Digital literacy and knowledge societies: A grounded theory investigation of sustainable development

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Abstract

With a structurally entrenched digital divide on the one hand, and increasing ubiquity of the Internet in a techno-centric world on the other, the imperative to exploit information and knowledge for development remains a significant driver for equitable growth. It is posited that the silver-bullet for reducing this gap lies in increasing digital literacies within a society in order integrate segments who may be marginalized into the inclusive mainstream. In enabling greater and wider participation of digital citizens in their countries' socio-economic activities, the opportunities of a sustainable economy arise. This article is a study of ICT policies, applications and the resulting transformations in five mature economies committed to the vision of knowledge-based development with high levels of digital participation among their citizens. Specifically, using a multi-dimensional scorecard derived from prior work, we conduct a grounded theory investigation of how the five societies have applied digital literacies in knowledge-intensive public services such as education, healthcare and e-government, to derive best practices as well as lessons learned.

1. Introduction

With the emergence of the knowledge economy and the ubiquity of the “Internet of Things” in today’s techno-centric world, digital competencies and literacies have become indispensable tools for the aspirations of people globally (Castells, 2009). Yet millions of people are denied full access to many of these tools (cf. Eshet-Alkalai (2004), European Commission (2006), Hargittai and Walejko (2008), Hilbert (2011), Mansell (1999) and Tyner (2014)). As a result, while globalization and technological developments have opened more pathways for digital information flows, knowledge as a competitive asset may not have reached their rightful beneficiaries. Knowledge is the basis for growth, development and wealth accumulation (Piketty, 2014) and one of the greatest challenges in Information and Communications Technology for Development (ICT4D) has been in the study of how to reduce this digital divide. A key challenge, therefore, is to facilitate greater knowledge flows to areas of the world where such knowledge is most needed (UNDP, 1996). Proponents of the developmental approach have envisioned a system that liberates and empowers users with access to information and knowledge, bridging disparities and bringing about more equal digital opportunities for all (cf. Keiner and Stoll-Kleeman (2009), Lankshear and Knobel (2008), Lips (2012), Martin and Rader (2003) and UNDP (1996)). The main argument of this view is that knowledge would create a “flat world” with transformation from the mire of deprivation, and therefore, serve as the basis of growth. Others
have suggested that digital competencies and literacies are inextricably intertwined with development, progress and sustainability issues (cf. Benkler (2000), Bennett (2003), Doyle (2002), Poore (2011) and Pradhan et al. (2014)). Thus, exploiting digital opportunities is an imperative pressing upon societies across the development spectrum.

There is considerable agreement across disciplines that knowledge is a key driver of sustainable development (cf. Sharma, Iqbal, and Victoriano (2013) for a review). In the context of current research, we adopt the definition of the World Commission on Environment and Development (1987) that sustainable development “meets the needs of the present without compromising the ability of future generations to meet their own needs.” The challenge of sustainable development is that it should result in the ideal of equitable opportunities for value creation across the community at large. Equality of socio-economic participation and well-being is one of the key ideas of justice as espoused by the philosopher-economist Amartya Sen and echoed by Piketty (2014). The research described in this paper attempts to understand the rich linkages between access to knowledge, its diffusion through society, and society’s ability to apply such knowledge towards sustainable development. In this era of the Internet and new media, a critical mass of such activities take place through digital exchanges of codified information shared across networks and applied in order to create value. Understandably, the United Nations has declared access to Internet services to be a basic human right (Mossberger, Tolbert, & Franko, 2012). The inclusion and participation of a given population in such purposeful activities has hence attracted much scholarly interest. More specifically, digital participation has now become synonymous with active, engaged citizens – a public good referred to as digital entitlements (Mansell, 2004).

The fundamental research question addressed in this paper examines how digital literacies, inclusion and participation will lead to sustainable development. There are a large number of richly documented studies (cf. UNDP (1996)) on the various policies, programmes and strategies that governments and their ICT regulatory authorities have implemented in several parts of the world as nations seek to showcase their development credentials. However, to our knowledge, there is no comprehensive evaluation of best practices and lessons learnt that would support a theoretical justification for the role of digital literacies in sustainable development. The research reported in this paper attempts to address this gap by an iteration of grounded theory investigations into knowledge societies and how they have exploited digital literacies in order transform segments who may be marginalized into the inclusive mainstream. In facilitating greater and wider participation of these digital citizens in their countries’ socio-economic activities, the opportunities of a networked economy arise. This article is a study of the resulting transformations in economies committed to the vision of knowledge-based development with high levels of digital participation among their citizens.

The remainder of the paper is organized as follows: the next section introduces the notion of knowledge society and digital literacy and their role in sustainable development. Following this, we review some of the seminal research in the area and put forth the three research questions. Section 3 outlines a field research methodology based on the Grounded Theory approach. In Section 4, in order to assess the efficacy of social and institutional investment in digital infrastructure and literacies on sustainability outcomes, we perform a qualitative content analysis of socio-economic narratives from five societies with consistently high Human Development Index (HDI) rankings. Finally, in Section 5, we present a discussion of our findings using a multidimensional knowledge scorecard as a framework for the assessment of best practices as well as lessons learnt. The paper ends with a generalization of the postulates that link knowledge societies to sustainable development.

2. Review of background literature

2.1. Research on digital literacy

Scholarly interest in literacy (digital or otherwise) and its developmental benefits is not new. The term “literacies” emerged as researchers began to refer to different ways of using language and different systems of representation in social practices. Literacy as a process of decoding and encoding cannot take place without consideration of the complex nature of reading, writing, and the intentions of individuals as they engage in such practices (Pahl & Rowsell, 2005). Tyner (2014) probes deeply into some elements of a postmodern interpretation of literacy, both related to what she terms ‘tool literacies’ which imply possession of the necessary skills to be able to use the technology, and ‘literacies of representations’, which relate to knowledge on how to take advantage of the possibilities that different forms of representation give users.

A definitive report of the International ICT Literacy Panel defines digital literacy as encompassing the ability to use digital communications tools and/or networks “to access, manage, integrate, evaluate and create information” (ETS, 2002) in order to function in a knowledge society. A similar definition was proposed by Tonero (2004, p. 29): “the acquisition of the technical competence for using information and communication technologies, understood in a broad sense, in addition to the acquisition of the basic practical and intellectual capacities for individuals to completely develop themselves in the Information Society”. Both these definitions emphasize the importance of an individual’s development in a knowledge or information society. Digital literacy as “skills, knowledge and attitudes in using digital media to be able to master challenges in the learning society” Erstad, Klovstad, Kristiansen, and Soby (2005) is a broader definition than the one from Gilster (1997, 2008), which suggests a more active process-oriented perspective on society, thereby relating learning to both the ability to operate technological applications, as well as to use technology to accomplish personal and collective needs. In a similar vein, Jenkins (2006) identified twelve “new media literacies” as necessary for a full participation in today’s diverse