



TRANSGENERATIONAL TECHNOLOGY AND INTERACTIONS FOR THE 21ST CENTURY

Perspectives and Narratives

Hannah R. Marston • Linda Shore • Laura Stoops • Robbie S. Turner

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List of Abbreviations

AARP	American Association of Retired Persons
ADL	Activities of Daily Living
AFCC	Age-friendly Cities and Communities
AI	Artificial intelligence
AR	Augmented reality
ARPA	Advanced Research Projects Agency
AT	Assistive technology
ATAT	Adapt Tech, Accessible Technology
AWOC	Ageing without children
BA	British Academy
BBC	British Broadcasting Corporation
BMBC	Barnsley Metropolitan Borough Council
BME	Black, Minority Ethnic
CASE	Concept of Age-friendly Smart Ecologies
CCT	Controlled clinical trials
CDC	Center for Disease Control
CF	Consultative Forum
CV	Curriculum vitae
DCW	Digital Communities Wales
DD	Digital divide
DDR	Deutsche Demokratische Republik
DIAW	Digital Inclusion Alliance for Wales
DIY	Do it yourself
DNR	Do not resuscitate
DSHS	German Sport University Cologne
ECR	Early career research
ERDF	European Regional Development Fund

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ESA	Entertainment Software Association
EU	European Union
GCSEs	General certification of Secondary Education
Geron	Gerontology
GEVH	Grimethorpe Electronic Village Hall
GP	General Practitioner
GT	Gerontechnology
H&W SRA	Health and Wellbeing Strategic Research Area
HCI	Human Computer Interaction
HEFCE	Higher Education Funding Council
HEI	Higher Education Institute
HGV	Heavy Goods Vehicle
ICT	Information Communication Technology
IDR	Interdisciplinary research
IoTs	Internet of Things
ISG	International Society of Gerontechnology
IUD	Intrauterine Device
IVF	in vitro fertilization
KESS	Knowledge Exchange Seminar Series
LGBTQ+	Lesbian, gay, bisexual, transgender, queer
LLTCs	life-limiting/threatening health conditions
LTC	Long-term care
mHealth apps	Mobile health applications
MIT	Massachusetts Institute of Technology
MoD	Ministry of Defence
MR	Mixed reality
NATO	North Atlantic Treaty Organization
NCB	National Coal Board
NFP	Not-for-profit
NHS	National Health Service
NI	Northern Ireland
NIA	Northern Irish Assemle
NPL	National Physical Laboratory
NUM	National Union of Mineworkers
NVQ	National vocational qualification

ONS	Office for National Statistics
PAHO	Pan American Health Organization
PC	Personal computing
PhD	Doctor of Philosophy
PHE	Public Health England
PHW	Public Health Wales
PTSD	Post-traumatic stress disorder
QoL	Quality of Life
R&D	Research and Development
RCT	Randomized control trials
RCUK	Research Councils UK
RDD&D	Research, development, design and distribution
RDG	Research development groups
SAFE	Smart Age-friendly Ecosystem
SD	Standard deviation
SES	Socio-economic status
SSAFA	Soldiers, Sailors, Airmen and Families Association
TAM	Technology Acceptance Model
TART	Transgenerational Assistive Robotic Technology
TAT	Transgenerational Assistive/Accessible Technology
TG	Transgenerational Gaming
TILL	Technology In Later Life
TLCC	Transgenerational Living Communities and Cities
TT	Transgenerational Technology
UCD	User Centred Design
UK	United Kingdom
UKRI	UK Research and Innovation
UML	Unified Modelling Language
UN	United Nations
USA	United States of America
UX	User Experience
VAs	Virtual assistants
VR	Virtual reality
WDH	Wakefield District Housing
WG	Working group

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WHO	World Health Organization
WI	Women's Institute
XR	Extended reality

About the Authors

Hannah R. Marston conducts interdisciplinary research and holds a PhD from Teesside University, UK in Virtual Reality and Gerontology. Since 2010 she has worked in Canada and Germany as a researcher, prior to moving back to the UK in 2015. She has published over 40 peer-reviewed journal papers, and most recently she was part of the 'The Smart Homes and Independent Living Commission'. Her research areas include gerontechnology, UX (User eXperience) of transgenerational technologies and videogames, gender, age-friendly cities, and communities and in 2020 she led an international, multi-site COVID-19 research project focusing on technology use.

Linda Shore is a UX Designer/Researcher and currently works as part of the DHI (Digital Health & Care Innovation Centre) at Glasgow School of Art, Scotland. Her research areas include User-Centred Design (UCD) approaches that explore perceptions and adoption of emerging wearable technologies by older adults and the impact of amputation/age-related conditions on quality of life. Additional areas of research interest include service blueprint development for healthcare and transgenerational technology that adapts to users' needs. She is excited about the possibilities of technologies for the future and how these can enhance the worlds, lives, and experiences as we age.

Laura Stoops is the Impact and Evaluation Manager at Age NI, a charity that supports older people in Northern Ireland to love later life. Her professional interests are using technology-based solutions to support older people or those with a disability and assessing the impact and evaluation. She has a keen interest in using research skills to support the voluntary sector and to share this knowledge widely. She holds a PhD (2011) in Computer-Based Assessment and Diagnosis of Parkinson's Disease from the University of Ulster, Northern Ireland. As part of her PhD work, she has written and published five journal papers including a paper entitled *Assessment of Bradykinesia, Akinesia and Rigidity Using a Home-Based Assessment Tool* which was published in the International Journal of Assistive Robotics and Systems (2009).

Robbie S. Turner is a Co-founder and Senior Consultant at Spektrum-Group, a company that supports potential suppliers in penetrating government, defence, and humanitarian markets by lending them over 20 years of experience in this field. He is regarded and foremost an expert in this specialist market, and

xx *About the Authors*

thoroughly enjoys the process of knowledge exchange and translation, knowledge that directly impacts and enhances a company's ability to participate and succeed in a perceivably exclusive environment.

Foreword

Listening to the views of older people and giving them a voice is central to Age NI's work. Through this book, we were delighted to have the opportunity to work in consultation with older people to better understand their digital technology needs, now and in the future.

Age NI has witnessed first-hand the impact that the pandemic, and its resulting social isolation, has had on older people in Northern Ireland. It has also dramatically affected the way we deliver our services, which are so heavily focused on social, face-to-face interaction.

The COVID-19 pandemic has made us all realise the power of technology. Thinking about all generations, from home-schooling through to zoom quizzes, we might wonder how we would have coped without it. For older people, with the help of digital devices, many were able to connect to friends and family – and to our services, newly delivered online.

For some, this involved adopting a new mindset, and often required offering one-to-one support to utilise the technology. For those who succeeded, the benefits of this new connectivity greatly outweighed the challenges.

However, while many have gained from digital technology, we know that there is a large section of older people missing out. Without their normal social interactions, a lack of digital connectivity has left them desperately isolated and lonely. Very sadly, we know that loneliness can be a killer, and as a nation renowned for its warm welcome, friendliness and sense of community, we believe it shouldn't have to be this way.

Although the number of older people who are digitally connected continues to rise, across the UK there are still around 5 million people over the age of 55 who are not online. And while factors such as income and levels of education play a part, age is still the biggest indicator of digital exclusion.

Through our work on this book, hearing the experiences of those older people who are embracing technology has thrown into stark relief the experiences of those who are still missing out.

Through research and innovation, we're looking at ways of supporting older people to get online, to benefit from digital communication and to do confidently and safely.

We are very grateful to the older people who have given so generously of their views and time to inform the content and narrative of this book.

xxii *Foreword*

The insight of this publication offers on what older people want and need, is pivotal to the current and future connectivity of older people. We believe this has a vital part to play in the mission to end loneliness.

Linda Robinson BEM Age NI CEO

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We would like to express our thanks to the participants recruited through Age NI and Mencap NI for giving up their time to speak to and share their experiences and thoughts with us about their use of and responses to technology during the pandemic and for providing their future perspectives. We really appreciate the insight and guidance offered by the Age NI working group, made up of Age NI Consultative Forum members. A further thank you to Ann Murray for taking the time to review and edit the draft manuscript, your insights and comments helped make the book what it is.

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