Chapter 1

Introduction: Social and Cultural Futures—The Everyday Use and Shifting Discourse of mHealth

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This book presents a range of studies into formal and informal mHealth initiatives from across the Asia region. The need for the book is clear—current mobile phone penetration in many Asian regions stands at well over 100% and in some cases has increased by up to 150-fold in the last 10 years (ITU, 2016). In response to this remarkable level of mobile adoption, the aim of the book is twofold: first, we wish to highlight how social and cultural research must play a more prominent role in understanding the impact of already existing, vernacular uses of mobile devices on mHealth programs. Second, in so doing, we wish to advance the research agenda for sociocultural approaches to mHealth by identifying key commonalities, challenges and points of variation manifest across the emerging body of mHealth work. The chapters in this book seek to achieve this aim by underlining the need to plan for the intricate social, institutional, political and communicative environments at the user level of a mHealth initiative. Our contributors include both established and emerging scholars as well as practitioners who have adopted sociocultural approaches within the mHealth domain. Their research highlights how an understanding of context can enable mHealth practitioners and policy makers to anticipate barriers or to perceive hitherto unnoticed possibilities that can make or break the successful use of personal mobile devices to achieve health outcomes.

Across the Asia region, mobile devices are firmly established as an essential personal item even in many low-income regions. The mobile phone is no longer considered a ‘new’ medium and we contend that the future of many mHealth interventions in the Asia region will no longer be about trying to changing health

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behaviours via the top-down introduction of new technologies. Instead, we join a growing cadre of researchers who recommend that mHealth program designers and policy makers should seek to adapt existing user practices around mobile devices as part of their planning for new initiatives to encourage ongoing health behaviour modification (e.g. Mateo, Granado-Font, Ferré-Grau, & Montaña-Carreras, 2015). Such adaptation entails an implicit acknowledgment of the need for a diversification of research methodologies beyond conventional health research methods (Fiordelli, Diviani, & Schulz, 2013; PLoS Medicine Editors, 2013; Tomlinson, Rotheram-Borus, Swartz, & Tsai, 2013). It will also require skills in the application of social and cultural research to the design of mHealth initiatives in order to grasp and leverage the dynamic patterns of mobile usage by individuals and groups. A more detailed and site-sensitive insight into how devices, platforms and content are used at the local level will allow us to more reliably explore how mHealth innovation can achieve realistic and sustainable health outcomes. In particular, designers of mHealth interventions must pay further attention to the study of the informal processes that emerge outside—or on the fringes—of formal interventions, as mobile devices embed themselves ever further into the everyday lives of health workers, health seekers and—at times—health avoiders.

A number of scholars have investigated the potential of mobile systems to addressing structural health challenges in the region including infectious disease, mental health or lifestyle disease (e.g. Brian and Ben-Zeev, 2014; Bullen, 2013; Khatun, Heywood, Ray, Bhuiya, & Liaw, 2016). More recent academic studies address the need to attend to the intricate institutional, political and communicative environments at the local level in order to develop sustainable mHealth initiatives (e.g. Agarwal, Perry, Long, & Labrique, 2015). However, much of this work remains scattered across various domain-specific journals and books which may not embrace the cross-disciplinary approaches required by complex program design and implementation—and furthermore can be difficult to access for those outside the Academy.

Much previous work attests to a dark secret at the heart of mHealth implementation and evaluation—namely the lack of hard scholarly evidence to support mHealth's value-add to existing healthcare systems. For example, a recent systematic review of initiatives in PR China found 'little evidence of the development of mHealth initiatives that were likely to substantially strengthen health care systems' (Tian et al., 2017). This finding echoes an earlier review of mHealth initiatives in developing countries (Chib, 2013). One of the barriers to providing such evidence is revealed in the common criticism that the majority of previous published mHealth initiatives are prototypes, pilots or tests (Orwat, Graefe, & Faulwasser, 2008) which do not readily upscale to national-level systems (van Heerden, Tomlinson, & Swartz, 2012). A number of critics have attributed this limited scalability to the predominant techno-centric philosophy which underpinned early mHealth projects in the region (e.g. Whittaker, 2012; Zhao, Freeman, & Li, 2016). This philosophy can assume that technology is neutral in all contexts and therefore could be applied to specific sites and projects with limited understanding of the complexity of the underlying healthcare systems and broader cultures of communication and interaction (Curioso and Mechael, 2010). An accompanying expectation was that a successful pilot

would then serve as a best-practice prototype which could be replicated across different regions and contexts with minimal adaptation, thereby achieving economies and efficiencies of scale.

While most stakeholders would acknowledge the importance of formal evidence to support client or patient outcomes from mHealth initiatives, we must also appreciate the unique difficulties in gathering such evidence. The churn of devices, tariffs, operating systems, apps, content—in short, the whole mobile consumer ecology—is so rapid that the results of multi-year studies of mobile technology interventions may be largely irrelevant prior to publication. As a result of such rapid churn, the expectation that local-level mHealth pilots can be upscaled to regional or national program level is called into question as hardware and software support for existing systems fades away, small bespoke app developers go out of business, program champions are promoted and trained mHealth staff move on to different projects. We speculate that the availability and diversity of mobile devices will push us away from the notion of scalability and towards a mHealth environment of rapid program development and implementation, in which a range of evolving user-level mHealth initiatives are deployed in a modular fashion under a regional or national health data umbrella. Within this scenario, the importance of robust, ongoing social and cultural research to underpin mHealth initiatives is clear.

Our first two chapters highlight the problems of scalability and the challenges for technology adoption by formal mHealth interventions. In Chap. 2, Tariq and Durrani report on a project funded by Pakistan's National ICT R&D fund in which lady health workers (LHWs) in rural Pakistan were trained to use mobile phones to improve field-based client data collection and interaction with remote health specialists. Using findings from in-depth longitudinal qualitative accounts from eight LHWs involved in the initiative, a range of unplanned-for barriers to implementation emerged including the extra time needed by LHWs to input data to the mobile phones over existing paper systems; and client discomfort around the storage of personal data on a mobile phone. Tariq and Durrani suggest that if mHealth 'is to be the brave new frontier in the domain of health innovations, we need to do more to understand the finer points of its contextually sensitive applications'.

In Chap. 3, Evans, Bhatt and Sharma address the issue of scalability head-on by offering a framework of nine key components to support upscaling. These include mature infrastructure, a conducive policy environment, strong institutional partnerships, well-designed and context-appropriate technology, a skilled health workforce, financial sustainability, interoperability and an evidence-based approach to mHealth. They argue that 'the key to creating a pathway to scale is to understand user needs at every level of the system and to design simple and cost-effective solutions that can have a positive impact on health outcomes' (see Sect. 2.1).

Chapters 4 and 5 examine everyday uses of mobile phones within established health outreach initiatives, in contrast to the more formal interventions discussed in the earlier chapters. They draw attention to a phenomenon that is increasingly difficult to ignore: the effect of the rapid popularisation of mobiles on those health outreach programs which continue to rely upon paper-based systems and face-to-face interaction. In Chap. 4, Pitaloka studies how a state-sponsored outreach program for

diabetics in rural Java prompted the emergence of new kinds of communicative practice, specifically health-related texting among diabetic women, government health workers and volunteer assistants enabled by widening handset and network availability. Using a culture-centred approach, data collected via field-based interviews found that some of the rural women participants developed new personal communication strategies for promoting health and well-being, both of themselves and their families. Pitaloka claims that this level of behavioural change demonstrates local agency—an outcome often desired by communication for development projects.

In Chap. 5, Watkins and Baulch use a communicative ecology framework (Watkins, Tacchi, & Kiran, 2009) to investigate the use of media technologies by outreach workers in the HIV/AIDS sector in Bali and Makassar, Indonesia. Their qualitative study found that the everyday uses of mobile phones by the outreach workers were very much disconnected from face-to-face and paper-based systems for testing, treating and reporting on people living with HIV/AIDS by which the national HIV strategy of Indonesia is being executed. The authors' findings suggest that 'organic' encounters and informal mobile adoption by both health workers and clients are likely to precede formal mHealth interventions at some sites. Drawing on their interviews with the outreach workers, they demonstrate how these encounters can work to establish new layers of complexity to existing patterns of inequality in access to health services.

The final two chapters of this book take a wider and more critical view of the evolving mHealth landscape alongside the broader ideological shifts that affect discourses of health. In Chap. 6, Dutta, Kaur-Gill, Tan and Lam argue for more critical scrutiny of the part played by mobile devices in the shift for responsibility for health management from states to individuals. This can be seen in the growing use of fitness apps and devices by individual consumers, which speak to attendant processes around the commodification of health. Dutta et al. point out that mHealth scholarship is sorely missing a robust theoretical framework for examining the broader power structure in which mHealth discourse unfolds. The authors also provide a critical literature review which shows that claims for the efficacy of mobile phones in improving health outcomes are 'empirically empty' due to a striking lack of evidence. Rather, claims for the success of mHealth:

...have more to do with health-related finance and time-saving outcomes than health outcomes per se. For example, there are few pre-test and post-test studies to show how mHealth directly improves the health of a community. In this sense, the methodological base for claiming effects is fairly weak (see Sect. 5.1).

Chapter 7 reflects some of these issues. Whereas Dutta et al. draw attention to the creeping commercialisation of health services enabled in part by mobile phone uptake and call for a return to community consultation, Chen's chapter points to developments that complicate a mHealth landscape already featuring an increasingly powerful corporate sector. Chen studies middle-class urban Chinese fitness app users who seek out opportunities to improve their health by engaging in the privatised network of fitness app consumption and exchange. She shows how mobile devices do much more than just mediate communications between and

among frontline health workers, clients and health bureaucracies in exciting new ways; they also expand opportunities for private enterprises to commodify health and to vie for prominence and validation as entities offering viable solutions to public health problems. Chen also draws attention to how the corporate commodification of health gives rise to new kinds of networks and communities, as fitness app users socialise with one another within structures afforded by app design. This chapter alerts us to the need for mHealth scholarship to pay greater heed to context not only by studying spatially bounded communities of health seekers, but also online communities revolving around health-related activities and exchanges and their inherent power relations.

In conclusion, this book recognises that mHealth initiatives cannot be executed as technical programs in a vacuum, ignoring the complex social and cultural contexts in which they are implemented. This rapid proliferation of devices, platforms and content means that mobiles are now a legacy system and any user-level mHealth initiative which seeks to modify health behaviours—e.g. by decreasing sugar intake, giving up smoking, practising safe sex—is increasingly likely to require modification of entrenched patterns of mobile phone use. The collection aims to highlight this reality. In doing so, not only do we respond to calls from mHealth researchers and practitioners for the greater inclusion of social and cultural research within the design, implementation and evaluation of mHealth programs. We also seek to stress, this research must not be limited to the documenting of ‘pre-existing cultural contexts’—it should also seek to enhance understanding of how dynamic patterns of mobile usage in particular sites reshape contexts and open new possibilities and challenges for those who seek to employ mobile systems to improve health. In order to achieve this inclusion, both cross-disciplinary approaches and new conceptual frameworks derived from media and communications studies will be essential in the development of the field of mHealth research (Chib, 2013).

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