

Chapter 1

A Theoretical Framework and Model of ICT Adoption and Inclusion in Developing Countries

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ABSTRACT

Information and communication technology (ICT) adoption is cardinal to the sustainability of all societies, and it is the engine that can transform developing countries. This first chapter for the book uses the theories of poverty, human needs, and information poverty as the lenses to examine the framework for ICT adoption and inclusion. A world pyramid of needs that embodies information needs is developed. Information poverty is discussed along with the case of Coronavirus (COVID-19), the global pandemic that brought to a halt many communities in 2020. A mobile phone technology adoption model (MOPTAM) is presented as the framework to understanding ICT adoption and inclusion in developing countries.

INTRODUCTION

Information and communication technology (ICT) is a term that is used to consolidate an array of technologies into one group of information technology ecosystem. A standard definition of ICT by Kling et al (2005) states:

Artifacts and practices for recording, organizing, storing, manipulating, and communicating information. Today, many people's attention is focused on new ICTs, such as those developed with computers and telecommunication equipment. But ICTs include a wider array of artifacts, such as telephones, faxes, photocopiers, movies, books and journal articles. They also include practices such as software testing methods, and approaches to cataloging and indexing documents in the library (p.11).

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One important factor in the different roles of ICT tools and services is that they are interpreted and used in different ways by different people. Social informatics researchers have found that people frequently interpret and interact with ICT tools and services in more complex and different ways (Kling et al, 2005; Etim 2020; Grant & Meadows, 2021). The ICT tools are used in unpredictable ways, such as providing a mobile phone or land line telephone calling service, creating a computer-based search service via a desktop or a laptop or a browser client to access the internet or a Cloud-based service for any type of information including commerce; the use of an e-mail tool, accessing information in a digital library, an indexed database or the use of a smartphone to access and post information at a social media site.

This first chapter of the book discusses the poverty framework as a foundation for ICT inclusion in developing countries. It includes *information need* and *information poverty* as part of the *World Pyramid of Needs*. Information need and the type of poverty that results from the lack of ICT tools and services, *information poverty* are examined as a new category of poverty. Before information poverty is introduced and discussed, the poverty framework (based mostly on economic poverty) is examined and a review of literature on information poverty is written. The case of the 2020 Coronavirus (COVID-19) global pandemic is used in the chapter to support information poverty and to show implications for health information poverty. The second part of the chapter examines an ICT adoption framework and guide for developing countries using the Mobile Phone Technology Adoption Model (MOPTAM). Overall, the book is written to help the reader grasp very quickly the great work of various scholars on ICT adoption, use, applications and impact in different developing countries.

This chapter and the other chapters in the book are written in a format that is easy to read and there are hundreds of resources that have been cited and referenced by the various contributors. There are adequate data, figures, cases, examples, models and tables to support the text. The book is an important and relevant resource for undergraduate and graduate course work in ICT and related, developing countries, sustainable development and inclusion of underserved communities. Librarians and researchers in the fields of computing, business, economics, health, the social sciences and related will find the book a valuable resource.

THE FRAMEWORK FOR THE BOOK

The Poverty Framework

Developing countries in general are challenged by economic and extreme poverty (Ayittey, 1992, 1998 & 2005; Collier, 2007; Easterly, 2006; Sachs, 2005; World Bank, 2015 & 2019). The writers, however, lack consensus on the definition and causes of poverty, particularly extreme poverty. In this sections, several definitions of poverty is provided in order to establish a poverty framework that will link to the lack of access or affordability of ICT tools and services.

Saunders (2004), *Towards a credible poverty framework: From income poverty to deprivation*, summarizes several definitions of income or extreme poverty as part of his effort to develop a credible poverty framework. Some of the definitions from Saunders (2004) are provided (italics added).

Seebohm Rowntree (1899):

A family is counted as poor if their total earnings are insufficient to obtain the minimum necessities of merely physical efficiency.

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