Micro-enterprise Development: The Role of an Effective IT Intervention

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ABSTRACT

The use of Information Technology is often seen to enable people in underserved communities to achieve the benefits of globalization. In particular, micro-enterprises stand to benefit the most by using IT to achieve better access to new markets, knowledge and information and enable their businesses to become more competitive. While various researchers have conducted studies on the effects of IT adoption in micro-enterprises, little research has been conducted to explain critical aspects of an effective IT intervention for micro-enterprises from a theoretical perspective. This study aims to fill this gap by investigating four cases of micro-enterprises undergoing changes relating to their businesses and adoption of IT that is seen to assist them. The empirical investigation relates to IT interventions that can effectively facilitate the process of IT adoption by micro-enterprises. Following an analysis of four micro-enterprises using a theoretical lens developed from Actor Network Theory, this paper provides insight into the ways in which IT interventions can improve the ability of micro-enterprises to adopt IT to benefit and grow their businesses. The key contribution of this study is in the use of the Actor Network perspective to address the contextual factors that affect the ability of micro-enterprises to adopt IT. The resulting analytical model may assist researchers and practitioners in examining the effects of their IT interventions. This has implications for effective IT intervention policy development and implementation for micro-enterprises.

Keywords: IT for development, effective IT intervention, micro-enterprise development, actor-network theory, translation, case study

INTRODUCTION

Micro-enterprises are commonly defined as businesses with five or fewer employees including the owner(s) (Association for Enterprise Opportunity, 2011a) [1]. According to Association for Enterprise Opportunity (2011b), there are approximately 25.5 million micro-enterprises in USA, representing 87.95 percent of all businesses in U.S; as such, they are the base of national and local economies. Smaller enterprises have been generating proportionately more jobs than larger enterprises (Hart, 2000). Micro-enterprises can serve as the seedbed for medium or large enterprises (Grosh & Somolekae, 1996; Macke, 2000) and foster sustainable community development (Vargas, 2000). In addition, micro-enterprises play a role as job trainer; although many micro-enterprises cease to exist, the experience often provides an effective training ground for job and career development to the people who were associated with the micro-enterprise (Macke, 2000). Recognizing that micro-enterprises contribute to boosting and stabilizing national and local economies, the US government has operated various kinds of business support programs for micro-enterprises, including business training and micro-loans (Schreiner & Woller, 2003; Servon, 2006). According to Servon (2006), the US micro-enterprise support programs face various challenges such as fragmentation, insufficient data and narrow product lines. As far as information technology (IT) is concerned, support programs for micro-enterprises are very limited in its number and approach; the current IT intervention for micro-enterprises is fragmented, and its effectiveness is uncertain. An IT intervention can be defined as the act of interfering with the intent of facilitating IT adoption and utilization. IT interventions that lack theoretical and empirical foundations with regard to their design and approach may lead to poorly designed programs and haphazard implementation schemes that do not account for various contextual challenges faced by micro-enterprises, resulting in projects which fail to meet their objectives. Hence, a need to understand critical components of an effective IT intervention is compelling.

Development can be defined in hundreds of ways to highlight its various dimensions (Staudt, 1991); there are various notions of development as social, political, and economic processes

[1] Despite the definition as a business, the micro-enterprise often refers to the owner of the micro-enterprise. Almost 84 percent of all micro-enterprises in USA are those that don't have any employees (the owner is the only worker for the micro-enterprise) (Association of Enterprise Opportunity,, 2011b). In most cases, resource constraints of the micro-enterprise owner are directly linked to those of the micro-enterprise. Hence, the term "micro-enterprise" and "micro-enterprise owner" are often used

converge (Qureshi, 2005). The purpose of development is to elevate the sustainable level of living of the poor as rapidly as is feasible and to provide all human beings with the opportunity to develop their fullest potential (Streeten & Burki, 1978). Various development programs has been designed in order to (1) achieve a nation's development goals; (2) make change in a society or community in a way to increase its productive capacity; and (3) increase the quality of peoples' lives, including improvements in the well-being of the poor (White, 1987, p. 13). Development is typically equated with economic development (Smith, 2009) but it also involves social development dimensions; Qureshi (2005) suggests a socio-economic definition of development—"the improvement of social systems as well as economic growth" (p. 502). Warschauer (2003) also suggests that change management of human and social systems should be taken into account in order for an IT project for development to be successful. It is important to understand what development means and how it occurs. Investigating and understanding various aspects of development and how they take place and complement or synergize each other would inform how to improve development in a more efficient or effective way. Knowledge of how and why development help people change and grow can inform us of a variety of applications we can incorporate into empowering people to live up to their full potential (Streeten & Burki, 1978) and to reach as high freedom as is feasible (Sen, 1999). In this context, Thompson and Walsham (2010) suggest a concept of "developmental" IT and discuss the "developmental relevance" of IT research, highlighting a need for a strategic developmental focus of IT research.

Evidence shows a strong correlation between IT capital accumulation and labor productivity (Stiroh, 2001, 2002; Varian, 2003); Duesterberg (2003) notes that capital investment in IT is crucial to enhancing productivity in the modern economy. Kamal, Song, Kriz and Qureshi (2010) demonstrate that IT has a great potential for micro-enterprise development, including productivity growth. However, micro-enterprises face various challenges with regard to their IT adoption, including lack of funding, knowledge, and confidence (Wolcott et al., 2008). Understanding what kinds of challenges micro-enterprises face about their IT adoption and how IT interventions can help micro-enterprises adopt IT by overcoming these challenges is important in terms of visioning an effective IT intervention. An effective approach may facilitate micro-

interchangeably, and this applies to this case study. For example, "IT intervention for micro-enterprises" may be understood as "IT intervention for micro-enterprise owners."

enterprises' successful IT acceptance. While there has been significant research on the effects or outcomes of IT adoption by micro-enterprises (Kamal, 2009; Kamal et al., 2010; Qureshi et al., 2008, 2009), little research has been conducted to explain what an effective IT intervention for micro-enterprises would look like, through a theoretical lens.

This study takes a step in developing a theoretical lens that would enable IT interventions in micro-enterprises to be investigated and the outcomes assessed using concepts that are understood by a broader community of scholars. Given that the majority of businesses in the world are micro-enterprises and their participation on the global economy is essential to the development of many underserved regions of the world, this paper uses the micro-enterprise as the main unit of analysis. What makes an IT intervention for micro-enterprises effective is not given much attention nor examined theoretically and empirically. This paper aims to study what role an effective IT intervention should play during the process of IT adoption by micro-enterprises. The study addresses the following research question: What are the critical components of an effective IT intervention in facilitating the process of IT adoption by micro-enterprises? In other words, what role should an effective IT intervention play in order to help micro-enterprises adopt IT? To answer the research question, the paper draws on Actor-Network Theory (ANT) as it enables a broader description of the process of micro-enterprises' IT adoption and the role of an effective IT intervention during the process by considering four process elements of Translation: Problematization, interessement, enrollment, and mobilization. A primary focus of ANT is to try to trace and explain the processes whereby actors get problematized, interested, enrolled and mobilized, leading to a new network of aligned interests (Walsham & Sahay, 1999).

In addition, this study the challenges, including lack of knowledge, time, funding, and confidence, are investigated. As the micro-enterprises go through each phase of the translation for their IT adoption, an effective IT intervention should help micro-enterprises overcome these challenges by providing them with relevant verbal persuasion, guidance, IT solutions, and trainings through relevant social interaction with micro-enterprises. Based on the findings, implications are suggested for scholars and practitioners and future research directions. The following section develops the theoretical lens through which a set of propositions are developed that enable IT interventions in micro-enterprises to be investigated. The processes of translation in micro-enterprises are identified through an interpretive case study approach developed in the

methodology section. Through an analysis of four micro enterprises, the role of IT interventions on IT adoption is analyzed.

THEORETICAL BACKGROUND

Technology is closely linked to development. Neither technology nor development exists alone; they go together driving each other (Smith, 2009). Technology has had numerous impacts on development; the role of technology as "an engine of development" has been a constant (Smith, 2009, p. 12). Technology has contributed to human welfare, energy, health, and so on (Juma & Yee-Cheong, 2005). However, any examples of successful development do not represent miracles or technological panaceas; rather they represent the massive complexities of the relationships between technology and development (Smith, 2009). Observations of the impacts of technology on development have led to the call for technology for development (Juma & Yee-Cheong, 2005; World Bank, 1998/99).

Information technology (IT), through its contribution to accelerated communications, has created a new way of viewing the ways in which different social and economic segments link together so that various development goals can be achieved through networked collaborations. Juma and Yee-Cheong (2005) suggest three different ways in which IT can impact development efforts: (1) IT can play a crucial role in governance at various levels due to the fundamental linkage between technological learning and the ways societies and their industrial transformations develop; (2) IT can directly impact development efforts to improve people's lives through better information flows and communications; and (3) IT can amplify economic growth and income by increasing productivity (Duesterberg, 2003; Stiroh, 2001, 2002; Varian, 2003). The benefits of IT come not just from an increase in connectivity or broader access to IT but also from the facilitation of new forms of development solutions and economic opportunities that IT makes possible (Juma & Yee-Cheong, 2005). IT can maximize the utility of limited development resources by enabling or facilitating the development of cost-effective and scalable solutions (Juma & Yee-Cheong, 2005).

IT can accelerate both social and economic development by facilitating information and knowledge transfer (Duncombe & Heeks, 2002, 2003; Qureshi, 2005; World Bank, 2003). IT, if appropriately adopted, can bring about various positive effects, including increased efficiencies of production, enhanced market reach, improved delivery of government services, and increased

access to basic social goods and services (World Bank, 2003). Matthews (2007) noted that IT plays an important role in the growth of enterprises by contributing to profitability and by offering "foundations for the evolution of operations from a micro to a medium level" (p. 817). According to Duncombe and Heeks (2002), IT can play a role as an intermediary in providing relevant information on markets, customers and suppliers for rural micro-enterprises. E-business adoption can provide small and medium enterprises with increased access to new markets and reduced costs through administrative efficiencies (Brown & Lockett, 2004). Especially, Qureshi (2005) highlights the social development involving government, environment, education, and healthcare and suggests a model of IT for development (ITD) that theorizes a process by which social and economic development activities can be accelerated by adopting relevant IT; In the model, if appropriately implemented, IT can bring about various effects, including access to information and expertise, competitiveness and access to markets, administrative efficiencies, learning and labor productivity and poverty reduction; these IT effects lead to a positive cycle of development, in which an increase in human development and macro-economic growth leads to an increase in per capita income and perpetuates a positive spiral for social and economic development. Through this model of ITD, Qureshi (2005) stresses that if IT implementations are not appropriate to local needs, a downward or reverse spiral may take place; for example, e-government systems implemented for better government services may exclude citizens that have no means or capability to use the systems if the implementation does not take this into account.

ITD relates to the implementation, use and management of IT infrastructures for the purpose of stimulating social and economic development (Qureshi, 2005). The wide use of information and communication technologies (ICTs) in different segments over the world has informed the way in which the field of ITD is progressing (Qureshi, 2010). A variety of ITD research has been conducted, investigating various effects brought about by ITD efforts and local contexts of ITD implementations, building and testing theories for ITD, and informing future research to be followed for better knowledge development and use about ITD. Brown and Grant (2010) suggest a duality in the research agenda of ITD: (1) those studies that focus on understanding IT "for development," in which development is set as a dependent variable and the adoption or appropriation of IT is treated as a set of independent variables, and (2) those studies that focus on understanding IT "in developing" countries, in which IT adoption, appropriation or use is treated as a dependent variable. The former informs research primarily of what technologies are related

with what types of development and focuses on understanding the link between IT and development (Walsham & Sahay, 2006) and how and why IT facilitates development (Brown & Grant, 2010). Meanwhile, the latter informs research mainly of how technologies can be adopted effectively and/or efficiently and focuses on understanding the notion of local adaptation to IT, including the cultural implications (Walsham & Sahay, 2006). The field of ITD is not limited to developing countries; in actuality, it can be applied to every segment of communities and regions in which people have limited access to funds, social services and education needed to sustain them (Kamal, 2009). Micro-enterprise is a global phenomenon related to people mostly who run a business with limited resources for development; hence it becomes a relevant subject of ITD research although the context would be more or less different between developed and developing countries.

Previous research on micro-enterprises' IT adoption identifies significant evidence that IT helps micro-enterprises operate in a more efficient and effective fashion (Kamal, 2009; Kamal et al., 2010; Qureshi et al., 2008, 2009). Kamal et al. (2010) developed a conceptual logic model to show how IT adoption by micro-enterprises can lead to long-term economic development and poverty reduction and empirically investigated short-term effects of IT adoption on micro-enterprises that are suggested by Qureshi (2005). Qureshi et al. (2008) provided insights about how IT can bring about sustainable business improvement in micro-enterprises. Qureshi et al. (2009) empirically investigated how IT adoption by micro-enterprises can enable them to achieve and increase competitiveness, based on the resource based view of the micro-enterprise to develop a model of micro-enterprise growth through IT. These studies define a role for the IT professional to be that of an "IT Therapist" who works together with the micro-entrepreneurs to understand and assist in supporting the micro-entrepreneur in adopting IT to grow their businesses. The role of the IT therapist is different from that of a consultant in that the IT therapist works to help overcome fear of technology and assist in developing the micro-entrepreneur's capability to use technology to grow their business[2].

[2] IT Therapy is a pilot project that provides micro-enterprises with IT assistance and explore a (better) way to help micro-enterprises adopt IT solutions to grow their businesses. Since the IT Therapy process has been documented in prior studies (Wolcott et al. 2008, Qureshi et al. 2008), this paper will not go into detail about the actual process of applying the interventions.

However, IT adoption by micro-enterprises is limited due to various challenges they uniquely face (Qureshi et al., 2009; Riemenschneider et al., 2003; Wolcott et al., 2008), including lack of funding and knowledge and skills (Duncombe & Heeks, 2003). Few micro-enterprises have information systems needed to support their business operations (Qureshi et al., 2009). While micro-enterprises can serve as the seedbed for overall economic development (Grosh & Somolekae, 1996), they have to overcome lots of challenges that inhibit their IT adoption (Qureshi et al, 2009). Wolcott et al. (2008) empirically investigated a host of challenges that micro-enterprise face in adopting and using IT and grouped those challenges into six categories: capabilities, resources, access, attitude, context, and operations.

Meanwhile, a number of studies have taken place that use ANT to understand IT implementations within the development context. The implementation of IT within the development context is unique. This is because the contextual factors affecting IT adoption are very different from those in other contexts. Macome (2008) used ANT to investigate the implementation process of an information system and its local context in a Mozambican organization and showed how ANT was useful in dealing with complexity involved with IT implementation within the development context. Silva (2007) also drew on ANT in proposing a set of steps (processes of the institutionalization of IT) aimed to facilitate institutional cooperation for IT implementations within the development context.

Actor-Network Theory

Actor-network theory (ANT) suggests a socio-technical account in which either social or technical positions are not given a special advantage. ANT denies that "purely technical or purely social relations are possible" (Tatnall & Burgess, 2002, p. 183) and views the world as being composed of hybrid entities, entailing both human and non-human elements (Callon, 1986; Latour, 1987; Law, 1991; Law & Hassard, 1999). Adopting and utilizing IT is, by its nature, a socio-technical interaction (Bostrom & Heinen, 1977). In the field of information systems (IS) research, ANT has been recognized as a potentially useful tool to help understand the complicated social-technical interaction and has been applied to interpret the "social processes associated with technology implementation initiatives" (Sarker, Sarker & Sidorova, 2006, p. 53). ANT focuses on the way in which actors interact in their own interest and the processes by which they put components of their material world together in pursuit of their intended goals (Hardy & Williams, 2007). From the

perspective of ANT, the alignment of interests relies on "the enrollment of a sufficient body of allies and the translation of their interests into particular ways of thinking and willingness" to behave according to the prescribed notions of key actors (Hardy & Williams, 2007, p. 160). Hardy and Williams (2007) note that translation is related to the endeavor and outcome of aligning the interests of multiple actors. Callon (1986) elaborates the concept of translation, identifying four critical moments in the translation process: Problematization, interessement, enrollment, and mobilization. These moments are constituted by the different phases of the process of translation; during the process of translation, "the identity of actors, the possibility of interaction and the margines of manoeuvre are negotiated and delimited" (Callon, 1986, p. 203).

The first moment of translation is problematization. During this phase, a key or focal actor problematizes an issue (Macome, 2008); the identities and interests of actors are defined and are consistent with one or more key actor's interests called obligatory passage point (OPP) in the network of relationships being built. In other words, key actors try to define the core essence of the pending problems and the roles of other actors to fit a solution suggested. Key actors show that "the interests of other actors lie in admitting the proposed [solution]" (Callon, 1986, p. 205). The problem is redefined in the context of the solutions offered by those key actors that then try to construct themselves as an OPP (Tatnall & Burgess, 2002). As such, problematization indicates the movements or paths that must be accepted by engaged actors (Callon, 1986). In the case of micro-enterprises, we expect that a process of defining the essence of the problems and identifying ways to solve these problems would lead to a better diagnosis of the business problem. Problematization takes place when micro-entrepreneurs recognize relevant IT solutions and related interests or benefits that could enable their business growth. This is done in a participative manner in which the micro-entrepreneur will work with an IT therapist to assist in understanding the problems faced by the business.

The second moment of translation is interessement and it is engaged in negotiating with actors to accept definitions and descriptions of key actors. At this moment, a series of trials are conducted to determine the solidity of key actors' problematization (Callon, 1986). Interessement entails convincing other heterogeneous actors that the interests defined by key actors are consistent with other actors' interests (Sarker, Sarker & Sidorova, 2006). As such, interessement involves interesting and attracting other actors (Tatnall & Burgess, 2002). Successful interessement should confirm the validity of problematization (Macome, 2008). Interessement helps force the involved

actors to be enrolled and attempts to interrupt other competing alliances and to create a system of new alliances. In the case of micro-enterprises, the process of interessement entails repeated episodes of trial and error in which the micro-entrepreneur is trained to use the technologies available to them in ways that benefit their businesses. Interessement takes place as micro-entrepreneurs undergo some trials that allow them to have a better idea of how IT solutions work for and benefit their businesses.

The third moment of translation is called enrollment. In this phase, other actors in the network accept the device of interessement imposed on them by key actors (Callon, 1986); it requires key actors to convince other actors to join them (Macome, 2008). However, the device of interessement does not necessarily guarantee actual enrollment; that is, "it requires more than just one set of actors imposing their will on others (Tatnall & Burgess, 2002); according to Singleton and Michael, it also requires other actors to accept the roles defined for and imposed on them (as cited in Tatnall and Burgess, 2002). According to Callon (1986), "The definition and distribution of roles . . . are a result of multilateral negotiations during which the identity of the actors is determined and tested" (p. 214). Inscription defined by Latour as "a process of creation of artifacts that would ensure the protection of certain interests" (as cited in Sarker, Sarker & Sidorova, 2006, p. 56) occurs as part of the enrollment process. Other actors, realizing the inscription, are enrolled by "persuasion and incentives through processes of fabrication and negotiation leading to a network of alliances" (Hardy & Williams, 2007, p. 160). In the case of micro-enterprises, the process of enrollment takes place when the micro-entrepreneurs take control of the IT solutions and become comfortable with using them and even implementing some of the solutions they feel would benefit their businesses. The role of the IT therapist is to support the creation of the micro-entrepreneurs' social identities that result from the use of these solutions, assisting the micro-entrepreneurs in overcoming their fears and other psychological barriers so that they can take advantage of the technology and other resources.

The final moment of translation is mobilization. Mobilization occurs as the proposed device of interessement attains wider acceptance among other actors as key actors become spokespersons for others (Tatnall & Burgess, 2002). As whatever technology or solution gains wider acceptance, the newly created network becomes stabilized (Hardy & Williams, 2007). If a consensus is reached, the margins of maneuver of individual entity or actor are tightly delimited, forcing actors to accept the proposed solution (Callon, 1986). At the end of four moments, a new constraining network of

relationships is complete. According to Callon (1986), however, "This consensus and the alliances which it implies can be contested at any moment" (pp. 218-219). In the case of the micro-enterprises, mobilization takes place when proposed IT solutions attain wider acceptance among other actors: micro-enterprises and their customers or clients. As IT solutions gain wider acceptance, a newly created network becomes stabilized as the new IT solutions are used for business operations, and more customers or clients are involved with the new solutions or as more business processes rely on the IT solutions. This may allow micro-enterprises to operate in a more productive manner.

The processes of translation will be investigated through case studies of micro-enterprises in which IT solutions have been implemented in a participatory manner among the actors involved. The process of translation within micro-enterprises can be identified by asking questions related to the concepts described above and observing these concepts. These are described in (Table 1).

Process of Translation	*Description*	*Identification*	*Outcomes*
Problematization	Identification of problems	What are the business problems? What are the (IT) knowledge barriers? Do the MEs think they need IT solutions?	Diagnosis of problems
Interessement	Negotiation through trials with new IT solutions	What is a system of new alliances (IT solutions) to solve the business problems? What are the resource constraints in trying new IT solutions and how can they be overcome?	Identification and trial of alternative solutions
Enrollment	Acceptance of new IT solutions	Are MEs technically comfortable with new IT solution? Are MEs confident with potential benefits of new IT solutions?	Development and implementation of IT solution
Mobilization	Wider acceptance of new IT solutions	Are new IT solutions accepted by other actors (i.e., customers and other micro-entrepreneurs)? Are MEs being delimited by new IT solutions?	Adoption and use of IT solution

Table 1. Identifying Processes of Translation in Micro-enterprises

METHODOLOGY

This research follows an Interpretive Case Study strategy in which the data will be collected using a framework for the data analysis that draws on the four phases of translation of ANT as shown in Figure 1. ANT is especially useful in understanding the process of IT implementation; the ANT approach raises and helps address questions of how IT implementation "got started, developed and is being performed" (Hardy & Williams, 2007, p. 162). These processes are described below.

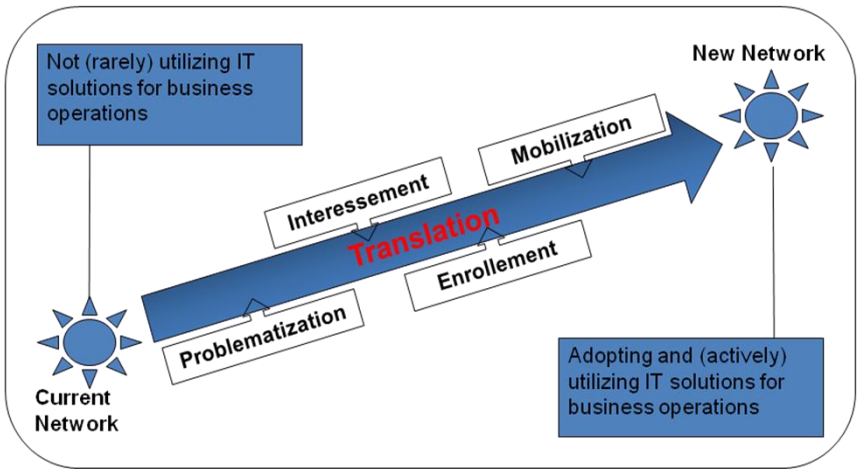

Figure 1. Framework for the Data Analysis

The process of translation in micro-enterprises' IT adoption is investigated using an interpretive case study methodology. A case study can be appropriate in handling contextual conditions, based on the belief that those contexts would be pertinent to understanding the phenomenon (Yin, 2003a). The investigator seeks to discover the manifest interaction of significant factors of the phenomenon and capture various patterns that other research approaches might overlook (Berg, 2009). The case study is one of the most prevalent qualitative research methods in Information Systems (Technologies) research (Orlikowski & Baroudi, 1991); it fits well to understanding organizational or individual contexts related to adopting (developing) and using IT. According to Yin (2003), the case study is more appropriate when the researcher has little control over events and when a contemporary phenomenon with some real-life contexts is the research target. A case study inquiry can rely on the prior theory to guide the whole process of research design and data collection and analysis (Yin, 2003a). An appropriate use of theory will

help delimit a case study inquiry to its most effective design (Yin, 2003b). This study draws on ANT, the concept of translation to be specific, to guide the whole process of research design and data collection and analysis.

According to Walsham (1995), interpretive research methods are based on the position that "our knowledge of reality is a social construction by human actors" (p. 376). Klein and Myers (1999) assert that Information Systems research can be interpretive one if it is assumed that "our knowledge of reality is gained only through social constructions" (p. 69) and propose seven principles for interpretive field research. While most of them are applied to this interpretive case study, it is guided especially by three principles: The principle of contextualization, the principle of abstraction and generalization, the principle of interaction between the researchers and the subjects. The principle of contextualization is adhered to by observing and listening to each of micro-enterprises participating in the research as they described their unique situations related to IT adoption. According to Klein and Myers (1999), the principle of abstraction and generalization requires "relating the idiographic details revealed by the data interpretation . . . to theoretical, general concepts that describe the nature of human understanding and social action" (p. 72). The study involves the concept of translation of ANT to describe the nature of micro-enterprises' IT adoption. Finally, the principle of interaction between the researchers and the subjects requires critical reflection on how the research data were socially constructed (Klein & Myers, 1999); within the context of this study, the principle entails participatory observations through the IT Therapy process and multiple interviews with each of micro-enterprises during the given time frame.

Criteria for Selection of Micro-enterprises

Unlike quantitative research, sampling in qualitative research is purposeful rather than random; that is, information-rich samples are strategically and purposefully selected, depending on the purpose and resources of the study (Patton, 2002). The intent of an IT intervention for micro-enterprises is to help micro-enterprises that are willing to utilize IT for their business operations but not capable of doing so due to their resources constraints. Based on the argument of Patton (2002) and the intent of the study, four micro-enterprises were selected for this case study based on the following criteria:

1. Income of less than 25,000. In the United States this is considered below the average standard of living.
2. They were faced with challenges of lack of knowledge, time, funding, and confidence.
3. Number of employees are between 1-5 and they are sole proprietorships.
4. Motivated to grow their businesses and willingness to use IT to improve their business operations.

The researchers conducted initial screening interviews in order to select micro-enterprises that satisfy these characteristics. These micro-enterprises were referred to through a community partner who knew that these businesses were motivated to adopt IT to grow their businesses. All micro-enterprises investigated in this study operate in the Omaha metropolitan area in Nebraska, USA.

Data Collection and Mode of Analysis

Data were collected through open-ended interviews conducted with the micro-entrepreneurs (owners of the micro-enterprises) and participant observation through real IT interventions. The interviews were developed using Patton's (2002) Interview Guide Approach that calls for the interviewer to have an outline of topics or issues to be covered, but is free to vary the wording and order of the questions to some extent. Three sets of structured interviews were conducted with each micro-enterprise: Initial IT needs assessment, IT Therapy effects assessment, and IT Therapy roles assessment. The initial IT needs assessment was to acquire general information on business operations and IT needs of each micro-enterprise. Data from the initial needs assessment included each micro-enterprise's IT, hardware and software, utilization, general perception and knowledge about IT, computer skills, available resources, and limitations. The IT Therapy effects assessment was to examine behavioral changes and immediate outcomes generated by IT Therapy. Interview questions were about increased labor productivity and administrative efficiency, increased access to market and potential customers, and learning and empowerment. Finally, the IT Therapy roles assessment interviews were to investigate the roles of IT Therapy perceived by the owners of micro-enterprises. Data from the roles assessment include each micro-enterprise's motivation to participate in the IT Therapy project, goal achievement, and roles and limitations of IT Therapy. A total of 12 interviews were conducted, and interviewers visited micro-enterprise sites to conduct interviews and observe their IT use as guided by IT Therapy.

IT Therapy	*Time*	*IT Therapy Roles*
Initial IT Needs Assessment	September-October, 2008	Related to problematization
IT Intervention	October-December, 2008	Related to Interessement
Effects Assessment	March-April, 2009	Related to Enrollment
Roles Assessment	October-November, 2009	-

Table 2. Timeline for Data Collection

Although structured interviews were initially designed, interviews were conversational in an attempt to get interviewees to further discuss something they have mentioned with regard to the research question (Kvale, 1996). Each interview lasted approximately 30 to 40 minutes and was conducted at the place where the micro-enterprises typically used IT for their businesses. Whenever possible, interviews were audio taped and transcribed immediately after the interviews. Participant observations throughout IT Therapy provide validation of information acquired through interviews, as well as reveal potential mismatches between interview data and behaviors.

RESULTS

Four micro-enterprises are involved in this study: DN, PK, AM, and JT; they received customized IT interventions based on an assessment together with the micro-enterprise owner as to the most appropriate intervention. The interventions took place through a process of IT Therapy. The process of IT Therapy took place through trained practitioners who are able to diagnose, identify alternative solutions, develop or implement these and support the adoption and use of the IT. The characteristics of each of these micro-enterprises and the interventions they received are summarized in (Table 3).

Name	*Business*	*Initial IT Utilization*	*IT Interventions*
DN	Science Education	Desktop and laptop computers, Internet, QuickBooks, and MS Office	Backup system and wireless networking setup, website building
PK	Life Coaching	Desktop and laptop computers, Internet, palm pilot, MS Office, QuickBooks	Consolidation of tools into laptop computer
AM	Music composition	Desktop computer, Internet	Integrating a music software to keyboard
JT	Decoration	Desktop computer, Internet (only at home), Quicken, MS Office	Website building

Table 3. Characteristics of Micro-enterprises

DN operates a business that sells various kinds of products for science education, which include books, chemicals, kits, rocks, minerals, and so on, and provides science education for children, and offer related workshops to science teachers. DN received IT assistance for building an informational website, setting up a backup system and setting up a wireless network at her home office. In addition, she learned how to build a website for her business. Effects of IT assistance that DN received were about marketing her business and reaching more clients. From the perspective of her clients, her website allowed them to do business with her in a more convenient manner; DN's clients could register and pay online for a workshop or class, making DN's business more effective and efficient.

PK provides coaching services on a one-to-one basis as well as in groups (parents, vitality groups, etc.), including coaching to small business owners whereby the small business owners can get together and share their business plans and acquire ideas and help from one another. The IT assistance PK received was mainly about integration or migration of software into her notebook so that she can use them anywhere, regardless of her physical location. As a result of IT Therapy, PK found herself clearly more focused in using IT. According to PK, IT resources became better organized, and business operations became more flexible, bringing up a higher quality to her services.

AM is a musician who composes a religious music. The IT interventions for AM included basic computer setup and music application software configuration and connection to Keyboard. AM received hands-on instruction about how the application works for his music composition business.

IT Therapy allowed AM to be able to do his business in a totally different fashion: From analog to digital. Before IT Therapy, AM used a tape (analog) recording method, but he started to use a computer (digital) recording method. AM found that the solution saved a substantial amount of time. AM also identified the quality improvement of his product; he mentioned that changing analog recording into digital recording improved the quality of the recording.

And finally, JT operates a store that sells home decorations and gifts. The IT assistance that JT received was building an informational business website and training about how to manage the website. JT identified that the newly developed website let more people know about her business and see what she carried. According to JT, potential customers who found her products through the website have contacted to buy the products. The outcomes of these interventions on micro enterprises are illustrated in (Table 4).

Micro-enterprise	*Technology Adoption*	*Training (Empowerment)*	*Behavioral Change*	*IT for Development Outcome*
DN	Business website, back-up and wireless networking system	Website building and management	Increased computing hours, search for more IT	Access to more clients, increased administrative efficiency, improved service quality
PK	Software tools consolidated into laptop computer	Software tools	Increased computing hours, search for more IT	Labor productivity, increased administrative efficiency, improved service quality
AM	Music composition system	Software tools and web search	Increased computing hours	Increased administrative efficiency, improved product quality
JT	Business website	Website building and management	Increased computing hours	Access to more customers

Table 4. The Outcome of IT Interventions

TRANSLATION: THE ROLE OF IT INTERVENTIONS IN THE IT ADOPTION OF MICRO-ENTERPRISES

IT Therapy in this case study involves various heterogeneous elements, human or non-human. Main human entities include the owners of the four micro-enterprises, customers or clients of the four micro-enterprises, and IT therapists at the University of Nebraska at Omaha. Meanwhile, primary non-human entities include IT, the university, and various solutions offered by IT therapists. The process of translation that took place in each micro-enterprise was unique to the way in which each micro-entrepreneur interacted with the IT therapists, the technology and actors in their social network. In this section the process of translation for each of the micro-enterprises will be analyzed based on the above outcomes to determine the role of an effective IT intervention in facilitating the process of IT adoption.

Problematization

As stated earlier, the key actor renders itself "indispensible" in the network during this phase. The key actor in the given IT Therapy situation is IT itself in which various interests, including administrative efficiency, increased access to market and potential customers, and learning and empowerment, are inscribed. IT tries to define its core essence of the pending problems in accordance with its own interest and the roles of other actors to fit a suggested solution. Problematization occurs once other actors recognize their interest to be consistent with that of the key actor. In the given micro-enterprises' IT adoption situation, problematization can occur when micro-enterprises recognize relevant IT solutions and related interests or benefits that could enable their business growth. The degree to which the four micro-enterprises were aware of the solutions and related benefits of IT varied, depending on the individual contexts of those micro-enterprises due to their knowledge limitations. Some micro-enterprises were aware of issues directly related to IT; for example, DN was aware of what IT would be relevant for her business marketing but didn't have any knowledge of IT solutions and related skill sets to utilize it.

> My thought was website development and just general technology help. So that's what, I just thought as an opportunity because I did not know where to go. I knew how to use a laptop but I didn't know how to create a webpage and that stuff. (DN, face-to-face interview)

JT was in a similar situation; JT recognized a web presence as a business marketing solution but didn't know what to do for it. Meanwhile, AM didn't recognize any relevant IT for his business although he felt that he would need to implement some IT.

> [When] I first started, I did not have the technology as a part of my business, and I understood that I need to implement some technology to help my business to be able to function at a better and higher level. (AM, face-to-face interview)

It was apparent that the four micro-enterprises were undergoing problematization in a sense that they recognized IT as a solution to improve their business operations. However, their problematization was not enough to move forward to trials with appropriate IT solutions to solve their business problems due to their lack of awareness and knowledge.

Recognizing micro-enterprises' lack of IT awareness and relevant knowledge, IT Therapy helped micro-enterprises be (better) aware of relevant IT solutions and its potential benefits that would help grow their businesses so that micro-enterprises could be completely and effectively problematized and move forward. IT therapists investigated and identified micro-enterprises' IT needs, introduced relevant IT solutions to micro-enterprises and informed them of potential benefits that would be brought about by the solutions. In this manner, micro-enterprises became more clearly aware of their problems and an alternative path or network that would resolve their problematic situations. As evidenced from the cases, an effective IT intervention for micro-enterprises should be able to assist micro-enterprises in entering the stage of problematization by helping them (better) recognize how IT can resolve their business problems, what benefits IT can bring to their business, and what solutions are available for them. This suggests that the process of problematization facilitated by IT Therapy enables micro-enterprises to redefine their business problems in relation with the context of IT solutions as they become (better) aware of relevant IT solutions that have a potential to solve their business problems.

Interessement

The second moment of translation is interessement, which is engaged in negotiating with micro-enterprises to accept definitions and descriptions of the key actor (IT). As stated earlier, a series of trials are conducted to determine the solidity of the key actors' problematization at this moment (Callon, 1986) and to interest and attract other actors. In the given IT Therapy situation, interessement can be described as micro-enterprises' experiment with relevant IT solutions.

Interessement is hard to occur if micro-enterprises cannot undergo some trials that allow a better idea of how IT solutions work and benefit their businesses. It was apparent from our cases that micro-enterprises' experiment with relevant IT solutions could not occur because most micro-enterprises, more or less, suffered from lack of resources such as funding, time, and relevant skills. Hence, taking micro-enterprises' resource limitations into account, IT Therapy at this phase helped micro-enterprises experiment with some relevant IT solutions that would meet the micro-enterprises' business needs.

> [I] got the backing up of my system set up, the external hard drive so [an IT therapist] made recommendations on that. [The IT therapist] did some things on [my] PC to get it more updated and usable. And then...the building of the webpage [was done through]... buying my... domain. (DN, face-to-face interview)
>
> I had data in many places, and it was time consuming for me to go to the right place to get the data. And [IT therapists] helped me get it all in one place, which ended up being my laptop. (PK, face-to-face interview)
>
> [The IT therapist] helped me to integrate...a music software program, and [to figure out] how to have that software program talk to my keyboards. And so he showed me how to do that. (AM, face-to-face interview)
>
> I received a website. They showed me how to set up a website...Just to get a general website set up...me to be able to get my name...more in the public so that people would know more about my shop. (JT, face-to-face interview)

IT therapists travelled to the business sites of the micro-enterprises and scheduled the meeting at the micro-enterprises' convenience as much as possible; they explored and suggested open-source (free) software whenever possible; and they empowered micro-enterprises with overall IT knowledge and specific skills. As described at the beginning of cases section, DN could successfully experiment with building of an informational website and setup of a backup system and a wireless network at her home office. The intervention for PK included experimenting with integration or migration of software into her notebook. PK illustrated how IT Therapy worked as follows:

> They know the answers when you ask them questions about different things. Because I had been afraid to use Outlook Express, it worked very well. So they helped me do all that and to get all my information upgraded from my PC to my laptop. (PK, face-to-face interview)

As far as AM was concerned, the experiment occurred with basic computer setup and music application software configuration and connection to keyboard. Finally, JT successfully experimented with a web solution that looked appropriate for the building and management of an informational business website. As such, IT Therapy enabled micro-entrepreneurs to experiment with and take advantage of relevant IT solutions so that they could create a system of new alliances (IT solutions) to benefit their businesses.

Undergoing trials and errors, micro-enterprises became accustomed to using IT solutions for their businesses and observed some immediate outcomes or benefits brought about by the IT solutions. From the cases in this study, it was apparent that an effective IT intervention for micro-enterprises should be able to take each micro-enterprise's resource limitations into consideration so that micro-enterprises can experiment with some relevant solutions, become effectively interested, and move forward to the enrollment phase. This suggests that the process of interessement facilitated by IT Therapy enables micro-enterprises to make sense (or agree) with the advantage of IT solution in terms of their actual business contexts as they try (new) IT solutions that are relevant to their business contexts.

Enrollment

Enrollment is the third moment of translation. For enrollment to occur, it requires micro-enterprises to accept the roles defined for and imposed on them. IT solutions themselves do not necessarily guarantee actual enrollment; a series of more certain statements are needed. Micro-enterprises' IT adoption is challenged by their lack of value or personal incentives, confidence and trust (Wolcott et. al., 2008). For example, the micro-enterprises in this case study showed some degree of lack of confidence about controlling the IT solutions imposed on them; they repeatedly made sure that they could control the IT solutions offered to them.

IT Therapy offered continuous verbal persuasion to each of the four micro-enterprises that there would be no problem handling and controlling the IT solutions and that additional help would be available for them if they met any technical problems that they could not handle. At the same time, easy-to-understand manuals were developed and offered to micro-enterprises so that micro-enterprises could refer to them as necessary. In this manner, micro-enterprises became more comfortable about taking control of the implementation of the IT solutions offered to them. Meanwhile, IT Therapy continuously informed micro-enterprises of how the solutions would work

for their businesses in order to make them convinced that substantial values would be brought about by adopting and utilizing the suggested IT solutions, and thereby to ensure or reinforce micro-enterprises' enrollment in the newly created alliance or network. For example, IT therapists repeatedly communicated that DN and JT would reach more clients through Web presence; PK's IT resources would be better organized, and her business would be more flexible, bringing up a higher quality to her services; and AM could increase administrative efficiency and recording quality through digitalized work process. In this manner, each of the four micro-enterprises could become more confident that they were creating a new network of alliances that would enable them to grow their businesses, resulting in actual enrollment in the new network as evidenced by the following statements from the four micro-entrepreneurs.

> I do utilize [the solution]. Well the QuickBooks I utilize that program for my bookkeeping and I give it to my CPA who does my taxes. I use the Outlook for email service and I use [the calendar and email service] more extensively than before...I since then went and bought the next level of Outlook, it's the suite that includes the newsletter program that I needed and I did that upgrade 6 months ago and that is working well too. (PK, face-to-face interview)
>
> Now I use the computer, and I'm able to say, for example, [when] I need words to a song, now I know how to turn the computer on, and I can access, go online, and find the words to music that I need...I didn't have that capability [before]...I didn't have them until I called somebody found them somewhere written. And now I know how to find them from different sites and complete that task. (AM, face-to-face interview)
>
> Right now I feel like I have what I was looking for. We've achieved what I wanted, just a simple website [where] people could go to and initially see my product, and I think that's the point where we are now. (JT, face-to-face interview)

As such, IT Therapy helped micro-enterprises overcome various challenges, including mental factors like lack of confidence and value, and move forward to adopting the IT solutions. It is apparent that an effective IT intervention for micro-enterprises should be able to offer continuously repetitive and relevant verbal persuasion and encouragement so that they can successfully enroll in the new network of adopting and using new IT solutions. This suggests that the process of enrolment facilitated by IT Therapy enables micro-enterprises to actually accept (new) IT as solutions to solve their business problems as they become confident as they become confident that they can take control of IT solutions.

Mobilization

The final moment of translation is mobilization. Mobilization occurred as proposed solutions attained wider acceptance among other actors: micro-enterprises and their customers or clients. As IT solutions gained wider acceptance, a newly created network became stabilized. As stated earlier, if a consensus is reached, the margins of maneuver of the individual entity or actor are tightly delimited, forcing actors to accept the proposed solution (Callon, 1986). DN showed how she became delimited by her customers who used her new IT solution, which is her website; a similar situation applied to JT.

> As they link to the website, then they see what it's about. And then it gives them again that comfort level. So I think it's pretty critical. And I did get feedback from people, too, saying to me if I hadn't had been able to pay on Pay Pal, and if I hadn't been able to do this all online, I wouldn't have done it. So yeah, it's pretty critical. [If] I'd have to go back, [there]...would be more work to get the same number of people. (DN, face-to-face interview)
>
> I had a lady in the other day that said she had found me on the web; she was looking for this brand of candle that I had advertised on the web that I carried: She came in because she searched the 1803 candle and it came up with my name; that was a good example of someone searching for something and finding what I do carry. That was just one person and I'm sure that there are other items that hopefully other things will come up and my name will come up too. (JT, face-to-face interview)

In case of AM and PK, they were delimited by their own business operations that came to rely on IT solutions. PK mentioned that she would be much more disorganized without the IT solution developed through IT Therapy.

> [Without the IT solution offered] I would be very disorganized…I guess I would still be very frustrated because I wouldn't be able to keep track of the outlook calendar and the email...It is an essential part of my business. (PK, face-to-face interview)

AM stated how he was delimited as his business relied on the solution.

> Ohh, that would be very bad [without the solution] because I have a lot of information stored now. [Because] I have everything [dependent on the IT solution], [going without the solution] would really ruin a lot of things. I even have my emails set up sent to me. I didn't even get my emails before. Now I have emails that come to my computer and I have it also

> set up where they come to my Blackberry. If I didn't have that technology now, that would be bad because I would miss a lot of information. (AM, face-to-face interview)

The concept of mobilization implies that micro-enterprises can also be delimited as IT solutions get wider acceptance among other micro-enterprises. This mobilization may occur when micro-enterprises observe that more micro-enterprises are utilizing the same or similar IT solutions. Social networking among micro-enterprises that adopt and utilize IT solutions becomes imperative because the social network affects post implementation IT acceptance (Hsieh, Rai & Keil, 2008). IT Therapy tried to build a network among the micro-enterprises that received IT solutions through the process of IT Therapy, so that micro-enterprises could observe other micro-enterprises' IT use and share their experiences. From the perspective of mobilization, this was a relevant approach. Therefore, an effective IT intervention for micro-enterprises should be able to establish a social network among micro-enterprises in order to enable them to observe "the aggregate manifest behavior across one's personal network" (Hsieh, Rai & Keil, 2008, p. 112) and makes them be delimited by the newly created network. This suggests that the process of mobilization enables micro-enterprises to recognize that IT solutions incorporated into their business operations are inevitable to their business growth as they observe the wide acceptance of those IT solutions, becoming delimited by newly adopted IT solutions; micro-enterprises were further delimited by their IT solutions as more and more customers and business operations were involved with IT solutions.

CONTRIBUTION AND IMPLICATION

Drawing on the four concepts of translation of ANT, this paper showed how micro-enterprises adopted new IT solutions and what roles IT Therapy played at each phase of translation in enabling micro-enterprises move forward through the translation. That is, the role of an effective IT intervention (IT Therapy in this study) was to facilitate the process of translation that would lead to a new system of alliance (the situation in which micro-enterprises adopt and use IT for their business operations). This is because micro-enterprises are not able to effectively proceed by themselves through the process of translation: problematization, interessement, enrollment, and mobilization. Different micro-enterprises may have different reasons why they cannot go through this process of translation in adopting IT; some micro-enterprises may not be (sufficiently) aware of IT in terms of how it can benefit their business; some may not have

enough IT knowledge and skills; some may not have enough resources (time, funding, or social capital); or some may not have enough confidence about controlling IT. Each of these reasons engages one or more process elements of translation. Apparently, the main motive of micro-enterprises to consider adopting IT would be the potential benefits of using IT for their business: economic aspects of development. However, making translation (IT adoption and use or reaching a new system of alliance in terms of IT use) effectively happen among micro-enterprises entails human and social development; translation would not occur without human and/or social development in an effort to enable or facilitate micro-enterprises move through the process of translation. This is the context in which we argue that different aspects of development should be taken into account as critical components of IT intervention for micro-enterprises. For example, increasing the level of IT awareness, knowledge and skills, and/or confidence should be part of IT intervention for micro-enterprises; micro-enterprises should be informed of relevant IT benefits in relation to their business and relevant IT solutions affordable to them during the intervention.

A successful movement through each moment of translation requires various aspects of development-human, social and economic development-to be part of an IT intervention for micro-enterprises. Human development should take place through problematization, interessement and enrollment. During the process of IT Therapy for micro-enterprises, IT therapists trained the owners of micro-enterprises, including basic computer skills, website building and management, data back-up, web search, etc; through this process, the owners of micro-enterprises learned or increased various IT knowledge and skills. While the owners of micro-enterprises were acquiring IT knowledge and skills, they became more and more confident about using technology; that is, they became more empowered through the IT Therapy process. Social development should take place mainly through mobilization; using IT, especially Internet, allowed the owners of micro-enterprises to not only access more information but also build social network personally or for their businesses. This brought about more opportunities enabled by social capital that can be mobilized or increased through the Internet. Economic development should be the building block of IT interventions for micro-enterprises. The key contribution of this paper is in empirically demonstrating, through an ANT lens, how and why different aspects of development should take place together in order to make an IT intervention successful.

Implications for Research and Practice

Depending on how IT Therapy influences micro-enterprises' IT adoption, there are significant implications for scholars and practitioners studying and promoting IT support for micro-enterprises. Scholars and practitioners studying and promoting IT adoption benefit greatly from enhanced knowledge about the context and effects of a new mode of IT support for micro-enterprises. The findings from this study serve to extend knowledge in the area of micro-enterprise motivations. One of the findings in this study was that just offering IT alone is not enough as Hsieh et al. (2008) demonstrated. The consequences of IT implementation depend on compatibility to the context in which it occurs (Avital et al., 2007; Kling, 2000). According to Hsieh et al. (2008), an effective IT intervention requires not only access to technology but also significant social support. The experience of IT Therapy demonstrates that one of the key success factors was that IT Therapy provided "appropriate oral support and guidance" through repeated social exchange (Hsieh et al., 2008, p. 115), based on the unique circumstances and environments that micro-enterprises faced. There are also implications for the importance of strong social networks of IT promotion. As ANT informs, it is imperative that a social network be built to enable micro-enterprises to share information and best practices of successful IT adoption in order to make them mobilized. A personal network exposure motivates people to change (Hsieh et al., 2008). Micro-enterprises may be better motivated by observing how other micro-enterprises adopt IT successfully for their businesses. As Thompson and Walsham (2010) point out, potential direct and indirect developmental aspects of IT should be carefully taken into account in order to make an IT intervention for micro-enterprises effective and thereby to achieve the most out of it.

Limitations and Future Research Directions

Micro-enterprises were chosen so that they can represent different characteristics of micro-enterprises. Although the triangulated use of multiple interviews and participant observations helps insure greater trustworthiness of subject reports, there is a chance that the four micro-enterprises chosen for the study may not adequately represent all possible micro-enterprises' IT Therapy experiences. Yin (2003a) points out that many researchers skeptical about the case study have a common concern about its little basis for scientific generalization. However, Yin (2003a) resolves this concern by splitting generalization into two different types, generalization to theoretical propositions, which applies to the case study, and generalization to populations or

universes, which applies to survey research. This study establishes theoretical propositions derived from the four process components of translation of ANT and demonstrates how these propositions hold true in the case of micro-enterprises' IT adoption and use. The focus of this study is on investigating an effective form of IT intervention drawing on ANT.

Several directions emerge for further research in relation to IT interventions for micro-enterprises, which could build on findings from this study. A large sample study would provide stronger empirical evidence regarding the findings in the present study. A study may need to be conducted to examine significant factors influencing micro-enterprises' IT adoption in general; in this manner, the research can provide robust implications for designing an effective IT intervention for micro-enterprises. Although there have been more than 100 studies on IT acceptance models (Lee et al., 2003) since the introduction of seminal theories such as the theory of reasoned action (Fishbein and Ajzen, 1975) and the technology acceptance model (Davis et al., 1989), those models may not adequately explain IT adoption by micro-enterprises (Qureshi et al., 2008). Meanwhile, this study found that social exchange may be significant mechanism to motivate and guide micro-enterprises' IT adoption. Future research needs to incorporate relevant social learning theories to attain plentiful insights for an effective IT intervention for micro-enterprises.

CONCLUSION

In conclusion, IT Therapy can serve as an effective instrument for facilitating the process of micro-enterprises' IT adoption. This case study demonstrated how IT Therapy could become a form of effective IT intervention that successfully facilitated micro-enterprises' IT adoption through the ANT lens; it showed how and why different aspects of development should be relevantly understood and applied through the process of translation: problematization, interessement, enrollment, and mobilization. As such, the lens of ANT was useful in examining and explaining the process of micro-enterprises' IT adoption and the role of an effective IT intervention for micro-enterprises. ANT, the process of translation to be specific, informed us of what to consider as critical components of an IT intervention for micro-enterprises and how to incorporate those components into IT intervention design. This is the context in which the process elements of translation, critical components of an effective IT intervention, and the roles of an effective IT intervention in relation to different aspects of development are all related to each other in this study.

The need for tools to facilitate micro-enterprises' IT adoption in the United States has become imperative in the current social, political, and economic environment. Though arguments could certainly be made for a governmental intervention in these matters, the assumption underlying this study is that a greater role for government seems highly unlikely in the current political environment of budget cuts; this means an increasing reliance on non-governmental organizations like the university to provide responsive social services. Understanding the context and mechanism of IT Therapy in this study may be of significance in initiating and implementing effective IT interventions for micro-enterprises.

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