Everyday Technologies in Healthcare
Rehabilitation Science in Practice Series

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Everyday Technology in Healthcare
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Everyday Technologies in Healthcare

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Dr Christopher M. Hayre would like to dedicate this book to his wife Charlotte for her ongoing support and commitment. He would also like to dedicate this book to his daughters Ayva, and the twins, Evelynn and Ellena. Love to all.

Professor Dave J. Muller would like to dedicate this to his extended family with love, Pam, Emily, Lucy, Tasha, Harlie, Toby, Edie, Kaya and Freya.

Professor Marcia J. Scherer would like to dedicate this to her husband and colleagues from whom she continues to learn so much. Further, she dedicates this to the users and providers of today and tomorrow in their quest to employ technologies wisely and in ways that add quality to life.

Collectively the editors congratulate one another for completing a worthwhile and enjoyable collaborative project.
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This book presents the collaborative work of experienced researchers worldwide. It brings together an array of practitioners and researchers who are utilising everyday technology in order to enhance health and rehabilitative outcomes for patients. The studies demonstrate an array of opportunities that exist by utilising everyday technology within a number of contexts. Not only does this book present empiricism pertinent to health disciplines, but it also offers prospective researchers methodological insights and how these may resonate within other disciplines. Importantly, this book does not explore advancing technology and how this is impacting health outcomes, but examines technology that is readily accessible to consumers in society, which we term ‘everyday’. By examining such works, it is anticipated that this text will have greater impact because the technology remains accessible to many.

This book examines the role of everyday technology throughout the life cycle in order to demonstrate the wide acceptance and impact of everyday technology and how it is facilitating both practitioners and patients in contemporary practices. In response, then, this text speaks to a number of audiences. Students writing for undergraduate and postgraduate dissertations/proposals will find the array of works insightful, supported with a vast number of references signposting to key texts. For academics, practitioners and prospective researchers this text offers key empirical and methodological insight that can help focus and uncover originality in their own field.

This proffered text begins with an introductory chapter by the editors. In this chapter, we detail the value of everyday technology in society. This sets the scene by demonstrating the upward trend of smart devices and how they already impact on our lives in general. Introducing the theoretical lens, actor-network theory (ANT), the editors feel this provides an overarching framework to the text, accepting that technology and a person remain equal and interconnected. Then, subsequent chapters from a number of internationally recognized scholars demonstrate pertinent empiricism by examining the role of everyday technology and how it enhances health conditions.
We anticipate that readers will find the collection of empirical examples useful for informing their own work, but also, it attempts to ignite new discussions and arguments regarding the application and use of everyday technology for enhancing health internationally.

Christopher M. Hayre

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Acknowledgements

The editors would like to thank all contributing authors for sharing their innovative work on everyday technology. Your commitment to this book reflects the hard work undertaken, and it has been a pleasure for us to work with you and bring together this collection of sound work. The work demonstrated by the authors demonstrates the multifaceted application of technology, enhancing outcomes for individuals. This has been a thoroughly enjoyable and worthwhile project, which we hope readers will enjoy.
Editors

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Section 1

Introductory Perspective
In the last decade, the use of what we term ‘everyday technology’ includes (and is not limited to) smartphones, smartwatches, tablets, computers and gaming consoles and have all rapidly excelled in use worldwide. In 2013, smartphone sales surpassed those of regular cell phones opening up different channels of smartphone applications, social media, photo/video sharing, whilst enhancing virtual interactions of forums and blogs. More recently, we have seen increasing use of smartwatches. Rawassizadeh et al. (2015) identified the approximate growth of smartwatch sales reaching 214 million by 2018 and penetrating health research since 2014, enabling technical function, supported with acceptability and effectiveness in order to enhance the everyday life of individuals. Due to this rapid acceleration, smartwatches are now becoming widely integrated into healthcare systems whereby patient data is remotely synchronised enhancing holistic treatment of patients across an array of clinical contexts. A recent example by Reeder and David (2016)
recognised the utility of smartwatches within the intensive care unit. Whilst on the one hand, the authors warn of the possibility for cross-contamination of such devices amongst healthcare professionals, it is also acknowledged that introducing a smartwatch to patients can offer little cross-contamination and thus enable instant data transfer, which can be monitored remotely.

The increasing use of everyday technology within society identifies its multifaceted use, enhancing societal interconnectivity. Moreover, Friedman (2009) suggests that a person working in partnership with technology is generally assumed to be ‘better’ when compared to an individual unassisted. From a sociocultural perspective the first author reflects on his own sociocultural experiences, following a recent move outside of the United Kingdom, whereby his own smartphone device remained pivotal for him and his family, living and working in a new part of the world. For example, the ability to instantly message and video call family and friends at a time when physically restricted from one another was welcomed. In addition, whilst the smartphone facilitated connectivity with family and friends, it enabled him to keep abreast of news, sustained collaboration with academic peers, helped manage international finances, and possibly more importantly, locate nearby hospitals/clinics, pharmacists, and supermarkets when needed. Reflecting on the use of smartphone device offered virtues that may have led to sociocultural challenges.

This utilisation of smartphones is also evident in other contexts. A study by Kaufmann (2018) examined the use of smartphone use amongst refugees fleeing Syria following civil unrest. The study found that when large numbers of Syrian refugees left their homes, the ability to instantly message family and friends in ‘group chats’ using WhatsApp enabled a transnational digital community, facilitating the movement of refugees into cities in Central and Western Europe. In this example, smartphones offered many ways to stay in touch and overcome restrictions of physical space, which the study terms ‘ordinary co-presence’, whereby maintaining a virtual space is achieved for family members across continents (ibid.). In short, the benefits of smartphones have transnational impact, supporting the view that smartphones are simply more than a digital tool – but a device that can impact on an individual’s health and well-being. In addition, the work by Kaufmann (2018) offers methodological considerations in light of using everyday technology. For example, due to the researchers inability to meet some individuals in person, the researcher ‘joined’ the group chat of Syrian refugees using WhatsApp in order to interact and collect data via a digital platform, leading to what the author deemed mobile instant interviewing. Here, then, this demonstrates that everyday technology not only offers an array of empirical opportunities, but importantly novel methodological considerations for researchers who may be restricted. This supports the claim by Horst and Hjorth (2013, p. 94) that smartphones remain an example of ‘personalization par excellence’ whereby they have the potential to get close to the everyday lives of people.
On the one hand, we have witnessed how smartphones have facilitated everyday lives of individuals, yet, there are also situations where smartphones are seen to hinder social and educational environments. The former has been recognized in sporting spectacles, in particular, basketball and football matches. It has been claimed fans should ‘put down their phones and enjoy the sporting spectacle because people can’t clap while they’re holding their phones’ (Hutchins, 2016, p. 421). Similarly, in the Dutch football league, fans have protested, calling for the cessation of fans checking their phones during matches whereby fans should ‘support the team and observe the on-field action unfolding’ (ibid., p. 425). The latter concerns smartphone use in educational environments, leading to the rise of new legislation. In July 2018, France passed a law affirming that school children will be required to leave their smartphones switched off or at home (RFI, 2018). The ban for ‘smart devices’ in France has been applied to pupils up to the age of 14–15; however, although schools can still justify the utilisation of smartphones amongst pupils for pedagogical use, extracurricular activities or for disabled pupils, this new legislation has been claimed to ‘move France into the 21st century’ (ibid., p. 1). The evidence above offers insight into the potential dichotomy associated with smartphone technology, thus whilst central to uncovering its current uses in healthcare, this text also explores wider everyday technologies that can either facilitate or hinder health outcomes.

The general acceptance and value of smartphone devices is thus challenged leading to question a potential paradox. Turkle (2012, p. 280) recognizes this paradox from a social perspective whereby there may be a sense of feeling ‘alone together’ in social interactions whereby smartphone users remain in constant connectedness with their phones, and as a result rarely have each other’s full attention when in each other’s company (ibid.). This is argued to lead to social interactions becoming ‘pausable’ as people stop and look down at their mobile screens to check emails, text, social media updates and application notifications (ibid., p. 161). In response, this book advocates for the use of everyday technology and how it can facilitate an array of health outcomes for individuals. Further, it is acknowledged that the use of everyday technology also demonstrates challenges, thus important to strike a balance between what should become a healthy use of everyday technology and not the demise of social interaction.

Conceptual Importance of ANT for Health Research

Information communication technology (ICT) has become increasingly utilised for information and data transfer in the last decade. This has led to a number of countries implementing and continuously updating ICT systems within healthcare organisations in order to manage and enhance patient
safety. The use of digitally enabled technologies facilitating exchange of clinical and administrative healthcare is generally accepted, offering value to all actors operating within healthcare environments. Whilst this remains central, this book focuses on the use of ICT that is not necessarily inherent within all healthcare organisations. For example, smartphones, smartwatches, tablets and computer gaming consoles are readily available and already owned by consumers, which offers a unique perspective in how this technology can be utilised by health organisations, without purchasing equipment.

In order to critically examine the role of technology and its role on enhancing health outcomes, the concept of ANT is discussed. ANT focuses on non-human entities and its effects on social lives. For example, an ‘actor’ within the ANT model is defined as the ‘source of an action regardless of its status as a human or non-human’ (Cresswell et al., 2010, p. 2). One important feature of ANT is the move away from the idea that technology impacts on humans as an external force, and is replaced with the concept that technology emerged from the social interests of individuals, thus shaping social interactions (Prout, 1996). This leads ANT to be considered as an ‘ethno-methodology’ as indicated by Latour (2005, p. 72) affirming that:

ANT is not the empty claim that objects do things, instead of human actors: it simply says that no science of the social can start if the enquiry into who participate in the action is not first discovered.

ANT is typically aligned with its own epistemology and ontology, whereby the world consists of multiple networks, which may include human ideas and concepts, a concept typically aligned to social constructivism whereby the lives of individuals and everyday technology can have multifaceted impact on various individuals (Law, 1992). Further, by critically engaging with the ANT concept it enables the unification of the two overarching concepts inherent within this book – the use of everyday technology and its impact on humans. Theoretically, then, ANT accepts the social connection and equal influence of technology as it now becomes increasingly interconnected into the social lives of individuals. This is evident whereby the majority of individuals now interact with some form of technological device within their daily lives. By reflecting on the first author’s experience, we have witnessed how everyday technology is able to connect with family and friends on both practical and emotional levels, thus central to accepting its equal value in contemporary health environments.

The ANT model importantly bridges the rise of everyday technology and human participation demonstrating both social and technological facets. Thus, it could be argued that this book is not only exploring the virtue of everyday technology for health conditions, but also explores the social constructs of multiple realities that remain both complex and fluid. A principal
acknowledgement of this text accepts the interconnectivity and necessity of two principal actors: human beings and technology and how this fusion offers opportunities for individuals.

ANT offers an overarching framework of this book that may help interlink technology with pertinent phenomena. In addition, the emergence and development of technology is arguably leading us to become increasingly reliant upon everyday technology, and not simply for social purposes, but for the sustainability of good health. This leads us to acknowledge a paradigm shift in healthcare, whereby the everyday use of technology for organisations can also enable sound outcomes. Further, as technology becomes increasingly accessible and more affordable for consumers, it is likely to play an increasingly pivotal role to users worldwide when it comes to improving individual lives. Thus, by adopting an ANT lens, it can help infer greater understandings of both human and technological change in society, rather than simply considering each as a separate entity. It is therefore anticipated that this book can critically reflect, adapt and welcome innovative technological applications into the health environment and offer discussions outlining both opportunities and challenges.

Summary

This introductory chapter has outlined two key points, which is anticipated to help contextualise the book. First, the authors reflect on the existing effects of what we deem ‘everyday technology’. We have identified the sharp rise in consumer ownership of everyday technology and how this now impacts on the social lives of individuals, including that of the author following a recent move overseas. Whilst some evidence highlights social challenges with the use of everyday technology, there is a general acceptance that everyday technology offers practical and emotional virtues, whereby it connects people and aids other facets of our lives. In short, we accept that everyday technology is not only able to enhance social outcomes, but also enhance the outcomes for health conditions, which remains the general focus of this book.

Next, we introduced ANT, a theoretical model that identifies human beings and technology as equal actors. We have argued how this theoretical and ethnomethodological lens can help contextualise the forthcoming work by authors transnationally. Further, as everyday technology continues to develop, it is generally accepted that technology will remain a key actor for practitioners, researchers and patients alike in future years, thus requiring a lens that enables critical appraisal of the use of everyday technology and how it impacts on the health outcomes of individuals.
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