

# Handbook of Research on Socio-Technical Design and Social Networking Systems

Brian Whitworth  
*Massey University-Auckland, New Zealand*

Aldo de Moor  
*CommunitySense, The Netherlands*

Volume II

Information Science  
**REFERENCE**

**INFORMATION SCIENCE REFERENCE**

Hershey • New York

Director of Editorial Content: Kristin Klinger  
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Managing Editor: Jamie Snavely  
Assistant Managing Editor: Carole Coulson  
Typesetter: Michael Brehm  
Cover Design: Lisa Tosheff  
Printed at: Yurchak Printing Inc.

Published in the United States of America by  
Information Science Reference (an imprint of IGI Global)  
701 E. Chocolate Avenue, Suite 200  
Hershey PA 17033  
Tel: 717-533-8845  
Fax: 717-533-8661  
E-mail: [cust@igi-global.com](mailto:cust@igi-global.com)  
Web site: <http://www.igi-global.com>

and in the United Kingdom by  
Information Science Reference (an imprint of IGI Global)  
3 Henrietta Street  
Covent Garden  
London WC2E 8LU  
Tel: 44 20 7240 0856  
Fax: 44 20 7379 0609  
Web site: <http://www.eurospanbookstore.com>

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#### Library of Congress Cataloging-in-Publication Data

Handbook of research on socio-technical design and social networking systems / Brian Whitworth and Aldo de Moor, editors.  
p. cm.

Includes bibliographical references and index.

Summary: "Every day throughout the world, people use computers to socialize in ways previously thought impossible such as e-mail, chat, and social networks due to emergences in technology. This book provides a state-of-the-art summary of knowledge in this evolving, multi-disciplinary field"--Provided by publisher.

ISBN 978-1-60566-264-0 (hardcover) -- ISBN 978-1-60566-265-7 (ebook)

1. Online social networks. 2. Internet--Social aspects. 3. Information technology--Social aspects. I. Whitworth, Brian, 1949- II. Moor, Aldo de.

HM742.H37 2009  
303.48'33--dc22

2008037981

#### British Cataloguing in Publication Data

A Cataloguing in Publication record for this book is available from the British Library.

All work contributed to this book set is original material. The views expressed in this book are those of the authors, but not necessarily of the publisher.

# Prologue

## The Future of Socio–Technical Systems

**Charles Steinfield**

*Michigan State University, East Lansing, USA*

*Like it or not, we live in interesting times. They are times of danger and uncertainty; but they are also the most creative of any time in the history of mankind.*

—Robert F. Kennedy

This is an interesting time to be studying ICTs from a socio-technical systems (STS) perspective for many reasons; in this introduction I will focus on two that have implications for the future of STS research. The first reason has to do with the notion of *context* - a core aspect of STS theory. Much of the early STS research emphasizes work settings as the context for technology design and use, derived from such foundational work as Emery and Trist's (1960) studies at the Tavistock Institute for Human Relations. Even in the intervening years, as STS theories were applied to computers and information systems (e.g. Mumford, 1983), the focus remained on the workplace since that is where these systems were concentrated. Even recent articulations of STS theory and research have an organizational orientation, albeit expanded to include the complex interactions between computer systems and society at large (e.g. Kling's (2007) efforts to define a field of *social informatics*).

This work and organizational focus is no longer adequate today. ICTs have permeated all walks of life—in and outside of the workplace, for productive activity, for socializing, and for pure entertainment. Indeed, some of the most interesting new trends in the use of ICTs are emerging outside the workplace (e.g. consider young people playing a location-based game via mobile devices). Support for socializing and entertainment are core aspects of many new media such as online social network sites, games, and mobile content and services. A number of the chapters in this section recognize that ICTs are used in all aspects of everyday life, which creates challenges for how STS researchers define the context in which technologies are designed and used. In large-scale online social network sites like Myspace and Facebook, for example, it is difficult to define the social context of use. Not only are the lines between online and offline activity blurred, but

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these services have become so large they transcend any semblance of organizational, geographical, or national boundaries. One problem this creates is that people operate in many distinct communities with sometimes overlapping network membership, but the information they wish to share with others differs depending on the situation. A Facebook profile element about ones' relationship status may not be appropriate for work colleagues, and we may wish to share some photos with close friends that we do not share with co-workers.

The authors in this section recognize that this more expansive set of context domains is both a challenge to efforts to improve design through a greater understanding of the social context of use as well as an opportunity to find new ways to explore the evolution of social rules and norms in these new media. Just because usage is occurring in other places besides the workplace does not make it any less important. And, if we extend this issue to include the design of ICTs by large, distributed, and loose-knit communities of developers such as open-source communities, we can easily see the challenges for STS research. There are crucial social, psychological, and economic payoffs to improved design of these services that can come from a STS perspective - from improving designs, to enhancing peoples' abilities to form and maintain social capital, to improving services to consumers through better e-commerce mechanisms, as chapters in this section illustrate.

The second issue that will influence future STS research derives from the fact that ICTs increasingly are infused with traces of human activity that can be captured and leveraged in the production of services. This, in itself, is not a new idea. Zuboff (1988) observed that modern information technologies do more than automate—they “informat” by capturing informational byproducts of transactions. However, as with other contemporary work, Zuboff's emphasis was on organizational contexts, with the information byproducts viewed as something useful for management decision-making. Today, these traces of human activity are often essential features of so-called Web 2.0 services, supporting what has

been termed *social navigation* (Dieberger et al, 2000). Services such as the newsfeeds on Facebook, recommendation systems for e-commerce, and Geo-tagged photos for tourism services, are examples of applying information collected unobtrusively to create new value for users of ICT-based systems.

The future of STS research will be intertwined with this emerging philosophy of Internet-based service design. These traces of activity not only provide useful information to other users, they also provide data for researchers that can help them deal with the many ambiguities raised by the first issue - the broader contexts in which ICTs are used. These information trappings give rise to new tools to better understand social structures and behaviors in online contexts (Smith, 1999). And this data is certainly of use to designers, enabling an almost real-time feedback loop between users and designers. Indeed, as the information contributed from users becomes a more explicit component of the service, the lines between user and designer become blurred, which is itself a fascinating topic to explore in STS research.

The expansion of ICTs into all walks of life, and the growing ability to capture and re-use information are, of course, double-edged swords, opening up unprecedented opportunities for innovation in service design on the one hand, as well as ever-more intrusive windows into the private lives of people on the other. STS researchers do indeed live in interesting times.

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