The challenges of multi-disciplinary research in the design and adoption of self-managing technologies

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Purpose Already established as a 'world leader' in digital technologies that enable self-management for health related conditions (Dobrev et al, 2013)], the United Kingdom (UK) has announced a further push in this policy direction (Oliver, 2018). These technologies have been heralded by policy makers and industry interests alike as a solution to the challenges of demographic change and the widely acknowledged crisis in the provision of adequate levels of social care (Parliament. House of Lords, 2019). While the research evidence suggests self-managing technology solutions often work well, there are significant complexities in their use, and conflicting interpretations around efficacy and cost-effectiveness. These have stymied their projected adoption. Thus informed, the UK Government's research agenda now encourages the funding of multi-disciplinary research teams, bringing product engineers, behavioural psychologists, and social scientists together to inform a more socio-technical understanding of these technologies from the outset of their design. Existing research has explored the reasons for uneven user adoption and weak adherence in personalised healthcare technologies (Eccles, 2021). Three issues prevail; dissonance between the assumptions of efficacy by technologists and the actual 'lived experience' of users of these technologies; the lack of seamlessness in the use of technologies across multiple morbidities; and over-ambitious assumptions about users' capacity to 'self-manage' their health and care needs without further assistance. **Method** This paper explores the complexities of this move to multidisciplinary research to support adoption and adhesion of self-managing technologies. It is based on a critical analysis of the multidisciplinary teamwork required to develop and deliver a UK research council award for technologies to combat diabetic foot ulcers (DFU), drawing on a 'policy framing' approach (Schoen and Rein, 1994; Fischer, 2003) to understanding how policy ideas develop and research subsequently proceeds. The proposal was to develop 'smart' insole technology which can detect when a DFU is likely to occur, and can adapt plantar tissue loading to prevent its formation, drawing on a multidisciplinary team. The multidisciplinary tensions are well-rehearsed; epistemological, methodological, around ethical considerations, or politically contextual (Fischer, 2003), with a bias toward domain specific 'expert opinion' framing engagement, such that both user voices but also some research traditions can be marginalised. This paper explores these process challenges as they unfold in the course of the DFU project. The critical analysis draws on use of observational and research diaries around how debates were framed, meetings conducted, language variously understood across research domains, and notions of 'validity' conceived. **Results and Discussion** The research results in this paper conclude that while there is now an understanding in policy circles that there needs to be cross-disciplinary engagement – prompted by the hitherto uneven adoption of self-managing health and social care technologies – this is not a straightforward, nor seamless, process. The results indicate that hierarchies of subject disciplines, power relations, and contested understandings of methodological 'validity' remain. While there has been a broad understanding in policy circles and in research funding of the importance of moving towards a socio-technical understanding in the design and adoption of self-managing technologies to address future adoption and adherence, there is no 'quick fix' to the work required for interdisciplinary understanding and respect for different research traditions in achieving this. The paper concludes with an initial framework, based on the research findings, for advancing this process of understanding.

References

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