



ICTs and Modernization in China

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Abstract

A multidisciplinary field at the intersection of communication for development and social change (CDS) studies and ICT studies, ICT for Development (ICT4D) is generally understood as the research of development and social change brought about by the application of ICTs. China, the largest developing country, with the largest population, and the biggest Internet population in the world, offered a good case for the investigation of ICT4D in developing countries. This chapter explores the ICT4D phenomena in China in relation to the modernization paradigm in Communication for Development. This chapter reveals that assumptions and theories of the modernization paradigm have significantly influenced the policies and projects on ICT4D in contemporary China. Yet, discussion on the potential of other approaches in ICT4D in China has also emerged among scholars.

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Introduction

As the biggest developing country in the world, China has experienced tremendous economic development over the past three decades. It has also been widely considered as an example that how an agrarian society could be rapidly “modernized” into an industrial society. At the same time, China now has the largest Internet user base in the world, with upwards of 750,000,000 Internet users (as of June 2017), over twice the population of the United States. The use of Information and Communication Technologies (ICTs) for development and “modernization” in contemporary China has attracted worldwide interest among scholars, policy makers, and the general public. This chapter first provides a brief survey of the concept of modernization in Communication for Development and in ICT for Development. Then, it explores the phenomenon of ICT4D in relation to modernization theories in the specific context in China (PRC). The outline of the chapter is as follows: Section “[Communication for Development: Modernization, Dependency, and Multiplicity](#)” will briefly summarize the concept of modernization as well as the critique of the modernization paradigm in Communication for Development. Section “[ICT for Development](#)” will survey the concept and practices of ICTs for development. Section “[ICT for Development and “Modernization” in Contemporary China](#)” will discuss the practice of ICT for development in China in relation to modernization theories and alternatives approaches to ICT for development. Section “[Conclusion](#)” concludes.

Communication for Development: Modernization, Dependency, and Multiplicity

Communication for Development is the study of development and social change brought about by the application of communication research, theory, and technologies (Rogers 1976; Servaes 1999, 2008). Modernization theories (e.g., Almond and Coleman 1961; Lerner 1958; Lerner and Schramm 1967; Rogers 1976; Rostow 1953) is the best established paradigm in this field. They significantly shaped the definition and understanding of the concept of “development” as well as the concept of “modern” and “modernization” among scholars, policymakers, and practitioners, as well as the practice of development from the 1950s to the 1960s (Servaes 1999, 2008; Sparks 2007). The modernization paradigm has also critically influenced the international development policies in the Western countries such as the United States. This paradigm stems from neo-liberalism, functionalism, and behaviorism traditions. It defined development and underdevelopment in terms of observable quantitative differences between rich (developed) countries and poor (developing) countries. And it used a number of quantitative economic growth indicators, such as income, per capita GDP, savings volume, and investment level to measure different stages of development. In the late 1950s and early 1960s, modernization theories incorporated non-economic indexes, such as attitudes toward change, education

level, mass media adoption rate, and institutional reforms, to measure development (e.g., Almond and Coleman 1961; Lerner 1958). Modernization theorists contended that the cause of underdevelopment in developing countries and less developed communities is internal, meaning that internal factors, such as traditional social-political and cultural structures; traditional mindsets; and passive attitudes toward change in these societies and communities, lead to underdevelopment. This implies that the stimulus for change or the solution to underdevelopment in developing countries must come from the outside (Western) world (Servaes 1999). A typical example of this kind of argument is presented in Lerner's canonical book, *The Passing of Traditional Society: Modernizing the Middle East*. "From the West came the stimuli that will undermine traditional society . . . for reconstruction of a modern society . . . West is still a useful model. What the West is . . . the Middle East seeks to become" (Lerner 1958). Another characteristic of the perception of development in modernization paradigm is that it understands development as a universal linear evolutionary process. By universal, it means that the Western development model is a spontaneous, unavoidable, and irresistible process that every society must go through (Lerner 1958; Servaes 1999). On a more practical level, it believes that replicating the Western political-economic system is the only means by which developing countries can develop into modern societies. By linear evolutionary, it means that the development process is an irreversible growth process without limit.

With regard to the role and effects of communication in development projects, the modernization paradigm perpetuated the "diffusion model" (Rogers and Shoemaker 1983; Inagaki and World Bank 2007; Servaes 1999) in which communication is considered to flow one-way from the "sender" (development experts) to the "receiver" (less developed communities). In this model, communication is overwhelmingly oriented toward persuasion. Accordingly, in Communication for Development projects guided by modernization theories, less developed communities, the intended beneficiaries of these projects, are considered passive targets. And they are excluded from the policymaking and the designing of these projects as well as from developing a base of knowledge to solve underdevelopment.

On an international level, the modernization paradigm asserts that the transfer of technology, capital, values, and sociopolitical structure from developed countries (Western countries) to developing countries will solve their underdevelopment problems and "modernize" them. The modernization paradigm was criticized for being Eurocentric, overlooking local participation, focusing overwhelmingly on economic growth, and ignoring the consequences of macro and international economic and social-political factors in local development (e.g., Servaes 1999, 2008; Sparks 2007). In the 1960s, the modernization paradigm was criticized and challenged by a new paradigm in development studies-dependency paradigm emerged from Latin America (Servaes 1999). Dependency theories stem from the neo-Marxist or structuralist intellectual traditions and the Latin American researchers' study on development issues. Most dependency paradigm researchers agreed that dependency is a conditional situation in which the economies of one group of countries are conditioned by the development of others. The relationship between the two groups of countries becomes a dependency relationship when the

dominant group can expand through self-impulsion while the dependent group can only expand as a reflection of the expansion of the dominant countries (Dos Santos 1970). Dependency theories argued that the dependency relation between the developing countries and the developed countries causes the underdevelopment in developing countries. Thus, the solution of underdevelopment in developing countries is removing the dependency relationship. The developing countries should disassociate themselves from the world market and opt for a self-reliant development strategy. On a technical level, dependency researchers advocated limiting the import of privately owned and Western controlled technologies, organizing import-substitution programs to design the “appropriate” indigenous technologies in developing countries, and fostering technological cooperation among all developing countries (Servaes 1999).

In the 1980s, the multiplicity paradigm (Servaes 1999) or the participatory paradigm (Inagaki and World Bank 2007) emerged as the critique of the first two paradigms from diverse origins in both Western countries and developing countries. Contrary to the modernization paradigm, it highlights that there is no universal development model and every society must pursue its own development strategy (Servaes 1999). In addition to economic development, the problem of freedom and justice also needs to be addressed. Instead of endless growth, limits of growth are considered to be inherent in the interaction between society and nature. Different from the dependency paradigm, it highlights interdependency. By interdependency, it means that all nations, in one way or the other, are dependent upon each other. Thus, development has to be studied in a global context, in which center (developed countries) and periphery (developing countries), as well as their interrelated subdivisions, have to be taken into consideration (Servaes 1999). With regard to the role of communication in development projects, the multiplicity paradigm proposed a new model – the “participatory model” (Inagaki and World Bank 2007; Ogan et al. 2009; Servaes 1999). Compared with the sender-oriented diffusion model, participatory model is more receiver-oriented. It views the ordinary people (receivers) as the controlling actors or participants in using communication for development. It believes that communication is a dialogue. This means, first, there is no sender and receiver, and all participants are equal peers; second, the meaning and the knowledge of development is not packaged knowledge sent from sender to receiver (the diffusion model); rather, it is constructed in the interactions among different participants. The advocates of participatory model in development projects stated that real participation must involve the redistribution of power, meaning that in a participatory model development project, the elites’ power must be redistributed so that a community can become a full-fledged democracy (e.g., Inagaki and World Bank 2007; Melkote and Steeves 2001; Servaes 1999). Overall, in Communication for Development, although modernization theories were criticized first by dependency theories then by multiplicity paradigm, it remains a popular discourse among policymakers and a dominant approach in many development contexts, especially in projects related to ICTs (Inagaki and World Bank 2007; Ogan et al. 2009).

ICT for Development

A multidisciplinary field at the intersection of Communication for Development studies and ICT studies, ICT for Development (ICT4D) is generally understood as research that uses ICTs to bring about development and social change. The rise of ICT4D as an academic field and the large number of ICT4D projects in different countries is an indication of the strong interest among scholars and practitioners in the effects of ICTs on development and social change (e.g., Donner 2015; Heeks 2008; Hudson 2013; Kleine 2013; Mansell and Wehn 1998; Ogan et al. 2009; Torero and Von Braun 2006). Using meta-analysis and content analysis to examine in peer-reviewed journals between 1998 and 2007, Ogan et al. (2009) found that ICT4D has become the most dominant approach employed by researchers concerned with the relationship between communication and development at that time, with 42.3% of the articles (85 out of 201) using ICT4D as their primary approach.

The research of Ogan et al. also reveals that a substantial number of researchers in ICT4D embraced the technological deterministic view of the modernization paradigm, believing that technology is the primary driver of development and ICTs, such as the Internet and mobile phones, are new magic solutions to development problems (2009). Yet, their research and that of others (e.g., Kleine 2013; Torero and Von Braun 2005; Servaes et al. 2006; Slater and Tacchi 2004) also indicate that an increasing amount of ICT4D scholarship considers ICTs to be tools for development and social change. For example, Torero and von Braun stated: "ICT is an opportunity for development, but not a panacea. For the potential benefits of ICT to be realized in developing countries, many prerequisites need to be put in place" (2006: 343). Servaes et al. assert that ICTs provide "a new potential for combining the information embedded in ICT systems with the creative potential and knowledge embodied in people" (2006, p. 5). The second group of scholars therefore believed that research on ICT4D should focus on how users utilize ICTs and the sociopolitical, economic, and cultural contexts of the use of ICTs, as well as the characteristics of ICTs.

ICT for Development and "Modernization" in Contemporary China

Although not among the most dominant or populous approaches in studies of China's ICTs and the Internet, ICT4D has also been employed by communication and media scholars focusing on China (e.g., Liu 2016; Shi 2013; Ting 2015; Zhao 2008a, b; Zhang and Chib 2014).

Zhao's monograph (2008b) significantly contributed to our knowledge of ICT4D in China by offering an in-depth analysis of ICT4D projects in five rural towns in China. Her research fully applied the ICT4D approach in the context of rural China. In the Communication for Development field, Zhao's theoretical framework is more in line with the modernization paradigm especially Rogers' theory on diffusion of innovation (1983). Yet, different from most of past research on diffusion of ICTs,

Zhao used a qualitative method, which offers her research a unique capacity to seek in-depth understanding of Internet diffusion in relation to political, socioeconomic, and technological contexts of rural China. Her book also explores the implications of Internet use upon various aspects of rural development and the how government, private industries, and individual users contribute to the diffusion of Internet in rural China. A significant strength of Zhao's research is that it is based on ethnographic research of five ICT4D projects in rural Chinese towns in western, central, and eastern regions in China. The rationale that Zhao selected the five projects is that they represent ICT4D projects initiated by different stakeholders in different parts of China. Two of the projects were initiated by the local government and one was initiated by local government and international development organization. The rest two projects were initiated by the private sector. Through this approach, Zhao's research explored the role of different stakeholders in promoting Internet diffusion in different parts of rural China. Zhao's findings offered a solid critique to technological determinism assumption of the modernization paradigm such as ICTs drive development and social change in less developed community. Zhao argued that the impacts of the five ICT4D projects to various development problems in rural China are very limited (2008b). Zhao's findings also show that local government, development organization, and private industry led every process of the five projects, whereas local rural communities' participation in these projects was relative passive. This indicates that although the five ICT4D projects were initiated by different stakeholders in different parts of rural China, they are all more or less in line with the modernization development theories and the diffusion model in Communication for Development. Zhao's book also shows that the effectiveness of ICT4D projects guided by the modernization theories is questionable.

Zhao's research primarily focuses on ICT4D projects in local level. Shi (2013), on the contrary, explored the state ICT4D policy in rural China. Through a textual analysis of policy documents related to the Connecting Every Village Project, a state initiative to promote telecommunication and Internet services in the nation's vast rural regions, Shi analyzes development theories and assumptions that underpin this state policy. Shi argued (2013) that the Connecting Every Village Project is significantly influenced by the modernization theories and assumptions. Shi argued that in the Connecting Every Village Project, the rural-urban dichotomy replaced the traditional-modern dichotomy of the modernization paradigm as a core concept in the policy discourse. Yet, the conceptualization of development and the solutions of underdevelopment in the project are completely congruent with the modernization paradigm. For example, the modernization paradigm assumes that development in traditional society can be stimulated by external factors—the transfer of capital and technology, expertise and technique from modern Western nations. Similarly, the Connecting Every Village Project believed that the development of the rural regions can be stimulated by external factors such as the transfer of capital and technology, expertise, and technique from more industrialized urban regions within China (2013). Shi argued that in the modernization paradigm, the “modernization” of the traditional societies in developing countries was perceived as a Westernization process, while in the the Connecting Every Village Project, the “modernization” of

rural regions was perceived as an urbanization process. Moreover, like in most ICT4D projects in modernization paradigm, the Connecting Every Village Project oversimplified the ICT development in rural China to a single quantitative criterion – the percentage of villages covered by either the Internet or telecommunication networks. Shi's finding opened up the door to introduce critical research on the modernization paradigm into the study of the unbalanced development and unequal relations between rural China and urban China.

Shi's research revealed the modernization paradigm assumptions that underpin China's state ICT policy in rural China. Yet, it has not addressed the various problems and weaknesses of the modernization paradigm ICT4D initiatives led by the Chinese government. Ting and Yi (2013) offered an in-depth investigation of the weakness of state-led ICT4D projects in Guangdong Province, south China. Guangdong has the biggest GDP in China, \$7,281,255 million in total as of 2015. It also has the eighth highest GDP per capita in China, reaching \$ 11,143 in 2016. Yet, the economic development in Guangdong was very unbalanced. According to Ting and Yi (2013), the GDP per capita in the most developed Pearl River Delta in Guangdong has researched 67,407 Yuan whereas in the mountainous region in the province, it was just 16,726 Yuan as of 2009. The most economically developed province as well as a province with sharp rural-urban inequality, Guangdong offered a good case to examine ICT4D projects in rural China. Ting and Yi identified four major weaknesses of two provincial ICT4D projects led by the government: "(1) inefficient and wasteful spending resulting from interdepartmental rivalry (2) lack of policy continuity and institutional learning (3) lack of accountability and credible measurements (4) central planning resulting in gap between services and local needs" (2013). The first weakness of the projects is related with the top-down designing and implementation processes of Communication for Development projects that are guided by modernization theories and the diffusion model. The third weakness, lack of accountability, is related with the fundamental characteristics of the modernization theories guided projects such as overlooking local participation and the dominance of the government or elites in all process of the projects. The last weakness of the two projects revealed by Ting and Yi is actually the result of the features of the "sender" oriented diffusion model such as the intended beneficiaries of development projects are considered passive targets and are excluded from developing a base of knowledge to solve their own problems. Ting and Yi (2013) offered a concrete example of various weaknesses of ICT4D projects influenced or guided by modernization theories in rural China.

Liu's article in 2016 examined a provincial level government led ICT4D project in rural region in Sichuan province, with a focus on the sustainability risks of the project. Sichuan ranked fourth in term of population but 24th in terms of GDP per capita in China as of 2016. Its GDP per capita just reached \$6022, around 54% of Guangdong in 2016. Compared with Ting and Yi (2013), Liu's research offered insights on government led ICT4D project in a relative poor region in China. Drawing upon Kumar and Best's theoretical framework (2006), Liu (2016) offered a critical analysis of Sichuan's informatization project led by the government by examining its sustainability failure from five perspectives: financial/economic

sustainability failure, cultural/social sustainability failure, technological sustainability failure, political/institutional sustainability failure, and environmental sustainability failure. Liu (2016) argued that the government-led project is at risk of financial, social, and institutional sustainability failures. By institutional sustainability failure, Liu means that the lack of coordination between different government departments and the lack of policy continuity threatened the sustainability of the project in Sichuan. This is in line with the findings in Ting and Yi's research on the weakness of government-led ICT4D projects in Guangdong. In terms of social sustainability failure, Liu (2016) revealed that in the current design of the project, members of rural communities are perceived as passive receivers of what information is delivered to them. They were excluded from the discussion of what contents should be created for and delivered by the newly developed ICT systems in their own communities. Liu (2016) argued without the engagement of local representatives and local communities, the quality of the locally relevant and locally oriented information might deteriorate in the long term. According to the data in Liu article, five out of seven of the local residents interviewed in the research stated that the information from the newly developed ICT systems is not useful for them. Liu's findings reconfirmed the weakness of ICT4D projects guided by modernization theories that Ting and Yi (2013) has revealed in their research in Guangdong such as lack of local participation.

Existing research (e.g., Liu 2016; Shi 2013; Ting and Yi 2013; Zhao 2008b) indicated that modernization paradigm dominated ICT4D projects in China especially in its vast rural regions. Influenced by the increasing significance of new theories in Communication for Development, scholars investigating ICT4D in Chinese society have also begun to examine the potential to introduce new approaches in ICT4D projects and policies in China. Ting (2015), for example, examined the potential and challenges to incorporate the Capacity Approach in ICT4D in the Chinese government's rural ICT4D policy. The Capacity Approach in ICT4D is generally in line with the multiplicity paradigm or participatory paradigm in Communication for Development. The Capacity Approach stems from Indian economist and philosopher Amartya Sen's research (Sen 1993, 1999). It challenged the economic growth focused definition of development in the modernization paradigm. In this approach, development is understood as the expansion or enhancement of the capacity of individuals to live a life he or she values (Kleine 2013). Contrary to the modernization paradigm's belief that technology is the driver of development, the Capacity Approach considers technology as tools and means for individual to expand their capacities. The Capacity Approach has been effectively used to analyze ICT4D projects and policies in other countries (Kleine 2013) and has been incorporated into the Human Development Index of the United Nations Development Programme. Ting (2015) argued that the Capacity Approach has the potential to develop "a more coherent and holistic framework" for ICT4D projects in rural China. Through case studies of two ICT4D projects in rural China, Ting examined the compatibility between the Capability Approach and the conventional top-down modernization approach towards rural ICT4D projects in China and offered policy suggestions (Ting 2015).

Conclusion

This chapter explores the ICT4D phenomena in China in relation to the modernization paradigm in Communication for Development. Existing research (e.g., Liu 2016; Shi 2013; Ting and Yi 2013; Zhao 2008a, b) indicated that assumptions and theories of the modernization paradigm have significantly influenced the policies and projects on ICT4D in contemporary China. From the national level project (Shi 2013), to provincial level projects (e.g., Liu 2016; Ting and Yi 2013), to village level projects (Zhao 2008a, b), the modernization paradigm dominated in the design and implementation of ICT4D initiatives in China. Yet, discussion on the potential of other approaches has also emerged among scholars (Ting 2015). In order to bring new insights on ICT4D in China, future research could examine why modernization paradigm dominated the ICT4D field in China, the emerging practice of ICT4D that employed other approaches such as the Capacity Approach or the participatory communication model, and how to use the participatory communication model in critical analysis of ICT4D efforts led by the Chinese government or other stakeholders.

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