



Mobile e-Health: Current Perspectives from National and International Researchers

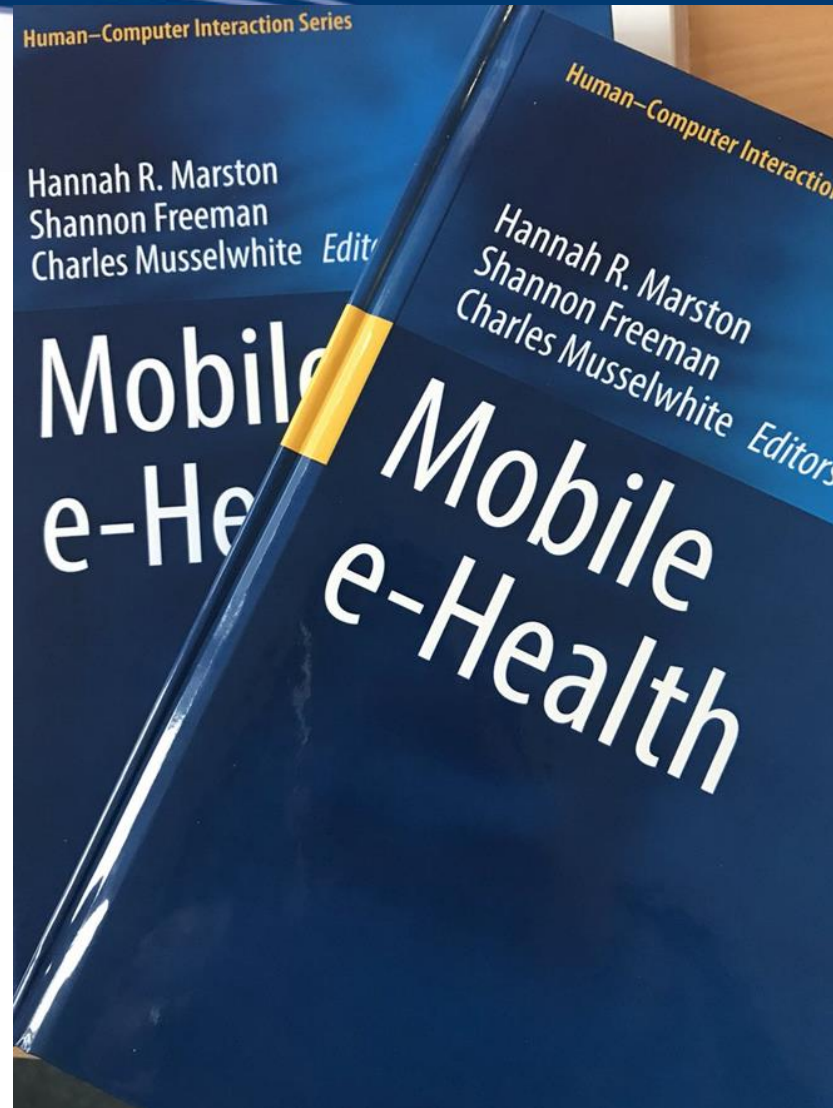
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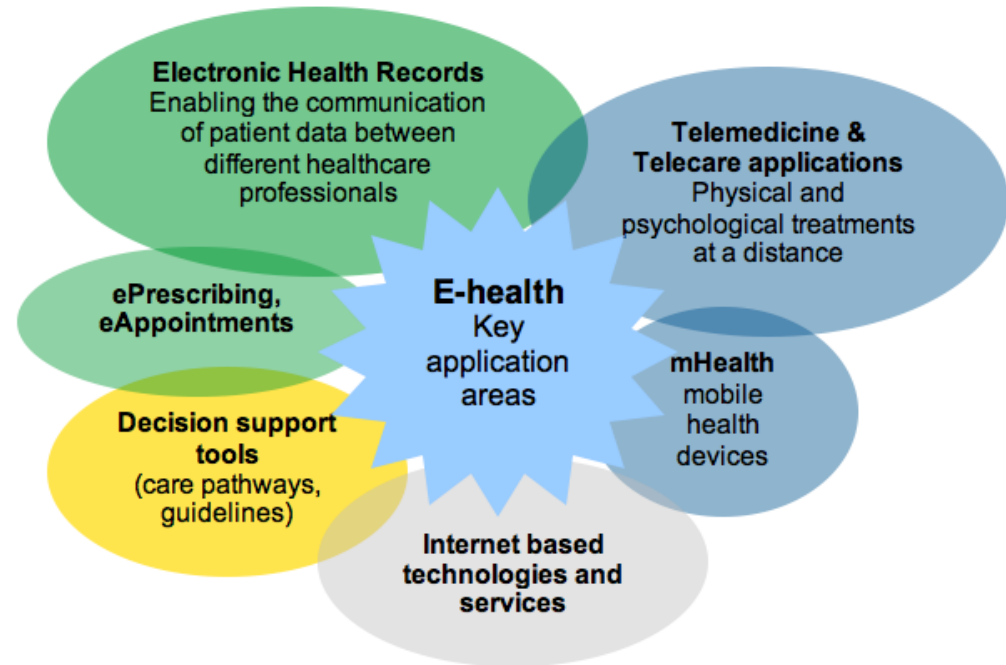


Ehealth and Mhealth



eHealth is the use of computing and associated technologies serving and promoting health and wellbeing needs.

Mobile health (mHealth) is the use of mobile, wireless technologies to connect, communicate and promote this computing with the aim of supporting individual's health and wellbeing.



The growing emphasis on mHealth programs is reflected in the WHO's 2016 report of the third global survey on eHealth noting that over 90% of member states countries reported at least one mHealth initiative (WHO, 2016).

Ehealth and Mhealth can:

Monitor health (mhealth = more personalised) and

Inform:

Provide information to the user (mhealth = gt.personalisation)

Share information (between users/healthcare practitioners)

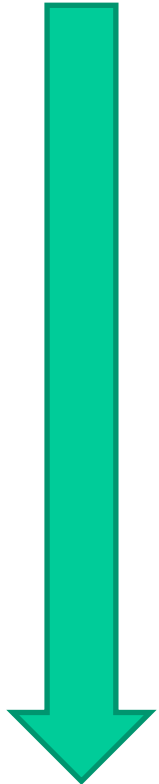
Persuasade: Suggest changes (Educate)

Take over: Make changes for people

Must act

Adherence
needed

Little/no
human
intervention



Using mhealth

Quantified Self and Life logging

philosophies of the self in Sacramento and Wanick's Chap. 3

Applicability of this to keeping older people independent and at home viewed in DeMaeyer's contribution (Chap. 4).

Using games to improve health

Hannah Marston's presentation – IStopFalls ; Karen Reynolds presentation – Splashboard

Acknowledged problems with mhealth

Ruzic and Sanford (Chap. 2) ; Musselwhite et al (intro/conclusion)

Is Mhealth safe and secure manner which meets legal standards and policies

Part VI Privacy & Legal Requirements

(which comprises of three contributions in our book by Lynch and Fisk, Mantovani and Cristobal Bocos and Wiersinga)

Contemporary & Future Insights into Digital Game Technology for Ageing Populations

Dr Hannah Marston

The Open University, Milton Keynes, United Kingdom

Mr Michael Kroll

German Sport University Cologne, Cologne, Germany

Mr Dennis Fink

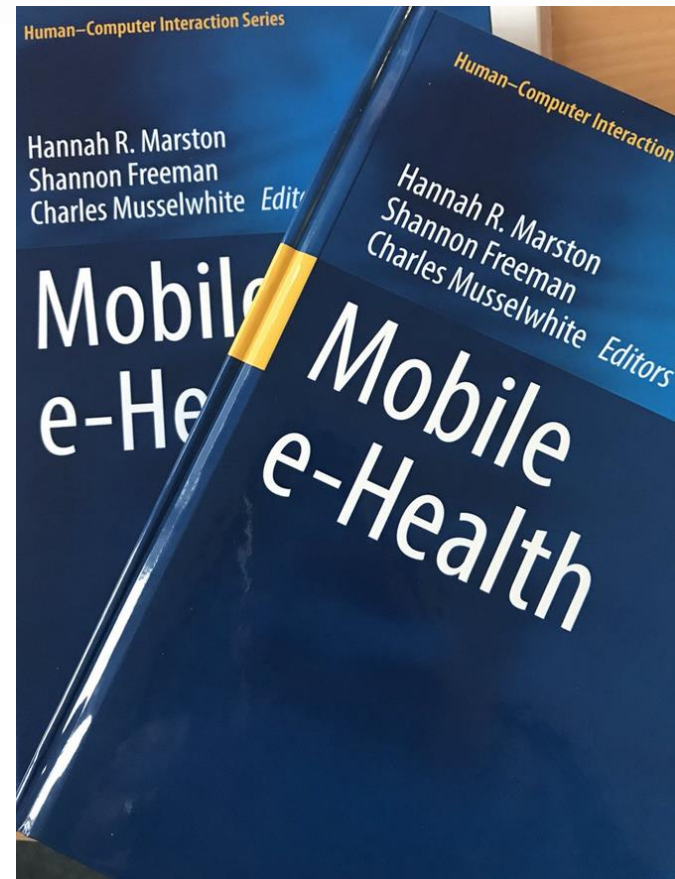
DJK Sports Association, Langenfeld, Germany

Dr Rakel Poveda-Puente

University of Valencia, Valencia, Spain

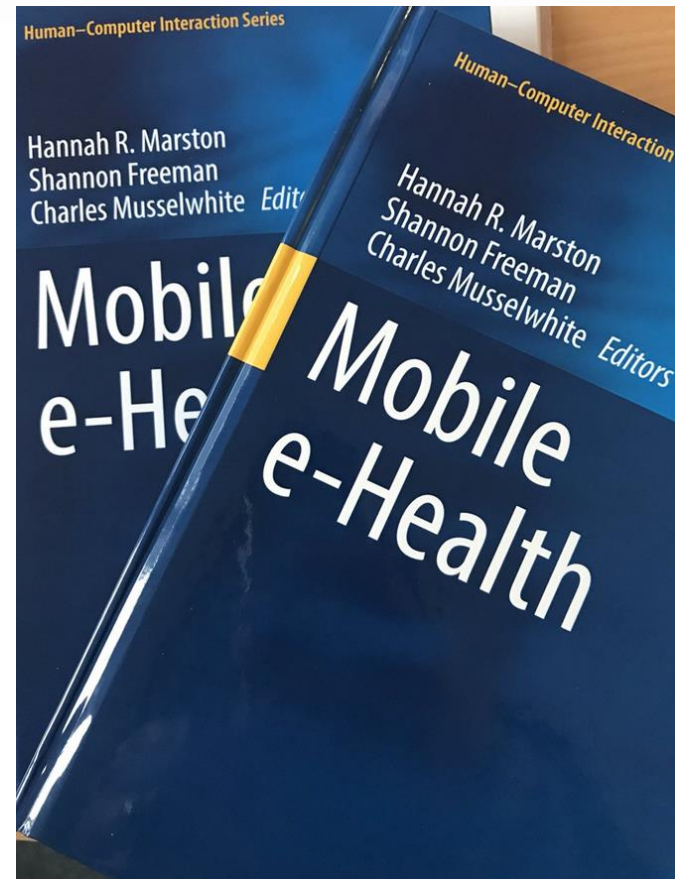
Dr Yves Gschwind

Neuroscience Research Australia, Sydney, Australia



Transcendent Mobile health for an ageing population: an introduction

Dr Charles Musselwhite
Swansea University, Swansea, United Kingdom



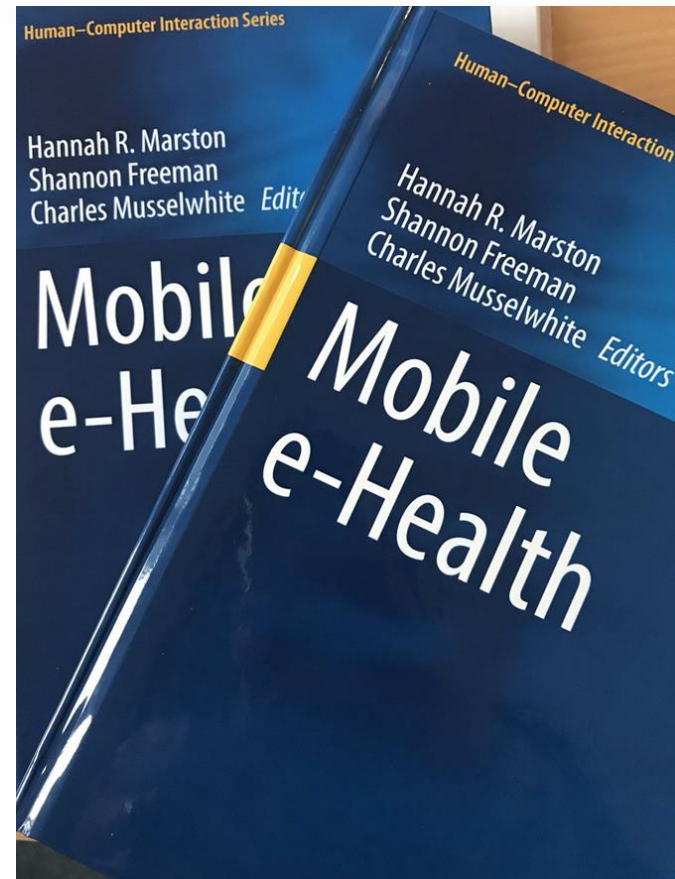
Use of the Splashboard Virtual Art System by Older Adults

Mr Alexander Paczynski
Flinders University, Adelaide, Australia

Mrs Laura Diment
Flinders University, Adelaide, Australia

Mr David Hobbs
Flinders University, Adelaide, Australia

Prof Karen Reynolds
Flinders University, Adelaide, Australia





Transcendent Mobile health for an ageing population: an introduction

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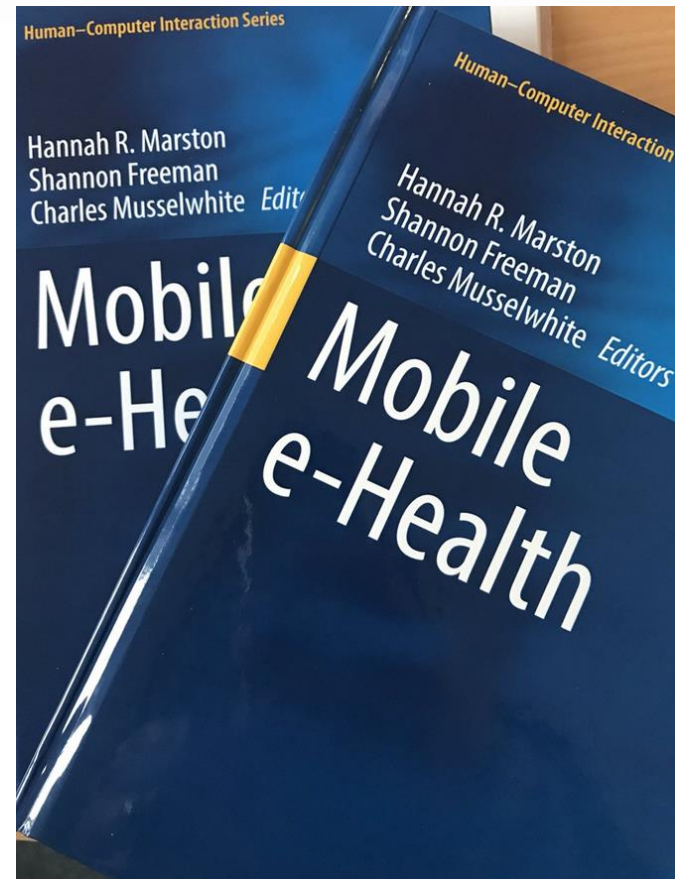
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contents

- Benefits and examples
- Acknowledged issues
- Why we get it wrong.
- Conclusion



Benefits and
examples of
mhealth with
older people



Potential for mhealth:

- Increased data collection and sharing of such data at a macro and micro-level (for example life logging) can lead to better and early detection of or avoidance of hazards.
- Increased personalisation of health and care.
- Advances communication between different sectors and different users across society, reducing geographical boundaries and distances needed to travel. Keep people at home – no need to travel. Short and long-term.
- Helps foster more of a participatory approach to health and wellbeing, giving individuals more responsibility for their own health and wellbeing, supported by a variety of experts.
- Mobile eHealth technologies have the potential to support the health and wellbeing of vulnerable and marginalised populations who traditionally have been more difficult to reach groups on the margins of the greater population.

- **Education** – equipping individuals with easier access to validated health information
- **Motivation** – encouraging individuals to adhere to treatment regimens and attend appointments through messages and reminders
- **Connectivity** – creating new and strengthening existing communication channels, particularly between caregivers and older people; improving monitoring; and strengthening interventions



Examples of mhealth

Provide information:

“Use of Mobile Technology to Prevent Progression of PreHypertension in Latin American Urban Settings”
text messages and phone calls to promote lifestyle modification focused on reducing blood pressure in
Argentina, Guatemala, and Peru.

ClinicalTrials.gov. (2011) Use of Mobile Technology to Prevent
Progression of Pre-hypertension in Latin American Urban Settings

MediNet - personalized recommendations for individuals with high blood pressure. In this system, the patient is hooked up to at-home glucose and blood pressure monitoring sensors that transmit readings to a mobile phone with a USB or Bluetooth connection. The patient is guided through a series of lifestyle and exercise questions, and both the individual's responses and the sensor readings are analyzed in the system using electronic reasoning, returning a personalized response to the patient

Mohan P, Marin D, Sultan S, Deen A. (2008) MediNet: Personalizing the self-care process for patients with diabetes and cardiovascular disease using mobile telephony. *IEEE eng med biol soc*; 755-8.

Examples of mhealth

mobile coaching option for individuals with type-2 diabetes, with which they are able to enter blood glucose values, carbohydrate intake, medication, and other information on their mobile handsets and then receive automated messages specific to their data. Algorithms are used to send patients both educational and motivational messages, and patients are encouraged to communicate electronically with educators

Quinn CC, Shardell MD, Terrin ML, Barr EA, Ballew SH, Gruber-Baldini AL. (2011) Cluster-randomized trial of a mobile phone personalized behavioral intervention for blood glucose control. *Diabetes Care*. 34: 1934-42.

OScan is an easy-to-use mobile device that enables community health workers to screen for oral cancer using camera phones

PraKash Lab at Stanford University (2012). OScan: Screening tool for oral lesions.

In response to the challenges of being able to continue monitoring patients after they have left the doctor's office, a wireless monitoring system was developed in Italy for patients to transmit information regarding symptoms and quality of life to medical professionals

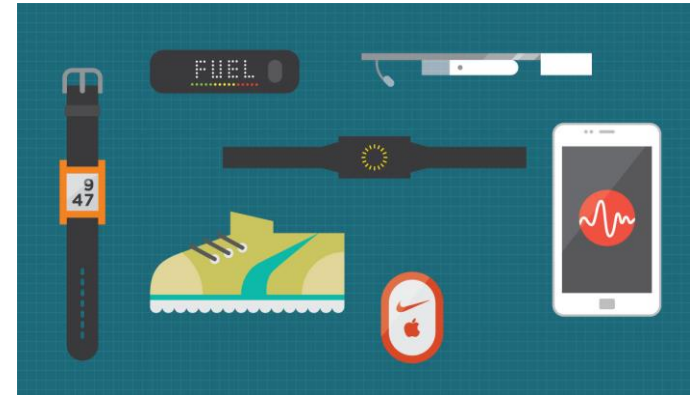
Blake H. (2008) Mobile phone technology in chronic disease management. *Nursing Standard*. 23(12): 43-6

Examples of mhealth

the quantified self where mobile devices collect data about our daily lives. Simple and relatively cheap devices can now include collection of all sorts of data from steps taken, distance travelled, sleep patterns to heart rate and calorie intake.

A little more complex and with some direct user input can see people add their own thoughts or feelings to the data, creating **life-logging e-diary** technologies.

How might these systems be used to improve health and wellbeing of people? These elements are covered in terms of philosophies of the self in Sacramento and Wanick's Chap. 3 and then applicability of this to keeping older people independent and at home viewed in DeMaeyer's contribution (Chap. 4). How this changes the behaviour through changes in understanding of the body is described.



Examples of mhealth

Adding fun and gamification:

Implementing specific content into a game has the potential to build upon ones' knowledge; therefore, learning enables users to enhance their skills, knowledge and personal achievement.

Traditionally older people not seen as engaged gamers, but that is changing

Hannah Marston's presentation - IStopFalls

Karen Reynolds presentation - Splashboard



Acknowledged
problems with
mhealth



Acknowledged problems with mhealth

- Accessibility. Mobile networks in some areas very poor. Especially rural and areas of high deprivation across the world. But are they any worse than transport networks?
- Privacy. What happens to the data collected? Lack of trust in who has access and what is done with people's data, especially among older people.
- Quality. Varied quality of software. Not always viewed as a medical device so standards and testing is varied.
- Ethics: Who's interests are such devices developed with in mind?
- Governance: who's data is it anyway?



Acknowledged problems with mhealth

- Ruzic and Sanford (Chap. 2) mention Vardeh et al. (2013) who elaborate on these:
- (1) security and privacy concerns,
- (2) the burden of too much information (especially via sound and text),
- (3) an overwhelming amount of information,
- (4) an overemphasis on problems rather than exploring wider health tactics,
- (5) poor compatibility with other records (e.g. medical records),
- (6) physical or cognitive restriction in using the device and;
- (7) that costs may be increased rather than reduced.

Example: Chronic Pain

Access to at least 111 different apps to support living with their pain.

- Passive systems that provide information (54% of them),
- Monitoring and tracking (24%)
- Interventions (17%),

some provide linking with healthcare, some are individual, and some provide peer to peer support (Rosse and Eccleston, 2011).

Is Mhealth safe and secure manner which meets legal standards and policies

Part VI Privacy & Legal Requirements

(which comprises of three contributions in our book by Lynch and Fisk, Mantovani and Cristobal Bocos and Wiersinga):

- the decentralisation of medicine, a reduction in top-down nature of medical provision and a wider potential for sharing data. But how to do this ethically?
- When compared to traditional provision of face-to-face care, important questions arise including the following:
- Can telehealth provide the same or better level of care?
- Does provision of care through telehealth identify the same detail as in-person consultation does?
- Can eHealth web platforms and apps identify the nuances that in-person consultation can do? Above all, the question remains, how and when should it supplement or replace in-person consultation?
- The answer is, yet, we just do not have a strong enough evidence base to reliably know, and more research is needed to identify how eHealth may fit into practice within and across countries

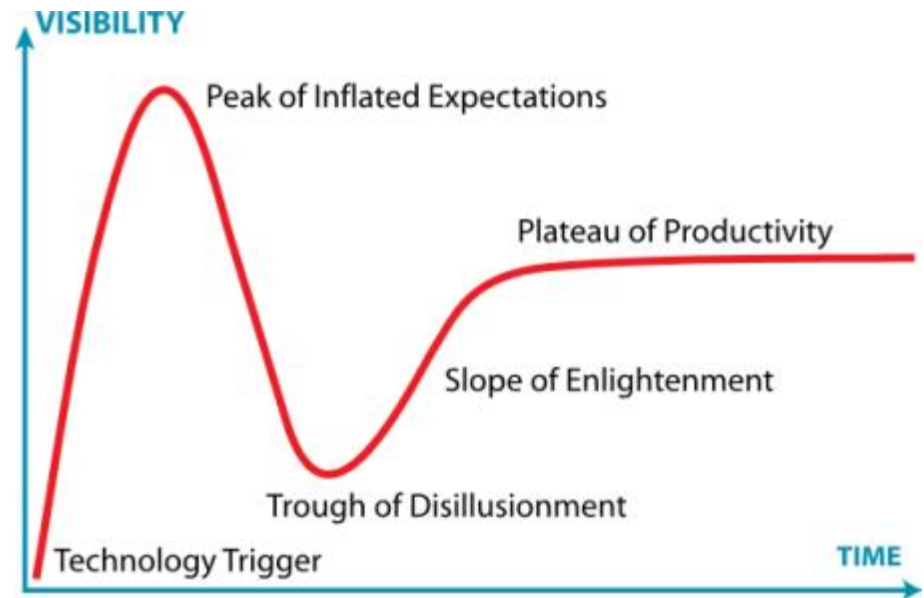
Why we're
getting it wrong



Problem 1: We are wowed by technology

Creates a technocratic society

- Solution looking for a problem
- Study the technology in great detail not how it interacts society



Teleworking:

1993 by 2010: 80% of office workers would work from home/remotely

Telehubs etc. (AT&T, 1993)

- Remove the need for physical/ literal/ corporeal travel
- Reduce need for workspace
- Did it happen? No?
- Why?
- Technology IS there and IS good quality.



Advanced vehicle control and safety systems:

- Promise we would be in self-driving cars by 2010 (e.g. Navlab, 1996)
- Did it happen?
- No?
- Technology IS there and IS high quality?
- Been there since second world war
- Good enough for roads since c.1996
- Why hasn't it happened?





Problem 2: We miss the point



Telehealth: What is missed from in-person consultation. Especially “at home” consultation – wound care.

Online shopping: Preferred when done in a group.

Jam jars: Difficulty allows social interaction.



Problem 3: We miss the essence

Webcams

Virtual reality

window on the world

- The importance of the (being in) moment
- The importance of doing it for yourself
- What is missing? Can it replicated
- Need more research with older people

Problem 4: We think old age is all about being in deficit

Older people like to play! Their affective and aesthetic concerns are important



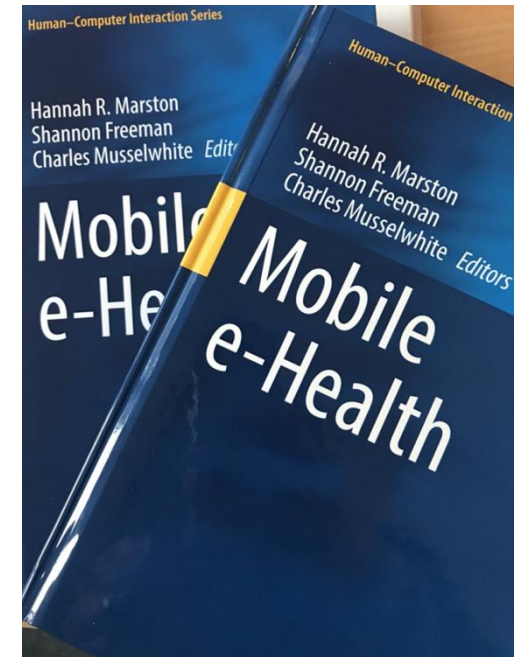
Conclusion



- Deficit approach – something that needs plugging, rather than revolutionising.
- Health care rather than social (health) care
- Emphasis on shiny new tech not the difficult social questions
- Solutions are like for like, rather than enhancing
- Saving money and getting rid of visits to hospital. If done properly would it actually cost more? Need more visits?
- How does it fit into the daily practices of staff, older people, their families and carers
- Over emphasis on sharing when it isn't the norm. How will sharing work?
- Over emphasis on “digital skills” rather than on actual use of technology.
- Need much more involvement of older people in design of technology and how it fits to their lives

Thank you

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