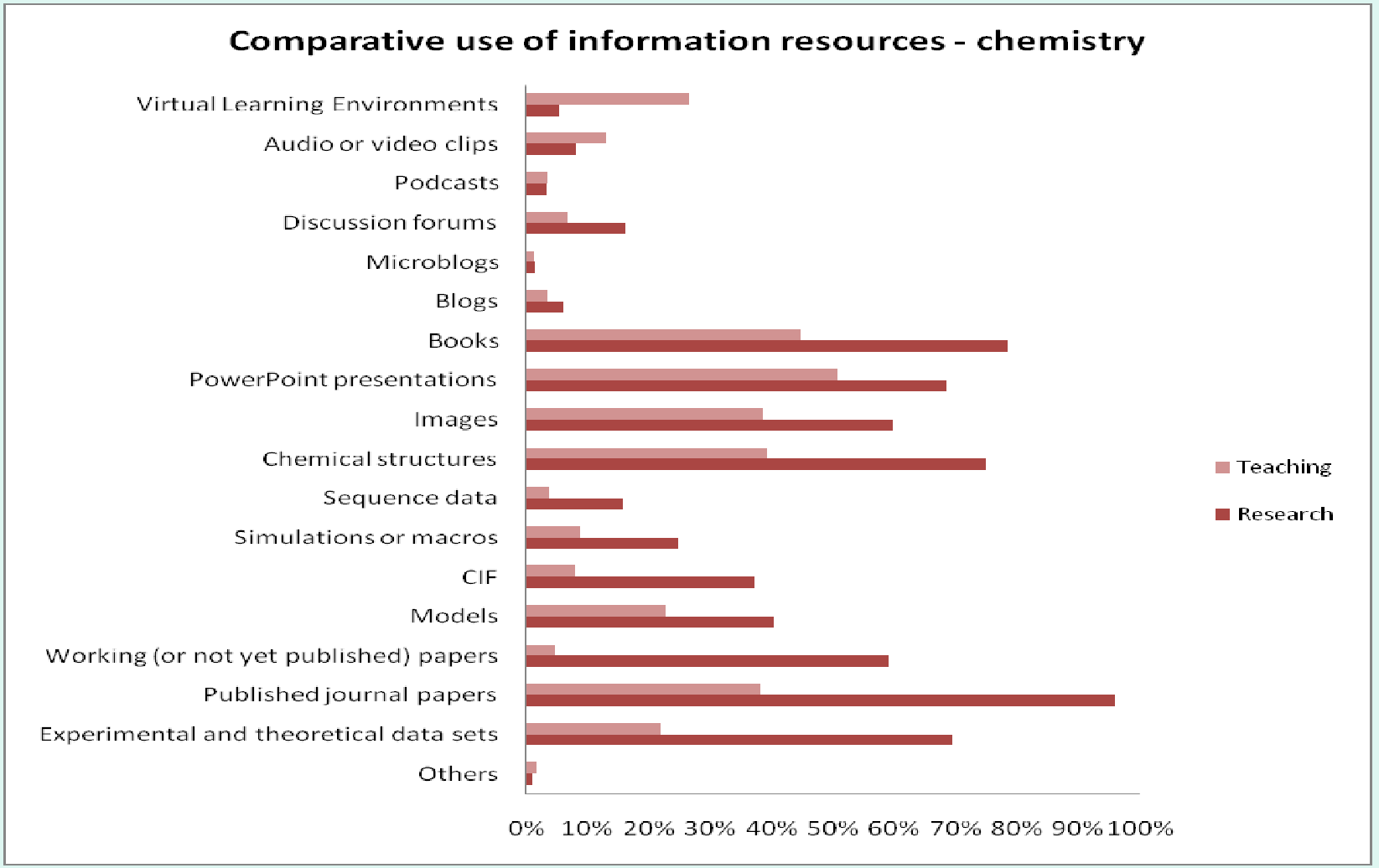


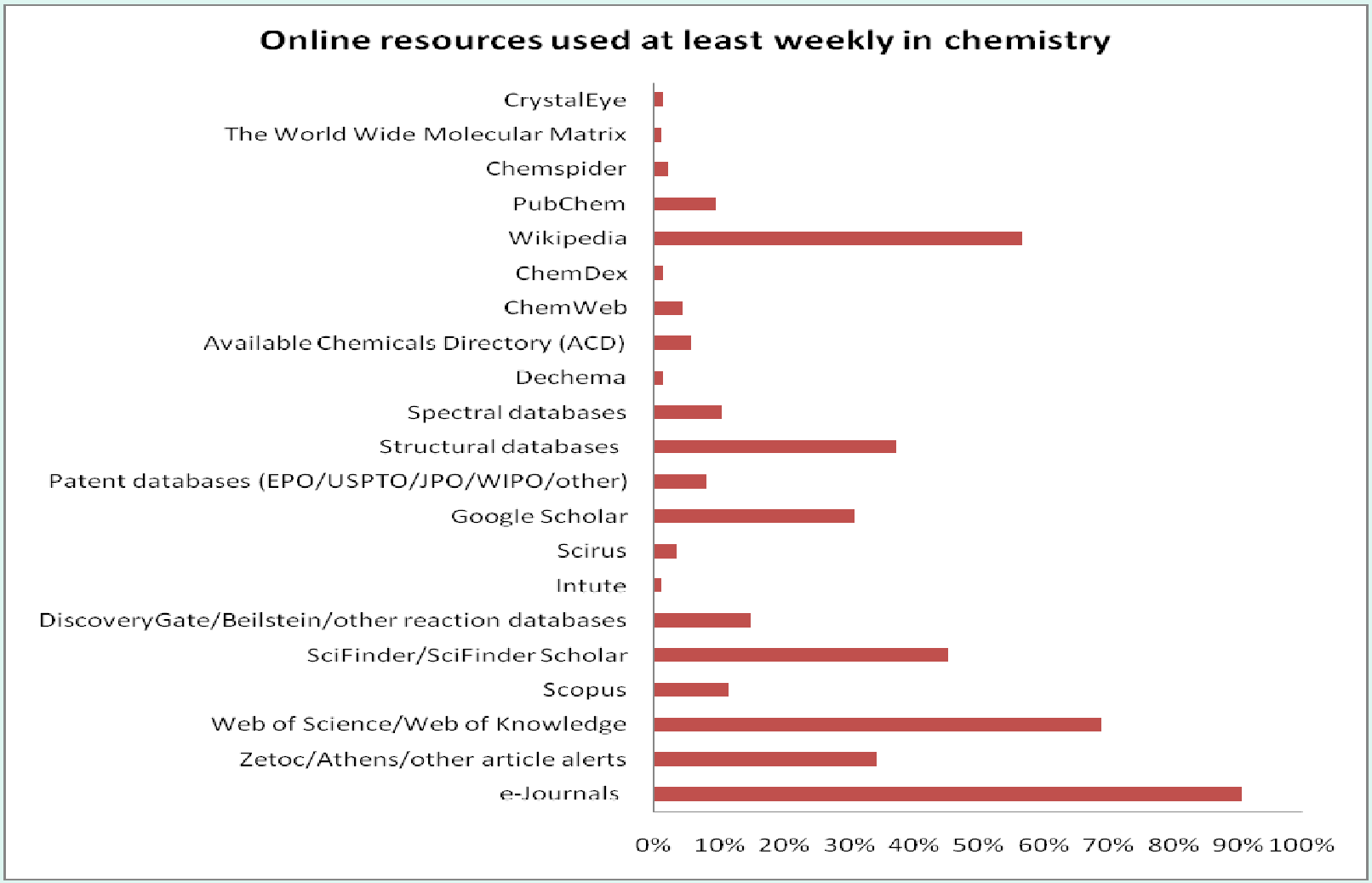
Use of information resources



Use of information resources

- Books are still a heavily used resource.
  - Economics researchers seem to use less in the way of complex data formats than chemists, relying mostly on journal and working papers and books.
- In both disciplines, teaching uses more Web 2.0 technologies than researchers.
  - This may change as the current generation of students become researchers. The economists seem to more sophisticated in their teaching than chemists – using more in the way of Web 2.0 technology.
- The increased use of Web 2.0 technology in teaching suggests that in order to influence the new generation of researchers, advocacy for the use of these kinds of technologies might be best incorporated into teaching curricula.

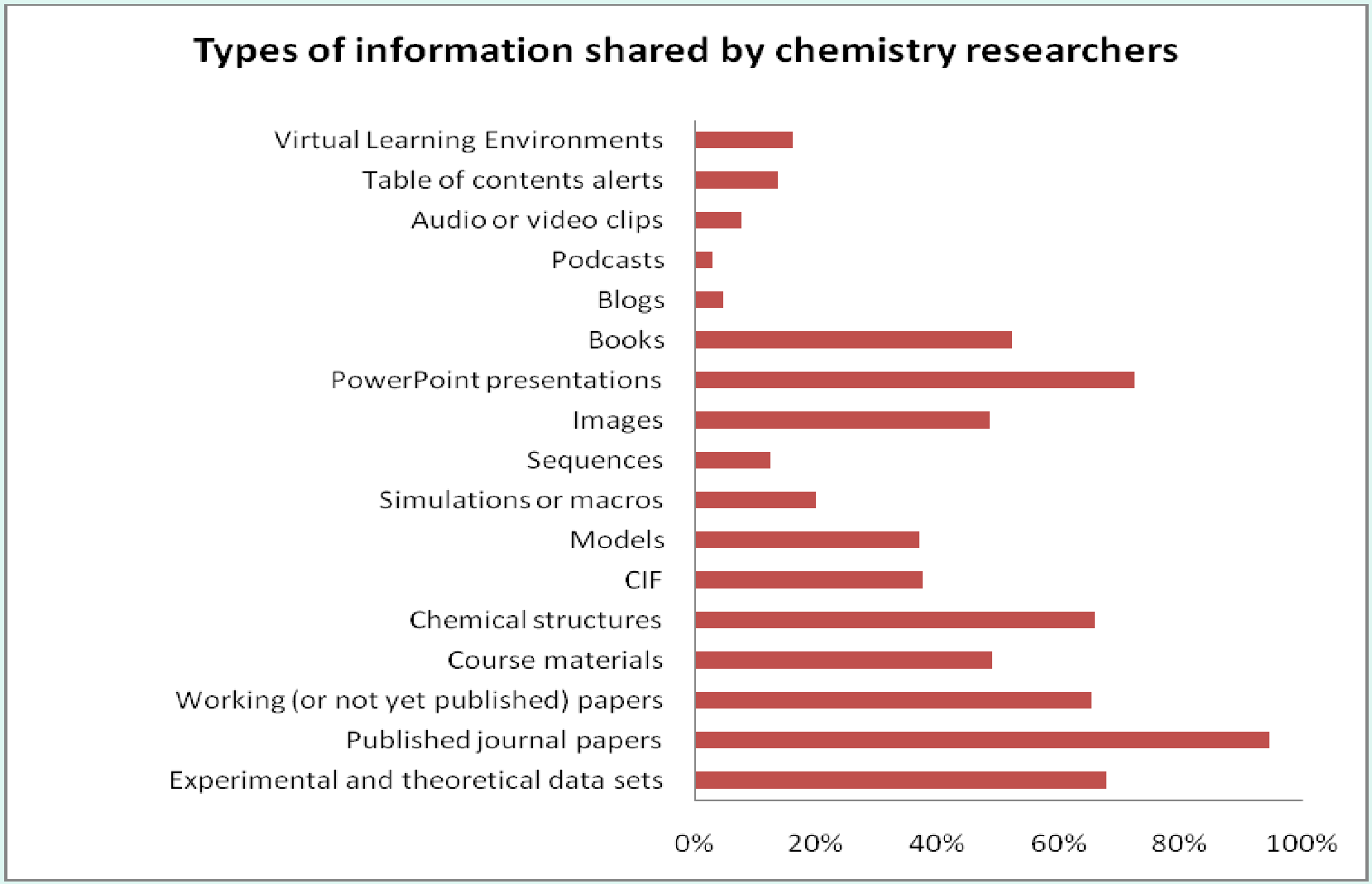
Use of information resources



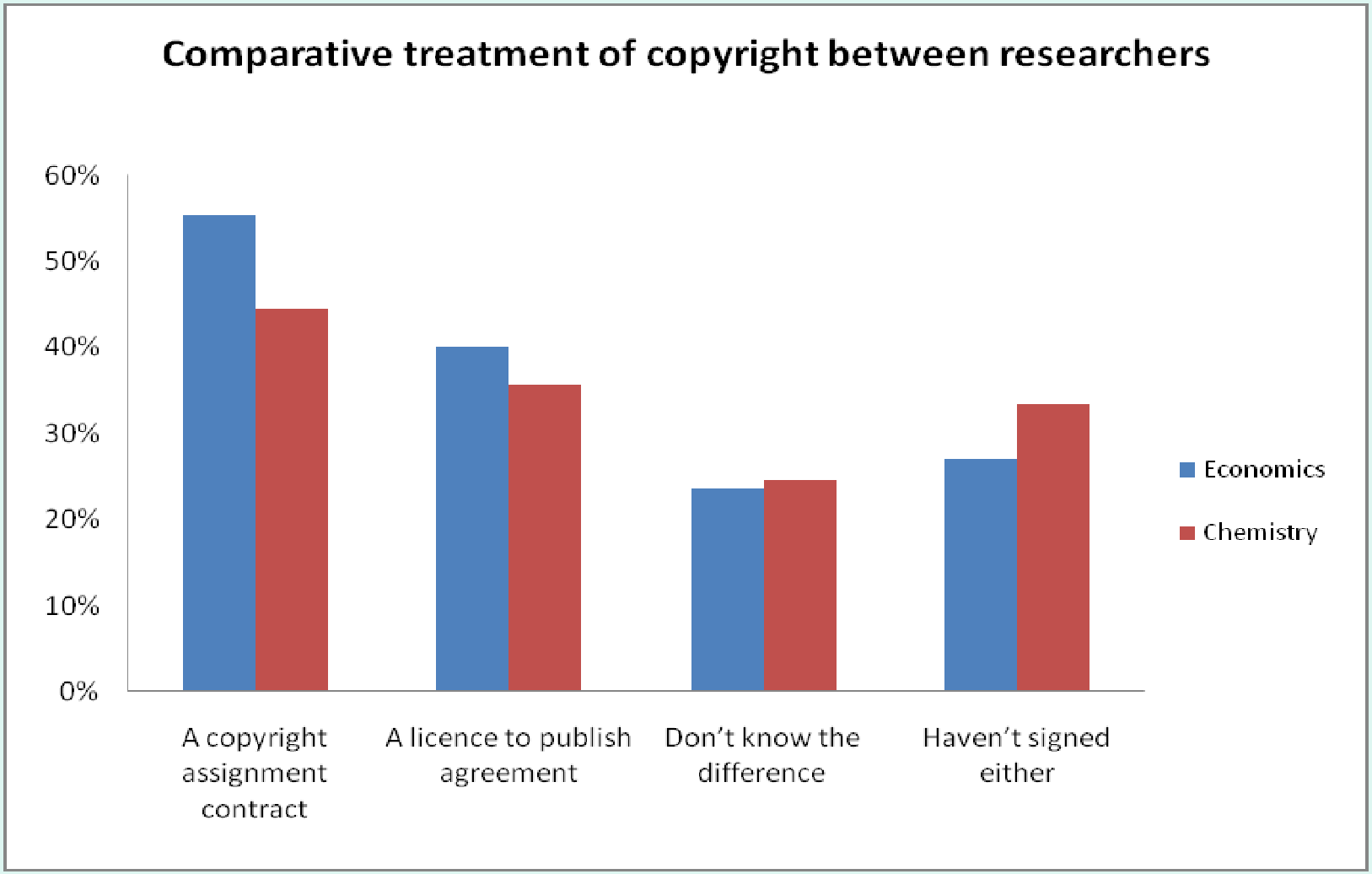
Use of information resources

- High use of Wikipedia and Google Scholar in both disciplines but chemists use alerting services and more specialised subject based services much more often than economists.
  - This is likely to reflect the fact that more chemists are taught information skills than economists as part of their course and also the culture of circulating preprints as a way of keeping in touch within economics.
- Advocacy might be targeted at highlighting the differences between and relative benefits of e-journal based information resources such as Web of Science, JSTOR and Science Direct, and the freely available internet based information sources.

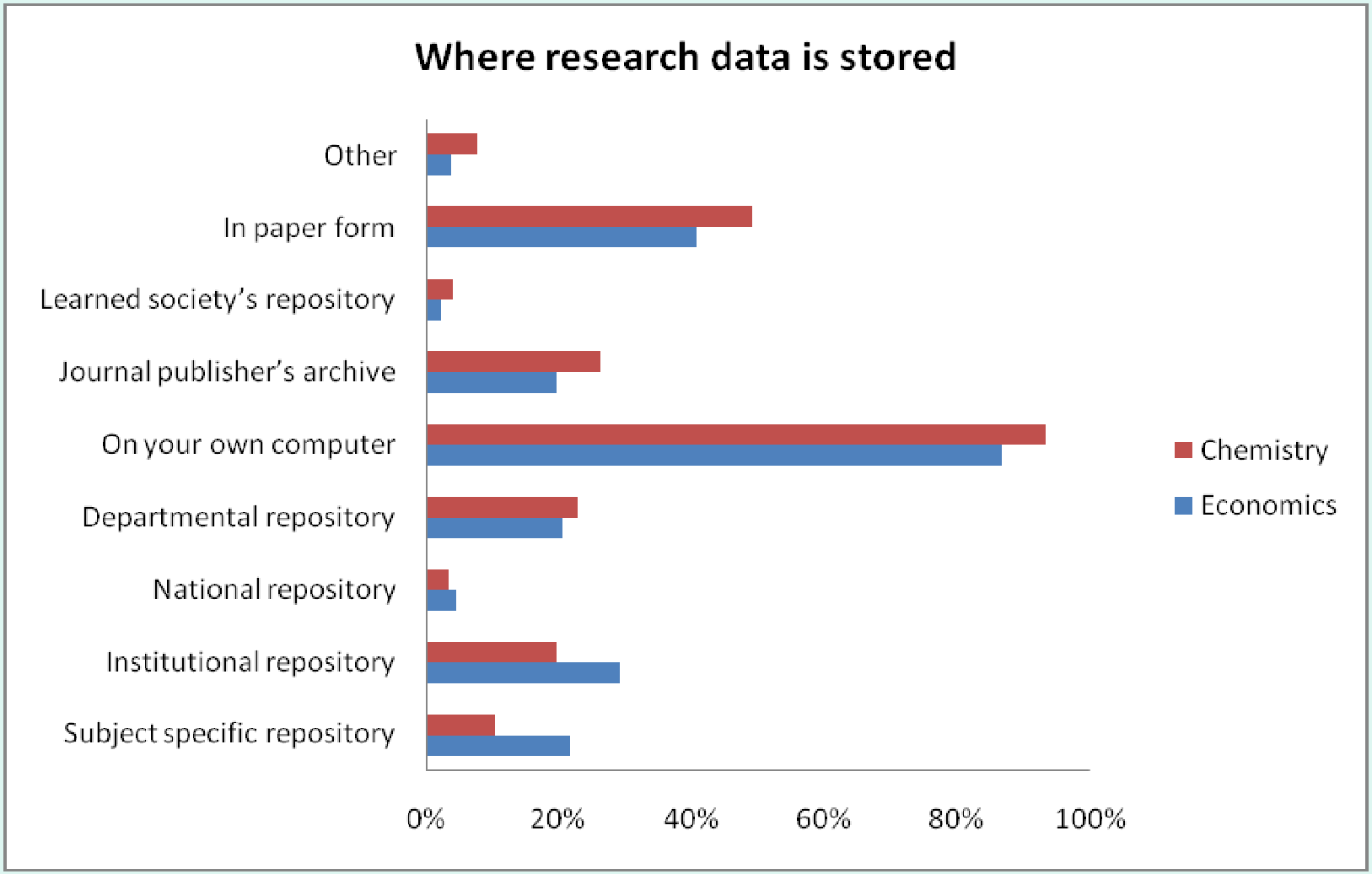
Data sharing



Copyright


Comparative treatment of copyright between researchers
60%
50%
40%
30%
20%
10%
0%
A copyright assignment contract
A licence to publish agreement
Don't know the difference
Haven't signed either
Economics
Chemistry

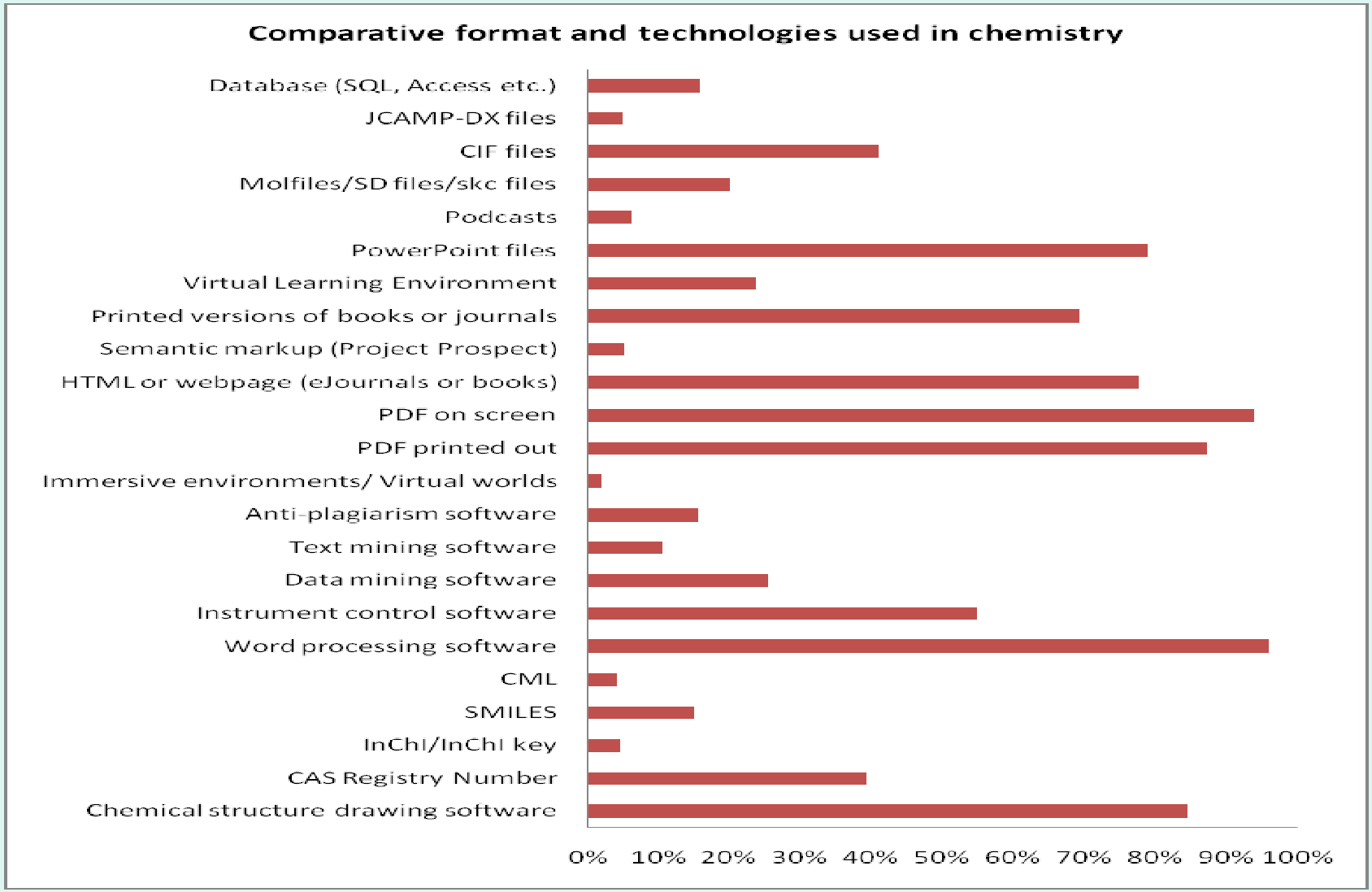
Data storage



Data sharing and copyright advocacy

- Chemists share datasets considerably more than economists since they work collaboratively across institutes
  - economists tend not to share data outside their research group.
- Advocacy is needed around authors' rights and the differences between copyright and licence to publish,
  - rights are changing, there is a lack of consensus amongst publishers
  - evidence that authors do not understand the rights which they have.
- Despite considerable work around repositories and storage, data are still being stored locally rather than in institutional or subject based repositories.
- Concerns around ownership of results and of "competitors" obtaining the results need to be addressed before this will change significantly.
- Advocacy needs to be coordinated with the funding bodies.

What do chemists use?



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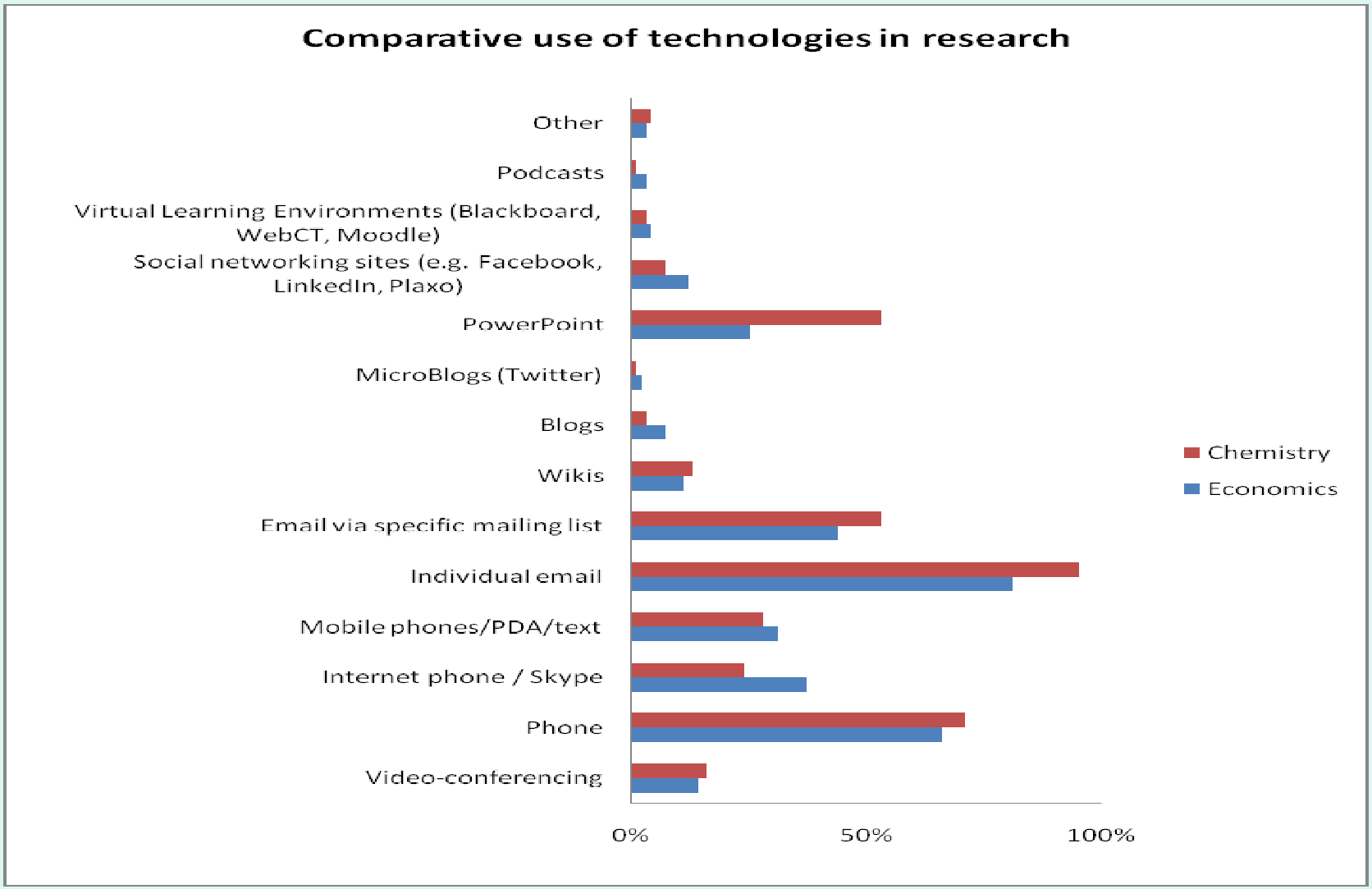

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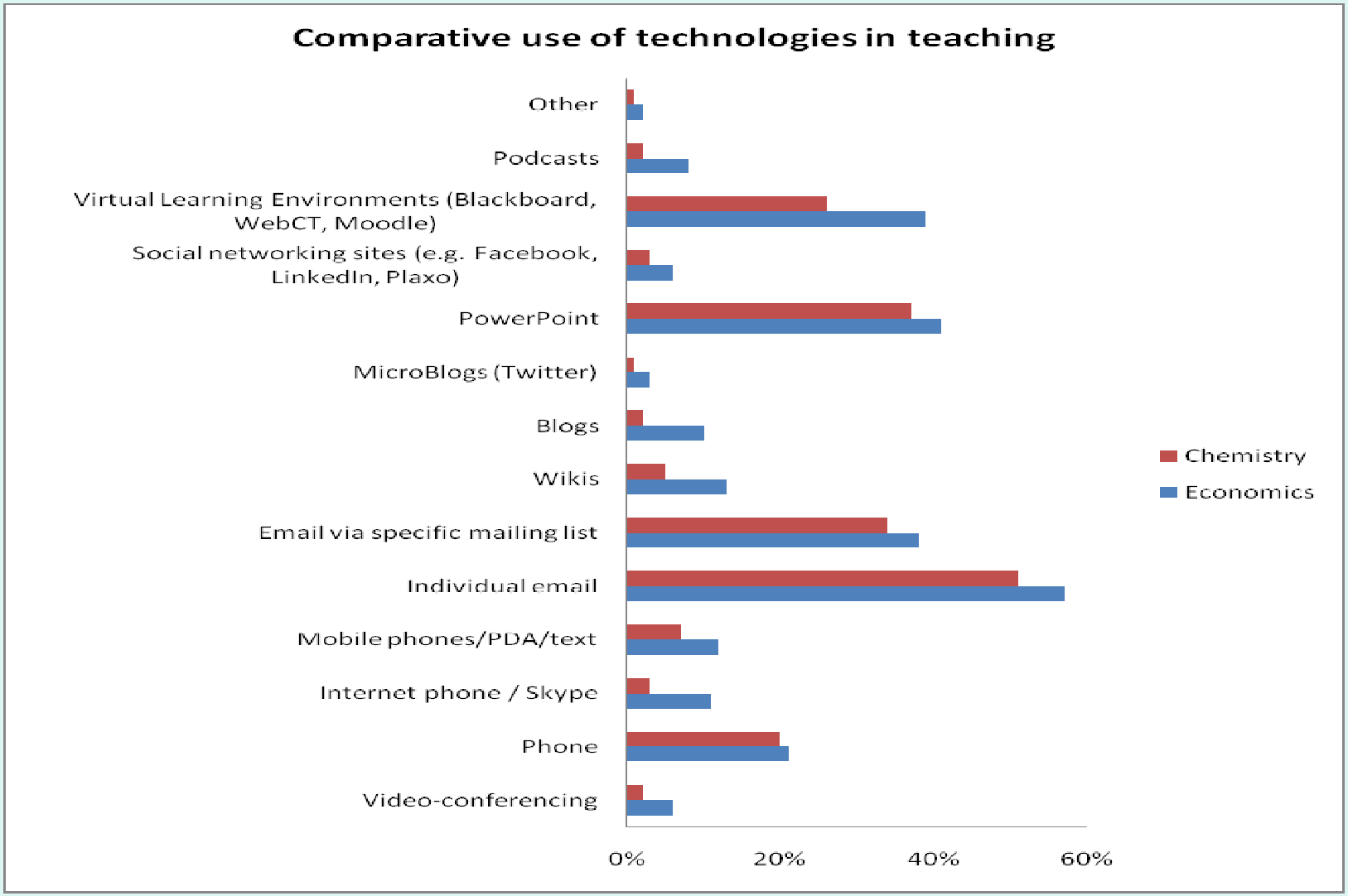
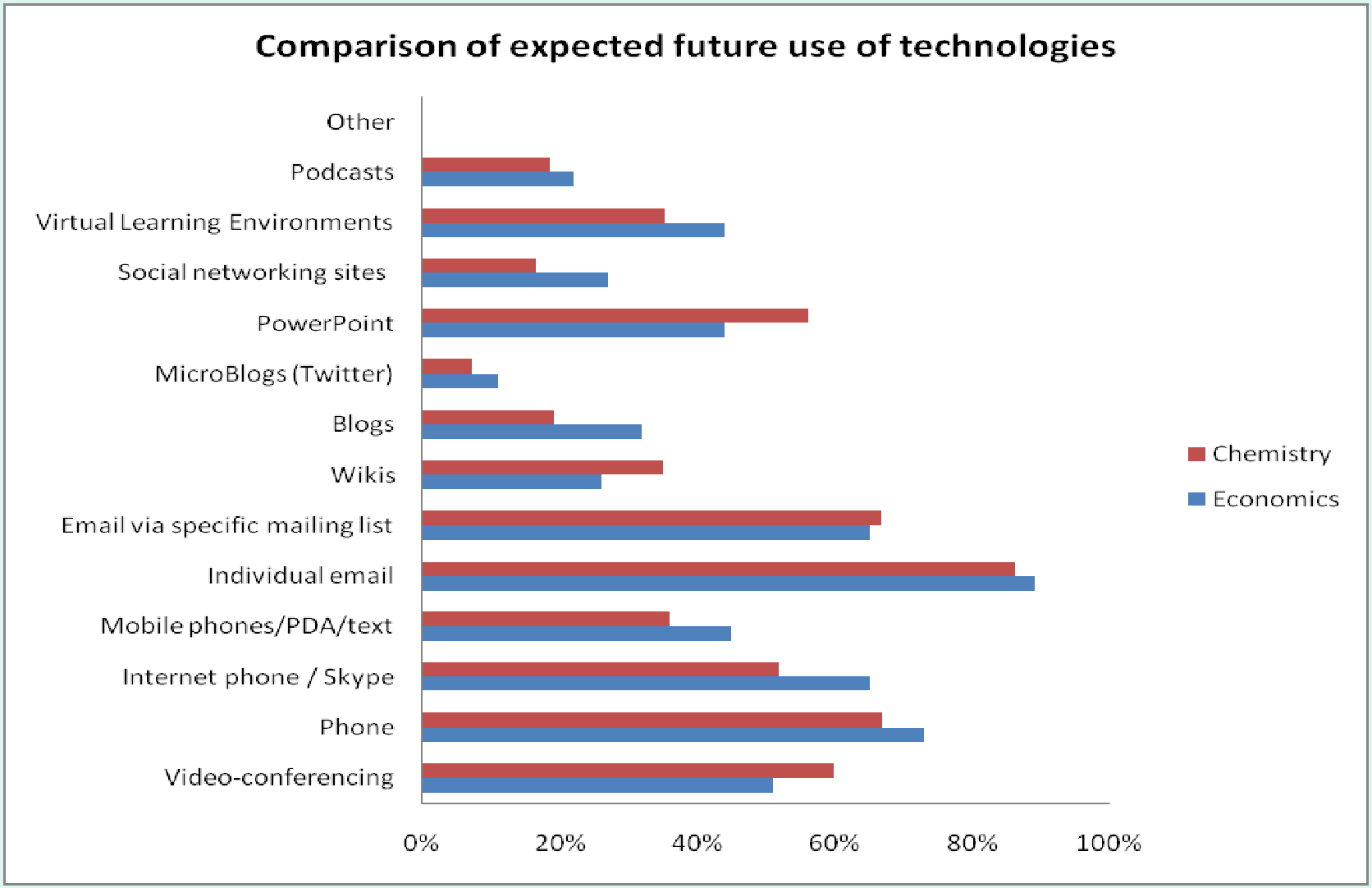
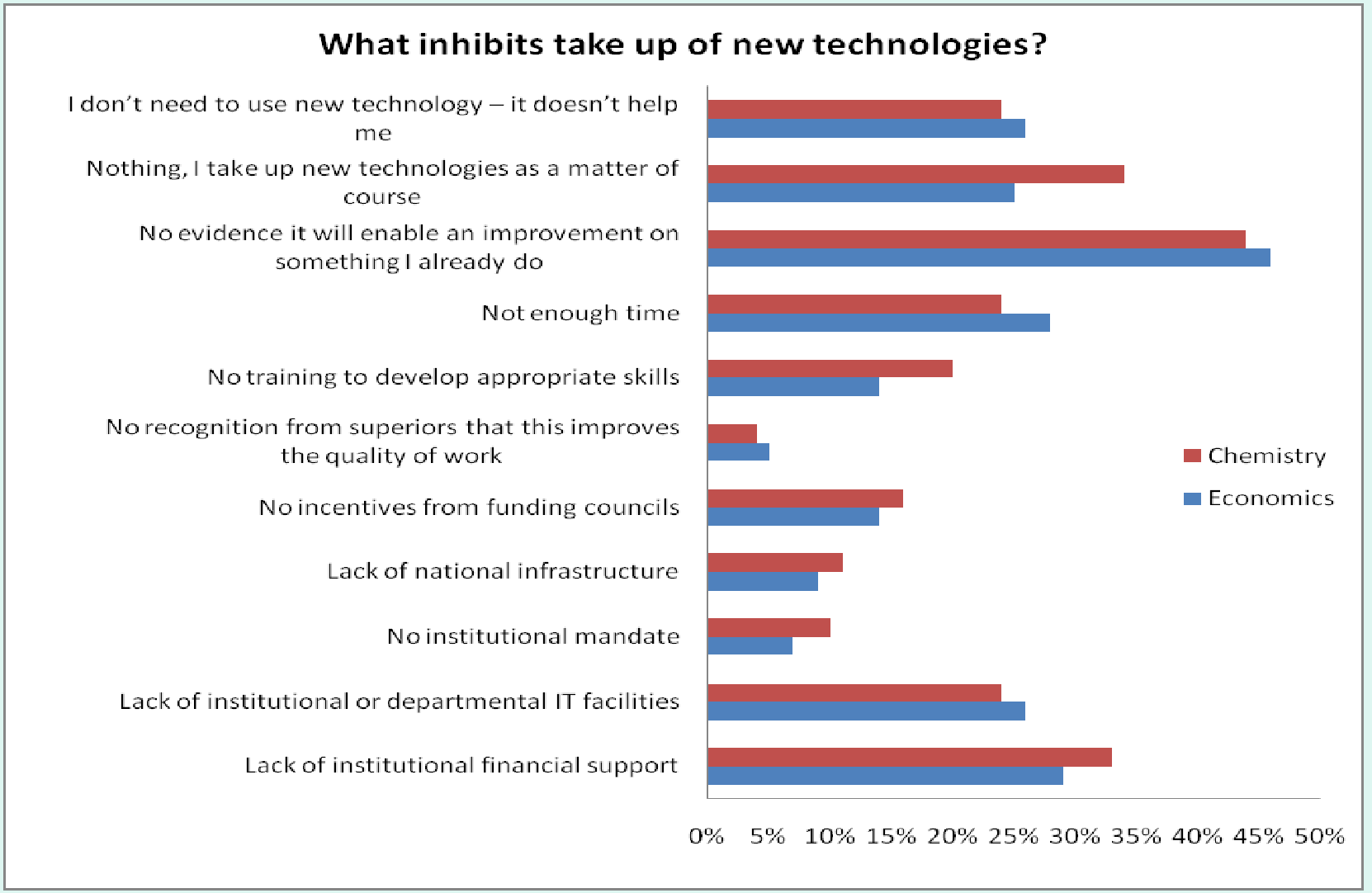


What do chemists expect to use in future?



Problem areas and attitudes



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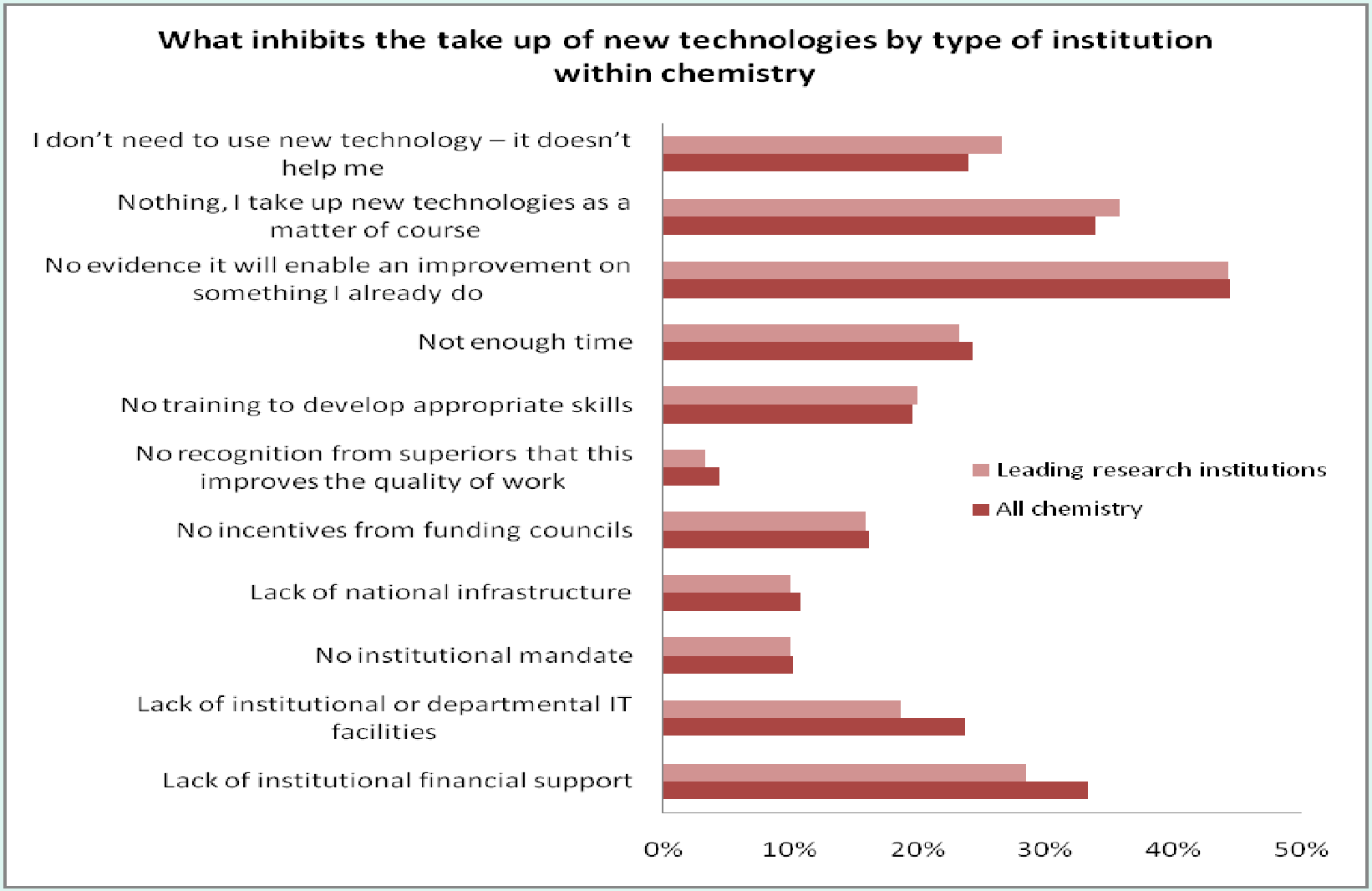
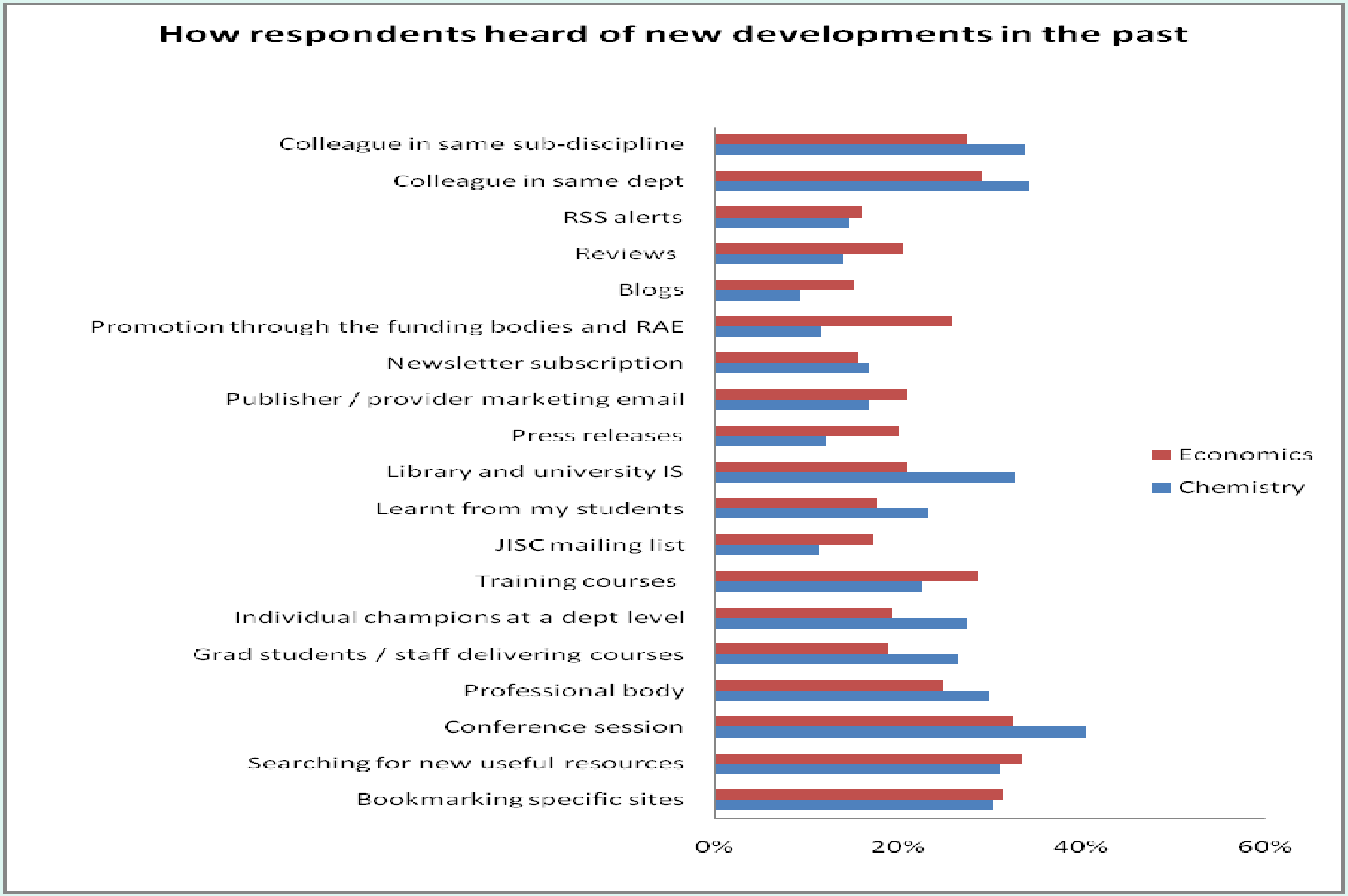


Pointers to advocacy plans

- Teaching staff, especially in chemistry, will benefit from programmes in using
  - VLEs,
  - Web 2.0 technologies,
  - videoconferencing and internet phones most effectively.
- The benefit of training the lecturers will lead to a cumulative effect as they will go on to train the new generation of students in using these technologies.
- Advocacy programmes must clearly emphasise the benefits that the user will get from using whatever is being advocated.

How chemists learn about developments



Pointers to advocacy plans

- ‘Being told about something by a colleague’
  - by far the most popular way of finding out about new developments, followed by regular searching for new resources and using the library and information services
- Few respondents had received any training in informatics or in Web 2.0 technologies.
- These findings suggest that successful advocacy programmes in both disciplines, should include a combination of:
  - using “champions” as advocates (finding out from a colleague)
  - making information available on discipline specific websites (regular searching)
  - involving the library and information service in advocacy plans
  - using professional conferences to provide talks and posters
  - working with the professional bodies RSC and RES on advocacy plans.

Need to effect cultural change

As Michael Nielson says in a blog posting boldly entitled The Future of Science:

To create an open scientific culture that embraces new online tools, two challenging tasks must be achieved:

(1) build superb online tools; and
(2) cause the cultural changes necessary for those tools to be accepted.

The necessity of accomplishing both these tasks is obvious, yet projects in online science often focus mostly on building tools, with cultural change an afterthought. This is a mistake, for the tools are only part of the overall picture. It took just a few years for the first scientific journals (a tool) to be developed, but many decades of cultural change before journal publication was accepted as the gold standard for judging scientific contributions."

http://michaelnielsen.org/blog/?p=448

Any questions?