

**User-centric digital inclusion:
Linking Australia's digital divide policy and digital exclusion experiences**

Jee Young Lee

Thesis submitted for the degree of
Doctor of Philosophy in Communication

University of Canberra

January 2018

Abstract

In recognising the importance of information and communications technology (ICT) in national development, many countries have developed policy frameworks intended to facilitate ongoing investment in ICT infrastructure and stimulate user adoption. While connectivity is increasing, a significant division between those who use technology effectively and those who do not has emerged as a new digital gap. As society becomes highly digitalised, the economic, social, political and cultural disadvantages arising from the inability to use technologies effectively have become more significant. This study investigates how the Australian Government has addressed the digital divide issue and the nature of emerging digital inclusion gaps as informed by the digitally excluded groups. The purpose was to contribute to a nuanced understanding of digital exclusion and to inform policy making with empirical knowledge. Two research methods were adopted: policy analysis and in-depth interviews with digitally excluded groups.

The policy analysis investigates how the Australian Government has perceived and defined the “digital divide” over time since 1997, and its relevance to policy making. This examination includes official, publicly available ICT policies and strategies and the types of efforts – supply- and demand-side – aimed at diffusing the use of ICTs in society. Australia is considered a highly-connected society; however, its ICT diffusion has stalled over the last decade. This suggests that supply-side policies that focus on access to infrastructure may not be sufficient to stimulate use, nor effective at addressing the persistent digital divide. The demand-side of ICT diffusion policies, which aims at effective use, has so far received less attention than supply-side dimensions. Although the government has begun recognising the growing importance of demand-driven projects for digital inclusion, the complex conditions that inhibit effective use of technologies are not yet systematically incorporated in policies or programs. A need for empirical evidence of the deep-rooted circumstances of the digitally excluded emerged from the policy analysis.

Twenty-one in-depth interviews were conducted with non- and limited users of the internet in Canberra, Australia in order to understand their daily-lived experiences with technology and resulting digital exclusion. By analysing participants’ everyday experiences with ICTs, the lack of social encouragement and support/assistance was identified as latent but crucial circumstances surrounding non- and limited uses. It was evident that non-engagement

impacted participants' everyday lives in many ways, regardless of their level of technological use or non-use. Individual stories of exclusion in everyday life revealed the multifaceted reality of the digitally excluded and the relative nature of digital exclusion. This study emphasises the importance of social resources, including ongoing support and encouragement, to digital inclusion outcomes. It suggests there are different dimensions that must be considered when addressing digital skills and social constraints, both of which contribute to non-engagement. The thesis suggests that the success of future digital inclusion policy relies on implementing effective means to facilitate new forms of ongoing social support surrounding the use of digital technologies that are deeply embedded in our everyday lives.

Table of Contents

Abstract	I
Certificate of Authorship of Thesis	III
Table of Contents	V
List of Tables	VII
List of Figures	VII
List of Abbreviations	IX
Chapter 1 Introduction	1
1.1. Research context	1
1.2. Aims and objectives	3
1.3. Research questions.....	4
1.4. Significance of the study.....	5
1.5. Thesis structure	6
Chapter 2 Literature Review	9
2.1. The digital divide in the information society	9
2.1.1. The early digital divide: origin and debates	10
2.1.2. Second level divide: beyond access towards effective use	11
2.1.3. Digital exclusion and social exclusion.....	14
2.1.4. Non-users: the digitally excluded	16
2.1.5. New perspectives on digital inclusion.....	20
2.2. ICT policies for tackling the digital divide	22
2.2.1. Digital inclusion and ICT policies	22
2.2.2. Digital divide policy gap: supply- and demand-side policies	25
2.2.3. The importance of on-the-ground policy and strategies to bridge the digital gap	29
2.3. The Australian context.....	31
2.3.1. ICT adoption in Australia	31
2.3.2. Status of the digital divide	37
2.4. Conclusion	42
Chapter 3 Methodology	45
3.1. Methodological framework and approach	45
3.2. Policy analysis	49
3.2.1. Document analysis	49
3.2.2. Data source.....	50
3.2.3. Data analysis	52
3.3. Interviews.....	53
3.3.1. Data collection	53
3.3.2. Data analysis	65
3.4. Limitations of data collection and ethical considerations	70
Chapter 4 Policy analysis results	73
4.1. Overview of digital divide policies in Australia	73
4.2. Networking the Nation (NTN) 1997 – 2004.....	74
4.3. National Broadband Strategy (NBS) 2003 – 2007.....	85
4.4. National Broadband Network (NBN) 2009 – 2015	93
4.5. From digital divide to digital inclusion.....	98

Chapter 5 Qualitative study results	107
5.1. Reasons of non- and limited uses.....	108
5.1.1. Latent circumstances surrounding non-uses	108
5.1.2. Underlying circumstances surrounding limited uses	114
5.2. The impact of non- and limited uses: exclusion in everyday lives	126
5.2.1. Exclusion from socialising (connectedness): staying connected	126
5.2.2. Exclusion from engaging in information flows	129
5.2.3. Exclusion from access to public and social services.....	135
5.2.4. Exclusion from parenting (education).....	138
5.2.5. Relative digital deprivation.....	141
5.3. Social encouragement and support: key vehicles for digital inclusion	148
5.3.1. Family and friend support: benefits and challenges.....	149
5.3.2. Social support: digital training programs.....	154
Chapter 6 Discussion	161
6.1. Distinguishing apparent, observed and latent reasons of non-uses	161
6.2. Reconsidering the circumstances of limited uses.....	173
6.3. Digital exclusion in everyday life	183
Chapter 7 Conclusion	189
7.1. Implications for digital inclusion policy	189
7.2. Theoretical implications: relative digital deprivation	197
7.3. Further research	199
7.4. Limitations of the study	201
7.5. Conclusion	203
References	205
Appendices	223

List of Tables

Table 2.1 Internet subscribers by access connections ('000).....	33
Table 2.2 Volume of data downloaded by type of access connection, for ISPs with more than 1,000 subscribers (%)......	33
Table 2.3 Australian online activities	35
Table 2.4 Comparison of internet access (%) by social group (2008-9 and 2014-15).....	39
Table 3.1 Documents used in the analysis	51
Table 3.2 Participants' characteristics of the first round of interviews.....	61
Table 3.3 Participants' characteristics of the follow-up interviews	62
Table 4.1 Summary of digital divide policies in Australia 1997-2006	73
Table 4.2 Allocation of funds across states and territories	75
Table 4.3 Social Bonus funding for NTN.....	75
Table 4.4 NTN Projects	77
Table 4.5 NTN Funding paid to projects by financial year and internet penetration.....	79
Table 4.6 NTN Funding by recipient type and funding amount	79
Table 4.7 NTN Project target groups	80
Table 4.8 NBS programmes.....	88
Table 4.9 Broadband Connect programmes.....	91
Table 4.10 Main digital inclusion initiatives	97

List of Figures

Figure 2.1 Computer and internet access (1998-2015).....	32
Figure 2.2 Percentage of individuals using the Internet (2005-2014).....	32
Figure 2.3 Fixed-broadband subscriptions.....	34
Figure 2.4 Location of internet access among internet users (2008 – 2013)	35
Figure 2.5 Online activities by household income quintile (%).....	36
Figure 2.6 Online activities by age group (%).....	37
Figure 2.7 Internet users and non-users (%)	38
Figure 2.8 Internet penetration and growth among OECD countries	41
Figure 3.1 Recruitment methods adopted	56
Figure 3.2 An example of initial coding in Excel	67
Figure 6.1 Reasons for non-use	162
Figure 6.2 Barriers to internet usage	174
Figure 7.1 Dimensions of the digitally excluded	191
Figure 7.2 Types of social support.....	194

List of Abbreviations

ABS	Australian Bureau of Statistics
ACMA	Australian Communication and Media Authority
ACT	Australian Capital Territory
ADII	Australian Digital Inclusion Index
AGIMO	Australian Government Information Management Office
BRACS	Broadcasting from Remote Aboriginal Communities Scheme
CDMA	Code Division Multiple Access
DBCDE	Department of Broadband, Communications and the Digital Economy
DCA	Department of Communications and the Arts
DCITA	Department of Communications, Information Technology and the Arts
DSL	Digital Subscriber Line
DTO	Digital Transformation Office (former Digital Transformation Agency, DTA)
FTTN	Fibre To The Node
FTTP	Fibre To The Premises
GSM	Global System for Mobile Communications
ICT	Information and Communications Technology
ISP	Internet Service Provider
ITU	International Telecommunication Union
NBN	National Broadband Network
NBN Co	National Broadband Network Company
NBS	National Broadband Strategy
NOIE	National Office for the Information Economy
NTN	Networking the Nation
OECD	Organisation for Economic Co-operation and Development
TAPRIC	Telecommunications Action Plan for Remote Indigenous Communities