

Fieldwork for Healthcare:

**Guidance for Investigating Human Factors in
Computing Systems**

Synthesis Lectures on Assistive, Rehabilitative, and Health-Preserving Technologies

Editor

Ron Baecker, *University of Toronto*

Advances in medicine allow us to live longer, despite the assaults on our bodies from war, environmental damage, and natural disasters. The result is that many of us survive for years or decades with increasing difficulties in tasks such as seeing, hearing, moving, planning, remembering, and communicating.

This series provides current state-of-the-art overviews of key topics in the burgeoning field of assistive technologies. We take a broad view of this field, giving attention not only to prosthetics that compensate for impaired capabilities, but to methods for rehabilitating or restoring function, as well as protective interventions that enable individuals to be healthy for longer periods of time throughout the lifespan. Our emphasis is in the role of information and communications technologies in prosthetics, rehabilitation, and disease prevention.

Fieldwork for Healthcare: Guidance for Investigating Human Factors in Computing Systems

Dominic Furniss, Rebecca Randell, Aisling Ann O’Kane, Svetlena Taneva, Helena Mentis, and Ann Blandford

2015

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Fieldwork for Healthcare: Case Studies Investigating Human Factors in Computing Systems

Dominic Furniss, Aisling Ann O’Kane, Rebecca Randell, Svetlena Taneva, Helena Mentis, and Ann Blandford

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Guidance for Investigating Human Factors in Computing Systems

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SYNTHESIS LECTURES ON ASSISTIVE, REHABILITATIVE, AND HEALTH-PRESERVING TECHNOLOGIES # 7

ABSTRACT

Conducting fieldwork for investigating technology use in healthcare is a challenging undertaking, and yet there is little in the way of community support and guidance for conducting these studies. There is a need for better knowledge sharing and resources to facilitate learning.

This is the second of two volumes designed as a collective graduate guidebook for conducting fieldwork in healthcare. This volume brings together thematic chapters that draw out issues and lessons learned from practical experience. Researchers who have first-hand experience of conducting healthcare fieldwork collaborated to write these chapters. This volume contains insights, tips, and tricks from studies in clinical and non-clinical environments, from hospital to home.

This volume starts with an introduction to the ethics and governance procedures a researcher might encounter when conducting fieldwork in this sensitive study area. Subsequent chapters address specific aspects of conducting situated healthcare research. Chapters on readying the researcher and relationships in the medical domain break down some of the complex social aspects of this type of research. They are followed by chapters on the practicalities of collecting data and implementing interventions, which focus on domain-specific issues that may arise. Finally, we close the volume by discussing the management of impact in healthcare fieldwork.

The guidance contained in these chapters enables new researchers to form their project plans and also their contingency plans in this complex and challenging domain. For more experienced researchers, it offers advice and support through familiar stories and experiences. For supervisors and teachers, it offers a source of reference and debate. Together with the first volume, *Fieldwork for Healthcare: Case Studies Investigating Human Factors in Computing systems*, these books provide a substantive resource on how to conduct fieldwork in healthcare.

KEYWORDS

fieldwork, healthcare, ethnography, medical devices, HCI, human-computer interaction, health, methodology, guidance

Contents

Preface	xv
<i>Editors: Dominic Furniss, Rebecca Randell, Aisling Ann O’Kane, Svetlana Taneva, Helena Mentis, and Ann Blandford</i>	
Acknowledgements	xix
1 Ethics, Governance, and Patient and Public Involvement in Healthcare	1
<i>Dominic Furniss, Rebecca Randell, Svetlana Taneva, Helena Mentis, Daniel Wolstenholme, Andy Dearden, Aisling Ann O’Kane, and Ann Blandford</i>	
1.1 What Do I Need to Know about Research Ethics in Healthcare?	2
1.1.1 The Historical Contexts that Drive Healthcare’s Ethical Principles	2
1.1.2 Research Governance in Healthcare	3
1.2 How Do I Get Research Ethics Approval?	5
1.2.1 The Benefits of Research Ethics Review	6
1.2.2 Frustrations Caused by Research Ethics Review: How Long Will It Take?	6
1.2.3 Does My Study Need Full Ethical Review and Approval?	9
1.2.4 Experiences and Lessons Learned in Handling Research Ethics Approval in Healthcare	11
1.3 How Could Patient and Public Involvement (PPI) Help Me?	17
1.3.1 Participation, Engagement, and Involvement	17
1.3.2 Involving Patients, Public, and Practitioners	18
1.3.3 Involvement: When and How?	20
1.4 Summary	21
2 Readyng the Researcher for Fieldwork in Healthcare	23
<i>Heather Underwood, Ross Thomson, Anjum Chagpar, and Dominic Furniss</i>	
2.1 How Can Reflecting on My Role and Identity Help My Work?	24
2.1.1 What Are Your Personal and Researcher Identities?	24
2.1.2 What Are Your Roles and Responsibilities in the Research Context?	25

2.1.3	Reflexivity: How Does Your Perspective Impact Your Research?...	26
2.2	What Emotional Challenges Will I Face in Fieldwork?.....	30
2.2.1	What Is Your Personal Level of Emotional Attachment or Detachment?.....	31
2.2.2	Are You Comfortable with Blood, Death, Birth, Illness, Nudity Small Spaces, Providing Emotional Support...?.....	32
2.2.3	How do you handle conflict?	33
2.3	How Do I Stay Safe when Doing Fieldwork?.....	34
2.3.1	What Are the Risks to Your Safety?.....	34
2.3.2	What Are the Risks to the Participants' Safety?.....	35
2.3.3	What Are the Health Risks Involved with a Technology Intervention?.....	36
2.4	Summary	37
3	Establishing and Maintaining Relationships in Healthcare Fields.....	39
	<i>Svetlana Taneva, Aisling Ann O'Kane, Raj Ratwani, Brian Hilligoss, Anja Thieme, and Kristina Groth</i>	
3.1	What Healthcare Dynamics May Affect My Study?	40
3.1.1	What Do I Need to Know about the Dynamics within the Varied Mix of Professions?.....	40
3.1.2	How Do Clinical Specialities Impact My Research?	40
3.1.3	What Is the Role of Hierarchies in Healthcare?	41
3.1.4	What Do I Need to Know about the Broader Context of Healthcare?.....	41
3.1.5	What Are the Different Types of Clinical Settings?	42
3.1.6	What Is a Hospital Site Like?	42
3.2	How Do I Negotiate Access to the Field?.....	43
3.2.1	How Do I Get My Foot in the Door?	43
3.2.2	Who Could be a Key Study Enabler for My Research Agenda?...	43
3.3	How Do I Establish Relationships with Healthcare Staff?.....	45
3.3.1	How Do I Make Myself Known in the Intended Study Environment?	45
3.3.2	How Do I Present My Study?	46
3.3.3	How Do I Recruit Clinician Participants?	48
3.4	How Do I Manage Relationships with Patients and Caregivers?	50
3.4.1	How Do I Learn about Target Patient Populations before Starting My Study?.....	50

3.4.2	How Do I Gain Access to Patients inside Clinical Settings?	53
3.4.3	How Do I Gain Access to Patients and Caregivers Outside Clinical Settings?	53
3.4.4	How Do I Maintain the Relationship During Data Collection? . . .	55
3.5	Summary	55
4	Practicalities of Data Collection in Healthcare Fieldwork	57
	<i>Katherine Sellen, Aleksandra Sarcevic, Yunan Chen, Rebecca Randell, Xiaomu Zhou, Deborah Chan, and Atish Rajkomar</i>	
4.1	How Might Different Perspectives on Data Affect My Study?	58
4.2	What Data Collection Techniques Will Help Me Answer My Research Questions?	59
4.2.1	What Data Collection Methods Can I Use to Understand Practices, Interactions, and Behaviours?	60
4.2.2	What Methods Can I Use to Gather Detailed Data on Interactions with Technology?	66
4.3	What Other Sources of Data Should I Be Aware of?	67
4.3.1	Clinical Data.	68
4.3.2	Unexpected Data	68
4.3.3	Remote Data and Other Strategies	68
4.4	How Much Data Should I Collect?	69
4.4.1	Sampling Strategies	69
4.4.2	Triangulation	70
4.5	Summary	71
5	Healthcare Intervention Studies “In the Wild”	73
	<i>Mads Frost, Cecily Morrison, Daniel Wolstenholme, and Andy Dearden</i>	
5.1	What Should I Think about When Designing a Study?	74
5.1.1	How Do I Define and Refine My Research Aims?	74
5.1.2	What Level of Evidence is Appropriate to Your Idea?	75
5.1.3	What Other Issues Should I Consider?	75
5.2	How Do I Navigate Ethics and Governance Procedures for Intervention Studies?	76
5.2.1	How Do I Handle Iteration and Ethics?	76
5.2.2	What Healthcare Research Terminology Should I Know?	77
5.3	How Do I Choose and Access a Healthcare Setting?	79

5.3.1	How Do I Choose a Research Setting?	80
5.3.2	How Can I Negotiate Access?	81
5.4	What Should I Consider When Building and Deploying Technology in Healthcare?	82
5.4.1	What Functional and Non-Functional Challenges Should I Be Aware of?	82
5.4.2	How Can I Generate Staff and Patient Buy-In?	84
5.4.3	How Should I Support an Ongoing Study?	85
5.4.4	How Should I Withdraw from a Study?	85
5.5	Summary	87
6	Impact of Fieldwork in Healthcare: Understanding Impact on Researchers, Research, Practice, and Beyond	89
	<i>Helena Mentis, Svetlana Taneva, Ann Blandford, Dominic Furniss, Raj Ratwani, Rebecca Randell, and Anjum Chagpar</i>	
6.1	Why Is Impact Important?	90
6.2	When Should I Consider Impact?	91
6.3	What Types of Impact Are Feasible?	91
6.3.1	Impacting Researchers and Practitioners	92
6.3.2	Impacting Scientific Knowledge	93
6.3.3	Impacting the Design of Technology	94
6.3.4	Impacting Practice	96
6.3.5	Impacting Society	98
6.3.6	Impacting the Economy	100
6.4	How Can We Transfer the Findings of Fieldwork to Achieve Impact? . . .	100
6.4.1	Writing for Different Audiences.	101
6.4.2	Speaking with Administrative Decision Makers	102
6.5	Summary	104
6.6	Conclusion	104
	References	107
	Biographies.	119
	Fieldwork for Healthcare:	
	Volume 1	125

Figures

Figure 1.1: Access and Approval Snakes and Ladders. Gaining ethical approval and site access can seem like a game of snakes and ladders. A bit of luck is needed but it's good to be aware of the pitfalls and the positive strategies that can affect progression. What will your game look like?	8
Figure 1.2: Ivory Tower Detachment. From the dizzy heights of the ivory tower to real need on the ward—how do we bridge this gulf to deliver meaningful impact in practice?	19
Figure 2.1: <i>Ward Stories</i> : Reflections on observing. The humorous film <i>Kitchen Stories</i> (2003) has inspired this illustration. The film encourages reflection on its tongue-in-cheek scientific rules for objective observation, e.g.: (1) build trust with your subjects, (2) collect data unobtrusively, (3) observe without interference, and (4) never become friends with your subjects.	28
Figure 3.1: Dissimilar groups: Access and study. Accessing and studying a group very dissimilar to ourselves can be difficult. Strategies to help include: access via a gatekeeper, provide help if possible, research something of value for that group, and offer some incentive to participate.	44
Figure 4.1: Different methods of data gathering have different affordances and constraints, and you can't record everything! What will you choose to look at, record, and how will this impact your results?	60
Figure 5.1: Post-study planning for intervention studies. Careful thought needs to be given to the end of the study before it begins. Make sure participants have clear expectations about what will happen so they don't feel let down.	86
Figure 6.1: Dreaming of Impact. What different sorts of impact do you hope to make through your research? What evidence would demonstrate this impact?	92

Preface

**Dominic Furniss, Rebecca Randell, Aisling Ann O’Kane, Svetlena Taneva,
Helena Mentis, and Ann Blandford (Editors)**

INTRODUCTION

This is the second of two volumes designed to make conducting fieldwork in healthcare more accessible for researchers investigating human factors and technology use. Whereas the first volume reported the experiences of researchers in 12 case studies, this volume presents guidance and advice that has been developed through the collaborative efforts of a wide range of experienced researchers in the area.

The motivation for writing these volumes comes from a community need and a gap in the literature: although results from Human-Computer Interaction (HCI), human factors, and related research are reported in research publications, there is often little detail and reflection on how to conduct these sorts of studies in practice. There are exceptions within healthcare literature, such as conducting ethnographic studies in nursing research (e.g., Pellatt, 2003; Borbasi et al., 2005; de Melo et al., 2014) and guidance on qualitative research for professionals within healthcare (Holloway and Wheeler, 2013); however there is little for those who study healthcare-related technology use and work practices who come from outside healthcare.

Doing field research in healthcare is different from doing field research in many other contexts. Researchers must be sensitive to patients’ experiences around their health. To protect patients and healthcare data there are often formal requirements for research governance and ethical principles that are special to healthcare, e.g., which research ethics committee within healthcare will review. There are different emotional demands in many areas of healthcare, whether in observing invasive medical procedures or talking to vulnerable people who suffer from chronic conditions, which can challenge researchers beyond normal work practices. There are challenges to gaining access and having an impact as organisational, social, financial, and administrative complexities associated with healthcare systems present barriers to progress. Also, specific advice can be given on conducting field research methods within different healthcare contexts, e.g., strategies for how to interview extremely busy nurses on the ward. Collectively these features help define why field research in healthcare is different, and why a guidebook is necessary.

These volumes are aimed at fieldwork researchers who are studying healthcare-related technology use or work practices (e.g., to improve patient safety). Both books are intended as a resource for those interested in learning, and teaching, how to conduct fieldwork in healthcare. They can inform new researchers' project plans and contingency plans in this complex and challenging domain. For more experienced researchers, this volume gives a perspective on major themes that have been developed collaboratively from researchers with different experiences. For lecturers and supervisors, it offers a source of reference and debate.

BACKGROUND

This volume represents the collaborative work that came out of an ACM Conference on Human Factors in Computing Systems (CHI) workshop, "HCI Fieldwork in Healthcare—Creating a Guidebook," which was held on 27th April 2013. During that day, 21 people from 17 different institutions discussed their experiences and case studies (a subset of which are published in Volume 1), brainstormed important topics and themes that they wanted to include in this guidebook, grouped these issues into themes that became the four middle chapters, and divided into groups to author those chapters after the workshop. Further details about the set-up of the workshop can be found in the first volume.

After the workshop, there were multiple rounds of writing and review where the editors oversaw the content, scope, and quality of each chapter and the book as a whole. As part of reflecting on the scope of the four initial chapters at the workshop, the editors decided to add two additional chapters on ethics and impact, at the front and the back of the book. While the book cannot cover everything, it was felt that these topics were deserving of their own chapters and suitable to top and tail the guidebook.

It has been a rewarding challenge to bring these chapters together into a coherent whole. They represent the experiences of many people from our international research community, and the diversity of their perspectives brings benefit to both volumes.

Even though this guidance draws on experience from an HCI perspective, we perceive these issues as having broader relevance to people in neighbouring disciplines, e.g., ergonomics, informatics, psychology, biomedical engineering, and CSCW (Computer-Supported Cooperative Work). Consequently, we preferred "human factors in computing systems" as a broader title to capture the focus of the material but maintain the breadth of issues we have covered for neighbouring disciplines. This also firmly keeps our roots in the workshop at CHI.

We take a broad view of fieldwork and healthcare. Fieldwork refers to those techniques that require the researcher to gather data "in the wild," which contrasts with surveys and laboratory studies. Fieldwork commonly involves some form of observation or interview in context. Our view of healthcare is also broad and includes physical health, mental health, emergency treatment,

preventative medicine, care for chronic conditions, clinical contexts like hospitals, and non-clinical contexts like home healthcare.

Before we go further, it is worth warning readers to be mindful of extracting absolute lessons from this guidance. One of the challenges that we have faced in putting this volume together is the diversity of experiences that people have offered. Sometimes these differences have their roots in international variation in policy and practice, sometimes in variation between healthcare contexts, and sometimes just because there is an absence of hard and fast rules so expectations and advice can vary depending on who you ask. As we move forward, particularly as rules on ethics and access change, readers should make themselves familiar with current best practices for their project.

OVERVIEW: A TOUR OF THE STYLE, STRUCTURE, AND CONTENT

Style

This is pitched as a guidebook for graduates. Although it is likely to have broader appeal, it is particularly for those researchers with expertise in HCI, human factors, ergonomics, informatics, etc., who are interested in working in healthcare. Each chapter covers key themes and subthemes to be mindful of when planning and conducting fieldwork in healthcare. Readers are introduced to the material, authors share their experiences, case studies are cross-referenced from the first volume where appropriate, tips and tricks are provided, and guidance is given.

Structure

The book is divided into six chapters. The chapters progress in a roughly chronological manner, from thinking about ethical issues, to preparing for the context and networking, to developing a data collection plan, implementing a technology or practice, and thinking about impact. However, in practice these elements are inherently non-linear and can be addressed in parallel. For example, thinking about potential impacts could be one of the first things to engage with.

Content

Each chapter provides an overview of a key area to consider when planning and conducting fieldwork in healthcare.

Chapter 1 is on ethics, governance, and Patient and Public Involvement (PPI). Gaining ethical approval and access to do research in healthcare contexts is often seen as the marker that differentiates this domain from others. We provide a background for why these systems are in place, describe the main features and variances for approval, and give experience and advice on practical

issues. We highlight PPI as an emerging and growing theme in the U.K., which has the potential to make healthcare research more relevant, efficient, and effective for patients and the public.

Chapter 2 focuses on readying the researcher for doing fieldwork in healthcare. It covers three broad areas: reflection on your researcher identity, handling emotions in fieldwork, and staying safe when doing fieldwork. These themes invite you to reflect on how your preferences and experiences could suit and impact different project work, as well as preparing you for the work that lies ahead.

Chapter 3 explores establishing and maintaining relationships in healthcare. You will be reliant on people for help and advice, to facilitate access to different contexts and groups, to facilitate data gathering, and to take project results forward for impact. This chapter explores how to gain access to the field and how to establish and manage relationships with clinicians and patients in different contexts.

Chapter 4 focuses on the practicalities of data collection in healthcare fieldwork. The chapter opens by contrasting how research data and contributions are different in healthcare and HCI. It then gives an overview of different methods and how these can be used to explore people's ideas and perceptions and what they actually do. Detailed and serendipitous sources of data are also covered. The chapter ends on issues of sampling and triangulation.

Chapter 5 focuses on intervention studies, i.e., those studies that design, introduce, and evaluate a change in healthcare, like the introduction of new technology. The chapter covers study design, behaving ethically and navigating governance procedures, and the practicalities of building and deploying technology for fieldwork in healthcare. An important theme here is handling the iterative nature of formative design and how this interacts with procedures for ethical approval.

Finally, Chapter 6 explores the topic of impact. The chapter takes a broad view of impact that includes impact on researchers, research, practice, and society. Experiences from different projects make these forms of impact come to life, and external resources are referred to for further information. Advice is given on how to better realise different forms of impact and how to assess them.

Overall, this volume presents an overview of the key considerations for planning and conducting HCI and human factors fieldwork in healthcare. Our aim has been to make this research area more accessible and to give graduate researchers a flying start to their projects. The companion volume, *Fieldwork for Healthcare: Case Studies Investigating Human Factors in Computer Systems*, shares concrete experiences of conducting fieldwork in healthcare—including the challenges, emotions, social dynamics, practical lessons, achievements, and disappointments experienced by researchers in this area. These are complementary volumes.

Acknowledgements

Like the first volume, this volume has been a pleasure to guide and produce. Unlike the first volume, this entire volume has been shaped and constructed by the collaborative efforts of the workshop participants. It was the conversations and ideas we shared on that day that have found their way to written text, which will form a lasting contribution. We hope researchers will be informed and inspired by this work, that more experienced researchers will be able to find support and advice, and that teachers will be able to use this material for instruction and debate.

Many people from across geographical boundaries contributed to these two volumes. We would like to thank all who contributed, both directly through editing and writing and indirectly through support in making this project happen. We would particularly like to thank the committee that supported our workshop proposal and helped us review its submissions. We would like to thank all of our workshop participants for making this project a success. Thanks to Stefan Carmien, Avi Parush, and Shari Trewin for their comments on an earlier draft of this volume. We would also like to thank Ron Baecker and Diane Cerra for their support and advice.

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