EVALUATING ERP USAGE BEHAVIOR OF EMPLOYEES AND ITS IMPACT ON THEIR PERFORMANCE: A CASE OF UFONE

Researcher:

Saima Kanwal
Reg. No.7-FMS/MSTM/F07

Supervisor:

Dr Irfan Anjum Manarvi

Department of Technology Management

Faculty of Management Sciences

INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD

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Saima Kanwal
Reg. No 7-FMS/MSTM/F07

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Dr Irfan Anjum Manarvi

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Abstract

Acceptance and use of information system remained an important concern for practitioners and theorist. This study explored the literature relevant to the acceptance, usage behavior and adoption of Enterprise Resource Planning (ERP) system by the users in developed as well as in developing countries. Performance expectancy, effort expectancy, social influence, facilitating condition, project communication, training, top management support and self efficacy were found frequently used factors to investigate the ERP usage behavior of employees of a telecom, manufacturing, oil and gas, engineering, government and service sector industry. This proposed model is implemented in Ufone Pakistan to explore the employee's usage behavior toward use of ERP system. Further the study explores the impact of behavior intention toward use of ERP system on the employees' performance.

The population of this study was Ufone employees who were using ERP system. A questionnaire based survey was administered personally on 300 Ufone employees who were using ERP system. In response to the survey, 255 valid responses were received. The response rate was 85%. Among the respondents, 71% were male while 29% were female.

The finding indicates that the proposed model over all explains 71% variation in the behavior. Performance expectancy, self efficacy, training, and top management support were significant factor for explaining the user behavior toward use of ERP system. Self-efficacy was the strongest predictor to explain the usage behavior toward use of ERP system. Effort Expectancy shoes a negative impact on behavior intention.

Facilitation condition and social influence shows a week impact on behavior intention Further, the model explains that male and female perceive performance expectancy and effort expectancy related to ERP usage differently while effort expectancy related to ERP usage also vary among age and experience groups. Mostly respondents agreed that they likey the idea of using ERP system and they want to become professional in ERP system. The positive usage behavior shows 54% variation in the performance of employees. Eighty eight percent respondents says that ERP system has increased their professional competence for organization while 78% respondents were having opinion that ERP system has positive impact on their effectiveness and productivity in their job.

This research will help the telecom organization management to understand the factors responsible for the employee's behavior toward use of ERP system. And the impact of the positive usage behavior on the performance of employees.

It is recommended that same types of studies may be conducted on other telecom organization in Pakistan where ERP is implemented

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CHAPTER 1

1 Introduction

Information Communication Technology (ICT) refers as to electronic computer based technology where information is accessed and used in electronic format using computers (Angello & Wema, 2010). Accurate and timely information in electronic form is a precious asset for an organization. Planning and decision making functions are highly dependent on electronic information. With the growth in use of Information Technology by organizations, user acceptance of information system has becomes an important management issue for better management of resources and needs.

Enterprise Resource Planning (ERP), is a computerized system. It provides centralized business processes and functions in a company. Its implementation requires extensive financial and personnel resources. In some cases, organizations fails to attain benefits from the system. One common reason for the failures of ERP system is reluctance of end users to use the system. Therefore, understanding of end users toward ERP systems is essential for its success (Sun, Bhattacherjee & Ma, 2009).

ERP deployment in an organization does not bring any change to the functions. It is beneficial if end user use it in his/her job. ERP system is often criticized due to its complexity. Using system by users is a likeness of the acceptance of the technology .There are many factors which can influence the information system use. If organization fails to achieve level of use of system, the system is not considered successful. Hence, the

aim of managers while implementing ERP system is to achieve the targeted level of use of system by end users (Gymph, 2007).

Organizations are recognizing that user satisfaction about use of system is important determinants of the success of systems (Downing, 1998). The theorist and practitioners, exploring the acceptance of user toward information system have developed many models and theories (Ajzen, 1991; Venkatesh, Morris, Davis & Davis, 2003; Clarke, 1999; Thompson, Higgins, & Howell, 1994; Davis, 1989).

Kazmi, (2008) found role of strategic IT planning, executive and managerial commitment, IT skills, business process skills, ERP training and learning are very important in successful ERP implementation. Further he stated that the gap between ERP users experience and skills are need to bridge by conducting successful training for employees.

Organizational performance is dependent on individuals' task completion. By the rapid growth in use of computers in organizations, practitioners are constrained to investigate the impact of information technology acceptance on individuals' performance (Huang & Wang, 2009; Law & Ngai, 2007; Nah , Lau, & Kuang 2005; Ramayah & Lo, 2007; Vosburg & Kumar, 2001; and Igbari & Tan, 1997).

1.1 Problem Statement

Technology acceptance research has now become a mature. Scholars and practitioners have investigated ERP usage behavior in subject sectors like telecommunication, oil and gas, manufacturing, government and finance sector (Al-Jabri & Al-Hadab, 2008; Anjum & Rehman, 2010; Arunthari & Hasan, 2005; Baray, Hameed,

& Badiil, 2006; Bueno & Salmeron, 2008; Calisira & Calisir, 2004; Chang, Cheung, & Cheng, 2008; Chung & Snyder, 2000; Davenport, 1998; Govindaraju, Maathuis, Bruijn , 2008; Holland, Light, 1999; Gumussoy, Calisir, & Bayram, 2007; Gyampah, 2007; Zhang, Huang, Zhang, Huang, 2005; Hossain, Patrick, Rashid, 2002; and Shih, 2006). Acceptance and use of information system has always remained a debatable topic. According to Rajapakse, and Seddon (2005) ERP adoption rate in developing countries of Asia is very low. The positive ERP usage behavior leads to job completion on time, which improves the employee's performance. According to Vankatesh et al (2003), diminutive research has concentrated on the user acceptance of complex system and individual or organization usage outcomes.

In order to get benefit from system there is a need to find out the factors, which can affect the behavior for using ERP system. Ufone Islamabad implemented ERP system in 2008 (Husaini, personal communication, October, 5 2009). However, no study has been conducted yet on ERP systems usage behavior of Ufone employees. This research seek to investigate ERP system usage behavior among Ufone employees and its impact on their performance.

This study will explore the variables from literature that have its influence on ERP system usage behavior in developed and developing environment. Further It will incorporate these variables in local environment to find out which variable is more influential in using ERP system by the employees of Ufone.

1.2 Research Questions

This research uses a framework, which is developed on the basis of model and theories of individual acceptance of technology to identify the usage behavior toward use of a complex technology (ERP system). The following research questions about usage behavior of employees have been answered.

Q.1 To what extent the factors explored from literature measure the behavior intention toward use of ERP system of Ufone employees?

Q.2. What is the impact of employee's ERP usage behavior on their performance?

1.3 Research Objectives

The objectives of this research are to investigate:

- Factors effecting ERP usage behavior among employees
- Impact of ERP usage behavior on employee's performance

1.4 Expected Contribution of Research

This research will give an understanding for Ufone management to know factors responsible for an employee's behavior toward use of ERP system. The research may be help full to make policies for minimizing the user resistance toward change. The second part of the research provides information about the impact of ERP usage behavior on employee's performance.

1.5 Limitations of the Study

The scope of this study was limited to one telecom organization i.e. Ufone. In addition, the only employees working on ERP system in Ufone- Islamabad offices were taken as population.

1.6 Organization of The Study

Chapter one provides information about study background, problem statement, objectives, research questions and expected contribution of research

Chapter two reviews the literature on "ERP usage behavior and its impact on individual performance". Also offers introduction to the ERP and its evolution and implementation. Numerous research theories related to individual acceptance of technology have also been included. On the basis of these models a theoretical model is also proposed.

Chapter three presents company profile, organization structure and information about ERP implementation at Ufone Pakistan.

Chapter four illustrates research design, data collection and analysis of collected data

Chapter five presents statistical results of the study and explains analysis of data collected through survey questionnaire of Ufone employees

Chapter six provides a summary of the study, conclusion and recommendations.

The appendices contain data collection instrument.

A reference list of information sources used in the study is provided at the end .

CHAPTER 2

2 Literature Review

This chapter consists of four parts. First part gives a summary of ERP and its implementation in developed as well as developing countries. Second discusses issues related to adoption and user acceptance of ERP system by examining different models of user acceptance and behavior related to ERP system. Third explores factors about ERP usage behavior. Fourth discusses the impact of ERP system on individual performance.

2.1 Enterprise Resource Planning

ERP is integrated system. It is used to manage organizational business functions. (Shehab, Sharp, Supramaniam, & Spedding, 2004).

The ERP has defined by "American Production and Inventory Control Society ,2001" as follow:"It is a method for the effective planning and controlling of the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company."

During 1960s, business firms started to implement centralized computing systems. These systems were initially called Manufacture Resource Planning (MRP) systems. MRP systems computerized an organization's inventory. In 1980's Manufacturing Resources Planning II (MRP II) started its function. It integrated materials with production requirement in order to optimize manufacturing processes. MRP II includes distribution, project, finance, engineering and HRM (Hossain et al, 2002).

During 90's, ERP systems became popular for information management technology in business world. Practitioners in favor of integrated system believed that an

ERP system combines business processes and Information Technology into one system. This feature was not available in MRP and MRPII (Chung & Snyder, 2000).

ERP systems are now major IT investments of an organization. According to Sun et al (2009), organizations have been investing millions of dollars on IT implementation like ERP system they expect significant operational and performance gains from these implemented system. It is forecasted that by 2010 the ERP business will reach up to US$ 1 trillion (Hunter & Lipert, 2007).

2.2 ERP Adoption and User Acceptance

Employees of organization play key role in a company. ERP implementation in an organization can only be beneficial if the employees use it in their working environment. Now a days it is essential to manage the knowledge of employees of an organization. To get maximum benefits from knowledge resources, the employees must be able to understand new technology and its application in their organization (Park, Suh, & Yang, 2007).

Bueno & Salmeron (2008) in their study concluded that ERP systems are multifarious tools. Due to this, it is possible that it will create a negative impact on the acceptance toward the system by users.

To make ERP system successful it should be compatible with a job and understanding of end user. It is essential that end user accept the system. There is a need to guide end users about the benefit of ERP system in their job as well as for overall organizational productivity (Nah et al, 2005; Mashari, 2003).

ERP systems are very expensive and complex business solutions and require special efforts to identify factors during implementation. The employees need to acquire new skills and knowledge to use this system. For minimizing the risk of "lack of user acceptance" before, during and after ERP projects implementation, an organization should provide proper training and knowledge of ERP system to end users (Saatçıoğlu, 2007; Zviran, Pliskin, & Levin, 2005; Vlahos, & Ferrattt, 1995).

Seymour, Makanya, and Berrange, (2007) stated that success of implementation should be measured by end- users. It is more difficult to create the user acceptance toward newly implemented software system like ERP than the actual implementation of ERP. The implementation of ERP systems requires huge expenditures, time frame, and organizational commitment. It is required to evaluate the factors which have impact on the use of technology (Gyampah, 2007).

The implemetation of ERP requires special attention. McAdam & Galloway (2005) while discussing the issues in implementation of ERP system; concluded that poor consideration of organization change issues affect the implementation and effectiveness of ERP system. In addition, lack of communication of benefits of ERP system can result in lack of commitment to change by management team.

ERP system designers should pay attention to user requirements analysis for determining their expectations and requirements for the content of ERP systems. The divergences in the user knowledge need to be considered for a system to be successful. Designing ERP systems with multiple interfaces for different levels of users can be useful (Calisira & Calisir, 2004).

Baray et al (2006) concluded that it is required to understand benefits of ERP by stakeholders because there is still resistance to change due to dominance of traditional method of doing business.

2.3 Model and Theories of Measuring Individual Behavior

Many models and theories were developed by practitioners to predict the individual behavior. Brief review of these models and theories are discussed here.

2.3.1 Theory of Reasoned Action

Martin Fishbein and Icek Ajzen (1975) introduced theory of Reasoned Action (TRA) .This theory was a development over the old Information Integration theory. TRA is directly concerned with behavior. This theory predicts the behavioral intention. Reasoned Action also discusses the factors that limit the influence of attitudes on behavior (Benoit, 2010).

The figure 2.1 presents the graphical representation of theory of reasoned action (Fishbein and Ajzen, 1975).

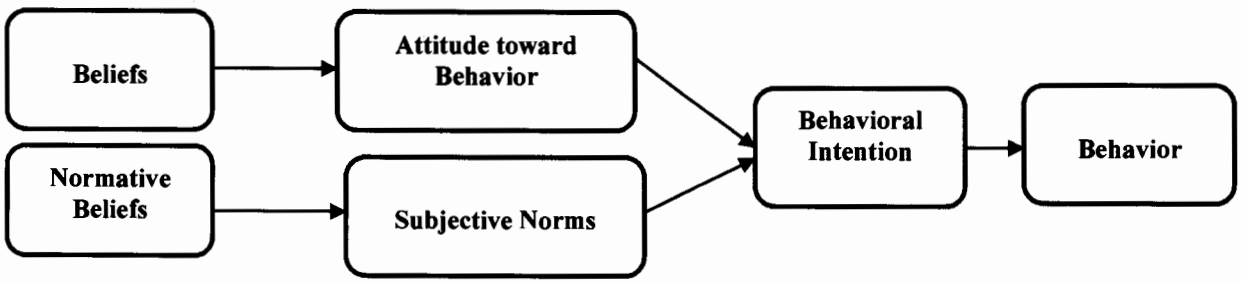


Figure 2.1: "Theory of Reasoned Action"

Arunthari and Hasan (2005) explained that shared belief of ERP system users was linked with attitude towards adopting ERP system in Thai companies. The shared belief seemed to be more established in multinational companies as compared to Thai-owned. Findings of the study explore that organizational and professional culture would probably influence attitudes towards ERP system adoption. Technology experts have a positive behavior about ERP system implementation than they felt that they had no choice, and must accept an ERP system.

2.3.2 Technology Acceptance Model

Technology Acceptance Model (TAM) measure users' acceptance of a new technology. Figure 2 shows TAM introduced by Davis (1989).

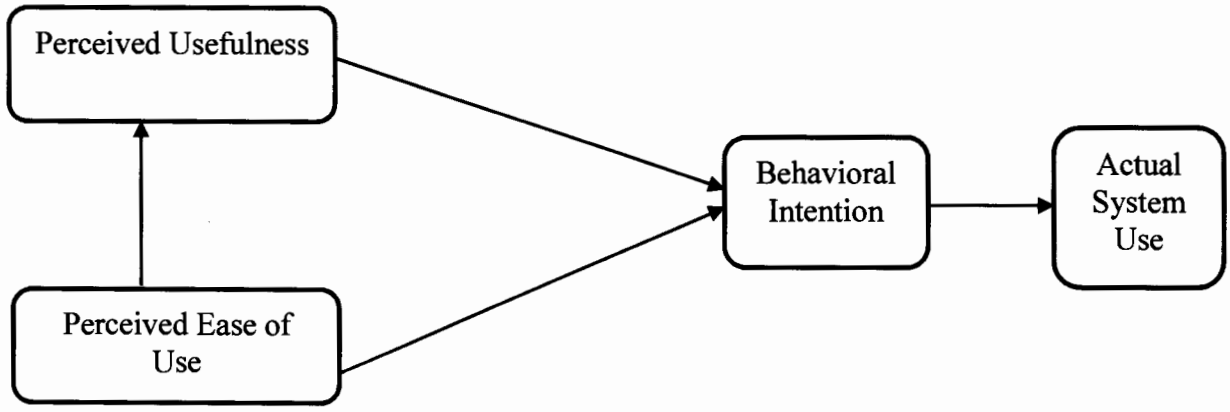


Figure 2.2: Technology Acceptance Model

There are two constructs of the model i.e. perceived usefulness and ease of use. The model predicts acceptance and use of technology. TAM provides information that

perceived ease of use and perceived usefulness establish behavioral intention of use of technology (Davis, 1989).

According to Calisira & Calisir (2004) "perceived usefulness" of system is the determinant of satisfaction systems and it has the strongest impact on user satisfaction. While "perceived ease of use" has no direct effect. It states that end users rate ERP systems as less useful if they find it difficult to use.

Gyampah (2007) =analyzed four variables and stated that perceived usefulness has the main effect on behavioral intention to use an ERP. He also suggested that in ERP system, "ease of use" influences behavioral intention.

2.3.3 Motivational Model

Vallerand, Fortier, and Guay (1997) studied intrinsic and extrinsic motivation. According to them, behavioral intention should lead to at least three advantages in a situation. First, adding behavioral intention in the model reflects the actual process through which people comprehend behavior. Second, behavioral intention should allow a better prediction of behavior. Finally, the addition of behavioral intention in motivational model better predicts and understands behavior.

Venkatesh and Speier (1999) investigated that the effects on employees' mood at training of computer. The results indicated that positive moods at the time of training result in increases in intrinsic motivation and to use technology. In addition, employees in negative moods decreased intrinsic motivation and intentions to use technology.

2.3.4 Theory of Planned Behavior

Theory of Planned Behavior (TPB) as shown in Figure 203 revels that shows that human behavior is guided by; "beliefs about the outcomes of behavior" (behavioral beliefs), about the "normative expectations" (normative beliefs) and about the "presence of factors" (control beliefs) (Ajzen, 1991).

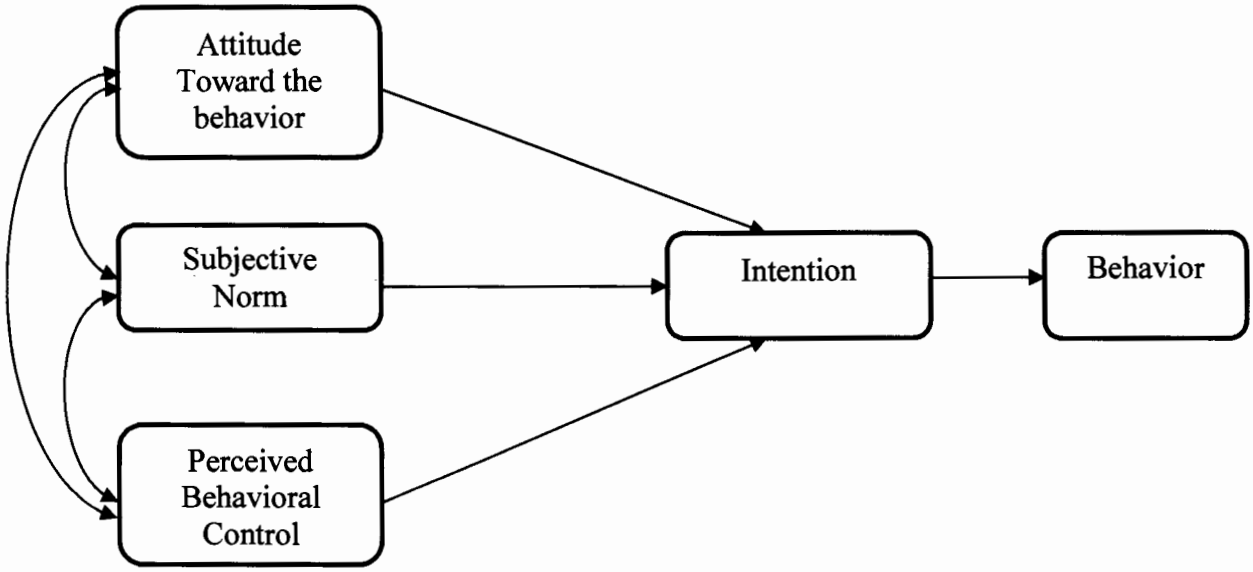


Figure 2.3: Theory of Planned Behavior.

The Theory of Planned Behavior differs as its addition of perceived behavioral control. To predict behavior achievement, perceived behavior control along with behavior intention can be used directly (Ajzen, 1991).

2.3.5 Model Combining the Technology Acceptance Model and Theory of Planned Behavior

Taylor & Todd (1995) employed TAM by incorporating social influence and behaviour control on experienced and inexperienced users of an IT. They concluded that

behavior intention is mediated the relationship between perceived behavior control and behavior. For inexperienced users, perceived behavioral control has less but a significant impact on intention.

Graphical representation of model combining Technology Acceptance Model and Theory of Planned Behaviour is shown in Figure 2.4.

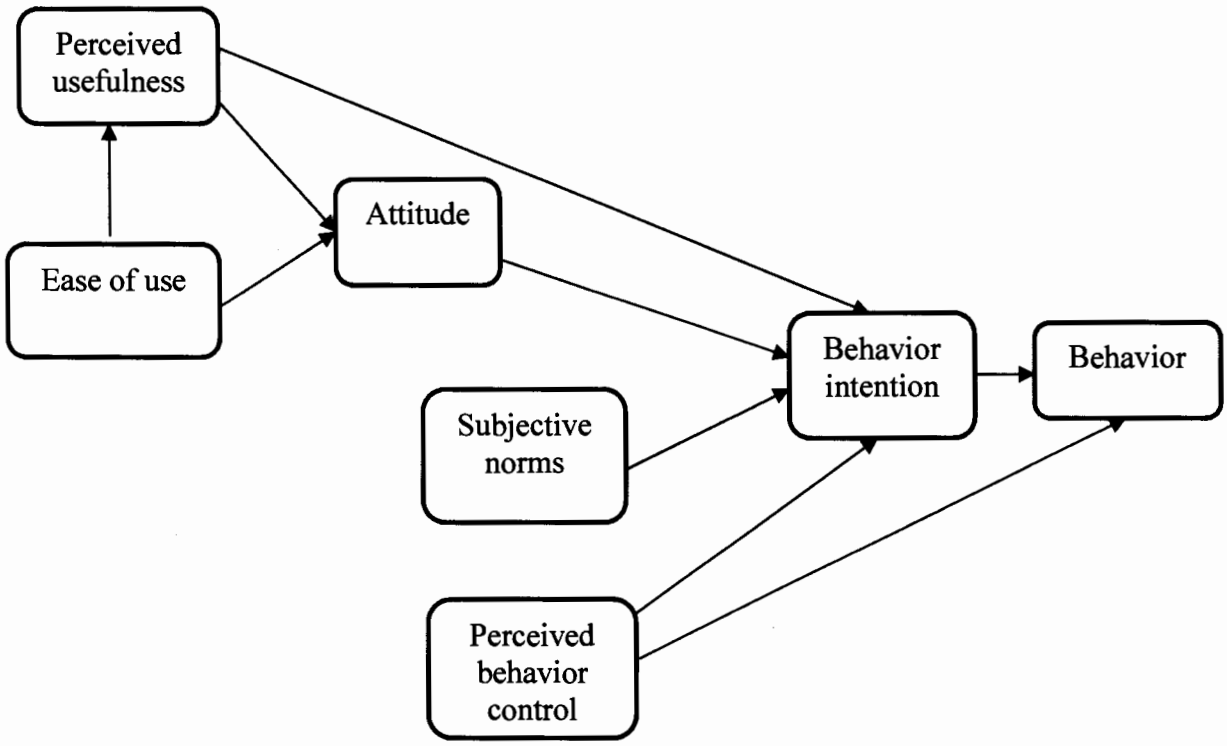


Figure 2.4: Model combining "theory of planned behavior" and "Technology Acceptance Model"

2.3.6 Model of PC Utilization

Thompson, Higgins, and Howell (1991) tested model of PC utilization as shown in Figure 2.5. They used Trainds theory in their study for examining the expected consequences of PC utilization, as well as the relative influence of social factors, affect, and facilitating conditions. Findings showed that social factors, complexity and job fit,

had significant effect on PC use. There was no evidence that "affect" and "facilitating conditions" influenced PC use.

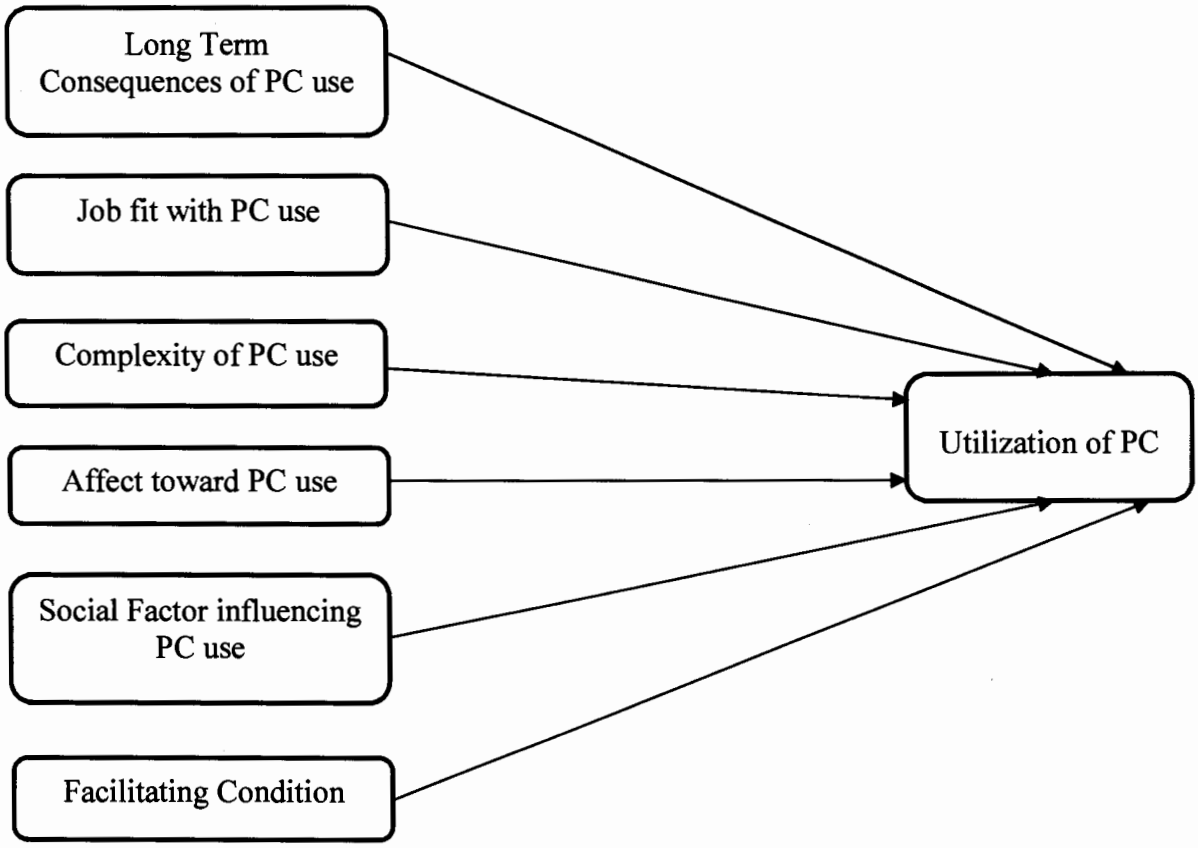


Figure 2. : Model of PC Utilization.

Thompson, Higgins and Howell (1994) examined the influence of experience on personal computer utilization. Three competing ways of influence of experience were tested:

(1) Direct influence,

(2) Indirect influence through six distinct attitude and belief components, and

(3) Moderating influence on the relations between the attitude/belief components and utilization.

The results of study conducted by Thompson et al (1994)showed that experience influenced utilization directly.

2.3.7 Diffusion of Innovation Theory

Diffusion of Innovation Theory (DoI) is related with a new technology or a new use of an old one. According to DoI theory, new technology innovation is communicated by different channels, with the passage of time among the members of a society (Clarke, 1999).

Karahannaa, Straub & Chervan, (1999) investigated the antecedents of "perceived usefulness" and "perceived ease of use". The results illustrate that computer based system usage will be determined by perception of the usefulness of the medium in communicating as well as by perceptions of ease of use of medium .

Moore and Benbasat (1991) reported on the development of an instrument designed to measure the perception that an individual have of adopting an information technology innovation..

2.3.8 Social Cognitive Theory

Bandura & Walter, (1963) extended the social learning theory. They added principles of "observational learning" and "vicarious reinforcement". Bandura , (1989) gave the concept of self-efficacy in 1977.

The Social Cognitive Theory is relevant to health communication. (Social Cognitive Theory, 2004). A model was developed base on theory to check influence of computer self efficacy on computer usage. Relationship was found connecting computer self efficacy and use (Compeau Higgins, & Huff, 1999).

Model proposed by Compeau et al,(1999) is shown in fig 2.6.

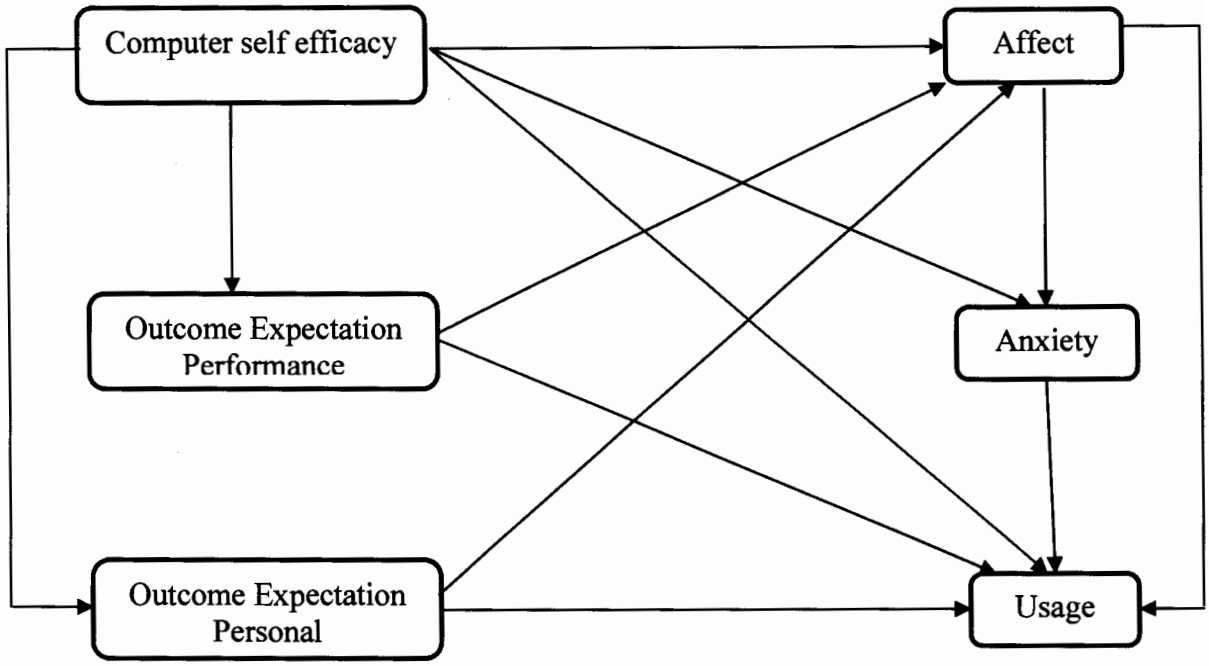


Figure 2.6: Social Cognitive Theory

2.3.9 Unified Theory of Acceptance and Use of Technology(UTAUT).

Venkatesh et al (2003) introduced the unified technology acceptance model as shown in fig 2.8. This model used eight models in information system adoption research. The unified model was examined empirically. This model was found to be better than eight individual models. UTAUT stated that there are "three determinants of intention;

performance expectancy, effort expectancy and social influence, and two determinants of usage behavior; intention and facilitating conditions".

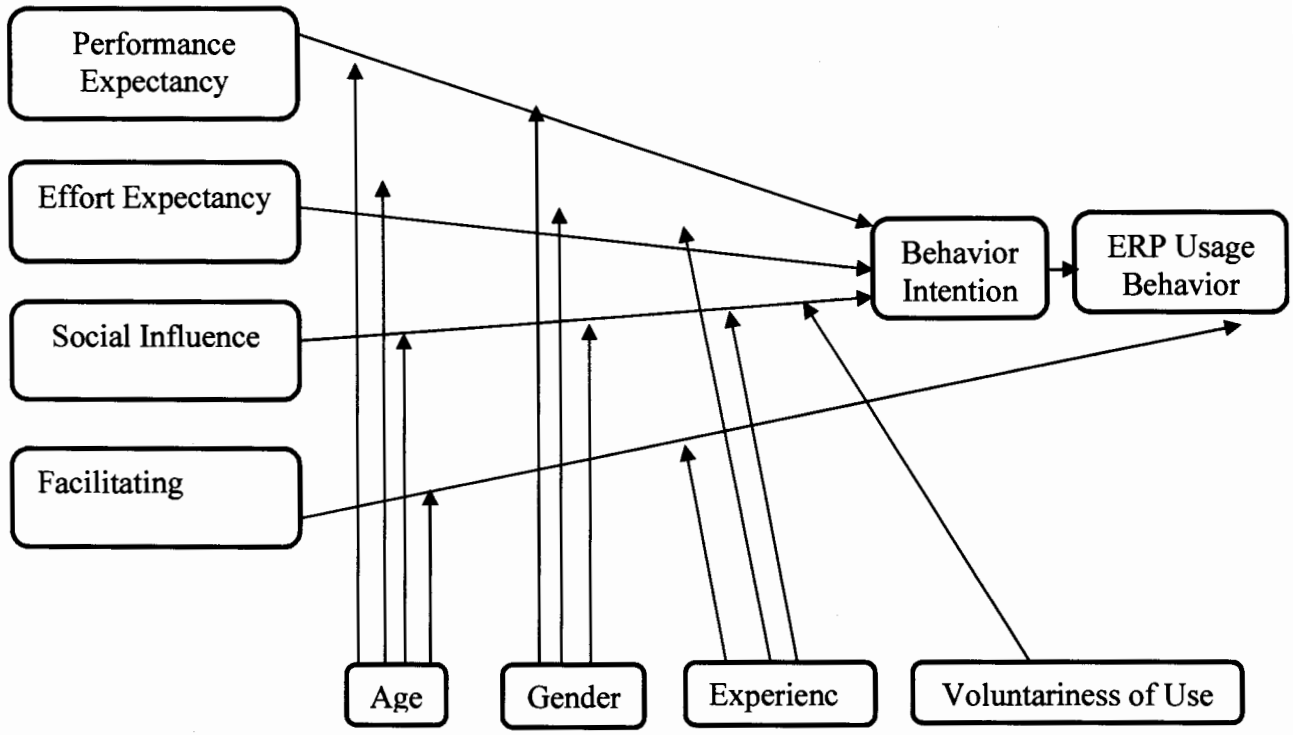


Figure 2.7: Unified Theory of Acceptance and Use of Technology.

UTAUT adjoin four moderators also. In a study conducted by Huang & Wang (2009), they explored impact of UTAUT model in Chinese enterprises. They found that "performance expectancy", "effort expectancy" and "social influence" are the main factors, which have their impact on behavioral intention of use of technology.

Venkatesh & Morris (2000) and Yia,, Park, & Probst, (2006) confirmed that gender has its influences on use of information. Venkatesh and Morris (2000); Venkatesh et al. (2003) observed that male end-users were comfortable with new systems.

The applicability of models and theories of measuring individual behavior of ERP usage were tested in different fields of developed and developing countries. The summary of studies conducted to measure ERP usage behavior are in table 2.1.

Table 2.1: Construct of Behavior Intention Towards use of ERP System Used in Previous Studies

Authors	Year	Subject of study	Data Collection Tool	Constructs
Shih-Wen, Chien, Shu-Ming Tsaur	2007	204 user of ERP from high-tech firms - Taiwan.	Questionnaire	System quality, Service quality, Behavior intention, User satisfaction, Benefit of use from end-users, Information quality,
Jung-Yu Lai and Chun-Chieh Yang	2008	170 ERP users from six international e-businesses in Taiwan	Questionnaire	Information quality, System quality, Perceived dependability, Perceived usefulness, Intention to use
Rajesri Govindaraju, Stephan J. Maathuis, Erik J. de Bruijn	2008	123 ERP users State Own Telecommunication Company in Indonesia	Questionnaire	Project Communication, Organizational Champion, Technical Champion, Prior Usage, Shared Belief Benefit of ERP, Behavior Intention to use ERP System
Kee-Young Kwahk, Jae-Nam Lee	2008	350 user of ERP from 72 organizations in Korea	Questionnaire	Perceived Ease of Use, Perceived usefulness, Usage intention, Organizational commitment, Perceived personal competence, Computer self-efficacy

Elaine Youngberg, David Olsen, Karina Hauser	2009	204 participants from four Utah college	Questionnaire	Perceived Ease of Use, Perceived Usefulness, Subjective norms, usage behavior
Yuan Sun, Anol Bhattacherjee, Qingguo Ma	2009	138 users of ERP systems in 62 firms in China.	Questionnaire	Intention to use, Perceived usefulness, Perceived ease of use, Perceived work compatibility, Subjective norm, Perceived behavioral control
Salvador Bueno, Jose L. Salmeron	2008	115 users	Questionnaire	Top Management support, Communication, Training, Cooperation, Technological Ccomplexity
Fethi Calisir, Ferah Calisir	2004	End-users in 24 companies	Questionnaire	Perceived Usefulness, Perceived Ease of Use, System Capability, User guidance, Flexibility, System capability
Man-Kit Chan, Waiman Cheung, Chun-Hung Cheng, Jeff H.Y. Yeung	2008	600 practitioners in Hong Kong	Questionnaire	Facilitating Conditions, Social Factors, Near-term Consequences, Long-term Consequences, Affect, Complexity, compatibility
Muhammad Jamil Anjum, Ijaz-Ur-Rehman	2010	Telecom, Engineering, Oil and Government Sector Organizations	Questionnaire	Perceived Usefulness, Perceived ease of use, Top Management Commitment, Training, Data Accuracy, Intention to use ERP
C.A. Gumussoy, F. Calisir	2007	75 potential end-user	Questionnaire	Perceived Ease of Use, Attitude Towards Use,

& A. Bayram				Compatibility, Perceived usefulness, Subjective norms
Kwasi Amoako-Gyampah	2007	571end users	Questionnaire	Prior Usage , , Ease of Use, Behavioral Intention, Argument for Change Intrinsic Involvement
Kwasi Amoako-Gyampah, A.F. Salam	2004	1562 Global organization	Questionnaire	ERP project communication, ERP training, Belief in the benefits, Perceived usefulness, Ease of use, Behavioral intention
T. Ramayah, May-Chiun Lo	2007	113 manufacturing organizations	Questionnaire	Shared beliefs, Perceived ease of use, Perceived usefulness, Intention to Use
Ibrahim M. Al-Jabri, Ahmad Al-Hadab	2008	58 SAP user form large company in Saudi Arabia	Questionnaire	Perceived Usefulness, Perceived Ease of Use, Expected Capability, Expected Value
Fiona Fui-Hoon Nah, Xin Tan, Soon Hing Teh	2004	525 SAP end users	Questionnaire	Perceived usefulness, perceived ease of use, perceived fit, perceived compatibility, attitude toward system use, symbolic adoption
Lisa Seymour, Wadzanai Makanya, Simon Berrangé	2007	PeopleSoft Student Administration System	Questionnaire	Performance Expectancy, Effort Expectancy , Social Influence , Facilitating Conditions: Training, Shared Belief and Project Communication

Ya-Yueh Shih	2006	175 ERP users	Questionnaire	Usefulness, Ease of Use, Actual Use , self efficacy
Ya-Yueh Shih	2008	130 ERP user	Questionnaire	perceived usefulness, behavioural intention, Perceived ease of us, Computer Anxiety, Computer Self-efficacy, Top Management Support

Table 2.2 provides main constructs integrated in these studies were grouped in the of venkatesh et al (2003).

Table 2.2: Constructs of Individual Acceptance of Technology

Variables	Constructs
Performance Expectancy	Perceived Usefulness, Job-fit, Relative Advantage, Extrinsic Motivation, Outcome Expectations
Effort Expectancy	Complexity,Perceived Ease of Use, Ease of Use
Social Influence	Subjective Norm, Social Factors, Image
Facilitating Conditions	Facilitating Condition, Perceived Behavior Control, Compatibility

In addition to the construct mentioned in table 2.1, the following factors relevant to this study were explored during review of literature:

1. Top Management Support,
2. Project Communication,
3. Self-Efficacy
4. Training.

The effect of demographic factor was also found on the performance expectancy and effort expectancy of the ERP system use.

A model is proposed based on the factors explored from literature as follow.

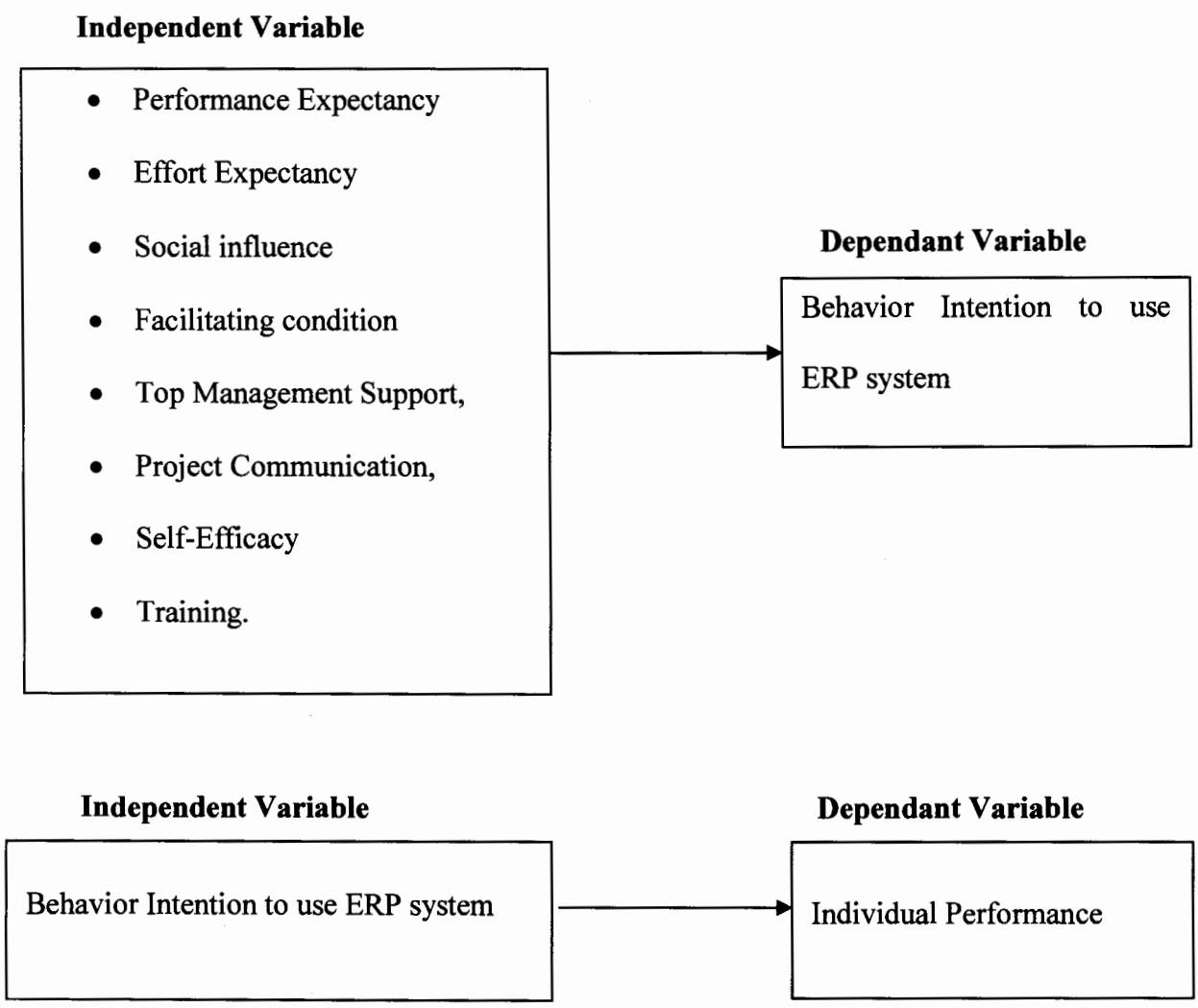


Figure 2.8: Variables of proposed research model

In this proposed model eight independent variables will measure the behavior intention to use of ERP system. The term behavior intention refers to the individual behavior toward use of ERP system in Ufone. Further the behavior intention toward use of ERP system will measure the change in individual performance of Ufone employees based in Islamabad.

2.4 Operationalization of Research Variables

2.4.1 Performance Expectancy

According to Venkatesh et al (2003), the variable performance expectancy is strongest determinant to find behavior intention in both voluntary and mandatory settings. "Performance expectancy is the degree to which a user of technology believes that using the system will help him or her to attain gains in his/her job performance. The constructs of performance expectancy are: perceived usefulness , extrinsic motivation, job-fit, relative advantage ,and outcome expectancy"

Perceived usefulness mean the users' believe that after using system his or her performance would be improved. (Davis, 1989).

Ramayah & Lo (2007) found a positive relationship between perceived Usefulness and intention to use. The results showed that when users use or learn the importance of use, they will consider the system useful.

Calisira & Calisir (2004) in their study based on ERP users concluded that if user believe that by using the ERP system in their job , their performance and productivity will be increased. Perceived usefulness is significant determinants of end user satisfaction with ERP systems

Govindaraju et al. (2008) in their study on large telecom company of Indonesia studied behavior intention to use ERP system. They concluded that usefulness has positive impact on behavior intention to use ERP system.

In a study Bueno & Salmeron (2008) focused on significant factors which influence the ERP user's acceptance and use of ERP system in consultancy electrical, technological and manufacturing sector. Their model confirm that the perceived usefulness of ERP is an important factor in measuring user acceptance.

In Pakistan, Anjum & Rehman (2010) conducted a study in Telecom, Engineering, Oil and Gas sectors. They combined critical success factors with the technology acceptance model. They found that positive correlation exits between perceived usefulness and user involvement.

Shih (2006) examined ERP usage behavior by employing technology acceptance model and self-efficacy of Social Cognitive Theory. She found that combination of TAM and self-efficacy can improve the predictive value of the technology acceptance model. The findings revealed that both models exhibit a reasonable fit to the data. She concluded that perceived usefulness significantly influence the ERP usage behavior.

The study by Youngberg, Olsen,& Hauser, (2009) was focused on end user perceptions of ERP. In this study, the variables that significantly influence participants' perceptions of system usefulness were 'job relevance' and 'output quality'. They found that perceived usefulness as the strongest predictor of intention to use system.

According to Gumussoy, Calisir,& Bayram, (2007) perceived usefulness related to use of ERP system has a significant effect on intention. While users' 'education level' has a smaller but significant effect.

Seymour et.al (2007) employed the Unified Theory of Acceptance and Use of Technology to find out the behavior intention toward use of ERP system. They concluded that performance expectancy to use ERP was measure low in their study.

Based on the findings of past researches a hypothesis H1 has established for this study as follow:

H1: Performance expectancy has positive impact on employee behavior intention to use ERP system.

2.4.2 Effort Expectancy

Effort expectancy influences the behavioral to use information systems According to Venkatesh et al (2003), "effort expectancy refers to ease of use and complexity Perceived ease of use is defined as the degree to which the user believes that using the system will be free from effort."

Perceived ease of use have a significant effect on attitude toward using the system (Dillon and Morris, 1996).

Seymour et al (2007) studied the UTAUT to find out the behaviour intention toward use of ERP system. They found a positive relation between effort expectancy and symbolic adoption.

Davis, (1989) and Nah et al (2005) examined that factors perceived ease of use, attitude, and compatibility are significant determinants of adoption of system. According to Anjum & Rehman (2010) ,perceived ease of Use has positive correlation with intention .

Calisira & Calisir (2004) proved that ease of use has an indirect effect on user satisfaction toward use of system.

Based on these facts a hypothesis has established for this study as follow:

H2: Effort expectancy has impact on employee behavior intention to use ERP system.

2.4.3 Social Influence

Venkatesh et al (2003) explained that social influence is an important construct. Social influence is defined as "the degree to which an individual recognize that others believe he or she should use the new system. Social influence as a direct determinant of behavioral intention is represented as subjective norm, social factors and image.

According to Lee and Kim (2009), social pressure will be stronger for individuals who do not have much experience of usage but are likely to be users as they depend on the opinion of others in creating their intention to use services.

Seymour et al (2007) in their study nullify the affect of social factor on EPR adoption. They suggest that the social influence factor should be measured in a longitudinal study.

Chang et al (2008) in their study, based on social factors on adoption of technology, analyzed the affect of different variables on ERP adoption by differentiating the individual, organizational and technological factors. They concluded that social factor has significant effect on the ERP usage.

Based on the findings of past researches a hypothesis has established for this study as follow:

H3: social influence has positive impact on employee behavior intention to use ERP system.

2.4.4 Facilitating Condition

Facilitation condition includes the support given to use information system by the organization and technical arrangement. According to Venkatesh et al (2003), "facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. This definition defines three different constructs: perceived behavioral control, facilitating conditions, and compatibility.

Nah et al (2005) examined factors responsible for end-user acceptance of ERP systems. They concluded that compatibility is important determinant of symbolic adoption.

Chang et al (2008), in their study concluded that facilitating conditions has insignificant effect on the ERP usage.

Thus, it was hypothesized for this research as follow

H4: Facilitating Condition has positive impact on employee behavior intention to use an ERP system.

2.4.5 Self Efficacy

Computer "self-efficacy" affects usefulness and ease of use of system. (Shih & Huang, 2009). In 1941, Miller and Dollard proposed the theory of social learning".

Shih (2006) examined the ERP usage behavior employing technology acceptance model by incorporating the self-efficacy of Social Cognitive Theory. She concluded that perceived usefulness significantly influence ERP usage behavior. Computer self-efficacy positively and directly affects ERP system usage.

Kwahk & Ahn (2010) investigated the possible reasons for failure of ERP from the user's perspective. They concluded that behavior intention to use an ERP systems is affected by computer self-efficacy.

Based on the findings of past researches a hypothesis has established for this study as follow:

H5: Self Efficacy has positive impact on employee behavior intention to use ERP system.

2.4.6 Project Communication

Seymour et al (2007) studied the UTAUT to find out the behavior intention toward use of ERP system. They found that a positive linear correlation existed between project communication and symbolic adoption.

Bueno and Salmeron (2008) stated that if top management develop the communication with users, they would be in better position to use the system.

Govindaraju et al (2008) studied behavior intention to use ERP system in large telecom company of Indonesia. They found that project communication influence the user's belief toward use of ERP system.

Based on these facts a hypothesis has developed for this study as follow:

H6: Project Communication has positive impact on employee behavior intention to use ERP system.

2.4.7 Top Management Support

Bueno and Salmeron (2008) examine in the model that cooperation of management at top and the communication channels are the best instrument for the top management support to become evident.

Anjum and Rehman (2010) found that top management has insignificant positive correlation with intention to use.

Shih and Huang (2009) explored that the variable top management support have its important role during ERP implementation. It is strongly, directly and positively affects computer self-efficacy, usefulness and ease of use.

So a hypothesis for this study has developed as follow

H7: A relationship exists between top management support and employee behavior intention to use ERP system.

2.4.8 Training

Training is main factor for reducing the perception of an ERP system's complexity. If more ERP system training is given to user, the easier they will use the technology. (Bueno & Salmeron, 2008).

Seymour et al (2007) found that 'training' is seen as being positive for the success of a project. Calisira and Calisir (2004) reported another significant finding of their study related to the effects of user guidance on perceived usefulness and learnability.

Anjum & Rehman (2010) found that training about ERP system is positively correlated with intention to use ERP system. Govindaraju et.al (2008) found that training positively influence the user's belief toward use of ERP system.

So a hypothesis for this study has developed as follow

H8: Training has positive impact on behavior intention to use ERP system.

2.5 ERP and Performance

Academicians and practitioners explores that the success of technology can be measured through its impact on an individual job. Organizations are concerned about how investment in information technology would influence organizational and individual performance. (Torkzadeh & Doll, 1999; McAfee, 2002).

Igbaria and Tan (1997) examined the information technology acceptance. and concluded that computer acceptance has a significant effect on an individual's performance. Their study demonstrate the importance of investigating user satisfaction in explaining individual impact. They also showed that IT added value to individual performance. They pointed that user satisfaction had a strongest effect on individual performance. Their results also suggested that system usage and user satisfaction were indicators of performance and IT acceptance helped individuals to accomplish their tasks more effectively and increased their productivity.

Torkzadeh and Doll (1999) claimed, "It is difficult to imagine how information technology can be assessed without evaluating the impact it may have on the individual's work.

ERP system involves many benefits. ERP systems by replacing the legacy system, facilitate the organization with integrated set of enterprise-wide applications. Benefits of an ERP system are improvement in quality of work productivity, product reliability, customer service and knowledge management. Hence, it is expected from ERP systems to increase

market value and performance through efficiency and effectiveness. (Hunton, Lippincott, & Reck, 2003).

Hunton et al (2003) investigated the impact of ERP adoption on firm performance. They compared the financial performance of firms where ERP was adopted with the same number of firms where ERP was not adopted. They establised that firm performance was better for adopters firm than nonadopter firms.

Law and Ngai (2007) hypothesized in their study that ERP success is linked with the performance of organizations. They concluded that 'user satisfaction' is positively corelated with the 'performance'. They empirically supported the relationship between adoption of ERP systems and organizational performance.

Based on these facts a hypothesis has developed for this study as follow:

H9: Employees performance is positively correlated with usage behavior.

In next chapter the brief detail of company profile, organizational structure and information about ERP implementation at Ufone is given.

CHAPTER 3

3 Telecom Sector

3.1 Company Profile

Pakistan Telecom Mobile Limited (Ufone) is a subsidiary of Pakistan Telecommunication Limited. Ufone started operating on 29 January 2001. It has its coverage all over the country. The growth of telecom sector in the country is attributable to good governance. Mobile users in the country are 88 million now. The company has contributed significantly in development of telecom market in the country. As leading Telecom Company, Ufone initiated the following services:

- General Packet Radio Service (GPRS) services
- Multi-media Messaging Service" (MMS) in Pakistan
- GPRS international roaming and
- prepaid international roaming
- "Black Berry" handsets
- Largest EDGE networks in the country today (Ufone,2010).

The telecom market is growing day by day. Mobile operators are now competing for attracting customers using branding and marketing strategies. The marketing department of Ufone started strategic campaign with a team of some famous actors who have made several humorous advertisements to promote the services of the brand (Zumbeel, 2010).

3.2 Organizational Structure

Ufone has eight departments in total which regularly are interacting with each other to satisfy its customers demand.

The management structure of Ufone has board of directors, as the highest today CEO, Chief Executive Officer, reports to board of directors and supervises major operations of the company. These operations are performed through the following departments:

1. Finance
2. Marketing
3. Information Technology
4. Customer Operations
5. Engineering
6. Sales
7. Human Resource (Hussaine, 2010)

3.3 Mission Statement

Ufone has established the following mission statement.

'To be the best cellular option for U' (Ufone, 2010).

3.4 ERP at Ufone

Siemens Pakistan Limited is implementing enterprise management system based on software from SAP of Germany in PTCL as well as in Ufone. Team of experts from PTCL and Ufone are working with Siemens and SAP consultants to ensure that SAP is fully covering their business operations. In first phase, the project covered Finance & Accounting

and HR operations. Procurement and Inventory operations were completed in November 2007 in PTCL. This project will effectively replace the legacy databases in the company by ERP. According to Farid Alvi, (Project Manager of Ufone), Ufone is looking for a lot of flexibility from the new ERP system. He says that we have to be fast on our feet and make decisions quickly in our business (Telenews, 2007).

ERP implementation in Ufone was started in 2008. Initially modules of Finance, Accounting, Inventory and Procurement were covered. Later on, it was also implemented in HR. Implementation is going on in engineering and sales modules and sub modules of Finance and Procurement (Husaini, personal communication, October 5, 2009).

Next chapter explains research method and procedure employed to conduct present research.

CHAPTER 4

4 Research Methodology

4.1 Introduction

This chapter explains the research method and procedure employed to conduct the present research. The procedures used for literature review, selection of the sample, construction of the questionnaire, collection and analysis of data are discussed in the subsequent pages.

4.2 Research Design

4.2.1 Research Framework

This research has intended to investigate ERP usage behavior of Ufone employees and its impact on their performance. The research model used for this study was based on the constructs explored from relevant literature (figure 4.1)

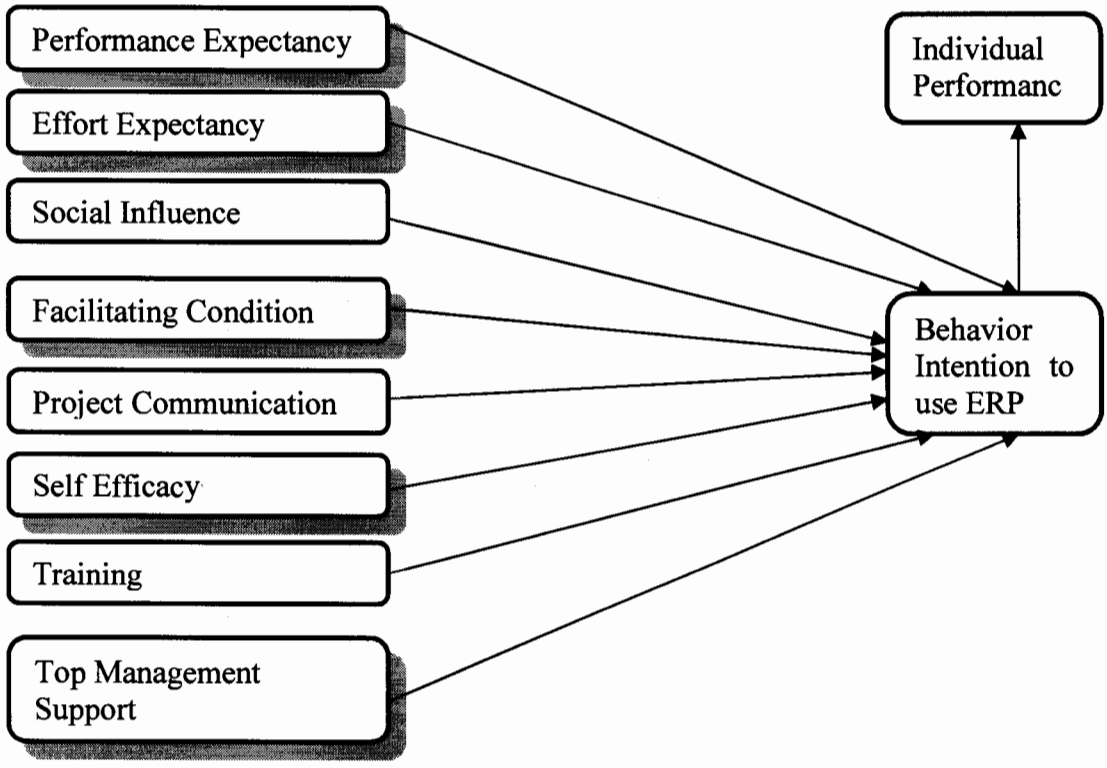


Figure 4.1: Proposed theoretical research model.

The nature of this research was self-administrated survey design. A pilot test was conducted to verify various dimensions of the questionnaire such as language used, ease of completing the questionnaire and appropriateness of questions with relevance to usage behavior. Twenty ERP users working in Ufone were asked to fill in the questionnaire. Feedback was obtained about the clarity, wordings, interpretation, and appropriateness of the questions. In result of the pilot study, minor changes in statements of the final survey tool was incorporated. No scaled item was dropped on the basis of pilot study.

The questionnaire, which explains the purpose and scope of the study was distributed to Ufone employees.

4.2.2 Questionnaire Design

The questionnaire was developed in English language to get the responses on ERP usage behavior of Ufone employees.

4.2.2.1 Instrumental Development

The questionnaire used in this research was adapted from the studies conducted on behavior intention to use ERP system (Davis, 1989; Venkatesh, Morris, Davis & Davis, 2003; Clarke, 1999; Thompson, et.al 1994; Calisira & Calisir, 2004; Taylor & Todd 1995 Seymour et.al 2007;Bueno & Salmeron, 2008; Govindaraju, et al , 2008. The tool comprised of the following sections.

(1) Questions related to demographic profile.

(2) Questions measuring behavior intention toward use of ERP system.

(3) Questions exploring the impact of ERP usage on employees' performance.

4.2.2.2 Measurement Scales

In order to measure the behavior intention and performance of Ufone employees, Likert type scale was used. The following question demonstrates an example of the Likert scale format in this questionnaire: "ERP system is useful in my job". The options provided were:

(1) "Strongly agree "

(2) "Agree "

(3) "Neutral"

(4) "Disagree"

(5) "Strongly disagree"

4.2.3 Sampling

The sample for this research was drawn from Ufone employees working in Islamabad. The population of this study was those employees of Ufone who were using ERP system in the company. In order to select sample from the sampling frame, convenient sampling technique was used. The reason behind the convenient sampling technique was the organizations' policies of not mentioning the exact numbers of ERP users in each department. The sample size of 300 respondents was selected. However, 255 out of 300 selected participants responded the survey.

4.2.4 Collection of Data

Respondents were required to state the degree to which they agree or disagree with statements of questionnaire. After completing the survey, data was analyzed by using SPSS 15 for Windows. Next chapter contains results and discussion based on analysis of data.

CHAPTER 5

5 Results and Discussion

5.1 Introduction

This chapter contains results and discussion based on analysis of data. It is consisted of three parts. Part one deals with the questions of section one for demographic analysis. Part two deals with questions stated in section two and three related to behavior intention and performance. In this section nine hypothesis were tested. Part three analyzes the behavior intention attributes with demographic factors of age, gender and experience.

5.2 Part I Demographic Factors Analysis

5.2.1 Demographic Information

For primary analysis, the response rate and descriptive statistics of the data were analyzed. A total of 255 usable responses were received out of 300 therefore response rate was 85%. The respondents provided information such as gender, designation, job experience in general and associate withwith ERP system.

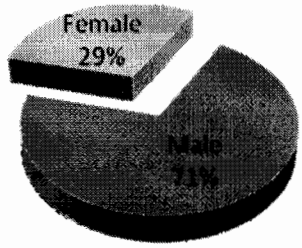
5.2.1.1 Frequency Distribution of Respondents by Gender

The responses presented in the table 5.1 and figure 5.1 indicate that out of 255, almost 71 % respondents were male while 29% were female.

Table 5.1: Gender Wise Distribution of ERP Users

Gender	Frequency	Percent	Cumulative Percent
Male	180	70.6	70.6
Female	75	29.4	100.0
Total	255	100.0	

Figure 5.1: Gender wise ERP users



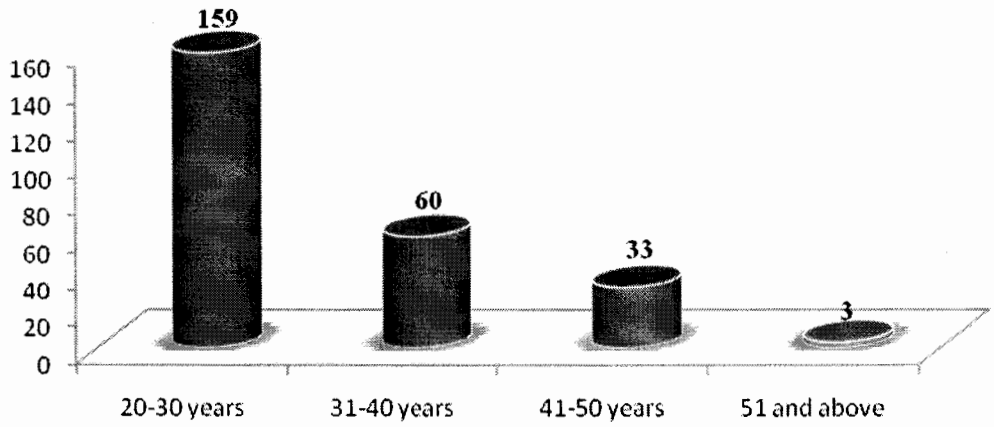
5.2.1.2 Frequency Distribution of Respondents by Age

The responses presented in the table 5.2 and figure 5.2 indicate that the respondents are fairly young. Sixty-two percent respondents were in the age of 20-30 years and 23 % were grouped between 31-40 years while 13 % respondents were of age group of 41-50 years. The response from the age group of 51 years and above was 1.2% only.

Table 5.2: Age Wise Distribution of ERP Users

Age group	Frequency	Percent	Cumulative Percent
20-30	159	62.4	62.4
31-40	60	23.5	85.9
41-50	33	12.9	98.8
51-above	3	1.2	100.0
Total	255	100.0	

Figure 5.2: Age Wise Distribution of ERP Users



Fr

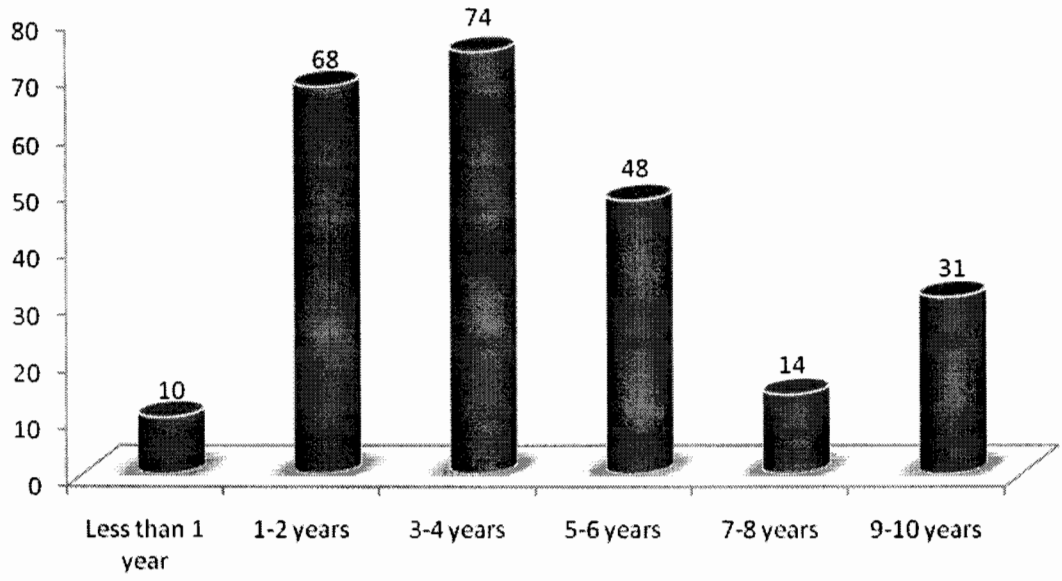
equency Distribution of Respondents by Job Experience

The table 5.3 and figure 5.3 reveal information about the experience of respondents. Majority respondents (29%) have job experience of 3-4 years followed by 26.7 % with 1-2 years experience and 18.8 % with more than 5-6 years of experience. Twelve percent respondents were having 9-10 years and 5.5% were having 7-8 years of experience. A few respondents (3.9 %) were having less than one year and more than 10 years of experience .

Table 5.3: Experience Wise Distribution of ERP Users

Experience	Frequency	Percent	Cumulative Percent
Less than one year	10	3.9	3.9
1-2	68	26.7	30.6
3-4	74	29.0	59.6
5-6	48	18.8	78.4
7-8	14	5.5	83.9
9-10	31	12.2	96.1
More than 10 years	10	3.9	100.0
Total	255	100.0	

Figure 5.3: Experience Wise Distribution of ERP Users



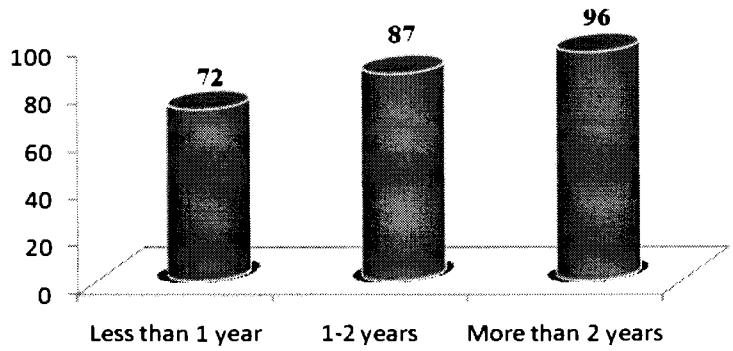
5.2.1.3 Frequency Distribution Regarding Experience of Respondents in ERP Use

ERP usage experience of respondents is presented in table 5.4 and figure 5.4 which show that 37.6% respondents have ERP usage experience of more than 2 years while 34 % respondents have 1-2 years of ERP usage experience. Only 28.2 % respondents have less than one year experience..

Table 5.4: ERP Usage Experience

ERP usage experience	Frequency	Percent	Cumulative Percent
Less than one year	72	28.2	28.2
1-2 years	87	34.1	62.4
More than two years	96	37.6	100.0
Total	255	100.0	

Figure 5.4: ERP Usage Experience



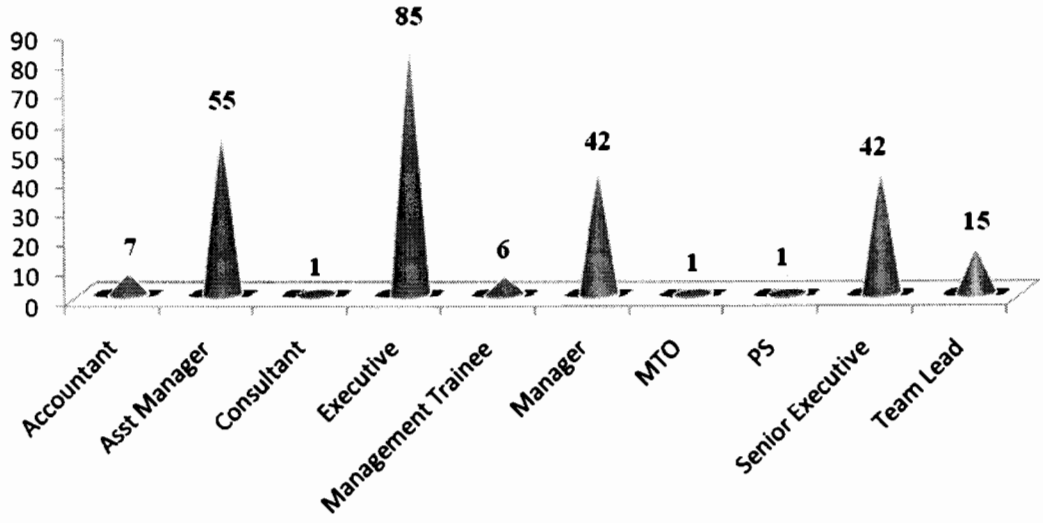
5.2.1.4 Frequency Distribution of Designation of Respondents

The table 5.5 and figure 5.5 reveal information about the designation of respondents. Majority of the respondents, 85 (33%), were executive, 55 (22%) were assistant manager, 42 (17%) were manager and same number were senior executive. Among the respondents 15 (6%) were working as team lead, 7 (3) were serving as accountant while one consultant, one MTO and one PS responded the survey.

Table 5.5: Designation Wise Distribution of ERP Users

Designation	Frequency	Percent	Cumulative Percent
Accountant	7	2.7	2.7
Asst Manager	55	21.6	24.3
Consultant	1	.4	24.7
Executive	85	33	58.0
Management Trainee	6	2.4	60.4
Manager	42	16.5	76.9
MTO	1	.4	77.3
PS	1	.4	77.6
Senior Executive	42	16.5	94.1
Team Lead	15	5.9	100.0
Total	255	100.0	

Figure 5.5: Designation Wise Distribution of ERP Users



5.3 Part II Behavior Intention Analysis

The part two of the questionnaire deals with the analysis of behavior intention toward use of ERP system by Ufone employees. In this section reliability of the statements related to behavior intention toward use of ERP system and performance is examined before testing nine hypotheses. For checking reliability of the instrument, Cronbach's alpha coefficient was chosen.

5.3.1 Reliability Analysis

Reliability analysis has taken to ensure that the scale is consistently measuring the constructs of questionnaire. The value of Cronbach's alpha reliability coefficient normally ranges between 1 & 0. The closer to 1.0 shows the greater internal consistency of the items in the scale (George and Mallery, 2003).

Table 5.6 shows the overall reliability of the scale item used in questionnaire.

Table 5.6: Reliability Statistics

Cronbach's Alpha	N of Items
.967	28

The reliability statistics value in table 5.6 (.967) represent the higher level of reliability of the statements asked in the questionnaire.

In order to check the reliability of each statement in the questionnaire, the detailed reliability statistics is shown in table 5.7. The reliability information includes the "values of scale mean if item deleted", 'corrected item total correlation' and 'alpha if item deleted'. The values in the column "Corrected Item-Total Correlation" can be explained as the correlation between item and the total score.

The values in the column labeled "Alpha if Item is deleted" can be explain as the values of the alpha if that particular item is not in the calculation. The results indicate that all statements were highly reliable by having the cronbach alpha value more than 0.9.

Table 5.7. Reliability Statistics of Each Statement

Statements	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ERP system is useful in my job	108.8379	.762	.966
ERP system has enabled me to accomplish tasks quickly	109.1146	.691	.966
ERP system has improved the quality of my work	109.1581	.774	.965
ERP system usage has provided me more advantages as than disadvantage	109.1858	.742	.966

I feel ERP system is easy to use	108.8775	.641	.966
ERP system has made my work interesting	109.3360	.771	.965
It is easy to understand ERP system	109.1344	.720	.966
Because of my use of ERP system, others in my organization see me as a more valuable employee	109.1107	.776	.965
ERP system users are considered a valuable human resource	109.3123	.727	.966
Organization has provided necessary resources to use ERP system	109.1858	.831	.965
ERP technical support is sufficiently provided by organization	109.6126	.719	.966
I can complete job or task using ERP without any supervision	108.9170	.625	.967
I can finish job on time using ERP	109.2213	.661	.966
Built in help in EPR is helpful than external help	109.3162	.815	.965
I was informed about ERP project through presentation and demonstration	109.3162	.501	.968
Top management will communicate to employee by seminar before implementing new modules of ERP system	109.5059	.594	.967
I have been given sufficient training to use ERP system	109.4822	.693	.966
Training for using ERP system was easy	109.5099	.814	.965
My level of understanding was substantially improved after the training program	109.1937	.626	.966
The senior management had made policies to encourage ERP usage	109.0870	.648	.966

I feel that top management supported ERP system	109.2213	.699	.966
I feel that top management had highly intention to change	109.2569	.507	.967
I like the idea of using ERP system.	109.0119	.716	.966
I intend to use ERP system more effectively for future professional assignments	109.1225	.577	.967
I wish to become professional in ERP system use	109.1621	.785	.965
ERP system has increased my professional competence for organization	108.9328	.827	.965
ERP system has positive impact on my effectiveness and productivity in my job	109.1304	.795	.965
ERP system has improved my performance	109.2569	.767	.966

5.3.2 Frequency Distribution of Behaviour Intention to Use ERP System

This part of analysis contains frequency distribution of responses against queations related to behavior intention to use ERP systm.

5.3.2.1 Performance Expectancy

Figure 5.6 (a) shows the frequency distribution of responses against the performancy expectancy of ERP system use. Out of 255 respondents, 133 were 'Strongly Agreed', 102 were 'Agreed' that ERP system is usefull in their job and 10 respondents remained 'Neutral'. While 10 respondents were 'Disagreed' with the statement that ERP system is useful in their job.

Ninty five respondents were 'Strongly Agreed'that ERP system enabled them to accomplish their task quickly while 109 respondents were 'Agreed' with the statement. Only

40 respondents were 'Nutural' while 11 respndents showd disagreement with the statement(Figure 5.6 b).

In response to the question that "ERP system has improved quality of my work", 106 resondents were 'Strongly Agreed'with the stateement, 85 were agreed while 52 respondents were 'Neutral' about the statement that ERP system has improved their quality of work. Eight respondents were 'Strongly Disagreed' that ERP system has imrpove their quality of work while 4 were 'Disagreed' with the statement (Figure 5.6 c).

The responses in figure 5.6 (d) against question " ERP system usage has provided me more advantage then disadvantage" shows that 137 respondents were 'Agreed' with the statement while 75 were 'Strongly Agreed' in favor of statement, 33 were remained 'Neutral'. Only 8 respondents were 'Strongly Disagree' and two were 'Disagree' that ERP system has provided them more advantage then disadvantage.

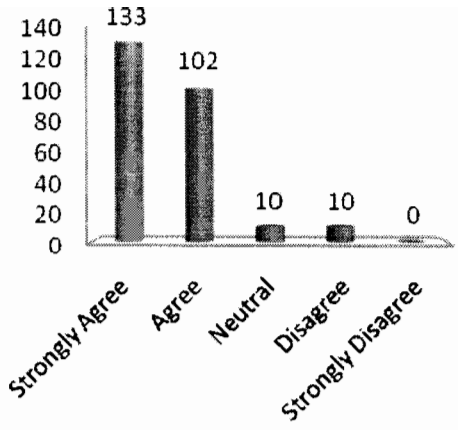


Figure 5.6(a) ERP System is Useful in my Job

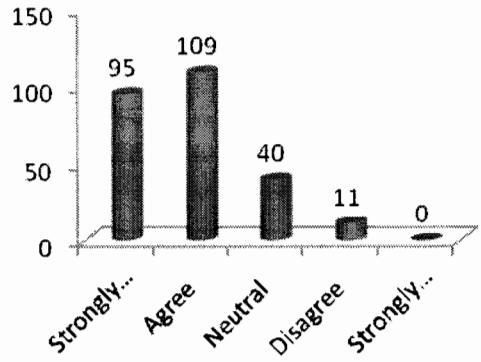


Figure 5.6(b) ERP System Has Enabled me to Accomplish Tasks Quickly

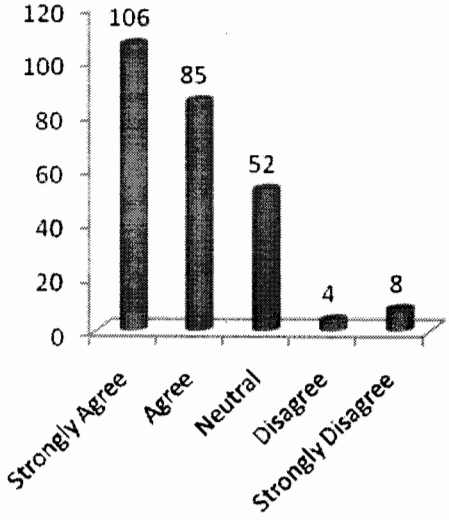


Figure 5.6(c) ERP System has Improved Quality of my Work

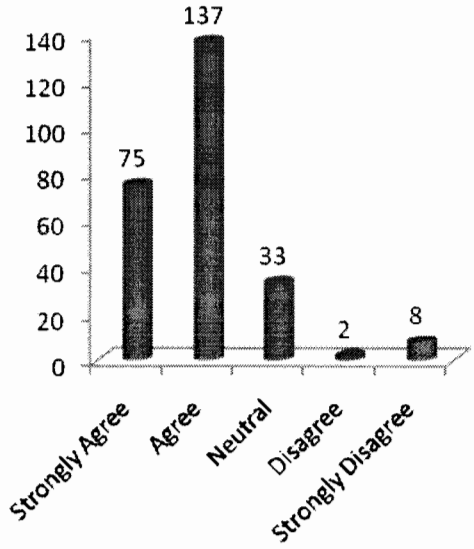


Figure 5.6(d) ERP System Usage has Provided me More Advantage Then Disadvatage

5.3.2.2 Effort Expectancy

Figure 5.7(a) shows the frequency distribution of effort expectancy of ERP system. Majority respondents (N=137) were 'Strongly Agreed' that ERP sysem is easy to use, 83

respondents were 'Agreed' with this statement, 26 remained 'Neutral' while only 9 candidates were 'Disagreed' that ERP system is easy to use.

In response to the statement that ERP system has made work interesting, 105 respondents were 'Agreed' while 80 were Stronlgy Agreed' with the statement. Only 49 respondents were 'Neutral' while 12 were 'Stronlgy Disagreed' and 9 were 'Disagreed' that ERP system has made their work interesting (Figure 5.7 b).

Out of 255, 108 respondents were agreed that ERP system is easy to understand while 101 respondents were 'Strongly Agreed' with the statement. Twenty eight respondents were 'Disagreed' with the statement, only 18 reamined 'Neutral' that ERP system is easy to understand.Not a single respondent was 'Strongly Disagreed' with the staement. (Figure 5.7 c).

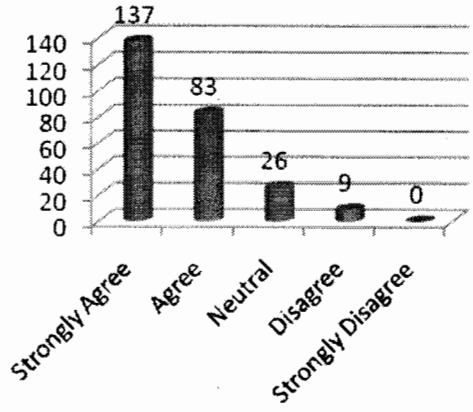


Figure 5.7(a) I feel ERP System is Easy to use

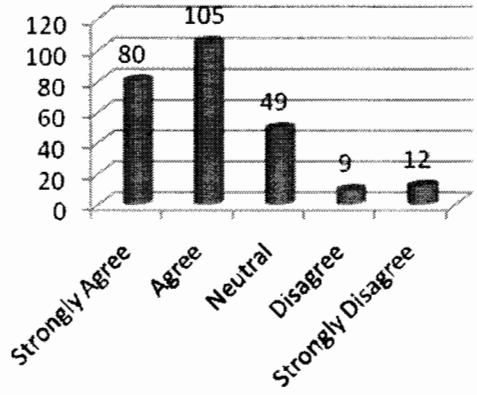


Figure 5.7(b) ERP System has Made my Work Interesting

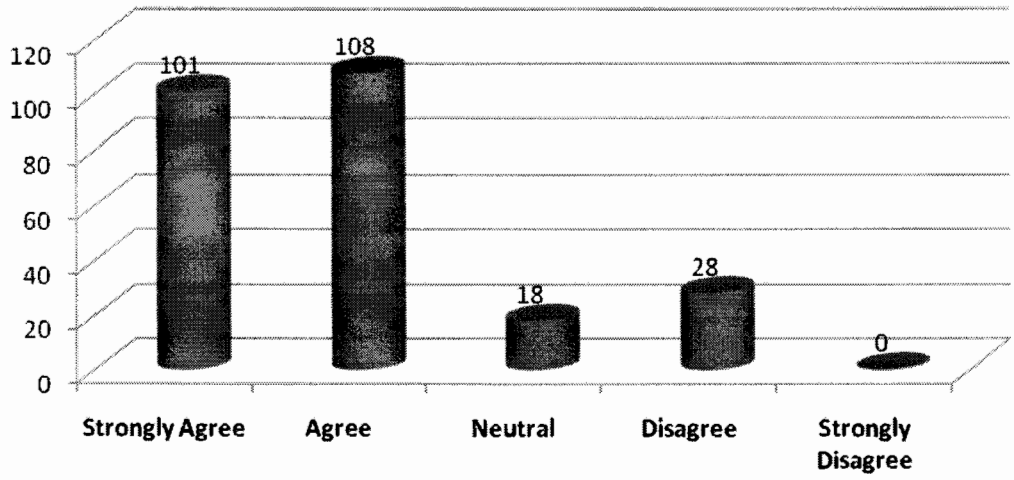


Figure 5.7(c) It is Easy to Understand ERP System

5.3.2.3 Social Influence

Figure 5.8 (a)shows the frequency distribtion of effect of social influence of ERP system use. One hundred eight respndents were 'Agreed' that using ERP system makes them a more valuable employee , 107 respondents were 'Strongly Agreed' with the statement. Only 18 respondents remained 'Neutral' while 10 respondents were 'Disagreed' that by ERP system they become valuable employees only 12 respondents were 'Strongly Disagreed' with the statement.

Among 255,the respondents, 205, were 'Agreed' that ERP users are considered as valuable human resource. Fourty reamined neutral while only 10 respondents disagreed with the statement (Figure 5.8 b).

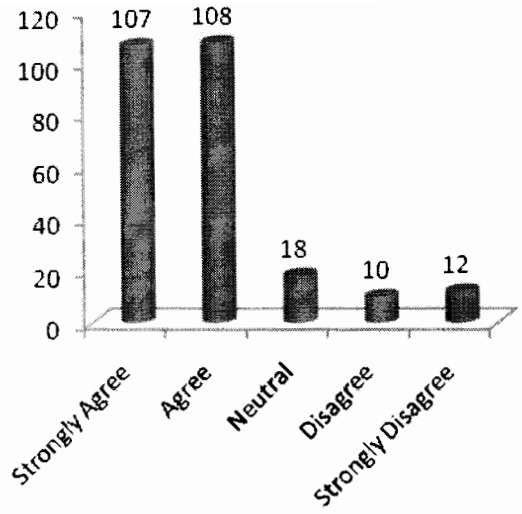


Figure 5.8(a) Because of my use of ERP System, Other in my Organization see me as a More Valuable Employee.

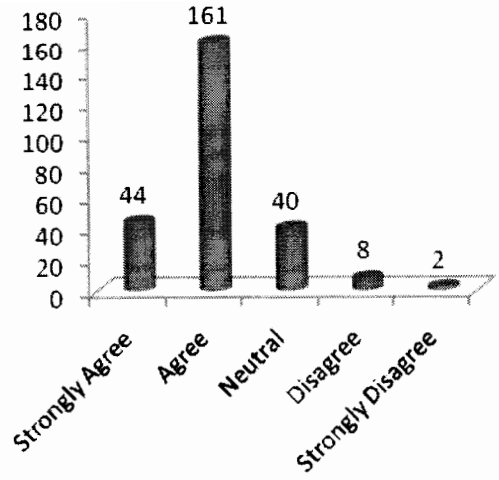


Figure 5.8 (b) ERP System Users as Valuable Human Resource.

Fig 5.9 (a) shows the respondents opinion about facilitating condition of ERP system use. Out of 255 respondents, 110 were 'Disagreed' that ERP technical support is sufficiently provided by the organization, 89 responded 'Stongly Disagreed' with the statement while 46 were remained neutral. Only 10 respondents were 'Agreed' with the statement that organization has provided them technical support.

In response to the statement that organization has provided necessary resources to use ERP system, 160 respondents were 'Agreed' with the statement, 85 were neutral and only 10 respondents were 'Disagreed' with the statement (Figure 5.9 b).

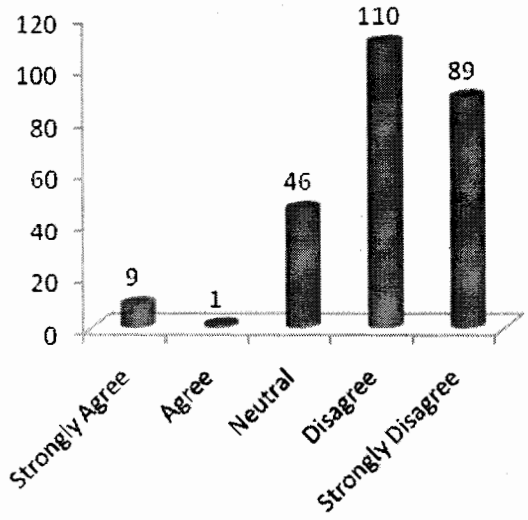


Figure 5.9 (a) ERP Technical Support is Sufficeinlty Provided by Organization

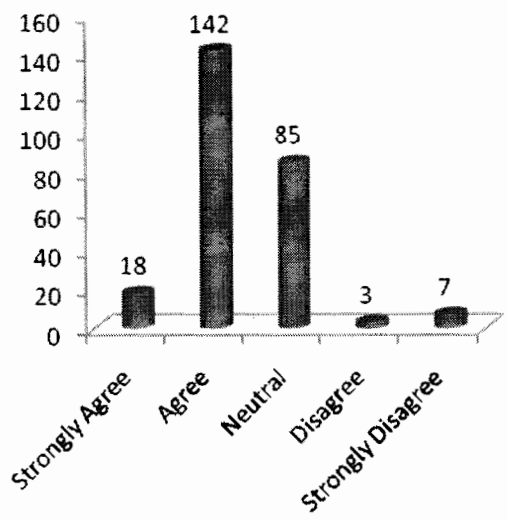


Figure 5.9 (b) Organization has Provided Necessary Resources to use ERP System

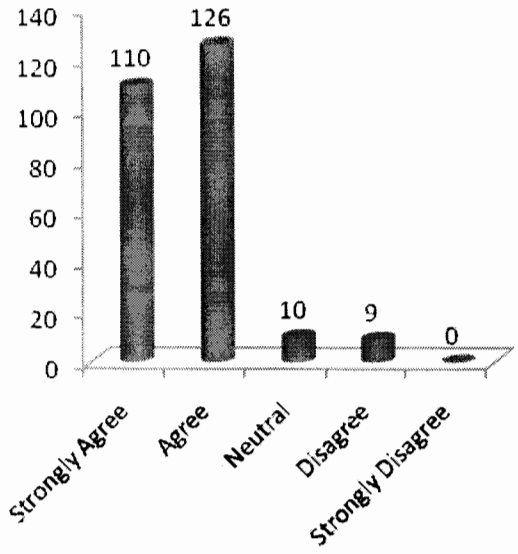
5.3.2.4 Self Efficacy

Figure 5.10 (a) shows the frequency distribution of respondents opintion about self-efficacy related to ERP system use. The responses show that 126 respondents were 'Agreed' with the statement that they can complete taks using ERP without any supervision, 110 were 'Strongly Agreed' while 10 remained 'Neutral' with the statement. Only 9 respondents were 'Disagreed' with the statement that they can complete tasks using ERP without any supervision.

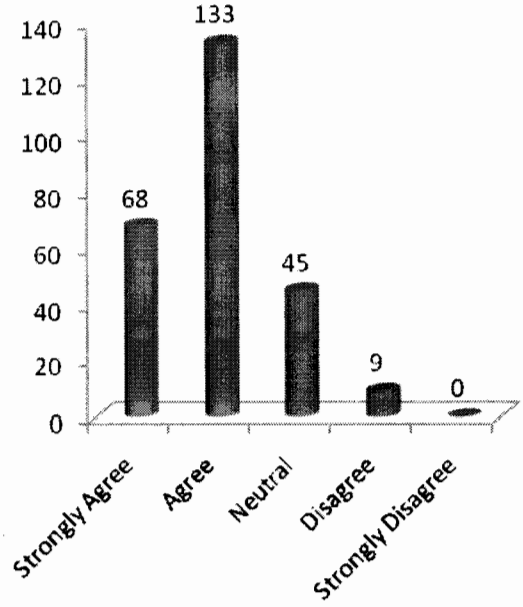
Out of 255, 133 respondents were agreed while 68 were 'Strongly Agreed' that they can finish job on time using ERP, 45 remained 'Neutral' in response to this question. Only 9 respondents 'Disagree' with the statement (Figure 5.10 b).

Majority respondents (N=190) were 'Agreed' that built in help in ERP is helpful then external help while 71 respondents were 'Strongly Agreed' with the statement. Forty seven

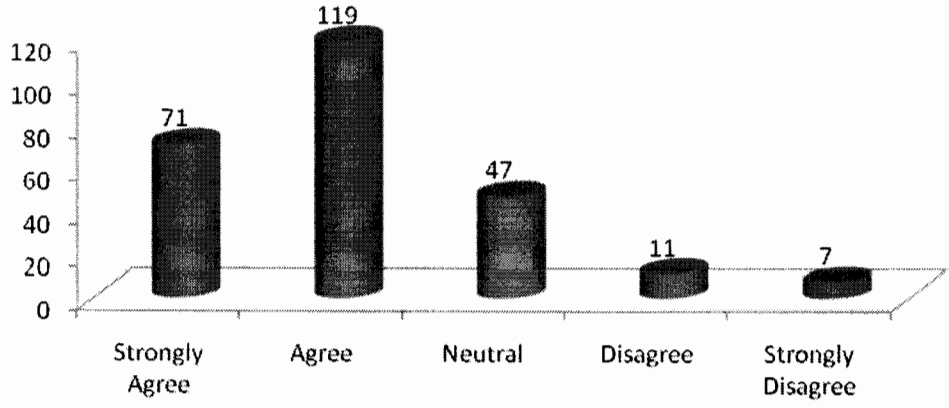
remained 'Neutral'. Seventeen respondents were 'Disagreed' with this statement. (Figure 5.10 c).



Fgure 5.10 (a) I can Complete Job or Task using ERP Without any Supervision



Fgure 5.10 (b) I can Finish Job on Time Using ERP



Fgure 5.10 (c) Built in Help in ERP is Helpful Then External Help

5.3.2.5 Project Communication

Figure 5.11 (a) shows the frequency distribution of project communiction variable. Out of 255, 119 respondents were 'Agreed' that they were informed about ERP project through presentation and demonstration, 74 were 'Strongyly Agreed' with the statement. Only 28 were 'Disagreed' with the statement while 34 remained neutral in response to the statement..

The respondents, 86 were agreed and 68 were 'Strongly Agreed' that top management will communicate to employee before implementing new modules of ERP. Only 14 respondents were 'Disagreed' while 9 were 'Strongly Disagreed' wherease 81 respondents were remained 'Neutral' in response to this statement (Figure 5.11 b).

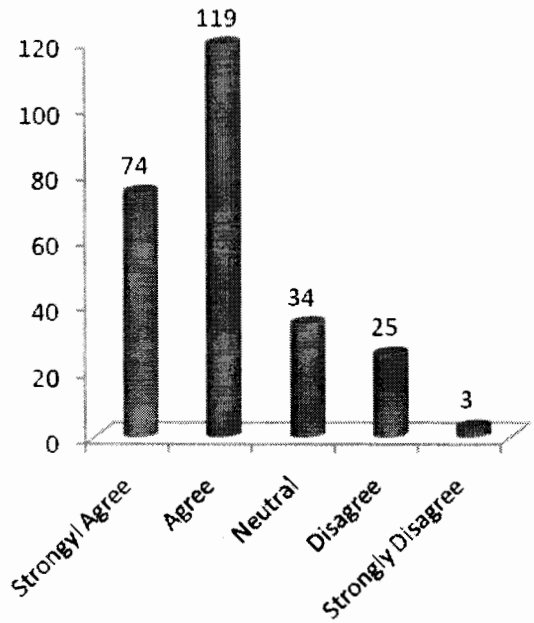


Figure 5.11 (a) I was Informed About ERP Project Through Presentation and Demonstration

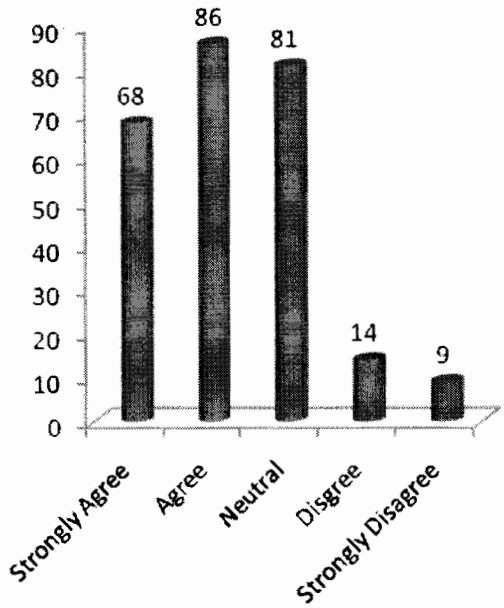


Figure 5.11 (b) Top Manegement wil Communicate to Employees Before Implementing New Modules Of ERP

5.3.2.6 Training

Figure 5.12 (a) shows the frequency distribution of responses against training. The responses shows that 109 respondents were 'Agreed' and 57 were 'Strongly Agreed' that they have been given sufficient training to use ERP system. Only 25 respondents were 'Disagreed' and 2 were 'Strongly Disagreed' while 62 respondents remianed 'Neutral' in response to the statement.

The response shows that 175 respondents were 'Agreed' that training for using ERP system was easy. Only 21 respondents were 'Disagreed' with the statement while 59 shows their 'Neutral' opinion in response to the question (Figure 5.12 b).

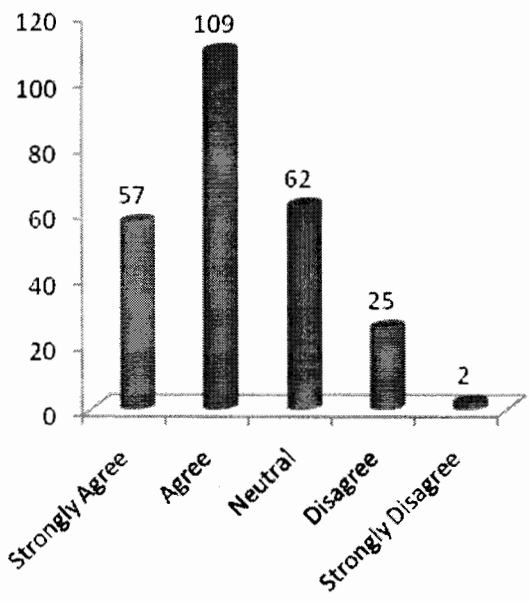


Figure 5.12 (a) I Have Been Given Sufficient Training To Use ERP System

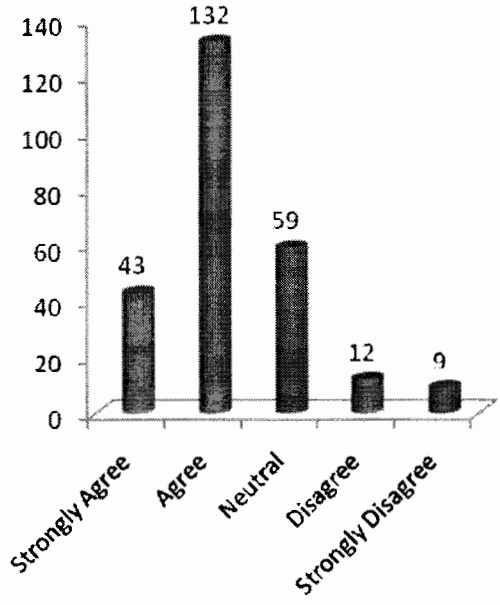


Figure 5.12 (b) Training for Using ERP Was Easy

One hundred twelve respondents were 'Agreed' and 82 respondents were 'Strongly Agreed' with the statement. Fifty five respondents remained 'Neutral' in repsosne to the

statement. While 4 respondents were disagreed and 2 were 'Strongly Disagreed' with the statement (Figure 5.12 c).

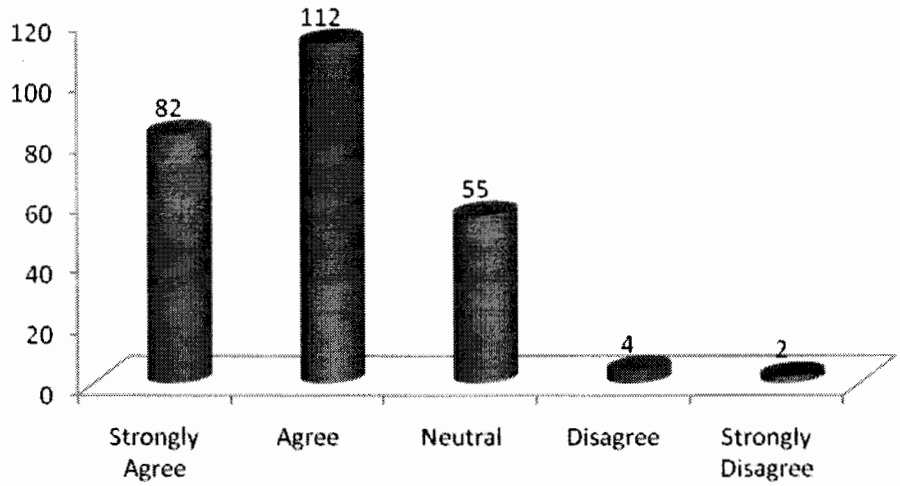


Figure 5.12 (c) My Understanding Improved After the Training Program

5.3.2.7 Top Management Support

Figure 5.13 (a) shows the responses against top management support, the responses indicates that 112 respondents were 'Strongly Agreed' while 79 were 'Agreed' that senior manaement had made policies to encourage ERP use. Only 3 respondents were 'Disagreed' and 3 were 'Strongly Disagreed' with the statement while 57 remained 'Neutral' in response to the question.

Out of 255 respondents, 121 respondents were 'Agreed' while 81 were 'Strongly Agreed' that top managemnt supported to use ERP system. Only 19 respondent were 'Disagreed' while 2 were 'Strongly Disagreed' with the statement while 32 were remained 'Neutral' (Figure 5.13 b).

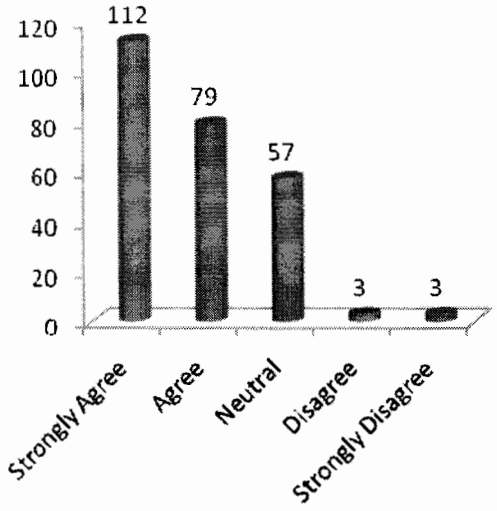


Figure 5.13 (a) Senior Management had Made Policies to Encourage ERP

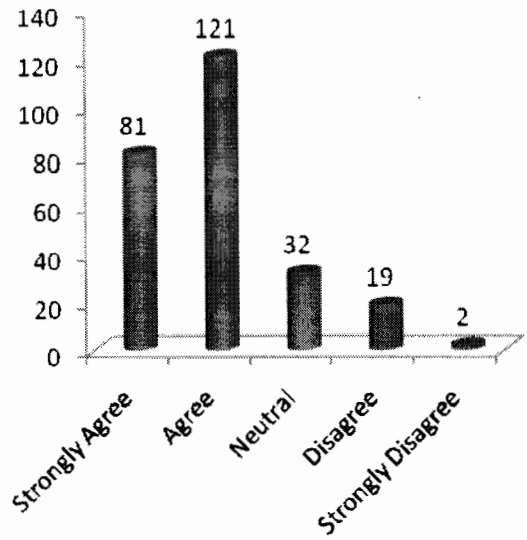


Figure 5.13 (b) I feel Top Management Supported to use ERP System

Majority of the respondents, 137, were 'Agreed' while 68 were 'Strongly Agreed' that top management had high intention to change. Three respondents were 'Disagreed' while 6 were 'Strongly Disagreed' with the statement while 38 were remained 'Neutral' in response to the statement.

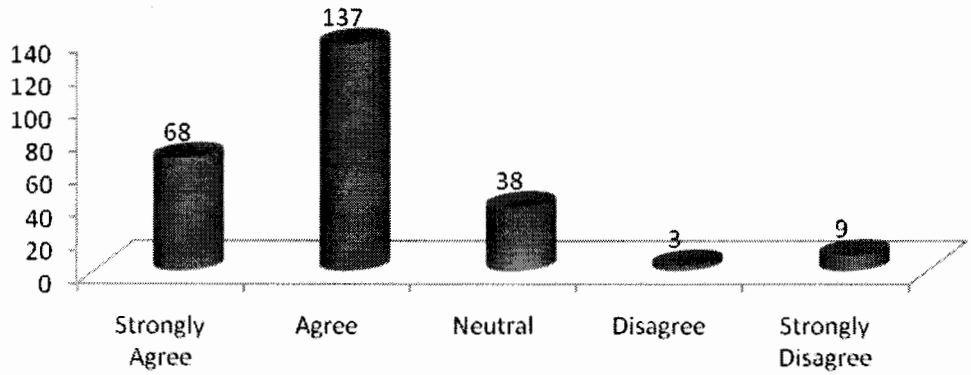


Figure 5.13 (b) I feel that top management had highly intention to change

5.3.2.8 Behavior Intention to Use ERP System

Figure 5.14 (a) describe the responses about the behavior intention to use ERP system. Out of 255 responses, 124 were 'Agreed' that they like the idea of using ERP system, 103 were 'Strongly Agreed' about likness of ERP system use. Only 19 respondents show their 'Neutral' opnion while 7 respondents 'Strongly Disagreed' and only 2 were 'Disagreed' with the statement.

In response to the question about use of ERP for future professional assignments, 138 respondents were 'Agreed' and 75 were 'Strongly Agreed' with the statement. Only 39 respondents were 'Neutral' while 3 were 'Disagreed' with the statement (Figure 5.14 b).

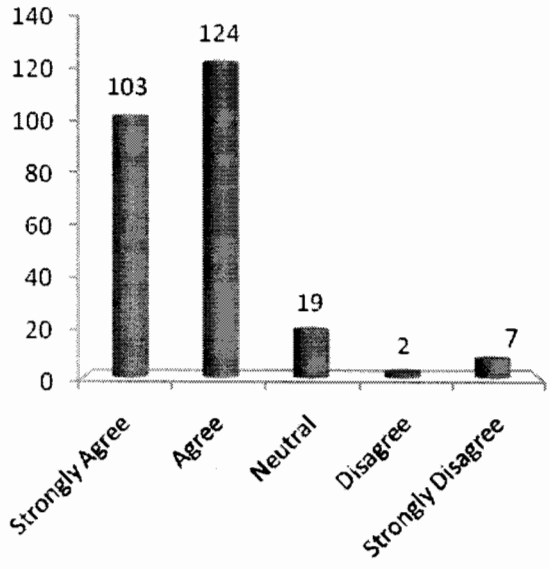


Figure 5.14 (a) I Like the Idea of Using ERP System

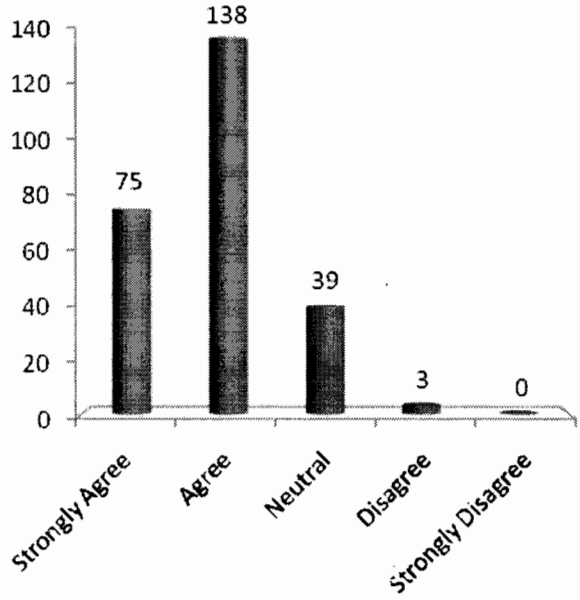


Figure 5.14 (b) I Intend to Use ERP System More Effectively for Future Professional Assignments

In response to behavior intention to use ERP system, 110 respondents were 'Agreed' that they want to become professional in ERP system use, 92 were 'Strongly Agreed' with the statement, 40 respondents showed 'Neutral' response with the statement. Only eight

respondents were 'Strongly Disgreed with the statement and four were 'Disagreed' that they wish to become professional in ERP systemuse.

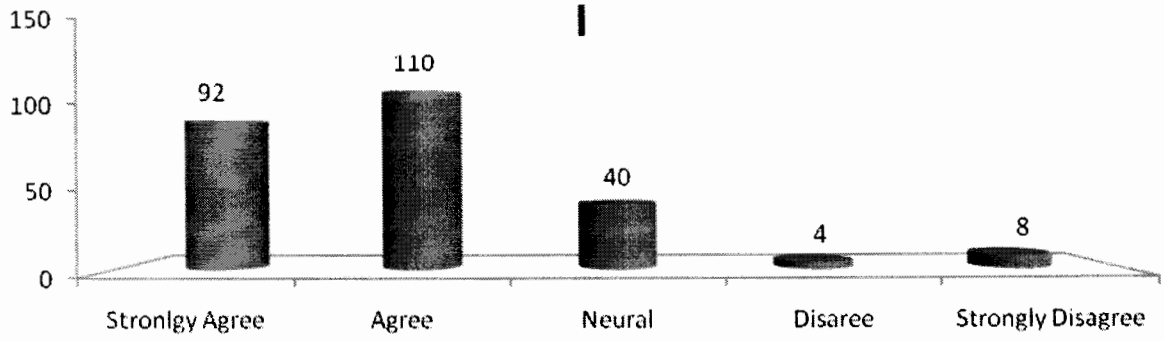


Figure 5.14 (c) I wish to Become Professional in ERP System use

5.3.2.9 Performance

Fig 5.15 (a) shows that 117 respondents were strongly agreed while 109 respondents were agreed that ERP system has increased their professional competence for organization while Only 19 respondents were remained neutral with the statement. Ten respondents showed disagreement with the statement.

One hundred nine respondents were strongly agreed while 91 were agreed that ERP system has positive impact on their effectiveness and productivity in their job. Only 10 respondents were disagreed while 8 were strongly disagreed with the statement. Only 37 respondents showed their neutral opinion in response to the statement (Figure 5.15 b).

Out of 255, 104 respondents were strongly agreed while 82 were agreed that ERP system has improved their performance. Three respondents were disagreed while 18 were strongly

disagreed with the statement. Only 48 respondents remained neutral in response to the statement (Figure 5.15 c)

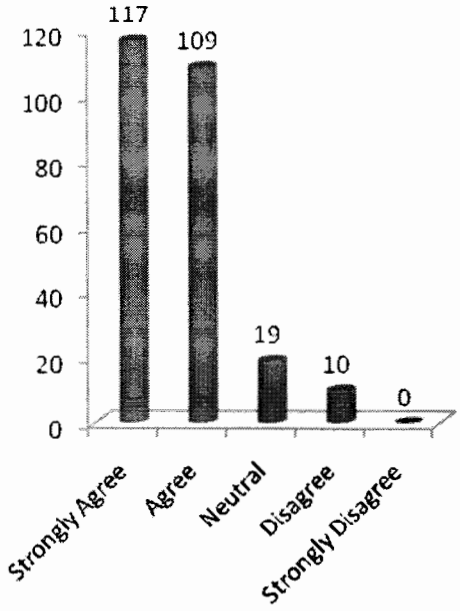


Figure 5.15 (a) ERP System has Increased my Professional Competence for Organization

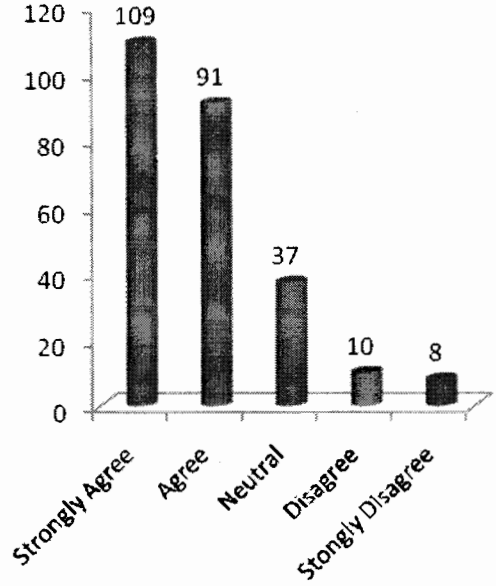


Figure 5.15 (b) ERP System has Positive Impact on my Effectiveness and Productivity in my Job

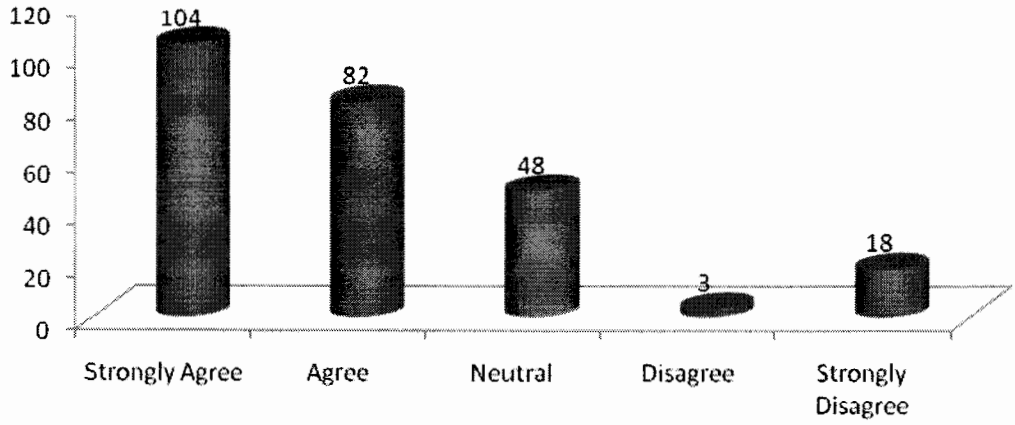


Figure 5.15 (c) ERP system has Improved my Performance

5.3.3 Hypotheses testing

The first step in hypotheses testing was to explore the existence of relationship between the independent and dependant variable. In order to find out the relationship, Pearson correlation analysis was performed. The correlation value lies from 0.1 to 1. The value near to 1 shows the strength of the correlation. The negative value of the correlation shows that the correlation exists but in negative way

Table 5.8: Pearson Correlation

	Behavior Intention	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Condition	Self Efficacy	Project Communication	Training	Top Management Support
Behavior Intention to use	1.000								
Performance Expectancy	.732	1.000							
Effort Expectancy	.589	.760	1.000						
Social Influence	.597	.718	.807	1.000					
Facilitating Condition	.723	.806	.693	.691	1.000				
Self Efficacy	.750	.741	.793	.637	.742	1.000			
Project Communication	.558	.405	.424	.402	.573	.624	1.000		
Training	.662	.675	.647	.745	.689	.604	.438	1.000	
Top Management Support	.656	.649	.665	.741	.693	.599	.605	.715	1.000

The Pearson correlation values of 'r' in table 5.8 show that performance expectancy (r=.732), facilitating condition(r= .723), self efficacy (r=.750), training (r= .662) and top management support (r= .656) are strongly correlated with the behavior intention to use ERP system. While effort expectancy (r= .589), social influence (r=.597), project communication (r=.558) have medium level correlation with behavior intention to use ERP system.

Table 5.8 shows the existence of the relationship between the independent and dependant variable. For the hypotheses testing here regression analysis was employed to find out the impact of each independent variable on the dependent variable.

Table 5.9 shows the summary of research model 1. In this model there are eight independent variables while one dependant variable.

Table 5.9 Summary of Research Model

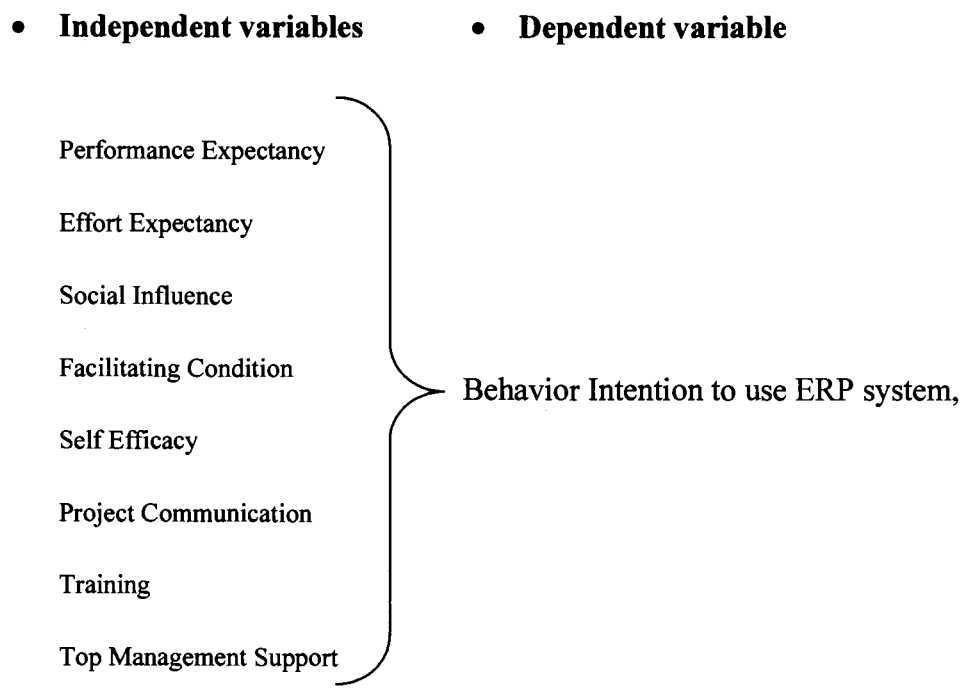


Table 5.10 shows the summary of variables of research model 2. In this model there is one independent variable and one dependant variable.

Table 5.10 Summary of Model 2

Independent Variable	Dependant variable
Behavior intention to use ERP system	Individual Performance

In table 5.11 the R^2 (.71) value shows that the overall independent variable explains the 71% variation in the behavior intention to use ERP system.

Table 5.11: Regression Model I

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.843(a)	.711	.702	.38816

Table 5.12 shows the beta and significance value of each independent variable in regression model one

Table 5.12: Detailed Regression Analysis

Dependant variables	R2	Independent variables	Beta	t	Sig
Behavior Intention	**.71**	Performance Expectancy	.322	4.602	.000*
		Effort Expectancy	-.358	-4.655	.000*
		Social Influence	.007	.094	.925
		Facilitating Condition	.063	.917	.360
		Self Efficacy	.505	6.873	.000*
		Project Communication	.036	.686	.494
		Training	.172	2.967	.003*
		Top Management Support	.189	2.967	.003*

Note. * Significant at .005 level

H1 Performance expectancy has positive impact on employee behavior intention to use.

Table 5.8 depicts that a highly positive correlation exist between performance expectancy and behavior intention to use ERP system and its value is r= 0.73. The significance value (p=.000) in table 5.12 shows that performance is significant in measuring the behavior intention. The Beta value, B=.322 show that performance expectancy contribute to .322 variation in the behavior intention.

Result: H1 Accepted

H2: Effort expectancy has impact on employee behavior intention to use.

The significance value (p=.000) in table 5.12 predicts that the effort expectancy is

a significant factor while measuring the behavior intention. The negative beta and t value indicate that this variable is not positively associated with the behavior intention. The possible explanation of this negative relation can be the employee's perception as this is the case of mandatory technology (ERP) and even if the system is difficult to use employees has to use the system.

Result: H2 Accepted

H3 social influence has positive impact on employee behavior intention to use.

Table 5.8 shows the value of correlation associated with the social influence and behavior intention. The value (r= .597) shows that there is medium level relation between social influence and behavior intention and the relation is positive.

Table 5.12 shows the regression analysis, the p value (p>.005) shows that Social influence is not a significant variable in measuring the behavior intention

Result: H3 Rejected

H4. Facilitating Condition has positive impact on employee behavior intention to use.

The p value (p=.360) in table 5.12 shows that facilitating condition is not a significant variable in measuring the behavior intention.

Result: H4 Rejected

H5. Self-Efficacy has positive impact on employee behavior intention to use.

The value of correlation associated with the self efficacy and behavior intention.

The value (r= .750) shows that there is strong relation between Self Efficacy and behavior intention to use ERP and the type of relation is positive (Table 5.8)

Table 5.10 shows the regression analysis, the value (B =.505) shows that the variable Social influence strongest predictor in measuring the behavior intention. The p value (p=.000) also shows that Social influence is a significant variable in measuring the behavior intention.

Result: H5 Accepted

H6. Project Communication has positive impact on employee behavior intention to use.

Table 5.8 shows the value of correlation associated with the project communication and behavior intention. The value (r= .558) shows that there is medium relation between project communication and behavior intention to use ERP. The p value (p=..494) in table 5.12 shows that project communication is a not significant variable in measuring the behavior intention.

Result: H6 Rejected

H7. A relationship exists between top management support and employee behavior intention.

The significance value (p=.003) in table 5.12 depict that top management support contributes significant value while predicting the behavior intention to use ERP system.

Result: H7 Accepted

H8: Training has positive impact on behavior intention to use ERP

The significance value (p=.003) shown in table 5.12 depicts that training contributes significant value while predicting the behavior intention to use ERP system. The correlation value(r=.659) also shows the positive correlation with behavior intention

Result: H8 Accepted

H9: Employees performance is positively correlated with behavior intention to use ERP system.

To test this hypothesis 9 the regression analysis for model 2 will be implied.

Table 5.13: Regression Model II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.738(a)	.545	.543	.60026

The table 5.13 shows that the behavior intention toward use of ERP system can bring 54 % variation in the performance of the employee.

Result: H9 Accepted

5.4 Part III Influence of Demographics on Performance and Effort Expectancy

In order to analyze the effect of demographic characteristics on performance expectancy and effort expectancy of the ERP usage behavior as explained in literature review, the constructs of measuring the behavior intention were analyzed with demographic statistics.

Table 5.14 shows the t-test values of performance expectancy with respect to gender. The significance value p>.005 (p=.010) shows that there is difference among the opinion of male and female about the performance expectancy associated with the ERP system use.

Table 5.14: t-test-performance expectancy of ERP system with respect to gender

Statement	N	Gender	Mean	t	Sig.
Performance Expectancy	180	Male	4.01	-3.471	.010*
	75	Female	4.41		

Note. * Significant at .005

Table 5.15 shows the ANOVA values of performance expectancy with respect to age The significance value p<.005 shows that these is no significant difference between the responses against behavior intention to use ERP system among different age groups.

Table 5.15: ANOVA Statistics About Performance Expectancy of ERP System Usage With Respect to Age

Statement	Mean				F	Sig.
	20-30 years	31-40 years	41-50 years	51 and above		
Performance Expectancy	4.02	4.36	4.50	3.91	6.06	.001

Note. * Significant at .005

Table 5.16 shows the ANOVA analysis of three groups of ERP usage experience with respect to the performance expectancy of ERP system use. The significance value,

p=.005, shows that there is no difference among the opinion of respondents of different experience group about the performance expectancy of ERP system.

Table 5.16: ANOVA Statistics About Performance Expectancy of ERP System Usage With Respect to ERP Usage Experience.

Statement	Mean			F	Sig.
	Less than one years	1-2 years	More than 2 years		
Performance Expectancy	3.88	4.29	4.15	5.328	.005*

Note. * Significant at .005

Table 5.17 shows t-test value of effort expectancy with respect to ERP usage experience. Significance value in table 5.16 p <.005 (p=.003) shows that there is no difference between the perception of respondents with respect to their gender about the effort expectancy of ERP system use.

Table 5.17: T Test Regarding Effort Expectancy of ERP System With Respect to Gender

Statement	N	Gender	Mean	t	Sig.
Effort Expectancy	180	Male	4.00	-3.814	.003
	75	Female	4.41		

Note. * Significant at .005

The table 5.18 shows ANOVA test regarding the perception of different age group about the effort expectancy of ERP system use. Significance value p>005 (p=.009) in table 5.17 shows that there is significant difference between the responses about effort expectancy of different age group against behavior intention to use ERP system

Table 5.18 ANOVA Test Regarding Effort Expectancy of ERP System With Respect to Age

Statement	Mean				F	Sig.
	20-30 years	31-40 years	41-50 years	51 and above		
Effort Expectancy	4.03	4.15	4.54	4.00	3.958	.009

Note. * Significant at .005

Table 5.19 shows the ANOVA analysis of three groups of ERP usage experience with respect to the effort expectancy of ERP system use. The significance value, p=.000, shows that there is no difference among the opinion of respondents of different experience group about the effort expectancy of ERP system.

Table5.19: ANOVA Statistics About Effort Expectancy of ERP System Usage With Respect to ERP Usage Experience.

Statement	Mean			F	Sig.
	Less than one years	1-2 years	More than 2 years		
Effort Expectancy	3.84	4.27	4.30	10.120	.000*

Note. * Significant at .005

A brief picture of the hypothesis results is shown in figure 5.16. The results indicates that the variable; social influence, facilitating conditions and project communication are not supporting hypotheses.

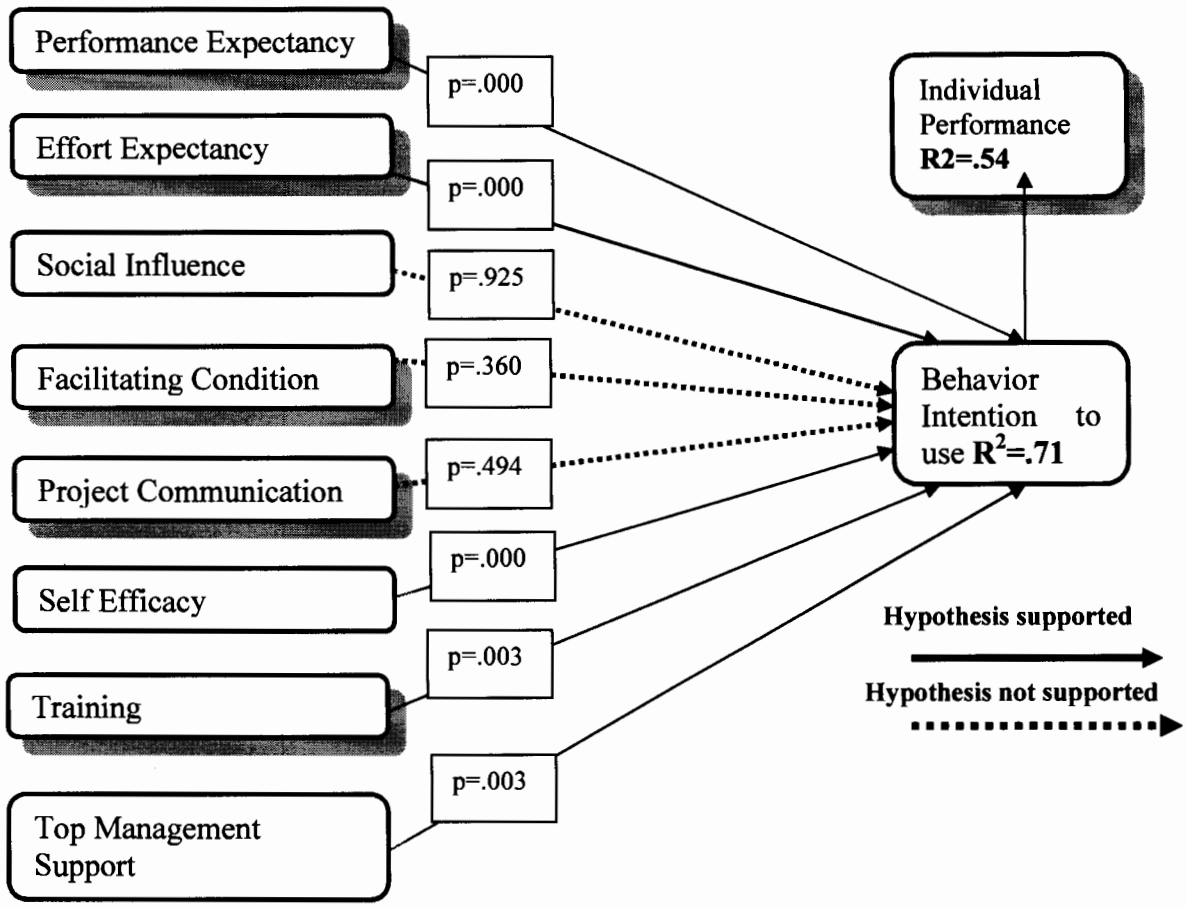


Figure 5.16: Research model with hypotheses results

CHAPTER 6

6 Findings and Conclusions

6.1 Findings

The findings of the study are as follow:

- Correlation value shows that 'Performance Expectancy', 'Facilitating Condition' and 'Self-Efficacy' were highly correlated with behavior intention.
- The regression value indicated that 'Performance Expectancy', 'Effort Expectancy', 'Facilitating Condition', 'Social Influence', 'Project Communication', 'Top Management Support', 'Training' and 'Self Efficacy' collectively bring a 71% change in 'Behavior Intention to ERP System' use.
- The significance value of regression analysis shows that 'Performance Expectancy', 'Effort Expectancy' and 'Self Efficacy' are highly significant variable while predicting 'Behavior Intention to use of ERP System'.
- Effort expectancy' is significant while explaining behavior intention to use ERP system The negative beta and t values in regression table indicate that this variable is not positively associated with the behavior intention. The negative values of beta and t show that the Ufone employees are compelled to use the ERP system.

- 'Facilitating Condition', 'Social Influence' and 'Project Communication' variables did not contribute in measuring the 'Behavior Intention to use of ERP System'.

- Male and female respondents had different opinion about the performance expectancy associated with the ERP system use.

- No difference found between the perceptions of respondents with respect to their gender about the ease of use of ERP system.

- There was no difference between the responses against 'Performance Expectancy' of ERP system among different age groups.

- The difference of opinion among different age groups and experience level were found about 'Effort Expectancy' of ERP system use.

- Majority of the respondents agreed with the statements: 'ERP system had increased their professional competence for organization', 'it has positive impact on their effectiveness and productivity in their job' and 'ERP has improved their performance'.

- Results indicated that behavior intention toward use of ERP system could bring 51% variation in the performance of the employees.

- Overall findings indicated that variables explored from literature about behavior intention towards use of ERP system measured behavior of Ufone employees. Therefore, the objectives of this study have been achieved and all research questions are answered from the findings.

6.2 Conclusions

The research has intended to gain an understanding of the user's behavior toward use of ERP system and its impact on their performance. First part of the study explores the literature related to implementation and acceptance issues of ERP system in developed and developing countries. During the exploration of literature, many factors were identified for measuring the behavior intention toward use of ERP system. Based on the most repeated and influential factors a theoretical model was proposed to measure usage behavior of Ufone employees.

The population of this study was Ufone employees who were using ERP system in the company. A questionnaire was administered personally on 300 Ufone employees. In response to the survey, 255 valid responses were received.

The findings of this study specify that the proposed model over all explained 71% variation in the behavior. 'Performance Expectancy', 'Self Efficacy', 'Training' and 'Top Management Support' were significant factors while explaining the user behavior toward use of ERP system. Further, the model explained that there is difference about the opinion on performance expectancy by male and female. Effort expectancy related to ERP usage among different age groups and different experience group differ. Majority respondents agreed that they like to use ERP system. They want to become professional in ERP system use and intend to use ERP for future professional assignments. Seventy percent respondents said that ERP system has improved their performance in work

The findings indicated that the factors explored from literature measure well the usage behavior of Ufone employees. This research model can be implemented in other telecom

sector organization in Pakistan to check their employee's behavior toward use of ERP system.

This research will facilitate the management to understand the factors responsible for the employee's behavior toward use of ERP system.

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8 Appendix

Questionnaire

Evaluating ERP Usage Behavior of Employees and Its Impact on Their Performance: a Case of Telecom Sector

Note: The purpose of this study is to investigate ERP usage behavior of employees and its impact on their performance.

1. **Gender** ☐ Male ☐ Female
2. **Age** ☐ 20-30 ☐ 31-40 ☐ 41-50 ☐ 51 and above
3. **Working experience** _____
4. **Designation** _____
5. **ERP usage experience** ☐ less than one year ☐ 1-2 years ☐ More than 2 years
6. **What is your opinion about the usefulness of ERP system in your job (Please tick the relevant box)?**

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
ERP system is useful in my job.					
ERP system has enabled me to accomplish tasks quickly.					
ERP system has improved the quality of my work.					
ERP system usage has provided me more advantages as than disadvantage.					

7. **What is your opinion about the ease of use of ERP system (Please tick the relevant box)?**

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel ERP system is easy to use.					
ERP system has made my work interesting.					
It is easy to understand ERP system.					

8. **Please indicate the degree to which you agree with the influence of social factors on your use of ERP system by ticking √ the relevant box.**

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Because of my use of ERP system, others in my organization see me as a more valuable employee.					
ERP system users are considered a valuable human resource.					

9. **What is your opinion about facilitation conditions about use of ERP system (Please tick the relevant box)?**

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Organization has provided necessary resources to use ERP system.					
ERP technical support is sufficiently provided by organization					