



Michael Nentwich, René König

CYBERSCIENCE 2.0

Research in the Age of Digital Social Networks

campus

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1 Introduction

In the early part of the 21st century one of us coined the term “cyber-science” (Nentwich 2003) to describe the trend of applying information and communication technologies (ICT) to scientific research. Scholars tended increasingly to use the Internet not only to exchange e-mails, but also to participate in online debates, cooperate at distance, use remote databases, simulate and model reality on their computers, and teaching their students with the web. These developments have not come to a halt since the early days but have accelerated and diversified ever since. As will be discussed in section 1.1, the Internet has today become an essential tool for everyday scholarly communication; academic work without the use of the Internet is now as unthinkable as writing an academic paper on a typewriter, especially for young researchers. The emergence of Web 2.0 opened up new opportunities, seized not only by the general Internet community worldwide, but increasingly also by researchers and academic teachers. During the same period powerful commercial actors continued the development of the Internet and made it a different place compared to its early days.

This book focuses on these latest trends and addresses two interrelated research questions: *What role does the digital social culture triggered by Web 2.0 play in the academic world at present and what are the potentials of platforms such as Twitter, Facebook, and Wikipedia? What impact will the emerging socio-technical practices have?*

We approach an answer to these questions in three steps. First, we will review the status quo of how cyberscience developed (1.1) and which new tools and platforms evolved over the last decade with the potential to serve the academic communities (1.2); as a basis for our empirical research and subsequent analysis, we will present our conceptual framework (1.3). Second, we will present five empirical case studies, discussing promising fields of the developments in recent years when it comes to analyze the potential

impact on academia: social network sites such as Facebook and similar sites specifically dedicated to research communities (2.1); microblogging with a focus on Twitter (2.2); collaborative knowledge resources, exemplified by various projects of the Wikimedia foundation, namely Wikipedia, Wikibooks, and Wikiversity (2.3); virtual worlds, in particular the rise and fall of Second Life (2.4); finally the most prominent and ubiquitously used universal search engine Google Web Search as well as Google Scholar and Google Books, which are of special interest for academia (2.5). In a third step, we will analyze the empirical material of chapter 2 in the light of our conceptual framework identifying the following key issues: the crucial role of interactivity (3.1); the blurring boundary between academia and the public (3.2); academic quality in the age of Web 2.0 (3.3); the problem of multiple channels and information overload (3.4); transparency and privacy (3.5); and finally potentially democratizing effects emerging from the participatory possibilities of the new platforms (3.6). The book closes with an outlook and overall conclusions, in which we put the analyzed developments into perspective (4.)

1.1 Cyberscience 1.0 Revisited

The notion of cyberscience first appeared in the literature fifteen years ago (Wouters 1996; Thagard 1997); it was later conceptualized and defined “as scientific activities taking place in the information and communication space that is coming into existence with the help of information and communication technologies, a space in which scientists increasingly circulate while remaining at their desks” (Nentwich 1999, transl.). The study *Cyberscience: Research in the Age of the Internet* (Nentwich 2003) demonstrated empirically and analytically, in detail way, that (1) the transition from traditional science to cyberscience has the potential to bring about changes in all dimensions of scientific activity, including organizational space, and that (2) the changes in science that are occurring in this way are qualitative in nature. At that time, the main focus of the analysis was still on the transition to an electronic publication system (e-journals, multimedia, hypertext, quality control, and digital libraries) and on Internet-based forms of communication and cooperation (e-mail, electronic conferences, groupware, virtual institutes, collaboratories). Even by then, though, it was clear that