

# Chapter 11

## E-Health and Digital Inclusion

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### ABSTRACT

*E-health resources can deliver demonstrable benefits for quality of care, for example through provision of public health information and access to online communities and self-help groups for those experiencing ill-health. Digitally excluded groups of health consumers such as older people and those with disabilities have much to gain from the social connectedness and social support offered through these digitally facilitated resources – yet at the same time are most vulnerable to continued exclusion due to inappropriate technology design and implementation.*

*In this chapter, we describe in detail the opportunities e-health can offer in the context of digital inclusion by reducing social exclusion and enhancing quality of life through thoughtful technology intervention. We highlight the problems that may emerge or persist if the design of e-health systems does not fully take into account the challenges of user access and adoption. We show how principles of user-centred and inclusive design can be used as a basis on which successful e-health systems can be developed and implemented and offer suggestions for how these principles can best influence design of future systems.*

### INTRODUCTION

In recent years, the concept of a digital economy has arisen that focuses on digital services and network technologies, with access enabled by low-cost consumer devices. While seen by industry

and government as a means of providing improved quality and reach of services and products at lower cost, this move to digital interactions has created a situation in which a large number of people may find it difficult or impossible to access these e-services. Those at greater risk of being digitally excluded include older people, those with a disability, lower income groups, and people who are

DOI: 10.4018/978-1-4666-2770-3.ch011

unemployed (Dutton, Helsper, & Gerber, 2009). Additional groups at risk of exclusion include those with language or cultural differences (McKay, 2005) and those in locations where limited or lack of broadband service provision or access to skills training causes exclusion (Warren, 2007).

There is a growing number of initiatives to promote digital inclusion. Many of these initiatives concentrate on the practicalities such as broadband provision which, while relevant, do not represent the whole picture. For example, in the UK the government has an action plan to attract and support the estimated 17 million people over the age of 15 who are not using computers and the Internet (HM Government, 2009). They also emphasize the correlation between social and digital exclusion (see also Warren, 2007), estimating that this affects more than six million adults. The digital divide can also be seen in relation to the 'participation gap' (Jenkins, 2006). Jenkins states "As long as the focus remains on access, reform remains focused on technologies; as soon as we begin to talk about participation, the emphasis shifts to cultural protocols and practices" (Jenkins, 2006, p. 23), highlighting the need for digital inclusion to be user-focused.

It would be difficult to argue that technology has not made an overall positive contribution to quality of healthcare provision. Computers have consistently increased in speed and capacity over the last 30 years, meaning more powerful computations can be made and greater quantities of data can be processed. Such developments have the potential to transform healthcare, for example through improving patient record management and supporting informed diagnosis and treatment identification. Information and communication technology (ICT) has also provided an opportunity and platform for a vast quantity of health-related information to be made available to consumers, opening up potential for improvements to general public health and to illness management.

Frustratingly, though, successful technological innovation requires more than powerful hardware and feature-rich software, particularly if the end user is a consumer or someone who is part of the care pathway. Effective technological innovation requires human-centred design approaches in order to ensure that the innovation is useful and usable, and at minimum risk of rejection due to inappropriate or insensitive design. The field of user-centred design (UCD), and a more specific focus on inclusive design, with its ultimate goal of technology that is as easy as possible to use by as many as possible of the target audience, is of critical importance to the success of e-health innovations, but is arguably not yet as influential as it could be. Ironically, those population groups who are most likely to experience digital exclusion are also more likely to experience health issues and co-morbidities. Online communities are likely to be very beneficial with these groups who may find it difficult to find and connect with other people in similar situations.

Digital exclusion from e-health may exist for many reasons; but fundamentally falls into two categories:

1. **Availability:** Exclusion resulting from a lack of access to hardware (such as a PC, smartphone or interactive digital television), or software, or sufficiently capable network connection, necessary to use an e-health system.
2. **Accessibility:** Given its availability, a lack of ability to use an e-health system effectively due to the way it is designed.

While the former is a more general challenge for digital inclusion that may require intervention from the state and from industry, the latter is very much a challenge that can be tackled by providers of e-health systems. We focus on the latter challenge.

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