Role of wearable activity-tracking technologies in the well-being and quality of life of people aged 55 and over

How to cite:
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Shailey Minocha
Research Team: Duncan Banks, Caroline Holland, Catherine McNulty and Jane Palmer
10 March 2017

Technology and Education

Multi-user 3D environment:
Avatar-based virtual Geology fieldtrip
Skiddaw mountains
Funding: Wolfson Trust

Virtual Reality: phone-driven
Google Expeditions
Geography and Science education in schools
Funding: Google
Technology and Ageing

Themes:
social isolation and loneliness
online social interactions
digital skills for employability
and lifelong learning

Case study of an online community:
photography journal: blipfoto.com
inter-generational communication
support for carers
digital curation

Participation

Methods:
meetings
workshops
e-mail and face-to-face conversations; diary studies
surveys

Collaborators:
Age UK Milton Keynes,
Carers MK, MK U3A
Mind, Dementia Friends
MK Council, West Bletchley Council
Digital health wearables

**Fitness trackers:**
- walking, sleep patterns, calories expended, ...
- dashboard on phone or Tablet

**Funding:** Sir Halley Stewart Trust

**Significance:**
- Active and Healthy Ageing
- physical activity to preserve mobility and motor skills
- Digital NHS
- self-monitoring of health and medical conditions

Research

**Participants:**
- people aged 55 and over who are already using such devices
- people aged 55 and over who haven’t used such devices

**Other stakeholders:**
- carers and family members
- family doctors and healthcare professionals
Data collection

Trying out the devices:
behavior change study
activity-trackers to 21 participants in age-range 55-82
e-mail interviews and diaries
4 workshops over 6 months

Surveys:
age 55 and over who use these devices
carers; and a workshop
doctors and healthcare professionals

Results

Concerns:
design of the devices
usability and accessibility of devices
technical support
online help and tutorials

Data handling:
recording of the data
making sense of the data
accuracy of the data
ethics of sharing the data
Behaviour change

Other changes:
diagnosis and solutions for non-optimal sleep
pacing themselves with adequate rest-times
awareness of ethical sharing and use of data

Lifestyle changes:
diet, walking, conscious use of the car, joining the gym, walking groups, monitoring sleep

Carers

For themselves:
monitoring their own health and activity
sleep patterns
level of activity

For people they care for:
‘to monitor health in a low-key way that is not intrusive and give them independence to cope when they are doing well’
this data may ‘create confusion and unnecessary worry’
Key findings

• challenges for adoption of these technologies
• design for age-related impairments (e.g. vision, hearing, memory, dexterity)
• positive behavioural changes
• the role of digital health wearables in
  o caring, self-management of health
  o post-operative monitoring of mobility
  o for monitoring movement: dementia and Alzheimer’s disease
  o use of the data for diagnosis and medical interventions

Next steps

• dissemination of the results
• two-way knowledge-exchange with key stakeholders including manufacturers
• develop a shared understanding of design requirements
• to build on and enhance the evidence-base on the role of wearable devices in digital health
• guidelines on ethical considerations of sharing and using data from wearable devices
Resources

• Technology and Ageing themes:
  http://www.shaileyminocha.info/people-aged-over-55-years/
• Reports and presentations available from:
  http://oro.open.ac.uk/view/person/sm577.html
• Email: shailey.minocha@open.ac.uk
• Twitter: @ShaileyMinocha
• Thanks to Dr. Duncan Banks, The Open University for the photographs used in describing the digital health wearables project