

#### The Journal

Cybermetrics News

Editorial Board

Guide for Authors

Issues Contents



The Seminars



The Source

Scientometrics



Tools



R&D Policy & Resources



## VOLUME 10 (2006): ISSUE 1. DISCUSSION PAPER 6

### Hybrid spaces - A brief comment on the article by Andrea Scharnhorst and Paul

Wouters



**Peter van den Besselaar**

National Center for Science System Assessment, Rathenau Instituut,  
&

Amsterdam School for Communications Research, Universiteit van  
Amsterdam, the Netherlands

E-mail: [P.vandenbesselaar@rathenau.nl](mailto:P.vandenbesselaar@rathenau.nl)

The interesting paper *Web indicators – a new generation of S&T indicators*<sup>1</sup> by Andrea Scharnhorst and Paul Wouters does a number of things in parallel. This may be a little bit too much for one paper, sometimes resulting into a little bit uneven treatment of the various topics. However, at the same time the paper provides a broad perspective on the development and use of web-indicators, and this may hopefully prevent researchers from a too simple use and interpretation of web data and web indicators. More precisely, the paper

- provides an introduction in and an overview of web indicators,
- discusses the relations between web indicators and self-organization,
- analyses the relation between web indicators and e-science,
- emphasizes the need for a semiotic approach, and for the combination of qualitative and quantitative approaches, and
- gives an overview of the WISER project.

The lessons the authors have learned from the WISER project seem wise: web indicators cannot be retrieved automatically by crawlers, but need manual processing through a combination of qualitative and quantitative analysis. Only then one can determine the unit of analysis, the boundaries of the measurable, and the meaning of the measured. I also like the relations with the larger development of e-science the authors emphasize: with the increasing role of ICTs, web indicators will become much more important in the near future.

In our work on web indicators<sup>2</sup> we arrived at similar conclusions. However, another lesson we learned is that the WWW and web indicators should not be taken as an independent sphere. In research on new media, it is increasingly understood how new media, such as the web, are in fact extending (and therefore changing) existing social and communication spaces. New media become part of the existing communication spaces, and at the same time contribute to change. In other words, the virtual and the real are merging into something that can be called a *hybrid space*. Research should focus on this hybrid space, and not on the new media and virtual spaces only (e.g., Wellman & Haythornthwaite, 2002).

However, I feel that Scharnhorst & Wouters understand the virtual world too much as an independent sphere, as was also done in earlier studies of virtual communities. It remains therefore unclear how web use patterns and web indicators relate to 'non web' behaviors and structures. Of course, the authors recognize that developing web indicators needs substantial knowledge to understand their meaning. However, they seem to restrict this to internet studies and virtual ethnography only, which is in my view far too narrow

approach.

In an earlier project we approached the science system as a hybrid system – partly real, partly virtual. That project consisted of a variety of interrelated activities<sup>3</sup>: Large scale data collection about link networks, search behavior, electronic information retrieval behavior, and email behavior. But we collected also data about 'real' collaborations, co-authorships, and physical proximity. Using these data, we developed web indicators for 'real' units of analysis such as research groups and universities, in contrast to websites and webpages. The meanings of these indicators were then 'validated' in a variety of qualitative and quantitative case studies (Heimeriks 2005; Heimeriks & Van den Besselaar 2006, forthcoming).<sup>4</sup>

Understanding web indicators in this way does also influence the use of theoretical approaches such as self-organization theory. I agree with the authors that self-organizing systems theory is useful here. However, when one wants to develop web indicators for the S&T system, one should not study the web as a self-organizing system, but the S&T system as a whole – with new media as an additional set of links between the nodes (researchers, research groups). The question then becomes how this additional layer contributes to the self-organizational dynamics of the science system.

Using the web and other new media is increasingly integrated in every day research activities, and this makes them more 'normal'. However, these new media also change the S&T world as they enable new practices that did not exist in the past. I therefore fully agree with Andrea Scharnhorst and Paul Wouters that we need a reflective approach to web indicators for the S&T system. Their paper certainly is a useful contribution.

## Notes

1. S&T stands for Science and Technology

2. The **EICSTES** project and the Soeis project. Both projects are briefly mentioned in the paper by Scharnhorst and Wouters.

3. In the EICSTES project. There, we developed the model and methodology for this (Heimeriks et al. 2003). Partners in the Eicstes project (2000-2004) were ARCS (Vienna), CINDOC (Spain), DTI (Denmark), INIST-CNRS (France), NIWI-KNAW (Netherlands), University of Surrey (UK).

4. The EICSTES project also developed methods and tools for data collection, and for visualization web data.

## References

Heimeriks, Gaston, *Knowledge Production and Communication in the Information Society - Mapping communications in heterogeneous research networks*. PhD thesis University of Amsterdam, 2005.

Heimeriks, Gaston & Peter van den Besselaar, Hyperlink networks and hyperlink analysis. *Cybermetrics* 10 (2006) (This issue)  
<<http://www.cindoc.csic.es/cybermetrics/articles/v10i1p1.html>>

Heimeriks, Gaston, & Peter Van den Besselaar, New media and communication networks in knowledge production – a case study. *Submitted*

Heimeriks, Gaston, Marianne Hörlesberger, Peter van den Besselaar, Mapping communication and collaboration in heterogeneous research networks. *Scientometrics* 58 (2003) pp 391-413.

Scharnhorst, Andrea, Paul Wouters, Web indicators –a new generation of S&T indicators. *Cybermetrics* 10 (2006) (This issue)  
<<http://www.cindoc.csic.es/cybermetrics/articles/v10i1p6.html>>

Wellman, Barry, & Caroline Haythornthwaite (eds.), *The Internet in Everyday Life*. Blackwell Publishing. (2002). 588 pp.

MAIN PAPER	DISCUSSION
<u><a href="#">Web indicators – a new generation of S&amp;T indicators?</a></u> Andrea Scharnhorst & Paul Wouters	<b>Hybrid spaces - A brief comment on the article by Andrea Scharnhorst and Paul Wouters</b> Peter van den Besselaar

