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# ATHENE: Assistive Technologies for Healthy living in Elders: Needs assessment by Ethnography

Trisha Greenhalgh, Joe Wherton  
Queen Mary University  
London  
London E1 2AB  
+44 20 7882 7325  
p.greenhalgh@qmul.ac.uk

Rob Procter  
Manchester University  
Arthur Lewis Building  
Manchester M13 9PL  
+44 161 275 1381  
rob.procter@manchester.ac.uk

Mark Rouncefield  
Lancaster University  
South Drive  
Lancaster LA1 4WA  
+44 1524 510305  
m.rouncefield@lancaster.ac.uk

Guy Dewsbury  
Kings College London  
Strand  
London WC2R 2LS  
+44 20 7836 3212  
guy.dewsbury@kcl.ac.uk

## ABSTRACT

Numerous assistive technologies to support independent living – including personal alarms, mobile phones, self-monitoring devices, mobility aids, software apps and home adaptations – have been developed over the years, but their uptake by older people, especially those from minority ethnic groups, is poor. This paper outlines the ways in which the ATHENE project seeks to redress this situation by producing a richer understanding of the complex and diverse living experiences and care needs of older people and exploring how industry, the NHS, social services and third sector can work with the older people themselves to ‘co-produce’ useful and useable ALT designs to meet their needs. In this paper, we provide an overview of the project methodology and discuss some of the issues it raises for the design and development process.

## Categories and Subject Descriptors

D.2.10 [Design]: Methodologies.

## Keywords

Assisted living technologies (ALTs), design methodologies, ethnography, cultural probes, co-design, co-production.

## 1. INTRODUCTION

Chronic disease is becoming more common, fuelled by factors such as obesity and demographic trends. Many diseases (e.g. diabetes, dementia, arthritis) increase in prevalence with age, as does comorbidity. Epidemiologists predict that demand will soon outstrip supply for essential medical services [1-2]. This has driven interest in ‘information-age’ medicine (supported self-management by ‘empowered’ patients with professionals in a guiding role [3]). Predictions abound in the literature about how much time, effort and money could be saved by the NHS and by the wider economy if patients and lay carers were more ‘engaged’ and took on chronic disease management roles traditionally filled by professionals [4]. There is increasing awareness that narrowly biomedical solutions should be rejected in favour of a more holistic approach that embraces the social and wellbeing needs of the older person and takes account of carer burden [5].

A key goal is “ageing in place”, which may save money while protecting dignity and independence [6]. With this in mind, academic and industry interest in “smart homes” has been high, and some promising technologies have been developed [7]. However, their adoption has been disappointing. One of the key reasons for this failure lies, we argue, in the challenges of

engaging older people in design and development of technological interventions and in understanding their requirements such that the ALT is useful, usable and dependable [8].

While academic research into design and development methodologies for older people has grown considerably [9-11] and shows great promise, the evidence is that take up by the ALT industry has been slow [12]. If society is to realise the value of ALTs for “ageing in place”, then we must learn how to adapt co-production methodologies for older people so that they are compatible with industry needs, and facilitate their transfer into mainstream practice by building industry capacity to use them appropriately and effectively.

This paper considers the early work of the ATHENE project, funded by the Technology Strategy Board under its assisted living programme, that seeks to redress this situation by facilitating, through a series of enabling activities and interventions targeted at key stakeholders, the effective planning and implementation of assisted living technology (ALT) programmes for older people. Specific objectives include:

1. Building a rich picture of assisted living needs and preferences of older people from all ethnic groups, with significant but not exclusive focus on black and minority ethnic (BME) groups.
2. Identifying key challenges faced by industry in designing and developing useful and useable ALTs for such groups.
3. Identifying key challenges faced by health and social service providers and third-sector organisations for planning and delivering ALT programmes
4. Drawing on (1) and (2), devising capacity building programmes for industry and service providers in user-centred design and co-production methodologies for ALTs.
5. Drawing on (1) and (3), devising guidelines for planners and managers of ALT development projects and programmes.

The overarching goal is to produce a richer understanding of the complex and diverse living experiences and care needs of older people and to explore how industry, the NHS, social services and third sector can work with the older people themselves to ‘co-produce’ useful and useable ALT designs to meet these needs. Specific research questions include:

1. What needs of older people from different ethnic groups might be met by targeted introduction and use of ALTs?
2. What methods and tools are most effective for achieving co-production of ALTs for such groups?
3. What enabling activities are necessary at micro (i.e. individuals, families), meso (i.e. health and social service

providers, ALT producers, community) and macro (i.e. health and social service policy makers, sector incentives) level to promote the design and successful uptake and use of ALTs, and how might these be supported?

## 2. METHODOLOGY

The ATHENE project methodology draws on participatory action research. We start from the position that ALTs are not simply ‘plug and play’. Both technologies and the routines (domestic and organisational) in which they are embedded must be mutually adaptive and able to evolve. Co-production is a methodology for delivering innovation which focuses on user-centred, ‘design-in-use’ of both technology and work practices through continually feeding back users’ experiences into ongoing design and development [13].

## 3. CULTURAL PROBES AND CO-PRODUCTION

Pursuing ethnography in domestic settings raises practical and ethical challenges. Contemporary design research offers tools for researching innovation-system fit in the sensitive domestic environment, using variants of what are known as ‘cultural probes’, whose key feature is their mundane nature. A cultural probe makes use of a range of everyday artefacts such as a digital camera, dictaphone, paper diary, postcards and photo-album [14]. Cultural probes have been used successfully for capturing requirements for ‘smart home’ technologies, providing an unobtrusive alternative to observational approaches for documenting the features and rhythms domestic life, where repeated access would be difficult to negotiate and raise ethical issues [15].

We see cultural probes as being more than just a means by which people can document their daily lives and from whose contents requirements can then simply be ‘read off’ by designers. Rather, they are intended to serve as a means to provoke a dialogue between users (patients and/or their carers) and designers, i.e. as a means for facilitating co-production of ALTs by users and designers [16]. Insisting that cultural probes involve serious, effortful accomplishment, rather than being a mere distribution and collection exercise, resonates with other methodological concerns about how we go about tapping into elder peoples’ lives.

We believe cultural probes ‘work’ as interpretative material through enforcing a joint ‘working out’ between the researcher and the investigated. Cultural probes clearly provide us with some useful and interesting forms of access to commonsense, everyday understandings of the organisation of the world. More importantly, they initiate a conversation that permits us to explore people’s lives more deeply, whilst simultaneously reassuring the ‘subjects’ of our research of our intent. It is this form of ‘reflexivity’, this ‘working out’, that is at the heart of any understanding.

In this paper, drawing on previous work, we will discuss a range of issues for the configuration, deployment and use of cultural probes as instruments for the facilitation of co-production in the context of designing ALTs for older people.

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