Addressing Data Collection Challenges in ICT for Development Projects

Devendra Potnis, University of Tennessee, Knoxville, TN, USA

ABSTRACT

This paper equips researchers for addressing a wide range of data collection challenges experienced when interacting with marginalized communities as part of ICT4D projects in developing countries. This secondary research categorizes data collection challenges reported in multiple disciplines, and summarizes the guidance from the past literature to deal with the challenges. The open, axial, and selective coding of data collection challenges reported by the past literature suggests that it is necessary to manage scope, time, cost, quality, human resources, communication, and risks for addressing the data collection challenges. This paper illustrates the ways to manage these seven dimensions using (a) the success stories of data collection in the past, (b) the lessons learned by researchers during data collection as documented by the past literature, and (c) the advice they offer for collection data from marginalized communities in developing countries.

Keywords: Communication Management, Cost Management, Data Collection Challenges, Human Resource Management, ICT4D Projects, Quality Management, Risk Management, Scope Management, Time Management

INTRODUCTION

Problem Statement

A significant number of projects using information and communication technologies for the development of marginalized communities (ICT4D) fail every year to meet their goals (Avgerou & Walsham, 2000; Bailur, 2007; Bhatnagar & Odedra, 1992; Heeks, 2002). For instance, during the fiscal period 2003-10, the World Bank invested around $4.2 billion to support its ICT4D projects that promoted access to and adoption of ICT across all sectors in the developing world. In 2011, the Independent Evaluation Group of the World Bank revealed that 70% of its ICT4D projects failed to achieve their goals (World Bank, 2011).

Studies show that data collection with marginalized communities is one of the main reasons for the failure of ICT4D projects in developing countries (Krishna & Walsham, 2005; Mamba & Isabirye, 2014; Qureshi, 2008). For instance, due to the inability of researchers to address data collection challenges, a majority of ICT4D projects in developing countries fail to sustain...
(i.e. remain continuously operational), scale (i.e. spread, enhanced, scoped, and enlarged heterogeneous networks of technology, people, processes, and institutional contexts), or benefit marginalized communities without undesired outcomes (Heeks, 2002; Krishna & Walsham, 2005; Sahay & Walsham, 2006).

Data collection serves as a medium to understand and interpret various dimensions of the relationship between ICT and marginalized communities. It requires researchers to collect and make sense of the needs and experiences of marginalized communities along with other contextual factors for: (a) designing ICT solutions to address the issues related to the development of marginalized communities (Parikh et al., 2003; Sahay & Walsham, 2006), (b) testing prototypes of ICT solutions with marginalized communities (Heimerl et al., 2010), (c) deploying ICT solutions in marginalized communities (Brewer et al., 2006; McCallum & Papandrea, 2009), or (d) assessing the impact of ICT solutions on the social, economic, and human development of marginalized communities (Mohan et al., 2013; Souter et al., 2005). Since data collection attempts to understand someone else’s experience, researchers’ outsider status from marginalized communities’ point of view may challenge researchers’ effort to understand and interpret the relationship between marginalized communities and ICT solutions (Potnis, 2014).

There is a lot of useful guidance available to address data collection challenges in ICT4D projects but it is scattered across multiple disciplines. As a result, for instance, researchers from technology-related disciplines engaged in ICT4D projects may not benefit from the experience and advice of researchers from non-technology disciplines, and vice-a-versa. It is necessary to systematically organize and summarize the scattered guidance so that researchers from all disciplines could avoid unexpected challenges and manage risks during data collection in ICT4D projects.

**Objective of the Paper**

This paper provides a framework to organize data collection challenges and manage ways to address the challenges reported by the past literature on ICT4D projects. This framework is based on the analysis of a wide range of data collection challenges interpreted and reported using perspectives in communication (e.g., Chib & Harris, 2012; McCallum & Papandrea, 2009), computer science (e.g., Brewer et al., 2006), education (e.g., Lima & Brown, 2007), human–computer interaction (HCI) (e.g., Medhi & Toyama, 2007), information science (e.g., Heeks, 2002; Madon, 1997), information systems (e.g., Krishna & Walsham, 2005; Latifov & Sahay, 2013), public administration (e.g., Heeks & Bhatnagar, 1999; Wang & Chen, 2010), and statistics (e.g., Elahi, 2008). The analysis of the challenges suggests that the inability of the outside researchers to manage *scope*, *time*, *cost*, *quality*, *human resources*, *communication*, and *risks* during their interaction with marginalized communities creates data collection challenges. This paper summarizes the key advice from multiple disciplines by illustrating ways to manage these seven dimensions for addressing data collection challenges.

The next section synthesizes the multidisciplinary scattered guidance available for collecting data from marginalized communities and points out shortcomings in the guidance for addressing data collection challenges in ICT4D projects in developing countries. The Methods section provides rationale for selecting 380 artifacts (past literature) from academic and non-academic sources and the three types of projects (reported by the past literature) considered for data analysis using grounded theory principles. Drawing on the ICT4D projects successful in addressing data collection challenges in the past, lessons learnt by researchers, and their advice for conducting data collection, the next section illustrates a few ways to manage the seven dimensions. The concluding section highlights the contribution of this paper in better equipping researchers for collecting data from marginalized communities in developing countries.
18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the product's webpage:

www.igi-global.com/article/addressing-data-collection-challenges-in-ict-for-development-projects/135532?camid=4v1

This title is available in InfoSci-Journals, InfoSci-Journal Disciplines Communications and Social Science. Recommend this product to your librarian:

www.igi-global.com/e-resources/library-recommendation/?id=2

Related Content

Global Information Ethics: The Importance of Being Environmentally Earnest
www.igi-global.com/chapter/global-information-ethics/7289?camid=4v1a

Digital Inclusion, Crowdfunding, and Crowdsourcing in Brazil: A Brief Review
Beatrice Bonami and Maria Lujan Tubio (2016). Handbook of Research on Comparative Approaches to the Digital Age Revolution in Europe and the Americas (pp. 77-100).
www.igi-global.com/chapter/digital-inclusion-crowdfunding-and-crowdsourcing-in-brazil/138027?camid=4v1a

A Study on User Preferential Choices about Rating Scales
www.igi-global.com/article/a-study-on-user-preferential-choices-about-rating-scales/121636?camid=4v1a
[www.igi-global.com/article/does-happiness-in-the-cyberspace-promote-that-in-the-real-world/126185?camid=4v1a](www.igi-global.com/article/does-happiness-in-the-cyberspace-promote-that-in-the-real-world/126185?camid=4v1a)