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# The Role of Psychological Empowerment to Support IT Adoption in Micro-enterprises

Mehruz Kamal

The College at Brockport, State University of New York

[mkamal@brockport.edu](mailto:mkamal@brockport.edu)

## ABSTRACT

The backbone of the U.S economy is micro-enterprises which are the smallest form of business and are often owned by a single entrepreneur with very limited resources. It appears that when these micro-enterprises adopt ICTs, their ability to survive and grow increases. Through two in-depth case studies, this research explains how Information Technology may be adopted and supported within micro-enterprises through the process of applying IT interventions targeted to their needs. The findings show that through IT interventions, micro-entrepreneurs have the potential to be psychologically empowered through skill development and critical awareness enabling them to be positioned for positive cycles of growth.

## Keywords

IT adoption, micro-enterprises, psychological empowerment.

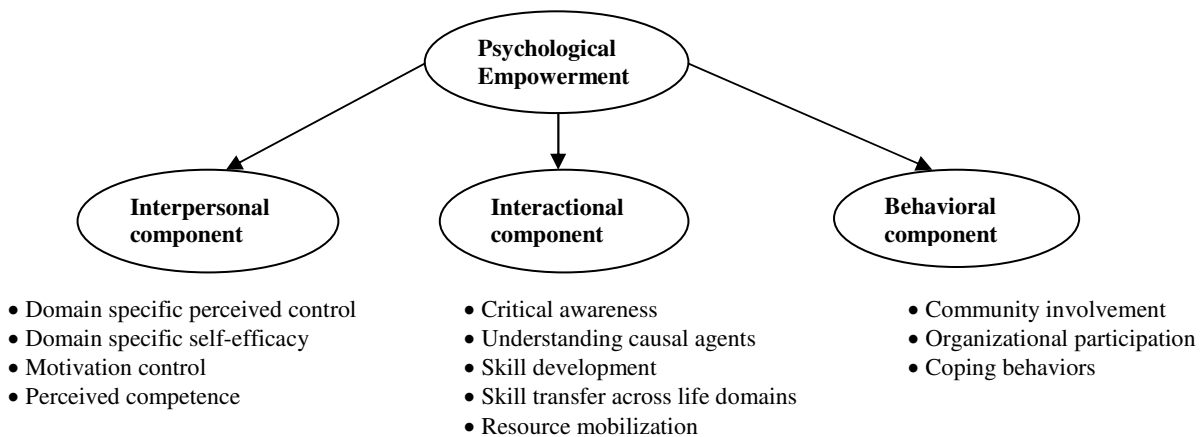
## INTRODUCTION

According to the Association for Enterprise Opportunity (AEO), there are over 23 million microenterprises in the U.S and that number translates to 87% of all businesses in the United States. Historically, micro-enterprises have been considered the backbone of the U.S economy. Micro-enterprises have the potential to serve as the seedbed for industrialization (Grosh et al. 1996). Yet many micro-enterprises are hindered from growing and functioning efficiently by an inability to use information technology effectively (Honig 1998; Hyman et al. 1998; Lichtenstein et al. 2001; Sanders 2002; Schreiner et al. 2003). The survival of these businesses remains a challenge because they are led by the one micro-entrepreneur who trades their skills and/or products to earn a living. This makes the adoption of ICT difficult as the resources to purchase equipment are limited and training is often unavailable or inadequate. However when they do adopt IT, the growth of these micro-enterprises increases by a factor of 3.4 (Qiang et al. 2006). Businesses can grow at a rate of 3.4% faster in terms of sales when email is used for customer communication (Qiang et al. 2006). Similarly, 4% increase in sales as well as 5% increase in export performance was obtained when e-business techniques were adopted by Small and Medium sized businesses (SMEs) in the manufacturing sector in Canada (Raymond et al. 2005). However, while these efforts may appear to be very successful, they do not address the growth of these businesses or of the communities and regions within which they reside. This is because the adoption of IT by micro-enterprises is not straightforward. It requires assistance on a number of levels. First an assessment of their needs has to be made in order to find out how they can be assisted. Every micro entrepreneur has very unique needs and aspirations. Second, the technology itself is often not the solution; it is the innovative ways in which the technology is used that enable the micro entrepreneur to grow their business using IT. Third, the implementation requires a combination of training, technology and most importantly education on resources available to the business. Finally the impact of these initiatives needs to be considered in the light of economic, social and human considerations. This paper addresses the above needs through a process in which technology, training, and trust building interventions are used to assist the adoption of IT in micro-enterprises. This is called IT Therapy because it enables the micro-entrepreneurs to increase their human capital through training, technology enhances their physical capital; and the trust-building enhances their socio-cultural capital (Wolcott, Qureshi, & Kamal, 2007; Wolcott, Kamal, & Qureshi, 2008; Qureshi, Kamal, & Wolcott, 2008). The research question being addressed in this study is, *What is the impact of IT interventions in micro-enterprises?* The contribution of this study is in the insights obtained from two in-depth case studies that explain how micro-enterprises may adopt Information technology through the process of applying IT interventions targeted to their needs.

## THEORETICAL BACKGROUND

This study is based on theoretical perspectives from two distinct models. The first is from the model of IT for development (Qureshi, 2005). Qureshi (2005) highlighted a number of effects that may come about when IT implementations intervene within a society's economic as well as social spheres. She takes into account both positive and negative impacts that technology might have on socio-economic development (through a cyclical relationship). The stated effects in the model are:

access to information and expertise, competitiveness and access to markets, administrative efficiencies, learning and labor productivity, and finally poverty reduction. For the context of this study, the social and economic sphere that we are concerned with is the micro-enterprise. This study also incorporates the concept of Psychological Empowerment to help make sense of the findings. Before getting into psychological empowerment, it is necessary to understand the notion of empowerment. Empowerment is a process by which people, organizations, and communities gain mastery over issues of concern to them (Cornell Empowerment Group, 1989; Mechanic, 1991; Rappaport, 1987; Zimmerman, Israel, Schulz, & Checkoway, 1992). It is a multilevel construct in which each level of analysis is interdependent with the others. Psychological empowerment refers to empowerment at the individual level of analysis (Zimmerman, 1990). For the context of this study, it is this individual level of analysis that is most appropriate as each of the two cases represent a micro-enterprise comprised of one person. The construct of psychological empowerment integrates perceptions of personal control, participation with others to achieve goals, and a critical awareness of the factors that hinder or enhance one's efforts to exert control in one's life (Zimmerman, 1995). In other words, psychological empowerment is not simply the belief that an individual can overcome barriers to independence, but also includes the individual's capacity and willingness to make such an effort. Psychological empowerment is an open-ended construct that may change in meaning from one population and context to another (Roesh & Golding, 1980; Zimmerman, 1995). Psychological empowerment has been conceptualized to include interpersonal, interactional, and behavioral components (Zimmerman, 1995). These are illustrated in figure 1 below.



**Figure 1. Disaggregation of psychological empowerment (Zimmerman 1995)**

The interpersonal component refers to how people think about themselves, and includes domain-specific perceived control and self-efficacy, motivation to control, and perceived competence. In the context of this current study, the interpersonal component relates to whether each micro-entrepreneur feels in control of their business through the use of IT. The interactional component of psychological empowerment refers to how people think about and relate to their social environment. It includes critical awareness, which refers to one's understanding of the resources, and skills for managing resources once they are obtained (Freire, 1973; Kieffer, 1984). The interactional component of empowerment also includes decision-making, problem-solving, and leadership skills. Therefore in the realm of this current study, the interactional component refers to the micro-entrepreneur's understanding and awareness of what and how IT can potentially benefit their business. It also refers to the micro-entrepreneur's ability to make decisions regarding IT. The behavioral component refers to the specific actions the individual takes to exercise influence on the social and political environment through participation in community organizations and activities. The behavioral component also includes coping behaviors such as managing stress and adapting to change. In the context of this current study, the behavioral component refers to a community aspect of microenterprises and their participation through social networking mechanisms to assist one another with either IT related or any other business activity related questions. This paper uses the above theoretical perspectives to assess current IT therapy initiatives in terms of their impact on micro-enterprises and how such initiatives may facilitate growth of these businesses and facilitate continued use of IT. The following sections delineate the process of IT therapy and discuss outcomes from current IT therapy initiatives to address the research question.

## METHODOLOGY

Action Research was used as the primary method to apply the IT therapy process. The IT therapy process can best be described as a very context-sensitive IT assistance process that involves applying innovative IT interventions to help micro-enterprises grow. The action research strategy can be understood as a cyclical process comprising of four major phases or activities. The *plan* phase involves the researcher meeting the micro-entrepreneurs to understand the context of the business

and the technology needs and problems facing the business. To obtain such an understanding, the researcher asks the micro-entrepreneur questions relating to their current business conditions, and what is currently obstructing them from reaching their business goals. The researcher also asks the owner as to how he/she feels towards technology and what if any form of technology they have used in their business. The next phase, which is the *act* phase, involves the actual technology-based implementations/interventions to solve any immediate IT problems that the microenterprise is facing. The *observe* phase involves the action researcher assessing the outcomes from implanting the interventions during the previous *act* phase. The final phase is the *reflect* phase, which deals with the action researcher reflecting on the impact that the IT interventions had on each micro-enterprise and whether their IT bottle-necks were cleared or not. This phase serves as a feedback loop for any necessary modifications that might need to take place in subsequent iterations of the action research cycle. The following sections report on two contrasting studies that show the effects of IT therapy in two micro-enterprises. These were selected because they are representative of the challenges faced by micro-entrepreneurs.

**STUDY OF A MICRO-ENTERPRISE THAT HAS BENEFITTED FROM IT THERAPY: REAL-ESTATE AGENT – RC**

Diagnosis	Planning	Intervention
-RC is a real-estate agent. -Marketing & advertising is by word-of-mouth -Recently bought a laptop -Not using due to lack of IT skills -Disinterest with technology.	-Wants to learn Publisher & QuickBooks -Learn basics of using his computer -Become productive in his business using the tools he has on his computer	1. Basic computer use 2. Publisher training 3. QuickBooks training.

**Observation:** Following is a description of the observations made in TC as the interventions were being carried out.

Immediate time savings in business activity resulting from learning how to handle simple IT task: It was seen that each time RC tried to upload a picture from his laptop to the multiple listing service website, the web browser prevented him from doing so by showing a pop-up message asking whether he wants to access the website which may contain a potential cause of a problem to his laptop. All RC had to do was click on the “Yes” choice but he just did not know what to do or read what the pop-up message was actually saying. On guiding RC to click on the “Yes” choice, he was able to upload the picture files onto the website. The issue of RC not being able to upload pictures to the website from his office previously is significant since he had to make a trip to a different location to upload the pictures. The travel time to accomplish this task used to take him approximately 45 minutes which meant that he was wasting that amount of time which he could have been spending being carrying out other business activities. On showing RC how to accomplish this simple task of uploading the pictures from his office has significantly improved his productivity since being able to upload picture files onto the Multiple Listing Service is a core component of being able to advertise his real estate properties. RC uploads picture files 2-3 times a week. As a result, two to three hours a week of traveling time has been saved from learning how to carry out this simple IT task from RC’s office.

**Implications for growth**

RC was contacted 4 months after the interventions described above were completed. Changes in RC’s operations and any changes in the owner’s perception and use of IT are given below.

Effects on business: By showing RC how to create folder and manage files on his computer, RC is much better organized. He mentioned that prior to receiving the IT assistance, he used to save documents haphazardly on his computer and so everything was unorganized. Having all his files more organized has saved him time in being able to locate the necessary documents and create reports for his business. Better file organization has also improved his efficiency in communicating with clients. It now takes RC less time in locating the necessary files that he needs to send to clients as attachments via email. Whereas previously this simple task would take up a significant portion of time since all his documents were not filed away on his computer systematically. It is therefore safe to conclude that the IT interventions in RC resulted in improved administrative efficiencies. The time savings obtained from such efficiencies may be used for targeting new clients or towards other crucial business tasks.

Effects on owner: RC mentions that after going through the IT assistance, he feels more confident. He now has a greater awareness of what IT can do for his business. On getting some exposure to some additional features in the publisher program, RC was very excited and was eager to learn new skills to be able to incorporate those into his business. He also mentioned that the better organization of the files on his computer has helped his self-esteem and made him more confident when he is dealing with clients since he is now able to locate and get to the right information on his computer whenever the need arises.

Following are portions of the transcript of the interview conducted with RC that show the effects that the IT interventions had on the micro-enterprise. The transcript portion extractions have been organized and categorized based on Qureshi’s (2005) Model of IT for Development categories of ICT effects.

**Administrative Efficiency**

<p>“...showed me how to organize my files better...”                  “...showed me to access to a website where you could use to do designs on the computer.”                  “...organizing my files, my archive, my computer helped me a lot.”                  “...I’m better organized and save me some time.”                  “Now I have a file for each of them.”</p>	<p>“...I have more time to deal with my clients.”                  “Looking for files took me a while before...now, I know where they are.”                  “...actually gives me some time.”                  “...don’t need to sit down and spend time looking for it.”                  “...my day is more effective...”                  “...I don’t have to spend much time looking for files.”                  “It’s easier to find the information I need.”</p>
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**Learning and Labor Productivity**

<p>“...learning that way by socializing.”                  “...I wanted to know it or to improve my knowledge about it in the case I need it.”                  “I like to learn.”                  “I didn’t learn as much as I wanted...”                  “...it actually opened my mouth like wow those are things and actually going to help me out or cool to learn.”                  “...organizing my computer...I don’t think I need more help now”</p>	<p>“...my day is...more productive...”                  “I saw that there are some other things to do in a design...”                  “It helped me to realize more things.”                  “I have used publisher after they left.”                  “Learning those additional features has helped me.”                  “...I’m 120% sure it is going to help me out if I learn more.”                  “I would like to learn...”</p>
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**Competitiveness and Access to New Markets**

<p>“...make me look more professionalized.”</p>	<p>“...can give me access to different profile of clients or prospects.”</p>
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**Access to Knowledge and Expertise**

<p>“...I need more knowledge...”</p>
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These transcripts reveal that RC was able to achieve the greatest benefits in terms of both administrative efficiencies and in learning. In addition, he realizes that there are a lot of features of technology that could help him manage his business more efficiently.

**STUDY OF A MICRO-ENTERPRISE THAT HAS BENEFITED LESS FROM IT THERAPY: BICYCLE SEAT MAKER – TC**

Diagnosis	Planning	Intervention
<p>-Manufactures custom padded seat cushions for spinner bikes                      -Started in 2007                      -Facing difficulty marketing product                      -Has several competitors</p>	<p>-Needs IT skills to be competitive on the web.                      -Existing website was not professional                      -Be able to update/maintain website                      -Use social networking sites to promote product.                      -Ability to create flyers and brochures</p>	<p>1. Redesigning the website                      2. Marketing through social networking                      3. Training</p>

**Observation:** Following is a description of the observations made in TC as the interventions were being carried out.

Frustration with IT: It was observed that while the owner was trying to attain the IT skills needed to use the online social networks, she experienced much frustration. It appears that the source of such frustration is that she has an underlying assumption that she is not intelligent enough to accomplish what she wants to do. Also adding to the problem was the owner’s tendency to quit when frustrated, especially if someone wasn’t there to help her. A change in the way the training intervention was being carried out was made to address the owner’s IT frustration issue. The original training intervention was based on the response that the owner had originally provided regarding her use of Internet chat rooms and she had also talked about her capabilities on AOL. Such responses had made the researcher assume that the owner’s web surfing skills were fair. But on working with the owner it became apparent that the Internet chat room experience she had was years ago, and the Internet has changed tremendously since then. Also, AOL is almost entirely self-contained. Subsequently, it was concluded that the owner didn’t have any experience with the web browser – Explorer was being used. Therefore, the training intervention was switched to a different method of learning and teaching IT skills. Every time, the owner ran into a stumbling block, researchers would talk the owner through the problem, and make an entry into a table, noting the program/website, the problem, and the step by step solution. It was a simple idea that worked very well. A copy of the table of problems and solutions was also sent to the owner after the researchers left, so she could have something to reference later.

Confidence builder from modified teaching/learning style: The new “holding-your-hand” style IT training seemed to be a great confidence builder for the owner. This was apparent during a session where she was being shown how to make a simple flyer in Publisher. The owner was at the computer and one researcher was providing a little over the shoulder guidance. It was clearly visible that when the owner was finished that it was a powerful experience for her, perhaps her most powerful yet. She needed a flyer, she had a vision of what she wanted, and one of the researchers showed her how to do it in ten minutes, with the other researcher taking copious notes of the steps. The owner was looking at a finished product that she had made herself, and the process hadn’t taken much time at all. The researchers felt that the owner was beginning to grasp her own possible capabilities on the computer, not just admire everyone else’s.

**Implications for growth**

TC was contacted 4 months after the interventions described above were completed. Changes in TC’s operations and any changes in the owner’s perception and use of IT are given below.

*Effects on business:* TC is now able to market the product in a more professional way than before. The products are better organized on the website and customers are able to make purchases online. TC is also able to reach more customers as a result of having the website. These changes make TC have greater access to new customers and improve its competitiveness. The owner states that TC now has a professional presence on the Internet will help to transform the business. The owner has been able to obtain information for the business by searching the Internet. Having registered on the various social networks has not had any impact on the business. The owner hasn’t explored the various features of those sites and has been unable to use them to market her product. A reason for this could be her disinterest in IT coupled with her fear of IT which restricts her from using IT more to benefit her business.

*Effects on owner:* She felt at ease and comfortable with the style of teaching. The owner states that after the interventions, she feels that she can do a task after trying it several times. She points out how this is very different from what she used to think before the intervention which was that she was literally scared that she would not be able to learn the IT skills – this has implications for the learning and improved labor productivity that occurred as a result of the interventions. Although she is still hesitant to use IT, she does realize that being a microenterprise, you need to be able to not only manage the business aspect but also the technical aspect of the business. In that context, she states that even if she doesn’t like IT, she needs to handle it. But she would rather hire an IT person and delegate that component of the business. The owner does however attribute the fact that she is somewhat more eager to adopt new IT because of the IT assistance she received – she gave the example of getting a new computer from her husband and how she has started using it. Her slight attitude shift may be summarized with the following quote *“I want to know how to do it and definitely look at it and know what’s going on but actual mechanical stuff just frustrates me if it doesn’t go right the first time. You know I’m trying to click on this and click on that. Although I’m doing a lot better because I used to think that if you click on the wrong thing it would mess up stuff, but now I know that I won’t learn unless I click on it - so I just click on it! But I would like to hire somebody that has the skills and mentality for IT.”*

Following are portions of the transcript of the interview conducted with RC that show the effects that the IT interventions had on the micro-enterprise. The transcript portion extractions have been organized and categorized based on Qureshi’s (2005) Model of IT for Development categories of ICT effects as shown in figure 1.

**Administrative Efficiency**

<p><i>“...put a name to each different pattern and so it’s great.”</i>  <i>“...having a website, will transform business...”</i></p>	<p><i>“...hasn’t impacted my day-to-day business operations yet.”</i></p>
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**Learning and Labor Productivity**

<p><i>“...learned how to get into...”</i>  <i>“...how to navigate...”</i>  <i>“...I was eager to learn how to do that...”</i>  <i>“...Was like a revelation to me.”</i></p>	<p><i>“...I was able to go to...”</i>  <i>“...I was able to print out...”</i>  <i>“...I was able to send...”</i>  <i>“I signed up some business thing...”</i></p>
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**Competitiveness and Access to New Markets**

<p><i>“...getting my product in a more business way now.”</i>  <i>“...website is very beneficial for you know people to see it...”</i>  <i>“...people can go there...”</i>  <i>“People can buy from the website...”</i></p>	<p><i>“...the website is there...”</i>  <i>“It has given me a presence.”</i>  <i>“...website helps me reach more customers.”</i></p>
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**Access to Knowledge and Expertise**

<p><i>“...that’s what I googled and all of this stuff came up...”</i>  <i>“...recently I do try to go to different stuff, just sign up.”</i></p>	<p><i>“...I got a lot of responses...”</i></p>
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The above transcript shows that as a result of having a website, TC now is more competitive and has access to greater customers for its products. In addition, the TC entrepreneur was able to experience a number of new IT skills that will help her manage her business. However, her fear factor continued to increase and she has not been able to utilize these effects to grow her business.

**ANALYSIS**

In this section, the immediate effects of the IT interventions that were applied in each of the micro-enterprise cases are illustrated. It is important to note that in a qualitative inquiry, there is a lot of data in textual format that results from carrying out open-ended interviews. Therefore, there is a need to summarize what the textual data is talking about. In order to

understand the transcribed interviews, a coding scheme suggested by Miles and Huberman (1994) was used to code the transcripts. The ICT effects outlined in Qureshi’s (2005) model were the basis for the codes. Codes from the coded interviews that were conducted with each micro-entrepreneur were counted and tabulated for each of the micro-enterprises in this study. Table 1 below summarizes the coded transcripts based on the IT for development codes for each of the micro-enterprises in the actual study. Although table 1 is just the summary of the IT for development codes in the impact assessment phase of the research, a couple of trends are seen to emerge: 1. Both the micro-enterprises had the majority of effects within the learning and labor productivity category; 2. One case had greater effects than the other from the IT interventions. In order to understand the reason behind this, a detailed case analysis is performed. The analysis is based both on the summary of the effects from the coding as shown in table 1 and on the observations made by the researcher. By basing the analysis of the data on the coding results and the observations enables the researcher to triangulate the findings. Triangulating the findings enables conclusions drawn from the case studies to be much more convincing and accurate.

Effects of IT interventions	Micro-enterprises		
	RC	TC	
<i>On the IT need identified originally</i>	Managing documents in a more efficient way	Marketing through redesigned website & social networking sites.	
<i>On Development</i>			
<b>AE:</b> Administrative Efficiencies	12	3	15
<b>AIK:</b> Access to information & knowledge	1	3	4
<b>ANM:</b> Access to new markets	2	7	9
<b>LLP:</b> Learning & labor productivity	<b>13</b>	<b>8</b>	<b>21</b>
<b>PR:</b> Poverty reduction	0	0	0
<b>Total number of effects per case</b>	<b>28</b>	<b>21</b>	<b>49</b>

**Table 1. Effects of IT Interventions on Development**

The following sections discuss the two cases separately – the one case that appeared to show more effects versus the case with comparatively fewer effects on development.

**The Case with more effects**

Based on the findings so far, a case is classified as successful by having high number of total effects as well as a high number of learning & labor productivity effects as seen in table 1. Further analysis of these cases based on the researcher’s observations showed that increased learning led to some of the other effects as outlined in table 1.

*Case RC: Real-estate Agent*

Based on the summary of effects in Table 1 and the researcher’s observations show that the greatest number of effects on development came about from the interventions in RC. Drilling further down, it is apparent that effects relating to increased learning and labor productivity were the highest amongst the types of effects in RC. In RC, an eagerness to learn helped the RC entrepreneur learn new IT skills to help him manage the business. Such eagerness in RC is evident in the following transcripts.

“...I wanted to know it or improve my knowledge about it in the case I need it.” “...I’m 120% sure it is going to help me out if I learn more.”	“I like to learn.” “I would like to learn...”
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As a result of the entrepreneur’s eagerness to learn, he was able to learn on multiple aspects as a result of the IT interventions. The first is learning basic computer skills such as being able to manage his computer and some of the software programs as the transcript below shows.

“...organizing my computer...I don’t think I need more help now.”	“I have used publisher after they left.”
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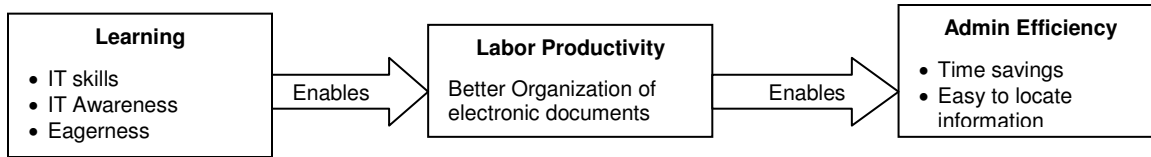
Through the IT interventions, he also learned that there were additional features to the software programs he has on his computer and as a result made him more aware about IT as illustrated below.

“...it actually opened my mouth like wow those are things and actually going to help me out or cool to learn.”	“It helped me to realize more things.” “I saw that there are some other things to do in a design...”
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As a result of the RC entrepreneur being able to learn basic computer skills, efficiencies became apparent in the business.

<p>“It’s easier to find the information I need.”                  “...I have more time to deal with my clients.”                  “...my day is more effective...”</p>	<p>“...my day is...more productive...”                  “...I’m better organized and save me some time.”</p>
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Subsequently, generalizing the effects evidenced, it can be said that in this particular case, through learning of basic computer skills, the entrepreneur was able to be more productive with his business operations, which led to greater administrative efficiencies. In addition, the RC entrepreneur also became more aware of IT and how it can help him in his business. This is summarized in the figure below.



**Figure 2. Relationship between effects in RC**

Each box in figure 2 shows in what ways the effects came about. Based on the summary of effects in table 3 and the researcher’s observations, the best assessment of what was happening revealed that as a result of the IT interventions in RC, the entrepreneur was able to learn basic computer skills to help him organize documents on his computer better. The better organization of files on his computer led to his being able to locate documents more easily and saved him time. It is also important to note that the IT interventions also allowed the entrepreneur to be more aware of IT by showing him additional features of programs that he already has and how they can help him in his business.

**Case with less effects on Development**

In table 1, it is seen that one of the case, TC showed comparatively less impact from the IT interventions that were applied to it. That case has been referred to as a less successful case. Further analyses of the case based on the researcher’s observations revealed that it tends to portray the following characteristics: 1. Lack of control of business through IT, and 2. limited learning which inhibits the achievement of other effects. The following sub-sections explain how the above characteristics come about from IT interventions in the case of TC.

*Case TC: Bicycle Seat Maker*

Based on the summary of effects in table 1 and the researcher’s observations, it is seen that the lower number of effects came about from interventions in TC. However, effects relating to learning and labor productivity appeared to be the highest amongst the types of outcomes in TC. It is therefore important to investigate further why the learning that took place in TC did not facilitate the achievement of the other development effects. The TC entrepreneur had learned basic computer skills which was evident through the following transcripts.

<p>“...learned how to get into...”                  “...how to navigate...”</p>	<p>“...I was able to print out...”                  “...I was able to send...”</p>
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However, the learning that occurred in TC, doesn’t seem to have any relation to effects on either administrative efficiencies or access to information and knowledge based on the researcher’s observations and the summary of effects in table 1 which indicated that both those category of effects had very low number of effects (3 each). Although there were some effects relating to access to new markets due to the new website that was built, the transcripts below reveal that those effects were not because of what the TC entrepreneur learned as a result of the IT interventions but were based on comments on what the website that was built by the students offered.

<p>“...website helps me reach more customers.”                  “It has given me a presence.”</p>	<p>“People can buy from the website...”                  “...website is very beneficial for you know people to see it...”</p>
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This then begs the question as to why the TC entrepreneur’s learning of new IT skills didn’t affect the achievement of any of the other development effects, as was the case with LL where the entrepreneur was able to do so much more with her learned skills and bring about a greater number of effects in the business. To help understand what happened in TC, we then need to look at some of the behavioral aspects that might have contributed to the cause. The baseline assessment that was carried out in TC revealed that the TC entrepreneur was very cautious and hesitant in using IT but had some realization that IT would help her business. This was evident through the following transcripts.

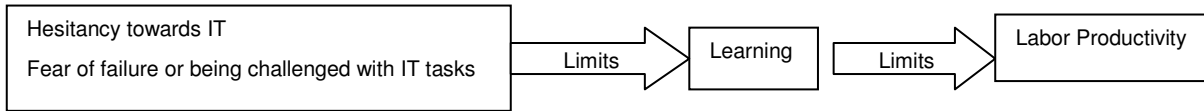


<p>“...I think that if I click on a button, everything is going to get messed up...”                  “...whatever I am doing with the technology is going to help...”                  “...If I don’t mess with it, then you know I’m not going to be challenged like that.”</p>	<p>“I don’t want to think that I can’t do it.”                  “...I’m pretty cautious.”</p>
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It is then important to get a sense of how and whether this hesitancy and cautiousness with IT may have been a factor in TC’s low number of effects. This may be assessed from statements that the TC entrepreneur made during the Impact Assessment that relate to any behavioral changes that she sees in herself after the IT interventions as opposed to before. Following are some statements that reflect such behavioral aspects.

<p>“...it makes me think I’m stupid.”                  “I have to do all these things even though I don’t want to.”                  “...I just get so frustrated.”</p>	<p>“...like to hire somebody that has the skills and mentality for IT...”                  “...actual mechanical stuff just frustrates me...”                  “I’m more creative and thinking of things than the technical stuff...”</p>
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The above statements coupled with the researcher’s observations reveal that the TC entrepreneur is still somewhat hesitant when it comes to using IT herself for her business. The entrepreneur has a fear of being challenged and discovering that she is unable to do a task. She wants to refrain from handling the technical components of her business involving IT. These statements enable us to understand what the low numbers mean and how they came about in table 1. As the above transcripts reveal, the hesitancy towards IT and the fear of failure to perform an IT related task restricted the TC entrepreneur from applying the IT skills learned from the IT interventions in her business. Therefore, few development effects were noticed in TC, a fact confirmed by the low numbers. The following figure illustrates this conclusion.



**Figure 3. Factors limiting learning & labor productivity in TC**

Based on the summary of effects in table 1 and the researcher’s observations, figure 3 shows that due to the TC entrepreneur’s hesitancy towards IT coupled with a fear of failure, limit the micro-entrepreneur from learning IT skills to apply to her business subsequently limiting labor productivity.

**GENERALIZING LEARNING EFFECTS TO PSYCHOLOGICAL EMPOWERMENT**

This section re-visits the concept of psychological empowerment construct and how it provides meaning to the learning effects seen in the cases. In order to get a deeper understanding of how the psychological empowerment construct and its dimensions frame the understanding of the learning effects that came about in the cases from IT interventions, the researcher’s observations coupled with transcriptions that relate to learning and labor productivity are investigated further.

For TC, it is important to note that although learning and labor productivity was the major development effect in the case, TC had the least learning and labor productivity. Learning in this case took place primarily in the form of improved IT awareness.

<p>“...I was eager to learn how to do that...”</p>	<p>“...Was like a revelation to me.”</p>
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Similar IT awareness was also evident in RC as follows.

<p>“It helped me to realize more things.”</p>	<p>“...it actually opened my mouth like wow those are things and actually going to help me out or cool to learn.”</p>
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The above transcripts illustrates the interactional component of psychological empowerment whereby the TC and RC entrepreneurs were empowered through critical awareness of what and how specific technologies may help each of the businesses to achieve. In this instance, improved IT awareness enabled the micro-entrepreneurs to have a better understanding of the resources that they may need to achieve better business operational objectives (Zimmerman, 1995; Freire, 1973; Kieffer, 1984). This is shown in the following figure 4. Figure 4 shows how the interactional component of psychological empowerment was achieved for the TC and RC entrepreneurs. The IT awareness becomes a part of the critical awareness that Zimmerman (1995) talks about, which deals with one’s understanding of the resources needed to achieve a desired goal, knowledge of how to acquire those resources, and skills for managing resources once they are obtained. In this study, the IT awareness gained by these micro-entrepreneurs enable them to know what and how new IT may benefit their business. According to Zimmerman (1995), developing critical awareness – in this case IT awareness - is needed to be effective in particular settings, or in other words, to become psychologically empowered.

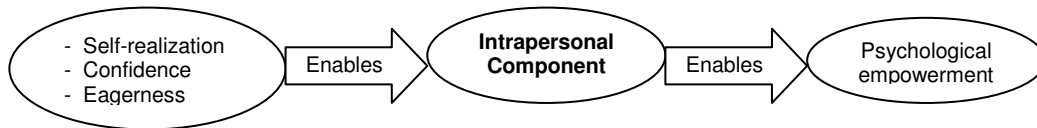


**Figure 4. Empowerment through IT Awareness**

In RC, an eagerness to learn had helped the RC entrepreneur to be able to learn new IT skills to help manage the business. Such eagerness in RC is illustrated through the following transcripts.

<p>“I like to learn.” “...I’m 120% sure it is going to help me out if I learn more.”</p>	<p>“I would like to learn...”</p>
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The above transcripts illustrate the intrapersonal component of psychological empowerment whereby the RC entrepreneur was empowered through an eagerness to learn on the part of the RC entrepreneur. Self-realization, confidence, and eagerness to learn relate to the intrapersonal component of psychological empowerment because they form the basis on which the RC entrepreneurs think about themselves and their ability to achieve desired outcomes, which are indicators of self-efficacy and perceived control within the intrapersonal component of psychological empowerment. Figure 5 below illustrates this effect.



**Figure 5. Empowerment through Self-realization, Confidence, & Eagerness**

Figure 5 shows how the intrapersonal component of psychological empowerment was achieved through the RC entrepreneur’s eagerness to learn as a result of the IT interventions. RC’s eagerness to learn may be interpreted as a form of motivation to control and their perceived competence (Zimmerman, 1995) to be able to have the ability to take control of their environment – which in this case are their respective businesses – thereby being psychologically empowered.

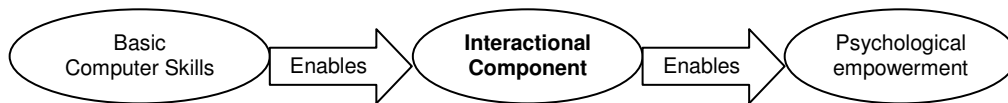
In TC, learning was also brought about through development of basic computer skills such as knowing how to navigate the internet and use of basic software packages

<p>“...I was able to print out...”</p>	<p>“I signed up some business thing...”</p>
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Similar outcomes were observed in RC.

<p>“...organizing my computer...I don’t think I need more help now.”</p>
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The above transcripts illustrate the interactional component of psychological empowerment whereby the TC and RC entrepreneurs were empowered through skill development so that they would be able to be in control in settings in which they become involved. This effect is shown in figure 6 below.

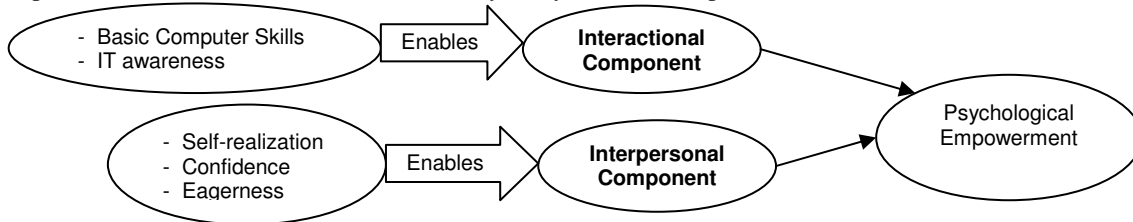


**Figure 6. Empowerment through Basic Computer Skill development**

Figure 6 shows how the interactional component of psychological empowerment was achieved through the TC and RC entrepreneur’s learning of basic computer skills. According to Zimmerman (1995), skills for managing and mobilizing resources are an essential aspect of the interactional component of psychological empowerment because it provides evidence of environmental mastery. The transcripts show that the TC and RC entrepreneurs were able to mobilize existing resources (their computers or specific software on their computers) and indicate that they have mastered the environment which in this study is the use of IT in their business and therefore becoming psychologically empowered.

Figure 7 below ties together everything discussed so far under psychological empowerment to show how the learning effects that came about as a result of the IT interventions relate to the broader generalized construct of psychological empowerment. However, it is important to note that we are not moving away from the actual case data. The connections as described through the transcriptions throughout this section show how the psychological empowerment construct is tied to the findings from the data obtained in this research. As illustrated in the above analysis, the IT interventions resulted in learning effects

that were mapped to the construct of Psychological empowerment. According to Zimmerman and Warschausky (1998), empowering processes provide individuals with opportunities to develop and practice skills necessary to exert control over their sociopolitical environment, and learn to critically analyze their sociopolitical environment.



**Figure 7. Learning Effects generalized to Psychological Empowerment**

In the context of this current study, the IT interventions that were applied in the two micro-enterprises may be viewed as a form of empowering process that resulted in micro-entrepreneurs 1. learning basic computer skills; 2. Gaining improved IT awareness; and 3. Increased motivation to control their business through self-realization, confidence, and eagerness to learn new skills. As the analysis from the above transcripts shows, these effects are mapped to the dimensions of psychological empowerment to show how the micro-entrepreneurs are psychologically empowered. These findings suggest that if micro-entrepreneurs can be empowered through context-specific interventions targeted towards their needs, they will be psychologically empowered and be in a position to feel confident and in control of their use of IT in their businesses. Through such empowering processes, future continued use of IT may be facilitated.

## CONCLUSION

This paper looked at two in-depth case studies to explain how micro-enterprises may be positioned for growth through the process of applying IT interventions targeted to their needs. The findings show that through IT interventions, micro-entrepreneurs were psychologically empowered through skill development and critical awareness enabling them to be positioned for positive cycles of growth. Since the analyses of the cases were generalized to the construct of psychological empowerment, it is then seen that such empowerment can be related as a means of enhancing the human capital of micro-entrepreneurs. Enhancing human capital through empowerment may help to mitigate the vulnerabilities that the micro-enterprises face and facilitate continued use of IT within these businesses to facilitate business process transformations.

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