A STUDY ON WORKER’S CAPABILITIES AND INNOVATIVENESS IN ICT SMEs

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**Abstract**

This research, it is a study on a worker’s capabilities and innovativeness in ICT SMEs. This research will be done in ICT Company at Klang Valley. The worker’s capabilities are widely known as the way to create some worker’s to innovativeness. Worker’s capabilities through the learning factors and training factors can create a new virtual way to improve their worker’s more innovate. Clearly, the emergences of information and communication technology (ICT) have been proved that it changed the way for conducting the success. Nowadays, as we know that the information and communication technology (ICT) is one of the fastest growing industries in the world. In order to enhance worker’s capabilities, learning factors and training factors widely used to analyze the relationship worker’s capabilities and innovativeness in ICT industry. A series of survey was conducted to collect data from respondents using quantitative method and the researcher objectives will be achieved and answering the research questions. Data were collected from 100 SMEs companies in ICT sector and the finding shows that there are positively relationships between experiential, teamwork, on job-training and e-learning factor towards worker’s innovativeness. From the results, it shows that the entire hypothesis was accepted based on the data analysis conducted.

*Keywords: Worker’s Capabilities, Learning Factors, Training Factors*

**1. Introduction**

1.1 Background of Study

SME’s industry was stands by itself to support and complete the developing of other sectors. It gives the advantage not only for the government but it also give advantage to private sector.

Nowadays, the SME’s mostly Malaysian SME’s are lack of resources such as their worker’s skills, expertise from their worker’s and capital for moving towards to technology. Moreover, to transform from the traditional business strategy to some a new strategy, it is too risky and very high challenging. Mostly, they failure to trained their worker’s to be more likely to adopting new innovativeness especially in terms of the learning and training among the worker’s.

The purpose of this study is to describe and briefly the questions based of the issues and the challenges in Information and Communication Technology (ICT) in the Small and Medium Enterprises (SME’s) in Malaysia. The related issue of a study on worker’s capabilities and innovativeness in ICT SME’s will synthesis to produce research objectives, problem statement or research question, literature review, research methodology and the assumption of the study.

1.2 Problem Statement of Study

There have several problems in exploring research related to the innovativeness among the worker’s in information and communication technology (ICT) SME’s. Research has indicated that workers of SMEs are a “disadvantaged group” in terms of training and learning. Smaller firms are interested only in the advantages for the owner/manager when training and learning is set up without consideration for the workers. SMEs are reluctant to find any kind of training and learning at all, means that workers miss out on the chances to improve their skills.

*Reference: Review articles from Development and Learning in organizations SME*

1.3 Research Question

In exploring the research related to the innovativeness among the worker’s in information and communication technology (ICT) SME’s, the study seeks to answer the following questions:

* What are the factors enhancing of worker’s capabilities in creating innovativeness worker’s?
* What are the relationship between worker’s capabilities and innovativeness in ICT SME’s?
* What is the provided learning and training opportunities in ICT SME’s?

1.4 Research Objective

* To identify the factors enhancing of worker’s capabilities in creating innovativeness worker’s.
* To analyse the relationship between worker’s capabilities and innovativeness in ICT SME’s.
* To investigate the provided learning and training in ICT SME’s.

**2. Literature Review**

2.1 Introduction

The purpose of this chapter, it is to summarize the previous work or new work on flow and the researcher discusses about the literature review where discuss about the theory and paradigm of the research study. Besides, to achieve the objectives of this study, the information mostly get from the resources gathered from the journals, books, online articles, thesis and other related. According to Corbin and Strauss, et Al., (2008), the purpose of your literature review is not to provide a summary of everything that has been written on your research topic, but to review the most relevant and significant research on your topic. If your analysis is effective, new findings and theories will emerge that neither you nor anyone else has thought about.

The primary purpose of this research is to identify the factors enhancing of worker’s capabilities in creating innovativeness worker’s and to analyse the relationship between worker’s capabilities in creating innovativeness worker’s. In this chapter, it is provided learning and training in ICT SME’s for worker’s innovativeness to provide the theoretical framework for the analysis.

2.2 Small and Medium Enterprises (SME’s) in Malaysia

Small and Medium Enterprises (SME’s) is an important role to become a catalyst of economic growth in Malaysia and SME’s stands by itself to support and complete the developing of others sectors. Besides that, SME’s also to be responsible to drive the innovation and competition in many economic sectors.

*“High-tech, knowledge-based industries will play a crucial part in our transformation*

*and future growth but we must not overlook the small and medium-sized businesses that*

*are the workshops of our economy”. ( Datuk Seri Najib Tun Razak [2013] ).*

Small and medium enterprises (SMEs) play a vital role in the Malaysian economy and are considered to be the backbone of industrial development in the country (Saleh and Ndubisi, 2006, Ramayah et. al., 2002).

Most SME’s perceived the barriers of implementing IT into their business operations as expensive, risky, complex procedure, lack of technical expatriate, and customer services (Yeung et al., 2003; Chong et. al., 2001; Pires and Aisbett, 2001).

According to Soh et al., (1997), if SME’s in Malaysia adopt the ICT, the potential commercial functions that could be performed include, marketing themselves both locally and globally, gathering business information and consumer feedback, providing customer support and conducting electronic transactions.

According to Lim (2006), most SME’s in Malaysia realize that ICT is critical to the productivity and performance of their companies. But, implementation and maintenance of these ICT systems is restricted due to inability to handle, owing to high staff turnover and lack of ICT project management expertise.

However, according to Tan (2006), argues that ICT in Malaysia is facing big challenges due to the slow adoption of technology by SMEs in Malaysia. He also suggests that SME’s must learn to adopt technology to increase their global competitiveness (Soosay et al., 2016).

2.2.1 ICT SME’s industry in Malaysia

Information and communication technology (ICT) is a process of information transmission and processing of information that can be considered part of the information society to disseminate new information. In addition, to compete in the knowledge economy, firms must have and need a strong ICT skills base among worker’s to innovate and adapt it quickly to meet the changing.

According to Kushwaha (2011), ICT is perceived to play a crucial role in transforming not only big but also SME’s and the rate of expansion of globalization has encouraged among other things the effective flow of data in organizations, which can only be facilitated by the use of ICT. ICT is important to SME’s because it will help develop the efficiency of the organization (Wen, King and Jaska, 2008). According to Schubert and Leimstoll (2007), a quantitative study regarding the co-relationship between ICT usage and SME’s business objectives and the result was positive.

Adoption of ICT is not only strengthen growth possibilities but also creating network with all other business in the world, can have cooperation, and can improve quality and knowledge ( Barba-Sanchez et al., 2007). According to Fink and Disterer (2006), ICT provides many potential benefits to organizations so as to make them more efficient, effective and competitive.

IT skills of the employee are related to their IT acquaintance, which in SME’s has a positive impact in relation to IT implementation (Fink, 1998; Lanz, 2002). It has been argued that employees are likely to accept and support IT projects if they are convinced of the advantage and are confident that they can use the IT (Davis, 1989). Training often has a positive impact on the attitude towards an IT system and the usage of it (Attewell, 1982; Love et al., 2001).

2.2.2 Worker’s Innovativeness in ICT SME’s

Worker’s innovativeness refers to the activities in which team control modes work together with team member’s creativity to influence the innovativeness of teamwork outcomes and a group of creative people should work together to successfully deliver (Abu et al., 2015).

The theory of the creativity and innovation, arguing that product innovations originate from the individual worker’s creative ideas Creativity refers to an individual coming up with new and useful ideas at work (Shalley et al., 2004).

According to Bharadwaj and Menon (2000), Successful innovations within organizations require not only individuals creativity, but also organization mechanisms to facilitate the implementation of new ideas (Abu et al., 2014).

2.2.3 Learning Factors

Learning most important to the worker’s to change for the better. Usually, through the learning they can transfer to appropriate and relevant contexts to do the best to compete with the other.

According to the Senge (1990), learning is where people continually expand their capacity to create the results they truly desire, where new and expansive pattern of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.

According to Illeris (2004), Learning is defined as the process through which an individual acquires knowledge, skills, attitudes and opinions. Learn can be made by means of two dimensions underlying the concept: what is learned (knowledge) and how it is learned (learning process) (Lopez, Peon and Ordas, 2005).

**Experiential** that is process of learning from direct experience where it comes from learning experience and it is individual learning process. In addition, experiential learning that is one makes discoveries and experiments with knowledge firsthand or hearing from someone experience or reading about others’ experiences. Through experiential learning the worker’s can understand overall learning experience from the others employee toward innovativeness to compete.

According the article University of Luton, UK (1997), the ideas for continuous improvements and innovation must come from those with knowledge and experience of the processes, activities and tasks within the organization.

According the article Ronald (1983), experiential learning theory as a framework for measuring the person and the job in the same language. In addition, it suggests other valuable uses such as increasing understanding of person-job match or mismatch, identifying peripheral skills in jobs and determining whether mismatched(over-or under qualified) person-job relationships result in different levels of performance or satisfaction.

According to the Ruth Moody(2012), Experiential learning is all about giving people the opportunity to experiment with a variety of techniques in different environments, indoors or outdoors, based on David Kolb’s cycle of learning.

David Kolb’s cycle of learning(1939):

Concrete

Experience

Observation

and

Reflection

Testing in

new

situation

Forming abstract

concepts

*Diagram 1: Kolb’s Experiential Learning cycle*

1. Concrete experience: where the learner actively experiences an activity such as field work.
2. Observation and reflection: where the leaner consciously reflects back the experience.
3. Forming abstract concepts: where the leaner attempts to conceptualize a theory of what is observed.
4. Testing in new situation: where the leaner trying to plan how to test a theory or plan for the forthcoming experience.

**Teamwork.** Creating a teamwork environment that is opportunity for maximizing worker’s through empowered teamwork and developed a team based on learning to make continuous improvements. Besides that, through the teamwork that is the strategy for getting a diverse group of people with different attitudes, skills and personalities to work together for achieve common goals. Moreover, by teamwork a group can brought together for a special purpose for example can create some innovativeness in the organization, new product development and etc. In addition, through teamwork may be expected they can plan, control and improve their worker’s capabilities toward innovative.

According to the theory Wellins (1991), team members work together to improve their operations, handle day-to-day problems, and plan and control their work. Hence, they are responsible not only for getting work done but also for managing themselves.

According to the theory Kraft (1990), the synergy between “best practice” and “motivated employees” resulted in a workforce capable of generating new and innovative ideas, within a teamwork environment.

According to Jones, Richard, Paul, Sloane and Peter (2007), Employee working within the team can produce more output as compared to individual

2.2.4 Training Factors

Training that is becoming a major interest area for the worker’s alike. In addition, through the training; it is the way the worker’s to improve and keep the valuable worker’s challenged for the quality of their works as they can compete with other in toward the innovativeness.

According to the theory Pfeffer (1994), believe that an organization’s competitive success is achieved through people. Then, the skills and performance of people are critical. Many of the organizations spend much money on training, believing that training will improve their employees’ performance and hence the firm’s productivity.

The workplace training can support employees not to fall behind in the constantly changing business market (Siti Hajar et al., 2014), but also to take part in tasks within their companies where innovation processes are involved (Beaver and Hutchings, 2005; Agostinho et al., 2002).

The training process becomes ever more complicated, while considering the changing structure of societies due to demographic changes as well as the changing habits of senior persons (in most studies referred to as “40 years and older”) towards learning and training (European Commision, 2006; Bocij et al., 1999).

Training provides significant advantage for both the company and the employee, as the innovation, instead of relying on external parties, is brought about and carried on by those who know the organisation’s history (Beaver and Hutchings, 2005)

**On Job-Training** for worker’s it helps increase and train workers while doing a job. In addition, on job-training is an ineffective training for workers because at the same time, they can do the same job and not acquire appropriate social skills. By doing this on job-training among worker’s it gives more benefits for the firm and worker’s especially to improve of knowledge transfer and low cost.

According to Neville (2004), small businesses usually use on-the-job training because of its low cost and the knowledge transfer increase.

**E-Learning** is to enhance the skills and capabilities of worker’s of SME’s in the technical and managerial levels. By using e-Learning training, it helps to train the worker’s to capitalize on their knowledge and skills.

Other than that, e-Learning is a learner-focused that is approach use at new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services, as well as a remote exchanges and collaboration.

According to Abram (2003) e-Learning also can be define as the basically using the internet, an intranet, an extranet or other Web technologies to provide the training for individuals in synchronous or asynchronous mode.

According to Welsh, Wanberg, Brown and Simmerin (2003), E-Learning as the use of computer network technology, primarily over or through the internet, to deliver content (learning knowledge and skills)

E-Learning uses information and communication technologies (ICTs) to deliver content (learning, knowledge and skills) on a one way (asynchronous or two-way (synchronous) basis (Conference Board of Canada, 2001).

Furthermore, the e-Learning also helps to reduce employee training time and it also can improve employee productivity. In addition, e-Learning is very efficient, flexible and time effective mode of training. E-Learning a faster distribution of training materials and a more consistent delivery of course contents (Rosenberg, 2002).

**3. Research Method**

The researcher will use the quantitative methodological as the data and the information collection. By using quantitative method it is deductive approach and all about theory testing. In addition, it also uses a standard format, with a few minor inter-disciplinary differences, of generating a hypothesis to be proved or disproved.

Moreover, a quantitative should only manipulate one variable at a time or statistical analysis becomes cumbersome and open to question. The researcher want to study the relationship innovativeness worker’s between variable of learning factors and training factors and will use statistical analysis that will test the hypothesis of the research. Data in the questionnaire produce use numerical and numeric stages that represent each scale of number.

3.1 Location of Research

Scope of this study is among the workers in ICT industry. In addition, location for this study was conducted at Klang Valley and the selected locations are according to the title of the research study, which workers in ICT industry as respondents to answer the questionnaire.

3.2 Research Design

Research design is a general plan of the way on answering the research questions.

According to Saunders et al., (2012) research design is the frame work for the collection and analysis of data to answer research question and meet research objectives providing reasoned justification for choice of data sources, collection methods and analysis techniques. To answering the research questions, prepared questionnaires to get the data. However, all of the design used is still in range of iron triangle.

In this study, the researcher was chosen survey research by the explanatory studies. An explanatory study is a causal relationship between variables emphasizes on studying a situation, which it is to explain the relationship between variables. Other than that, explanatory studied has been quantitative in nature and has typically tested prior hypotheses by measuring relationships between variables; the data are analyzed by using statistical techniques. This term is sometimes used synonymously with experimental research, with the implication that only experiments are capable of answering causal questions.

**4. Results**

4.1 Background of Respondent

Table 4.1 Background of Respondents

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item Content | Frequency | Percentage (%) |
| Gender | Male | 56 | 56.0 |
|  | Female | 44 | 44.0 |
|  | Total | 100 | 100 |
| Race | Malay | 53 | 53.0 |
|  | Indian | 5 | 5.0 |
|  | Chinese | 34 | 34.0 |
|  | Others | 8 | 8.0 |
|  | Total | 100 | 100 |
| Age | 18-25 years old | 15 | 15.0 |
|  | 26-30 years old | 43 | 43.0 |
|  | 31-40 years old | 29 | 29.0 |
|  | >40 years old | 13 | 13.0 |
|  | Total | 100 | 100 |
| Academic Level | SPM | 2 | 2.0 |
|  | Diploma | 29 | 29.0 |
|  | Degree | 54 | 54.0 |
|  | Master/Ph.D | 15 | 15.0 |
|  | Total | 100 | 100 |
| Years of Services | 0-1 years | 7 | 7.0 |
|  | 1-2 years | 7 | 7.0 |
|  | 2-5 years | 52 | 52.0 |
|  | >5 years | 34 | 34.0 |
|  | Total | 100 | 100 |

Based on the table given, 56% of the respondent in the ICT SMEs Company are male, while the other 44% are female. It can be conclude that a total of male respondents are more than female who are participated in this survey. These race groups are Malay, Indian, Chinese and others. Based on the race results, the highest frequencies of respondents are from Malay ethnicity, which accounted for 53% of the respondents. This is followed by second highest race, which are the Chinese with 34% respondents, while the third race from others with 8% respondents. Then the lower race is from Indian ethnicity with 5% respondents only. Results for age shows that, 43% of the respondents are between 26-30 years old, while the other 29% are 31-40 years old, 15% are from 18-25 years old and the remaining13% are between 40 years and above. It can be conclude that the most respondents are between 26-30 years old. The results for academic level shows that, the highest respondents 54% have Bachelor Degree, which indicates that most of the participants are well educated and would be appreciate the importance and relevance of this research. This is followed by 29% respondents have Diploma, 15% respondents have Master or Ph.D participating in this survey and 2% respondents who Sijil Pelajaran Malaysia (SPM). The results for years of services of the respondents shows that 52% of the respondents have 2-5 years of services, while 34% of the respondents have 5 years and above of services. Other than that, 7% of the respondents come from 0-1 years of services and 1-2 years of services at the company.

4.2 Correlation Analysis

Table 4.2 SPSS Output of Pearson Correlation between Experiential, Teamwork, On Job-Training, E-Learning and Worker’s Innovativeness (Source: Data Analysis of SPSS)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | EXPERIENTIAL | TEAMWORK | ON JOB-TRAINING | E-LEARNING | WORKERS INNOVATIVENESS |
| EXPERIENTIAL | Pearson Correlation | 1 | .794\*\* | .549\*\* | .810\*\* | .541\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 |
| N | 100 | 100 | 100 | 100 | 100 |
| TEAMWORK | Pearson Correlation | .794\*\* | 1 | .944\*\* | .985\*\* | .931\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 |
| N | 100 | 100 | 100 | 100 | 100 |
| ON JOB-TRAINING | Pearson Correlation | .549\*\* | .944\*\* | 1 | .915\*\* | .986\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 |
| N | 100 | 100 | 100 | 100 | 100 |
| E-LEARNING | Pearson Correlation | .810\*\* | .985\*\* | .915\*\* | 1 | .902\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 |
| N | 100 | 100 | 100 | 100 | 100 |
| WORKERS INNOVATIVENESS | Pearson Correlation | .541\*\* | .931\*\* | .986\*\* | .902\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  |
| N | 100 | 100 | 100 | 100 | 100 |

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Correlation is a degree and type of relationship between any two or more quantities (variables) in which they vary together over a period. A positive correlation exists when high values ​​of the variables associated with high values ​​of other variables. While a negative correlation exists where one variable associated with low values ​​of other variables. There is significant strong relationship exists between experiential learning factor and worker’s innovativeness in ICT SMEs (r = 0.541, p < 0.05). This result of the correlation indicates that higher experiential learning factor scores associated with worker’s innovativeness in ICT SMEs. There is a significant positive relationship exist between teamwork learning factor and worker’s innovativeness in ICT, where (r = 0.931, p < 0.05). This result of the correlation indicates that higher experiential learning factor scores associated with worker’s innovativeness in ICT SMEs. There is a significant positive relationship exist between on Job-Training factor and worker’s innovativeness in ICT, where (r = 0.986, p < 0.05). This result of the correlation indicates that higher on job-training factor scores associated with worker’s innovativeness in ICT SMEs. There is a significant positive relationship exist between e-learning factor and worker’s innovativeness in ICT, where (r = 0.902, p < 0.05). This result of the correlation indicates that higher on job-training factor scores associated with worker’s innovativeness in ICT SMEs.

4.3 Reliability Statistic

Table 4.2 SPSS Output of Reliability Statistics (Source: Data Analysis of SPSS)

|  |  |
| --- | --- |
| **Reliability Statistics** | |
| Cronbach's Alpha | N of Items |
| .972 | 20 |

The table 4.2 shows the reliability test of this research. There are one dependent variable and four independent variables. The dependent variable is worker’s innovativeness and independent variables are experiential, teamwork, on job-training and e-Learning. The Cronbach’s Alpha of this research is 0.972 which it shows that good and high reliable research.

4.3 Simple Regression Analysis

Regression analysis had been conducted to see the relationship between all the variables and dependent variables. Other than that, regression analysis also had been used to test hypothesis of this research and the results will show either the result of this hypothesis is accepted or not.

Table 4.3 The Model Summary and Coefficients of Experiential, Teamwork, On Job-Training and e-Learning (Source: Data Analysis of SPSS)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model Summary | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .541a | .293 | .285 | .45761 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficientsa | | | | | | |
| Model |  | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 1.405 | .460 |  | 3.054 | .003 |
| Experiential | .642 | .101 | .541 | 6.367 | .000 |

Based on the table above, the researcher used regression analysis to look at which factors are enhancing worker’s capabilities in creating innovativeness worker’s. The result shows that the r value 0.541 and the r² value are 0.293. It shows that this factor has weak relationship between experiential learning factor to worker’s innovativeness (r²=0.293) because it is not approaching the value of one. It means that, only 29% of the experiential learning factor that been adopt to worker’s innovativeness in ICT SME’s.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model Summary | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .928a | .861 | .860 | .20258 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficientsa | | | | | | |
| Model |  | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | -.206 | .185 |  | -1.115 | .268 |
| Teamwork | 1.033 | .042 | .928 | 24.676 | .000 |

Based on the table above, the researcher used regression analysis to look at which factors are enhancing worker’s capabilities in creating innovativeness worker’s. The result shows that the r value 0.928 and the r² value are 0.861. It shows that this factor has strong between teamwork learning factor to worker’s innovativeness (r²=0.861) because it approaching the value of one. It means that, 86% of the teamwork learning factor that been adopt to worker’s innovativeness in ICT SME’s.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model Summary | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .986a | .973 | .972 | .08990 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficientsa | | | | | | |
| Model |  | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | .214 | .070 |  | 3.058 | .003 |
| On Job-Training | .949 | .016 | .986 | 3.058 | .000 |

Based on the table above, the researcher used regression analysis to look at which factors are enhancing worker’s capabilities in creating innovativeness worker’s. The result shows that the r value 0.986 and the r² value are 0.973. It shows that this factor has strong between on Job-Training factor to worker’s innovativeness (r²=0.973) because it approaching the value of one. It means that, 97% of the on Job-Training factor that been adopt to worker’s innovativeness in ICT SME’s.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model Summary | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .902a | .814 | .812 | .23478 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficientsa | | | | | | |
| Model |  | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | -1.066 | .261 |  | -4.080 | .000 |
| e-Learning | 1.203 | .058 | .902 | 20.695 | .000 |

Based on the table above, the researcher used regression analysis to look at which factors are enhancing worker’s capabilities in creating innovativeness worker’s. The result shows that the r value 0.902 and the r² value are 0.814. It shows that this factor has strong between on Job-Training factor to worker’s innovativeness (r²=0.814) because it approaching the value of one. It means that, 81% of the e-Learning factor that been adopt to worker’s innovativeness in ICT SME’s.

**5. Conclusion**

5.1 Discussion

From the results in data analysis and findings, all the research objectives of this study were answered and achieved. It was also supported by the previous research that will be discussed in the discussion part. Besides that, based on the frequency analysis, this study presents the respondents in different demographic groups (gender, race, age, academic level and years of services).

Based on the data analysis, it shows that there is positively relationship between the independent variables (experiential, teamwork, on job-training and e-learning) and the dependent variables worker’s innovativeness in ICT SME’s.

In addition, from the results findings, the researcher find that teamwork is the best independent variable to the worker’s innovativeness. Besides that, teamwork learning is very suitable learning for workers in ICT SMEs to create the innovativeness workers and it is the good way for workers to perform and share their creativity and ideas with each others.

Moreover, even it is ICT SMEs, but e-Learning is not the suitable training for workers to upgrade their knowledge and skills. This is because e-Learning is difficult to applied at ICT SMEs and it is required more costs to provide training for the workers. Other than that, ICT SMEs also lack of funds to provide e-Learning training for every workers.

5.2 Limitation

From the results in data analysis and findings, all the research objectives of this study were answered and achieved. It was also supported by the previous research that will be discussed in the discussion part. Besides that, based on the frequency analysis, this study presents the respondents in different demographic groups (gender, race, age, academic level and years of services).

Based on the data analysis, it shows that there is positively relationship between the independent variables (experiential, teamwork, on job-training and e-learning) and the dependent variables worker’s innovativeness in ICT SME’s.

In addition, from the results findings, the researcher find that teamwork is the best independent variable to the worker’s innovativeness. Besides that, teamwork learning is very suitable learning for workers in ICT SMEs to create the innovativeness workers and it is the good way for workers to perform and share their creativity and ideas with each others.

Moreover, even it is ICT SMEs, but e-Learning is not the suitable training for workers to upgrade their knowledge and skills. This is because e-Learning is difficult to applied at ICT SMEs and it is required more costs to provide training for the workers. Other than that, ICT SMEs also lack of funds to provide e-Learning training for every workers.

5.3 Recommendation

Based on the studies that have been made, there are some suggestions that I would like to expose to further research that may help other researchers to undertake research that is more stable results in the study.

There is a need for further research in this sector because SME’s is vital role for Malaysia economy. It is not only focus on learning and training programs among the worker’s to create the innovativeness worker’s but also must focus on others aspects of factors that lead to enhancing of worker’s capabilities in creating innovativeness worker’s. So, in order to enhance worker’s capabilities among workers in ICT SME’s some initiatives should be taken.

In addition, for the future research the researcher can try the other sector apart from ICT SME to proposed worker’s capabilities and innovativeness in different SME sectors.

Lastly, before this researcher using quantitative research to get the data collection to complete this project and for the future research, the researcher was recommending by using qualitative research to get more information to complete the data collection.

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**References**

Abu, F., Jabar, J., & Yunus, A. R. (2015). Modified of UTAUT Theory in Adoption of Technology for Malaysia Small Medium Enterprises (SMEs) in Food Industry. *Australian Journal of Basic and Applied Sciences*, *9*(4), 104–109.

Abu, F., Yunus, A. R., Majid, I. A., Jabar, J., Aris, A., Sakidin, H., & Ahmad, A. (2014). Technology Acceptance Model (TAM): Empowering Smart Customer To Participate in Electricity Supply System. *Journal of Technology Management and Technopreneurship*, *2*(1), 85–94.

Akhila Kunche, R. K. (2012). Analysis and Evaluation of Training Effectiveness. In *Human Resource Management Research* (pp. 1-7). India: Scientific & Academic Publishing.

Aldi. (1995-2015). On Job-Training. In B. C. Study, *Business Expansion through training and development.* England.

Alam, S. S. (2009). International Journal of Business and Management. In *ICT Adoption in Small and Medium Enterprises : Empirical Evidence of Service Sectors in Malaysia.*

Andrea. (2011). Education and Training Practice Strategies in Small and Medium Sized. In I. C. Intelligence. pp. 65-68

Bacal, R. (2007, June). *The Training and Development World*. Retrieved from: http://thetrainingworld.com/resources/Experiential\_Learning/

*Building a Sense of Teamwork Among Staff Members* American Management Association. Retrieved from: http://www.amanet.org/training/articles/Building-a-Sense-of-Teamwork-Among-Staff-Members.aspx

Emerald, (2006), "Does training benefit the SME employee?", Development and Learning in Organizations: An International Journal, Vol.20 lss 2 pp. 19-20.

Guan, L. K. (2004). *The Impact of Employee Training Programme on The Performance of SME in Northen Malaysia.* pp. 1-7.

Li, A. Y. (2011). Training Strategies in Small and Medium-sized Enterprises from the Perspective of Technology Innovation. *Journal of Management and Strategy* , Vol. 2, pp. 70-72.

Marriot, R. L. (2006). *Entrepreneurship and Innovation.* Butterworth-Heinemann.

Marinos Themistocleous. (2008). TRAINING SENIOR EMPLOYEES FOR ICT SKILLS . In E. a. Systems. pp. 1-10.

Moody, R. (2012). Experiential learning – creating learning experiences with business impact. Emerald Insight.

Roy, A. (2011). E-Learning: is it also for Small and Medium-Sized Enterprises or only for Larger Organizations. pp. 1-6.

Saunders, M. (2012). *Research Method For Business Students*. Pearson.

Siti Hajar, M., Norfaridatul Akmaliah, O., Juhaini, J., & Izaidin, A. M. (2014). Customer relationship management practices: the impact on organizational performance in SMEs of food manufacturing industry. *European Journal of Business and Management*, 35-48.

Sonnenreich, W. (2015). *5 ways experiential learning can develop top talent*. Retrieved from: http://first5000.com.au/blog/5-ways-experiential-learning-can-develop-top-talent

Soosay, C., Nunes, B., Bennett, D. J., Sohal, A. S., Jabar, J., & Winroth, M. (2016). Strategies for sustaining manufacturing competitiveness Comparative case studies in Australia and Sweden. *Journal of Manufacturing Technology Management*, *27*(1), 6–37. https://doi.org/10.1108/JMTM-04-2014-0043

Span, S. (2013). *Promoting Teamwork*. Retrieved from: http://www.eremedia.com/tlnt/is-it-possible-to-nurture- and-promote-teamwork

Sulaiman, M. (2011). Organizational Learning, Innovation and Performance: A Study of Malaysia Small and Medium Sized Enterprises. *International Journal of Business and Management* , pp. 118-121.

White, G. (2008). *Teamwork Training Ideas* : Standford Business Executive Education. Retrieved from: http://yourbusiness.azcentral.com/teamwork-training-ideas-21315.html

Wilfried, M. a. (2003). ICT support for workplace learning:. *eLearning in Small and Medium Enterprises (SMEs)* .

Z.Irani J.M. Sharp M.Kagioglou, (1997),"Communicating throughbself-directed work teams (SDWTs) within an SME learning organization", Journal of Workplace Learning, Vol.9 lss 6 pp. 199-205.