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DIGITAL LITERACY AND EXCLUSION IN THE SOCIAL MEDIA AGE

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Abstract

Digital Technologies are changing societal, personal and organisational lives. Access to some technologies becomes essential to fully participate in social interactions. Lack of access to necessary Information Technologies (Digital Divide) results in social exclusion. With the continuous evolvement of Information Technologies, the skills and capabilities required for digital participation are also changing. This paper aims at identification of current necessary and essential skills, capabilities and access to technologies from the viewpoint of service-dominant approach. An empirical investigation into ICT skills necessary for employment in different industry sectors is proposed to identify sets of necessary and transferable digital skills. The identification of these sets will not only enhance our theoretical understanding of how the digital divide changes over time, but will also allow policy and training efforts to be focused on (new) skills needed to reduce the gap.

Keywords: e-exclusion, digital exclusion, digital divide, digital literacy

1 Introduction

Digital exclusion can come from of a lack of individual access to technology, or a lack of skills or capabilities to use technology, leading to social exclusion or lack of access to jobs. Our early understanding of digital exclusion and the digital divide, focussed on access to a computer and having the skill to use it. This moved on to include many other limiting factors. As our understanding of digital literacy and digital exclusion has evolved over time the discussion has moved from a focus on access to computers, to acquisition of skills and capabilities, to an understanding that limited access to the Internet is one aspect of digital exclusion that can lead to social exclusion (Bunyan & Collins, 2013; Cushman, McLean, & Klecun, 2008; Deursen & van Dijk, 2010; Helsper, 2011a; Helsper, 2011b; van Deursen & van Dijk, 2011; Van Dijk, 2013; Warren, 2007). There is evidence that the different skills of “Digital natives” and “Digital Immigrants” leads to differing degrees of digital inclusion or

exclusion (VanSlyke, 2003). Inappropriate technology design and organizational structures can also interact to ostracise some users, alternatively technology can be perceived as an empowering tool for organisations that not only supports communities of practice, but also develops and transforms practice (Adams, Stubbs, & Woods, 2005; Sims, 2016).

The digital economy affects organisations of all sizes, every industry sector and public service, it deeply affects the daily lives of the majority of people across the world (Ward & Peppard, 2016). Digital innovation has redefined industries in many sectors, as well as creating completely new industries such as global auction sites and market places, and disintermediated services such as Uber and Airbnb.

Access to broadband Internet is becoming a necessity for obtaining information and resources about healthcare, education, and employment. However, the broadband global digital divide continues to inhibit and limit individuals' access within and among nations, measures of social justice and individual capability are positively associated with affordable broadband access across countries (Weiss, Yates, & Gulati, 2016)

Information and Communication Technologies (ICTs) have changed the way information is stored, disseminated and processed. Information is central for participation in social, economic and political activities. Even though the Internet has brought about freedom, productivity and communication, its uneven distribution and access has led to the Digital Divide (Weiss et al., 2016): the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of other activities.

The nature and extent of the digital divide is changing over time (Sims, Vidgen, & Powell, 2008). A study from 2000 showed only one-third of households in Wales had access to computers at home, while thirteen percent had access to the Internet at home (Godard, Selwyn, & Williams, 2000). By 2003 research into the use of learning technology in secondary education found a significant minority of students' homes lacked computers and access to the Internet (Lewin, Mavers, & Somekh, 2003). Access to, and use of, the Internet at home was divided along socio-economic lines (Computer-Weekly, 2003), back in 2003, 52% of the UK population were regular

Internet users and growth of use in low income groups was low. Of those regularly using the Internet in the UK, 82% were high earners, while only 10% low earners. Access to the Internet was limited by a number of factors besides hardware and access to telecommunications service: many websites for example were not designed to be used with adaptive technologies such as audio screen readers or Braille keyboards, leaving the visually-impaired excluded from full participation. By 2015 83% of households in the EU28 had access to the Internet, 80% had access to broadband and 53% ordered goods or services over the internet for private use (Eurostat, 2016).

There are many barriers to the adoption of ICT in the home: changing technology, high cost and acquisition of the necessary skills. A study by the European Commission (2005) points to some causes of digital exclusion:

“.. the non-availability of a PC at home, combined with lack of access at work or at Public Access Points; the high cost of PC ownership and Internet connection; the complexity of the technology and the lack of basic skills account for the main identified barriers: income and education related factors emerge again as major determinants of digital exclusion. Lack of awareness, lack of time, language barriers and unavailability of useful content are identified as other important obstacles to ICT use.” (pp10-11)

An early study showed that adopters were driven by the utilitarian outcomes, hedonic outcomes (i.e., fun), and social outcomes (i.e., status) of adoption (Venkatesh, 2001). Non-adopters on the other hand were influenced primarily by rapid changes in technology and the consequent fear of obsolescence. Demographic factors, age and education, are still found to be significant predictors of Internet adoption (Choudrie, Vyas, Voros, & Tsitsianis, 2013; Laukkanen, 2016). Most Internet users access the Internet using mobile devices: 57% of all American adults are cell internet users (Duggan & Smith, 2013).

Attitudes to the use of technology affect the choice of educational course. The culture of ICT was generally young, white, middle class and male, not working class, older, female or ethnic minority (Godard et al., 2000), this leads to a view that in the short-to medium-term, access to the Internet will be delineated along the lines of socio-economic, gender, and ethnic group, and traditional patterns of exclusion will remain. In the past, lack of skills and access to hardware was stopping low income groups

from accessing the Internet, and the cost of equipment and access to the internet deterred poorer groups. However, ownership costs for computers and mobile devices have dropped and more recent evidence finds the gender gap is narrowing (Choudrie et al., 2013; European Commission, 2005) and is a temporary phenomenon, having been almost or completely overcome in newer EU member states such as Ireland.

The European Commission (European Commission, 2005) concluded that effective public intervention was needed if Europe was to become “a more cohesive knowledge society”. As such, social inclusion and e-inclusion are linked. This linkage points to a need to widen participation in education and the potential role for e-learning in enabling that widening of participation to those excluded groups.

2 Goods-dominant vs service-dominant approach to the digital divide

The digital divide is usually conceptualized through a goods-dominant logic, where bridging the divide entails providing digital goods to disadvantaged segments of the population, but Srivastava & Shainesh (2015) argue an alternative service-dominant logic and view the divide from a service perspective viewing the divide across societal segments in accessing basic services such as healthcare and education. The differences in the level of services consumed by different population segments (service divide) is a key aspect of the current digital divide. This research argues that access to employment is also a critical service aspect of digital inclusion, exclusion and an important aspect of the digital divide.

For well over a decade a circular pattern of exclusion has been observed: income and education are the major determinants of digital exclusion (Choudrie et al., 2013; Laukkanen, 2016; Sims et al., 2008; Venkatesh, 2001), yet education and digital inclusion are determinants of higher levels of social inclusion and higher income. In households with low income and low terminal education there will be low e-inclusion. In households with high terminal education and high e-inclusion there will be higher social inclusion and income.

Srivastava & Shainesh (2015) suggest that information and communication technologies (ICTs) can be leveraged to bridge the service divide to enhance the capabilities of service-disadvantaged segments of society. But such service delivery requires an innovative assembly of both ICT and non-ICT resources.

3 Study approach and methodology

To address the problem of digital divide by assessing individuals' access to education, training and jobs, the study proposes to analyse the necessary digital skills to get into employment. The aim of the first stage of the analysis would be to identify what ICT skills are explicitly and implicitly required to apply for, notwithstanding to secure, the job. This would enhance our understanding of what training is necessary to breach the divide, what type of access to ICT (hardware, software, infrastructure) is necessary to enhance an individual's ability to secure employment, and what factors limit individual ability to acquire work.

The base data consists of 210 job adverts collected on digital job advertising platforms. The data covers three industry sectors which are commonly associated with low(er) incomes such as tourism, hospitality and charity.

Because the data was collected from digital adverts, it implicitly suggests that a potential employee requires some ICT skills and capabilities in order to see the advert: a device with which to access the advertising platform, a network infrastructure, ability to use the browser and to navigate websites.

The data analysis should provide a multitude of insights and suggestions for further research. First, is there a set of "common" skills, necessary for all (a majority) of jobs in each sector? Second, is there a "common skillset" across the sectors? Third, is there a skill set associated with higher-paying/higher positioned (e.g. management, supervision) jobs in each sector? Fourth, is there a skill set associated with higher-paying jobs across sectors? Fifth, are there "unnecessary" ICT skills, which are not required in a certain sector or at certain positions/income levels?

The raw data requires manipulation and cleansing before it can be analysed. Each job-advert will be associated with (1) industry, (2) qualification/job type, (3) level, (4) income, (5) required education level, (6) age. The job types and levels will be normalised to allow comparison. The salaries, specified in annual, monthly or per-hour values will be re-calculated to annual salaries based on 220 working days at 8 hours, to allow comparison. Initially, an association of jobs and gender was considered, however, none of the adverts under analysis were gender specific so that this association will be dropped from further analysis.

At this very early stage of the research, some skills appear to be implicitly needed for almost every job across the sectors (Table 1). Out of 70 jobs analysed in each sector,

the numbers in the table refer to the number of job adverts in which a skill was required.

Sector	Microsoft Word	Internet	E-mail	Mobile
Hospitality	70	70	70	70
Tourism	63	61	65	49
Charity	70	70	70	70

Table 1 Requested Skills per Sector

Already at this early stage of the investigation some patterns emerge to suggest that specific skills and capabilities are transferable across hierarchies and industries. Further analysis would enable identification of skills and capabilities to reduce the digital divide.

4 Summary

Digital exclusion is a persistent inter- and intra-societal phenomenon. The findings from this research would allow research to guide the steps to breach the digital divide by focussing on the “universal” skills and capabilities, to provide a better access to education and technologies for yet excluded groups. The research will have theoretical, policy and practical impact. It will manifest and enhance our understanding of the ICT skills and access required today in order to reduce discrepancies in education and income. It will further assist in focussing the policy on necessary, transferable ICT skills for those who are affected by e-exclusion. Finally, it will indicate practical steps to improve access to necessary ICT and education both to employers and employees by highlighting the required skills to the employees, increasing their mobility, and thus by providing the employers with a population of potential employees with the right skills.

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