Do Pre-Training and Post-Training Factors Impact IT Training Transfer to the workplace?

A Case Study from a Multinational Company in the UAE

هل تؤثر عوامل ما قبل التدريب و بعده على نقل التدريب المتعلق بتكنولوجيا المعلومات لبيئة العمل؟

دراسة حالة من شركة متعددة الجنسيات في دولة الإمارات العربية المتحدة

By

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Abstract

The purpose of this study is to investigate and provide insights about the extent to which pre-training and post-training factors play a role in influencing the IT training transfer to the workplace. The study looks at the subject in the context of corporate-sponsored IT training and education initiatives. In order to provide a framework and clarity in the case, this study examined the "as-is" state of IT training transfer to the workplace for participants of IT training who work for a multinational company in Dubai.

An extensive review of research about the factors affecting the transfer of training to the workplace was conducted. The research had a specific focus on the effect of pre-training and post-training factors on IT training transfer. This resulted in the development of a research model for the IT training transfer process. All components of the model were measured by the means of a questionnaire for the IT training participants who attended a training 3-18 months before the study. Various types of statistical analyses techniques were used to examine the relationships in the model.

The results indicate that pre-training and post-training factors significantly influence IT training transfer to the workplace. Factors related to post-training support and encouragement are more strongly related to IT training transfer than the factors related to pre-training activities.

The further research implication of these findings is to translate these factors into training process activities and strategies that also incorporate the strengths of the findings of various learning theories. The concluding recommendations include a plan for improving the training process in order to improve the transfer of training in organizations.

نبذة مختصرة

الهدف من هذه الدراسه هو التعرف على مدى تأثير العوامل المرتبطه بما قبل التدريب و بعده بتطبيق التدريب المتعلق بتكنولوجيا المعلومات في بيئه العمل بعد التدريب. تبحث هذه الدراسه هذا الموضوع في مجال التدريب و المبادرات التعليمية المموله من قبل الشركات لتطوير موظفيها. وفي هذا الإطار تقدم هذه الدراسه تحليلاً للوضع الحالي المتعلق بمدى تطبيق التدريب في موضوعات تكنولوجيا المعلومات في بيئه العمل لإحدى الشركات الكبرى في دولة الامارات ألعربيه المتحدة.

لإتمام هذه الدراسه تمت مراجعه مصادر متعددة للتعرف على أهم العوامل التي تؤثر على تطبيق مخرجات التدريب في بيئه العمل كما وتم التركيز في هذه الدراسه على أهم العوامل المرتبطه بما قبل التدريب وما بعده على تطبيق التدريب المتعلق بتكنولوجيا المعلومات في الشركة موضوع البحث. وكنتيجة لهذه الدراسه تم اقتراح نموذج لآلية التدريب. لقد اعتمدت هذه الدراسه على مراجعه معلومات الاستبيان الذي شارك فيه المتدربون الذين حضروا التدريب في فتره ٣-١٨ شهرا قبل إجراء الدراسه . وبعد تجميع الاستبيان تم إجراء مجموعه من التحليلات الإحصائية على هذه البيانات للكشف عن علاقه العوامل ببعضها البعض.

تظهر نتائج هذه الدراسه أن العوامل المرتبطه بما قبل التدريب وما بعده تؤثر بشكل كبير في تطبيق التدريب المتعلق بتكنولوجيا المعلومات في بيئه العمل. وبمقارنة العوامل المرتبطة بما قبل التدريب بتلك المتعلقة بما بعده, تظهر هذه الدراسه أن العوامل المرتبطه بما بعد التدريب و خصوصاً دعم و تشجيع المتدربين لتطبيق ما تعلّموه خلال التدريب كان لها تأثير أكبر على مدى تطبيق التدريب في بيئه العمل.

تقتضي نتائج هذه الدراسه البحث مستقبلاً في ترجمه هذه العوامل إلى استراتيجية ومنهجيه تدريب عمليه تستند الى نقاط القوه التى تم إثباتها علمياً في نظريات التعليم المختلفة. أما خلاصه توصيات هذا البحث فتشمل طرح خطه لتحسين عمليه التدريب من أجل تحسين مستوى تطبيق التدريب في بيئه العمل في المؤسسات المختلفة.

Dedication

To my role models forever… My beloved mother and father…To my best gift from god …Mohammad and Salma… And to everyone who encouraged and supported me… I dedicate this research …

Nada Naser Alaydie

Acknowledgement

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List of Definitions and Abbreviations:

1. **Training**: a planned effort by a company to facilitate employees' learning of job-related competencies.

2. **IT**: Information Technology

3. **IT Training**: training that is delivered to upskill the trainees to work with computer software applications.

4. **Firm-Sponsored Training**: training that is designed, developed and provided by a firm for its employees. The employer typically covers the monetary costs of firm-sponsored training. In addition, the employer bears the cost of the forgone loss in productivity as a result of employee time spent on the training program.

5. **Training Transfer / Learning Transfer:** the degree to which trainees effectively apply the knowledge, skills and attitudes gained in the training context to the job. (Newstrom 1984; Baldwin & Ford 1988; Wexley & Latham 2002; Kirkpatrick & Kirkpatrick 2005; Subedi 2004)

6. **Instructor-led training:** This type of training is facilitated by an instructor either online or in a classroom setting. Instructor-led training allows learners and instructors or facilitators to interact and discuss the training material, either individually or in a group setting (Training Industry, 2016).

Chapter One: Introduction

1.1 Introduction

The world is increasingly competitive where the market is in a metamorphosis while causing constant changes in the business world. Every day, there are new methods, tools and processes, as well as, new technologies. Thus, corporations need to be prepared to keep this competitive environment, renewing and recycling every day, keeping a number of tools under their belt. One such tool is the training given to employees. Investing in the development of employees is an essential aspect of the development of enterprises and their employees.

This chapter provides an overview of the current state of practice for IT Training in the selected Company. It also defines the research problem, scope and objectives. It further highlights the underlining research hypothesis and the research questions. The chapter concludes by outlining the research contributions and the dissertation structure.

1.2 Overview

Organizations worldwide strive to attract appropriate talent to their workplace. Successful organizations invest in developing the talent of their workforce, allowing each employee to realize his/her potential. One of the most valuable investments that an organization can make is in its people. This includes upskilling the employees and developing their skills so that they are well equipped to work in the ever-changing and competitive business environment, thus ensuring their work operations are always efficient, accurate and effective (Dostie, 2015; Emanuel Froehlich et al. 2014).

Research has proven that training employees is a necessity to bridge the gap between their current skills and competencies, and the skills required for the future needs of both the employee and the organization. Training employees not only increases their knowledge, understanding and capabilities; it also increases their employability, job satisfaction, innovation,

morale, commitment, job involvement, salary, retention and ultimately their performance (Hafeez & Akbar 2015; Najeeb 2013; Sultana et al. 2012; Dabale, Jagero & Nyauchi 2014; Dostie, 2015; Emanuel Froehlich et al. 2014).

Training helps organizations achieve their business goals, increase efficiency and implement high-performance workplace practices, thus resulting in in an overall enhancement of their human capital (Coverstone 2003; Dostie, 2015). Therefore, Training effectiveness and transfer of training have been significant concerns for many organizations and researchers in the Human Resource Management (HRM) field. Believing that training will improve employees' performance and organizations' productivity, organizations spend billions of dollars every year on formal training programs (Training Industry Report 2014). However, it is argued that training may not improve employees' performance unless the learned knowledge, skills and behaviors are implemented continuously in the daily tasks that are assigned to the employee (Tonhäuser & Büker 2016; Saks & Belcourt 2006). In addition, many studies have pointed out that most of the training fails to be transferred to the workplace (Baldwin & Ford 1988, Diamantidis & Chatzoglou, 2014). Therefore, training processes need to be re-examined to ensure high success rates of training transfer to the workplace.

Despite the prevailing theory that only 10% of what is learned in training is applied on the job (Georgenson 1982), more recent publications show that this statement is not accurate and is speculative (Fitzpatrick, 2001). There have been further investigations in assessing an accurate average of the learning transfer rate. Saks (2002) and Saks and Belcourt (2006) reported the results of a study they conducted on 150 members of a training and development society and found that 62% of employees trained applied their learning to the job immediately, however, the percentage dropped to 44% after 6 months and decreased further to 34% a year after the training. This study, however, did not measure the percentage of the transfer of the knowledge and skills learned in the training. Skills transfer rate was examined by Wexley and Latham (2002) who reported that although 40%

of the skills learned in the training is transferred to work immediately after the training, this drops to 25% after 6 months and to 15% after 1 year. These studies raise a concern that both, the percentage of the people who apply the training at their workplace and the percentage of the knowledge and the skills they apply appear to diminish over time (Baldwin & Ford 1988; Newstrom, 1986; Burke and Baldwin 1999). If this is the case, then this means that the training is unlikely to have an impact on the organizational performance (Kozlowski et al., 2000).

Cromwell and Kolb (2004) reported that Human resource development professionals struggle to explain why a higher percentage of skills and knowledge acquired through training fail to transfer to the workplace and why this transfer significantly decreases over time. Hence, these conclusions suggest that organizations need to re-evaluate their training processes.

Regardless of the exact percentage of the learning transfer to the workplace, it is evident that a large part of the money and the time that organizations and employees invest in training is wasted, as only a small percentage of the training is transferred to the job. Therefore, it is imperative that organizations comprehend the factors that affect the learning transfer to the workplace in order to maximize those factors that contribute to the transfer and control the ones that do not. It is also useful to explore if there is a difference in the degree of the learning transferred if the training delivered is on technical or behavioral skills.

A number of recent studies have aimed at identifying the factors that affect the transfer of training to the workplace. This is a very important topic because the application of the gained knowledge and skills at the workplace is what provides a real value for training. At the same time, it is important that organizations recognize the factors that hinder the learning transfer in order to minimize them. Clearly, the objectives of the training and development of employees are not achieved if the employees are unable to apply what they have learned (Subedi 2004).

Although many studies have proved that work environment factors have an impact on the training transfer process, work environment factors have been investigated less often than the characteristics of trainees and training programs (Baldwin & Ford, 1988; Rouiller & Goldstein, 1993). Studies have shown contradictory findings of the impact of work environment factors on the training transfer. For example, some studies have reported that social support in the form of organization, peers, and managerial support could influence training transfer (e.g. Holton 2005). On the other hand, other studies reported that there is no significant relationship between the supervisor's behavior and the transfer of training (van der Klink, Gielen, & Nauta 2001; Ng 2013). As a result, there is a lack of decisive empirical evidence in the specific aspects of work environment elements that have an impact on training transfer (Clarke 2002).

Many organizations today rely on technology and automation to run their businesses. With the constant developments and updates in technology, technical competencies are necessary. Therefore, continuous corporate IT education for employees (IT training) is fundamental for organizational success (Coverstone 2003; Yi and Davis, 2003). It is reported that computer skill training is the most frequent type of training offered by training organizations (Training Industry Report 2014). Offering corporate IT training to staff provides organizations with multifaceted benefits such as an improved understanding of technological innovation, an increased motivation to use the software, and ultimately reduced operational costs for the organizations (Dostie, 2015). Therefore, organizations consider IT training as complementary to their investments in IT infrastructure (Dostie, 2015). IT training topics include office automation systems that can help employees perform their daily tasks effectively and tools that can equip them for future growth and progress (Sultana et al. 2012; Sein et al. 1989).

The main expected outcome from corporate IT training is the consistent use of the programs by trainees to achieve productive results (Shayo, Olfman & Teitelroit 1999). For this outcome to be achieved, trainees need to:

 (a) Understand how to use the software (form mental models) and

(b) Have motivation and desire to use the software on the job (Sein et al. 1989).

For corporate IT training programs to be effective, it is essential for companies to offer such programs that are aligned with the strategic needs of the organization. It is also equally important to define a clear approach to analyze, evaluate, and measure the learning outcomes and the overall training initiatives. If those are not considered, the learning initiatives will not be successful in meeting the management expectations (Coverstone 2003).

1.3 The Company

This research was conducted in a multi-national company that has offices in various cities around the world. This organization has a total staff count of 68,000. The majority of the staff (around 61,500) is located in the UAE. The rest (around 6,500) are based in different locations outside UAE boundaries. Due to confidentiality, this organization shall be referred to as "Company" hereafter.

In view of the training research conducted over the past decade, Salas and Cannon-Bowers (2001) described many exciting improvements to the training research; however, they highlight the importance of putting these improvements into practice by the training units. To understand more about the learning transfer in the Company and the extent of their practical implementation of the training theories; it is important to understand the current training process that is followed in the IT training unit of the Company. A summary of the training cycle is presented in Section 1.4.

1.4 Current State of Practice for Corporate IT Training in the Company

There are two types of training programs offered by the IT training unit: generic and customized. Generic courses are offered on topics that are beneficial for people in different departments of the company. These courses can cover a wide range of topics, ranging from how to work with MS Excel functions, access the corporate network, or collect and analyze data. Customized training programs are tailored to the requirements of a

specific role or unit. These are for teams that use very specialized tools or functions of existing technology. These courses might include department branding techniques, department-specific applications, or more in-depth coverage of a subject covered in a generic training program.

A candidate showing interest in learning a skill is the first step to getting enrolled in any of these corporate IT training programs. This interest is normally supported by recommendations from colleagues, managers, and/or supervisors. Since these training programs are usually one or two days long and scheduled during the work week, candidates are away from their workplace during the training days and hence, need to get an approval from their direct managers or supervisors. This is the stage at which the candidates' training goals should be decided to help guide them towards the appropriate course; however, this goal setting is not mandatory.

There is no formal or informal assessment to recommend the right training level (basic, intermediate, or advanced) to the participants. Although the topics covered in each training program are available in the Learning Management System (LMS), of the company; however, some participants miss this and end up enrolling themselves in the wrong training program or level (too basic or too advanced). Training candidates, managers, and supervisors rely on their instincts to select the training level. There are also a few participants who enroll themselves in a course based on criteria like seat availability, how soon the training is offered, or the duration of the training.

Once a candidate gets approval to attend a training course, (s) he contacts the training unit to be enrolled in a suitable session. Each session normally has 6-12 participants. The nomination process does not mandate any formal meeting between candidates and their managers or supervisors; it only requires the approval of the manager or supervisor. Therefore, it is left to the managers and supervisors to handle the training request based on what they believe would most benefit the candidate and their team.

Once participants are enrolled in a course, they get a system notification to confirm their registration. For some of the generic IT training programs,

there are one or two Prerequisite online courses recommended as a pre-course activity. For the courses with the Prerequisite s, candidates receive a system notification two weeks prior to the training day to inform them that they need to complete the online course before attending the training. Some candidates complete these online courses, while others disregard the notifications. Currently, there are no criteria or measurements of how many of the candidates have completed the Prerequisite course(s).

On the training day, participants learn the course content. The courses are designed to provide participants with a learning environment where they can have adequate hands-on experience with the applications they are being trained on.

At the end of the training program, participants are requested to give feedback about the training. The feedback questionnaire includes questions related to the trainee, trainer and the training program. Additionally, participants are asked to rate their knowledge, confidence, and commitment before and after the training and to share their comments and suggestions about their learning experience.

For most of the corporate IT training courses, once participants have given their feedback, they must take an end-of-course assessment. To avoid the possibility of the results of the assessment impacting the feedback, the latter is done first. The results of the assessment are updated into the HR system and remain on the participants' records.

Despite encouraging participants to work together (in pairs or small teams) and collaborate during the training, there exists no forum for participants to continue their learning journey together as a group once the training is over. However, very few participants contact the trainer with requests for follow-up clarification or support or even to share the results of their knowledge and skills transfer. For the majority of the IT training participants, the trainer has no way to track whether or not they are implementing the skills learned. Additionally, for those who implement the skills learned, there is no measure of the extent of their learning transfer or the impact this transfer has on the business results.

1.5 Problem Definition

As discussed in Section 1.4, the corporate IT training that is offered to the employees of the Company is delivered without mandating participants to go through any pre-training assessment, goal setting, or Prerequisite assignments. This particular argument supports the findings by Saks and Belcourt (1992) who concluded that despite the findings of pre and post-training activities having a significant impact on the training transfer, little effort is made by the organizations to include activities before or after the training event to enhance the training transfer. In addition, there is no process in the Company that guides participants or their managers about the actions they need to do after the training, in order to measure or support the IT training transfer to the workplace.

Research shows that training needs to create a work environment that fosters continuous learning and performance improvements and that it should not be considered as a one-time event (Noe 2012). However, as per the current IT training processes that are followed in the Company, IT trainers have no idea about the transfer of the IT skills learned during the training to the workplace after the training.

According to Sein et al. (1989), IT training must include activities that take place in three different phases i-e before, during and after the training itself. Olfman and Bostrom (1991) were of the researchers who studied how training design and training methods could influence the learning of participants. However, little research has been conducted on the impact of pre-training and post-training activities on the learning transfer of corporate IT training programs (Shayo, Olfman & Teitelroit 1999).

Therefore, in order to maximize the IT Training transfer to the workplace, it is essential to know the factors that have an impact on the IT training transfer. Once those factors are identified, the IT training unit needs to translate those factors into activities and ensure that these activities become a part of the training process that is followed by trainees, their managers, trainers and all other stakeholders.

1.6 Research Scope

The scope of this study is generally broad which had to be narrowed down to a particular company in order to attain accurate results. The Training unit of Company is in charge of offering both, instructor-led, as well as, online training programs. The corporate training programs target soft skills, language skills, as well as, technical subjects. This study focuses on the corporate generic IT training programs.

A few studies have described various factors that have an impact on the training transfer to the workplace. In most of the studies, factors are classified as:

(a) Training design and training environment

(b) The trainees' characteristics and efficacy

(c) The work environment factors (Baldwin & Ford, 1988; Sarv & Ramesh, 2004; Chiaburu & Marinova, 2005).

While acknowledging that training transfer is influenced by both, individual and contextual factors, since one of the objectives of this research is to improve the training process in the Company, the present study organizes the factors according to the order of its subsequent activities in the training process.

As mentioned in Section 1.5, the training cycle comprises of pre-training, training and post-training activities. The focus of this thesis will only be on the pre-training and post-training factors that have an impact on the IT training transfer to the workplace. Figure 1.1 highlights the high-level scope of this research.

Figure 1.1

The Scope of the Research

In Scope   Out of Scope   In Scope

Pre-training activities → Training design and delivery → Post-training activities
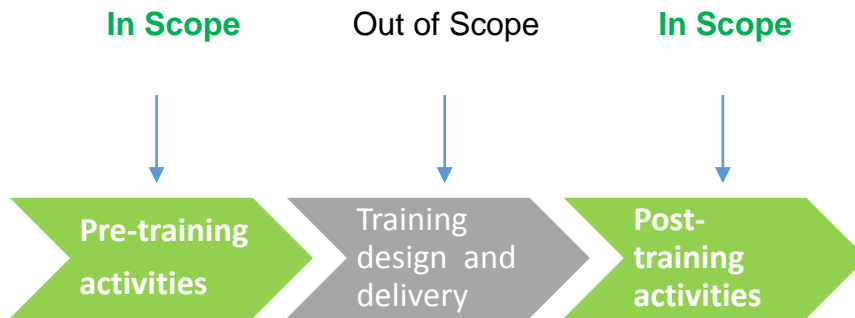
1.7 Research Objectives

One of the objectives of this thesis is to investigate the status of the IT training transfer to the workplace at the Company. In addition, this research aims to conclude if the pre-training and post-training factors have an impact on the transfer of the IT skills from the training site to the workplace. In particular, the research is conducted to explore if the pre-training factors (a) Pre-training assessment, (b) Pre-training goal and learning objectives setting and (c) Prerequisite activities or the post-training factors (a) peers' support, (b) manager support and (c) reward and recognition have an impact on the IT training transfer to the workplace. The study concludes by providing recommendations about the gaps that the Company needs to address for it to achieve higher IT training transfer levels.

1.8 Research hypotheses

This section highlights the underlying hypotheses that structure the research. As shown in Figure 1.2, the two main hypotheses of the research are:

 (a) Pre-training factors have an impact on the IT training transfer to the workplace and

(b) Post-training factors have an impact on the IT training transfer to the workplace.

Many factors can be linked to pre-training and post-training. In this research (a) pre-training assessment, (b) goal and learning objectives setting and (C) Prerequisite activities are identified as the pre-training factors that are subject to the study. Additionally, (a) peers' support, (b) manager support and (c) reward and recognition are identified as the post-training factors that are a part of the study. Here is a list of the hierarchy of the research hypothesis:

- H1: Pre-training factors have a significant positive impact on the IT training transfer to the workplace.

    - H1.1: Pre-training assessment has a significant positive impact on the IT training transfer to the workplace.
    - H1.2: Pre-training goals and learning objectives setting have a significant positive impact on the IT training transfer to the workplace.
    - H1.3: Prerequisite activities have a significant positive impact on the IT training transfer to the workplace.

- H2: Post-training factors have an impact on the IT training transfer to the workplace.

    - H2.1: Post-training peers' support has a significant positive impact on the IT training transfer to the workplace.
    - H2.2: Post-training manager support has a significant positive impact on the IT training transfer to the workplace.
    - H2.3: Post-training reward and recognition have a significant positive impact on the IT training transfer to the workplace.

Figure 1.2

The Research Model

| Pre-Training Factors | • Assessment (H1)
• Goals & Learning Objectives Setting (H2)
• Pre-Requisite Activities (H3) | Training Transfer to the workplace

(Training Application) |
| Post-Training Factors | • Peer support (H4)
• Supervisor/Manager support (H5)
• Reward and recognition (H6) | |
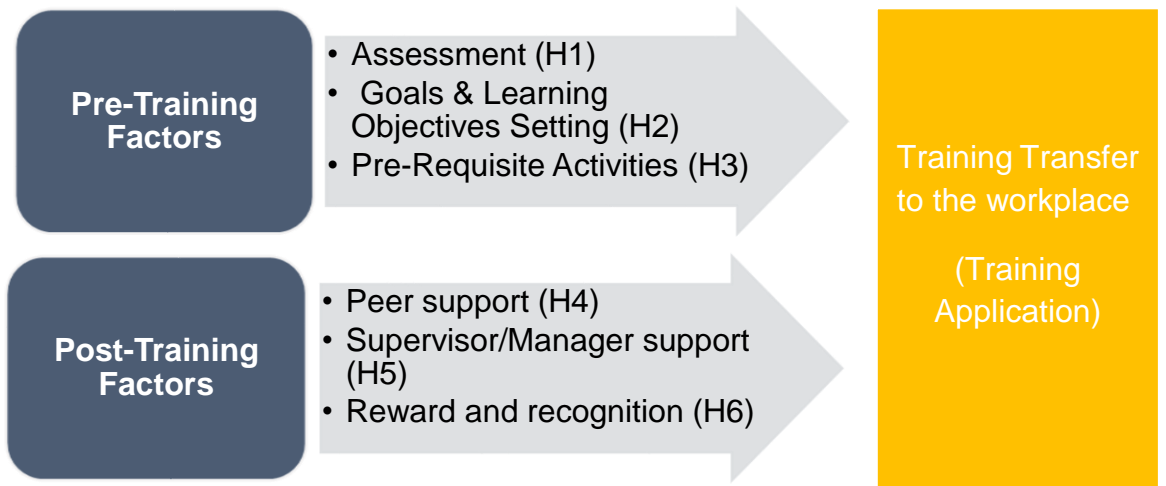
1.9 Research Questions

This study was conducted to answer the following questions:

Table 1.1

Research Questions

S. No.	Research Question
RQ1	What is the current percentage of the IT training transfer to the workplace?
RQ2	Is there any statistically significant impact of conducting a pre-training "assessment" on the IT training transfer to the workplace?
RQ3	Is there any statistically significant impact of pre-training "Goal & learning objectives' setting" on the IT training transfer to the workplace?

RQ4	Is there any statistically significant impact of pre-training "Prerequisite" on the IT training transfer to the workplace?
RQ5	Is there any statistically significant impact of post-training "Peers' support" on the IT training transfer to the workplace?
RQ6	Is there any statistically significant impact of post-training "Manager's support" on the IT training transfer to the workplace?
RQ7	Is there any statistically significant impact of between post-training "Reward and recognition" on the IT training transfer to the workplace?
RQ8	Amongst the pre-training activities, which one has the biggest impact on the IT training transfer to the workplace?
RQ9	Amongst the post-training activities, which one has the biggest impact on the IT training transfer to the workplace?
RQ10	Is there any statistically significant correlation between the years of service in the organization, the participant grade or the number of courses attended and the IT training transfer to the workplace?
RQ11	What barriers do trainees perceive as the most critical to the transfer of the IT training to the workplace?

2.2 Training and Transfer of Training

The terms learning transfer and training transfer are used interchangeably in the available literature (Subedi, 2004; Hamid, Saman, & Saud, 2012). Research papers were identified through extensive literature search for terms like learning transfer, training transfer, IT training application, training effectiveness etc. In addition, cross-referencing of cited studies was used to get a better understanding of the topic. In this section, we will describe the relevant literature review for transfer of learning on the job from a training experience.

Training is a planned exertion of efforts by an organization to enable its employees to learn various competencies related to their duties. The goal of training is for employees to (a) master the knowledge, skills, and behaviors emphasized in training programs and (b) apply them to their day-to-day activities. Transfer of training is defined as the effect of learning an activity on the execution of other activities. The term activity here means the application of knowledge, skills, or attitudes from the 'source' to the 'target' situation. Tuijnman (1996) believes that the outcome of the learning transfer can be seen from three different perspectives (a) the similarity of the original and the new situations, (b) the significance of the strategies for transfer and (c) support of transfer by situated cognition (cited in Subedi 2004). Therefore, behavioral observations can be used for assessment by observing how the learners exhibit the learned behaviors in new situations. The specific situations in which the new behaviors are exhibited reflect the extent of the transfer of training. When changes in the behaviors exhibited at work happen as a result of training, this means that the learning transfer has happened. This is a process that is affected by ongoing learning, reflection, understanding, and feeling on the part of the subject.

Transfer of training is also defined as the extent of the effective application of the knowledge, skills, and attitudes from the training environment to the workplace environment (Newstrom 1984, cited in (Baldwin & Ford 1988)). In other words, transfer of training is the degree to which trainees effectively apply the learning from a training context to the job (Newstrom 1984; Baldwin & Ford 1988; Wexley & Latham 2002; Subedi 2004). Similarly, Kirkpatrick and Kirkpatrick (2005) define post-training behavior as "to what extent participants apply what they have learned during training when they are back on the job". Training is effective if the learned skills and behaviors are (a) transferred, applied and generalized on the job context and (b) maintained over a period of time on the job (Baldwin & Ford 1988). The strategies suggested by these studies emphasize the importance of considering the transfer of training as a process rather than as an outcome (Machin 2002).

1.10 Research Contribution

Saks and Belcourt (2006) reported that work environment activities before and after training had a stronger impact on training transfer than activities during training. The present research gives insights into the pre-training and post-training factors that have an impact on the IT training transfer to the workplace. These factors need to be translated into strategies that are applied by trainees, their managers, as well as, the training unit and all the stakeholders involved in the training process. By doing so, the IT Training transfer to the workplace will be increased and therefore, this will improve the performance of the employees. Consequently, this thorough study of the pre-training and post-training factors impact on IT training transfer contribute to providing a better understanding of factors that affect the IT training transfer, thus providing practical insights into the transfer design activities that need to be implemented to increase the effectiveness of the training programs and the other outcomes.

The results of this study show a strong positive correlation between the pre-training goal & learning objectives' setting, post-training manager support, post-training reward and recognition and post-training peers' support on the IT training transfer to the workplace. Pre-training assessment and completing prerequisite activities before the training have a relatively weaker impact on the IT training transfer to the workplace. As a result of this research, training specialists should be able to justify the time they spend on pre-training and post-training activities as these activities have a significant impact on the IT skills transfer to the workplace.

This study aims to help decision makers in deciding what aspects of training need to be enhanced and introduced and which aspects should be eliminated or controlled to make training transfer more efficient. Another important intent of this research is identifying the main issues that the trainees perceive as barriers to the IT training transfer to the workplace. Once these barriers are identified, the IT training unit needs to ensure that these barriers are addressed in order to increase the IT training transfer to the workplace. It is also promising that the findings of this study are not

restricted to the generic IT training, but can be generalized to other types of training programs as well.

Because of this study, the researcher was able to put some of its findings onto practice for designing a new IT training course. According to the design of this new course, IT training candidates were asked to identify their learning goals before the training and to discuss them with their managers in order to validate that the goals are relevant, measurable, and valid. This ensured that after the training, the trainees are provided with enough support to practice and apply the IT skills learned. Additionally, trainees are required to do an assessment before the training to identify the right training level for them. Also, the trainees complete a Prerequisite assignment before the training to ensure they all have the foundation knowledge and skills required during the training.

Post-training factors are also addressed in the design of this new course. Managerial support has to be agreed upon before the training to ensure participants will be given the opportunity, time, and support to apply the learning from training on the job. To ensure participants have peers' support after the training and reinforce the learning that happened during the training, a social learning tool (Yammer) is used where participants are encouraged to share knowledge and support each other's learning. Moreover, reward and recognition strategies were included in the design of this new course.

The initial feedback to this change in the IT training process is very positive. However, due to time constraints, a full evaluation of this new approach could not be completed. Therefore, evaluating the new IT training process, measuring the new IT training transfer rate, and comparing those with the baseline data calculated in this study, are a part of the future work for this research.

1.11 Dissertation Structure

The remaining chapters detail how the goals of the research were met and discuss the analysis and conclusion of the results. Chapter 2 reviews related work and provides a summary of the available research about

learning/training transfer to the workplace. Chapter 3 describes the research practical framework as it defines the scope of this study, the methodology, the population, the sample and unit of analysis, the questionnaire instrument, the research dimensions and measures. Chapter 4 discusses the analysis of the research which includes both the demographic profile of the respondents and the descriptive analysis of the research variables. Chapter 5 presents an analysis of the responses and tests the research hypothesis. Chapter 6 states the conclusion, recommendations and future research areas.

As was discussed in this chapter, the research hypothesis, and the research questions are related to the topic of "the training transfer to the workplace". Therefore, a lot of resources related to the subject were examined. The following section highlights a summary of the findings of these resources.

Chapter 2: Literature Review

2.1 Introduction

This chapter discusses the available literature in the Corporate IT Training Transfer to the Workplace field. It defines the terms related to this subject, the significance of it and identifies the theories and models that point out the factors and issues related to IT training transfer to the workplace. The chapter concludes with a summary of how the factors identified in previous studies relate to the study of this research.

2.3 Significance of Training and Transfer of Training

Many studies have proved sound associations between training and job satisfaction, performance and organizational efficiency. In the research conducted by Latif et al (2013), a strong correlation between the participants' training satisfaction and their development aspect of job satisfaction was found. The research identified training as an important ingredient to increase job satisfaction of the employees.

Training plays a significant role in improving the productivity and performance of employees. A study from British industries found that increasing the proportion of trained employees by 1% contributes to increasing value added per hour of about 0.6% (Dearden, Reed, & Van Reenen 2006). This is similar to the findings of the research conducted by Hafeez & Akbar (2015), who found a strong positive correlation between training and employee performance. Employee performance is looked at from two aspects:

(a) Performance areas (demonstration of teamwork, communication skills, customer service, interpersonal relationships, and absenteeism) and

 (b) Development areas (job satisfaction & morale, motivation, new technologies and methods, efficiencies in progress, and innovation).

The study found that training contributed 26.4% in the employee performance areas and 24.8% in the employee development areas. (Hafeez & Akbar, 2015).

Training transfer to the workplace is an important criterion for evaluating the effectiveness of the training. According to Kirkpatrick model for training evaluation (1996), training effectiveness evaluation needs to be accounted for as early as the planning stage of the training program. Kirkpatrick model (1996) also states that there are three reasons to evaluate training programs which are: (a) to demonstrate the value that the training programs and the training department create, (b) to make decisions on continuing or discontinuing a training program and (c) to improve training programs on offer.

Kirkpatrick and Kirkpatrick (2005) argued that the effectiveness of any learning intervention includes evaluation of the transfer of the learning outcomes at the four levels which are: (a) L1-reaction, (b) L2-learning, (c) L3-application on the job and (d) L4- organizational result. Kirkpatrick (2005) defines training transfer as the change in participants' behavior as a result of attending the training program and its subsequent reinforcements which are captured in Level 3.

The significance of the Kirkpatrick and Kirkpatrick (2005) model is that it highlights the importance of having a holistic view when evaluating a training intervention and not limiting our evaluation to measuring the achievement of the learning outcomes. In other words, learning is looked at as one out of the four levels of evaluation. This model proposes that even if a training objective is effectively implemented, the overall business objectives may not be achieved. The explanation to this could be that the trainees would have acquired the new skills and knowledge, but their work environment may not be supporting them to apply what they have learned.

Evaluation of level 3 is possible by (a) pre and post-training tests or surveys, (b) interviews (c) observations and feedback (d) focused group discussions. The main aim of evaluating this level is to answer the question: "do people use their newly acquired skills, knowledge, or attitudes on the job?" Level 4

aims at answering the question "what business impact did the training bring about?" (Kirkpatrick & Kirkpatrick 2005).

2.4 Training Transfer Models

The model proposed by Baldwin and Ford (1988) is one of the most widely used models of the learning transfer to the workplace. Figure 2.1 below shows an illustration of this model.

Figure 2.1

Baldwin and Ford's model of the Transfer Process Resource
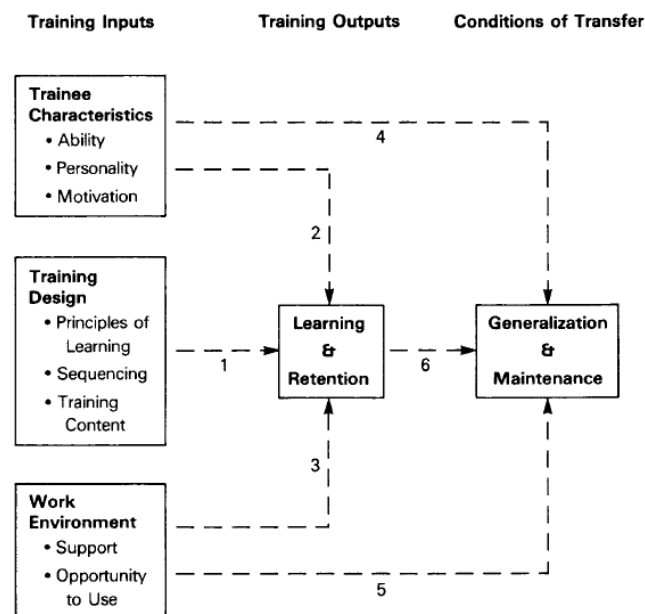
Source: **(Baldwin and Ford 1988)**

Since training transfer is the focus of this research, we will focus on reviewing the conditions of the transfer part which are: generalization and maintenance in the workplace. As illustrated in Figure 2.1, there are three main inputs that affect the transfer conditions (generalization and maintenance) which are represented in links 4, 5 and 6. Those inputs are:

(a) Trainee characteristics which include their ability or skill level, personality and motivation,

(b) Work environment factors that include support in the form of supervisory or peer support and the opportunity to use the learned skills and

 (c) Training outcomes of learning and retention.

The assertions about the impact of the work environment factors are similar to the findings by Cromwell and Kolb (2004) who also reported that trainees who received high levels of organization, supervisor, and peer support, and who also participated in a peer-support network reported higher levels of transfer of knowledge and skills. Ng (2013) also arrived at the same findings and reported that peer support has a significant positive influence on the transfer of training.

Figure 2.1 also demonstrates that Learning and Retention (training outputs) are affected by three training inputs of (a) trainee characteristics (b) training design which includes incorporation of the principles of learning, the sequence of the training material, and the job relevance of the training content and (c) work environment. Therefore, training design has a direct impact on learning and retention, but an indirect impact on the transfer conditions, while trainee characteristics and work environment have both a direct impact on the learning and retention and a direct impact on the transfer conditions.

In his review of the emerging trends of research on transfer of learning, Subedi (2004) agreed with Baldwin and Ford's model (1988) and elaborated on the factors that influence the transfer of training and classified them as:

 (a) **Trainee factors:** including trainee personality, interests, commitment, job attitudes, motivation, goal-orientation, expectations, skills, self-efficacy, and readiness to learn and apply skills.

(b) **Training design and delivery factors**: including the implementation of the human resource developments practices like training needs analysis and organizational analysis, relevance of the training, instructional techniques used, technology usage and delivery mode

(c) **Organizational or workplace factors**: these include post-training transfer environment, opportunity to practice the learning, both, supervisory behaviors and their perceived level of support, workplace environment and incentives, feedback and reinforcement of the behaviors (Subedi 2004).

Holton (1969) criticized Kirkpatrick's four-level evaluation model and presented a new model that accounts for primary intervening variables. He argued that the Kirkpatrick model is more of a taxonomical or a classification scheme than that of a model. He based this assumption on the fact that when the training outcomes don't fulfil the desired ones, the four levels of evaluation model fails to provide enough information to help in decision-making about the training intervention, as the failure might be attributed to factors that are external to the classroom like organization, the job, or the individual. Hence, he proposed the HRD Evaluation and Research Model that provides an accurate diagnosis to the barriers and the outcomes of training effectiveness (Holton 2005).

As illustrated in Figure 2.2, Holton's model (2005) identified three primary intervening outcome levels which are (a) learning, (b) individual performance and (c) organizational performance. This model proposed three primary construct domains that influence the Human Resource Development (HRD) outcomes: (a) Transfer design (ability), (b) motivation to transfer and (c) transfer conditions (environment). The model further specified constructs within those domains that may influence the three outcome levels. Secondary influences have also been identified. If we consider improving Individual performance as a practical training intervention goal, the factors that are identified as contributors to learning transfer in the elaborated version of the model are based on the Learning Transfer System Inventory (LTSI). The LTSI research field came up with a framework of a full system that comprises of 16 factors that influence learning transfer. Those 16 constructs are listed in Figure 2.1 inside the three boxes that have direct links to the Individual performance outcome. The advantage of this model is that it can provide an explanation for the cases where the learning fails to transfer as the model accounts for others factors (including the transfer climate) that reside outside the classroom.
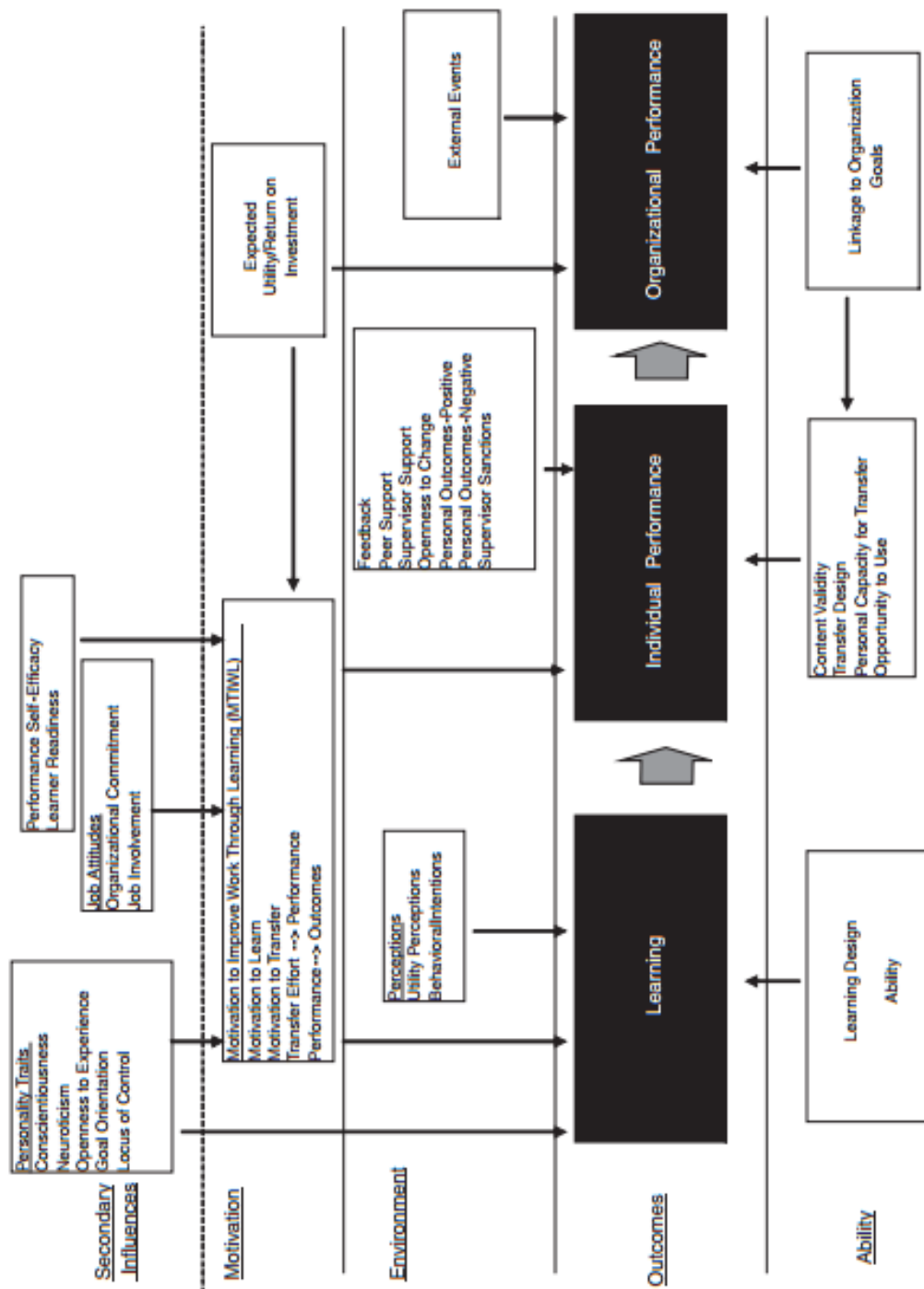
Figure 2.2

Revised HRD Evaluation, Research, and Measurement Model

Source: (Holton 2005)

Secondary Influences
- Performance Self-Efficacy
- Learner Readiness
- Job Attitudes
- Organizational Commitment
- Job Involvement
- Personality Traits
- Conscientiousness
- Neuroticism
- Openness to Experience
- Goal Orientation
- Locus of Control

Motivation
- Motivation to Improve Work Through Learning (MTIWL)
- Motivation to Learn
- Motivation to Transfer
- Transfer Effort --> Performance
- Performance --> Outcomes
- Expected Utility/Return on Investment

Environment
- Feedback
- Peer Support
- Supervisor Support
- Openness to Change
- Personal Outcomes -Positive
- Personal Outcomes -Negative
- Supervisor Sanctions
- External Events
- Perceptions
- Utility Perceptions
- Behavioral/Intentions

Outcomes
- Organizational Performance
- Individual Performance
- Learning

Ability
- Linkage to Organization Goals
- Content Validity
- Transfer Design
- Personal Capacity for Transfer
- Opportunity to Use
- Learning Design
- Ability

2.5 Factors Impacting Training Transfer to the Workplace

Although training transfer to the workplace is observable post-training, transfer management needs to be looked at as a process that requires stakeholders' actions before, during, and after the training to increase the probability of success for effective transfer of learning. Jaidev and Chirayath (2012) quantified the relationship between pre-Training and post-training activities. They reported that pre-training activities explained 20.2% of the training transfer to the workplace and that post-training activities explained 18.3% of the training transfer to the workplace.

Consequently, Training professionals recommend that organizations need to work towards supporting training transfer before the training program begins and to continue to support the trainees' learning after the training completes. Therefore, training transfer tasks include activities that stakeholders can do before, during and after the training is completed (Subedi 2004; Allan 2016; Newstrom 1986; Broad and Newstrom 1992; Jaidev and Chirayath, 2012).

While there is a very thin line between the two, our research will focus on the pre-training and post-training factors that have an impact on the training transfer. Those factors that have been reported by researchers as being related to training transfer in general or IT training in particular will be discussed in the remaining sections.

2.5.1 Pre-training Factors

Activities that take place before the training event can also be referred to as "pre-training environment" (Tannenbaum and Yukl 1992). The pre-training environment can impact training transfer (Saks & Belcourt 2006). This section will discuss the main pre-training factors discussed in the literature.

Researchers reported that improving trainees' motivation and readiness to benefit from the training and put the learning into practice are the main areas that need to be addressed before the training in order to enhance training transfer (Machin 2002; Chiaburu & Marinova 2005; Yi and Davis, 2003). Examples of pre-training activities that could increase the learners'

readiness and motivation to transfer the learning include: goal setting, participation in a pre-training interview or expectation discussion and providing information concerning the purpose and intended outcomes of training (Machin 2002; Shayo, Olfman & Teitelroit 1999; Brinkerhoff and Montesino 1995).

A number of studies have reported the effect of goal setting in improving training transfer (Burke and Baldwin 1999; Richman-Hirsch 2001). This activity is normally facilitated by conducting a meeting between the training candidates and their managers in which they discuss the content of the training, set pre-training goals and expectations and discuss the support that the trainees will require after the training to enhance their training transfer (Brinkerhoff and Montesino 1995).

Brown and Warren (2009) conducted a study to explore the types of goals that participants could set to assess the impact of the goal type (distal, "do your best" (DYB) and proximal) in the training transfer. The study studied training transfer from a customized executive training program involving 89 public sector employees. It was reported that participants who set a distal goal had a higher self-efficacy than those in both the DYB and the proximal plus distal goal conditions. Further, participants who set proximal plus distal goals had higher maintenance than those who set only distal goals or those who used DYB goal type.one of the two.

Of the studies concerning the impact of pre-training activities on the learning transfer, a research by Shayo, Olfman and Teitelroit (1999) explored the impact of trainees' participation in a pre-training interview on training effectiveness. The researchers considered the actual use of the software after the training as the primary outcome measure to assess the impact of pre-training participation on training transfer. Although the researchers reported that the pre-training interviews could indicate participants who may not benefit from the training (therefore, find ways to make them benefit from it), motivate participants and set their expectations around the training content and training usefulness; there was not much evidence about the impact of pre-training end-user participation on post-training outcomes.

They reported that after-training application usage was based on need; whilst the lack of use was more related to organizational factors than to training (Shayo, Olfman and Teitelroit, 1999).

Chiaburu and Marinova (2005) studied whether factors such as (a) supervisor support, (b) peer support, (c) goal orientation and (d) training self-efficacy can impact pre-training motivation which, in turn, influences skill transfer. The researchers reported that pre-training motivation is directly influenced by peer support, mastery approach goal orientation and training self-efficacy. They also reported that skill transfer is influenced by pre-training motivation and by peer support.

Although Chiaburu and Marinova (2005) highlighted some benefits for trainees' participation in pre-training activities, the pre-training interview questions were regarding participants' training needs, as well as training design (tasks that participants were interested to learn about during the training sessions). This is considered as a limitation of the study as it did not explore activities like trainee assessment, goal setting and Prerequisite tasks to study if those pre-training activities could affect the training transfer to the work place. Another limitation of this study is that the measure for Prerequisite impact used is the after-training use of the application. This ignores other factors like quality, speed, and accuracy of the tasks performed. Additionally, the fact that this study was based on an application that is new to the trainees explains the consideration of the post-training software use as a measure. However, this measure may not be generalized to cases where employees are trained to use software tools that they used even before the training, which is another limitation of this study.

Olfman and Bostrom (1991) investigated if pre-training and post-training activities can influence training transfer to the workplace. This research on end-user software training specified training outcomes as (a) trainees' understanding (b) trainees' motivation to use the software and (c) the actual use of the application after the training. The researchers identified three factors that can influence the training outcomes: The software to be learned, the characteristics of the trainees and the training approaches.

Sein et al. (1989) identified two outcomes for IT training (a) trainee get an accurate mental model of the application and (b) trainees get motivated to use the software. The researchers argued that pre-training activities could influence training outcomes by developing accurate initial mental models in the trainees' minds about the software tool.

Research shows that participants' previous experience of using the software applications can influence training outcomes (Olfman and Bostrom 1991). It is argued that by getting participants to complete a Prerequisite , hands-on activity, their motivation to learn and their learning outcomes will be boosted. This will increase the trainees' self-efficacy, which in turn, would increase the learning transfer to the job (Allan 2016).

Beausaert et al. (2013) reported that their study is one of the very few studies about the effectiveness of using personal development plans for learning and development. The researchers compared employees who use a personal development plan with those who don't. They found that employees who use a personal development plan tend to have attended significantly more learning activities in the past; however, they do not plan to attend more learning activities in the future. The researchers also concluded that personal development plans are used more as a feedback tool to discuss the learning activities that happened in the past, rather than as a planning tool for future learning activities that will help achieve future career plans.

Training professionals recommend that managers conduct a pre-training meeting with the training candidates to discuss training candidates' completion of any training Prerequisite task, be it reading or exercises. During the pre-training meeting, managers need to: (a) discuss the relevance of the training, (b) review the learning goals, (c) set mutually agreed action plans and (d) discuss the importance of training transfer (Tannenbaum & Yukl, 1992). Training professionals foresee that as a result of conducting the pre-training meeting, training candidates' motivation to learn and to transfer the learning will increase as they will realize that the organization cares about those two training outcomes (Allan 2016).

2.5.2 Post Training Factors

The office environment may motivate trainees to transfer their skills to the job, but could also discourage trainees' transfer of what they learned (Tannenbaum & Yukl, 1992).The models that identified post-training factors that have an impact on training transfer share similar elements like work environment, peer support, and manager support (Tannenbaum and Yukl 1992; Baldwin & Ford 1988; Xiao 1996).

Xiao (1996) conducted his study in China and created a transfer model that argues that training only develops potential capacity in trainees and that training transfer depends on organizational factors that makes it possible for the trainees to apply their learning in the workplace. Additionally, supervision was reported as being the most influential organizational variable.

Gitonga (2006) conducted a research that focused on studying the work environment factors that influence the learning transfer for online learners. He reported that the factors that emerged as being the most critical are:

(a) Availability of tools where tools refer to computers, software and other resources that trainees need to transfer the learning. This finding which coincides with Noe (2012) who stated that when employees are trained using state-of-the-art-technology, they become frustrated if that technology is not available to them in their job environment

(b) Opportunity to perform or use training,

(c) Technological support,

(d) Open climate for communication and

(e) Management or supervisory support.

Although other researchers may have reported the supervisory support as having a higher rank in terms of criticality, Gitonga (2006) mentioned that considering that the participants of his study are practicing teachers and

administrators, the supervisory interaction was found to be minimal. In terms of the critical barriers to the learning transfer, Gitonga (2006) reported two barriers as being the most critical: (a) Inadequate tools, equipment, materials, and/or resources and (b) Heavy workloads.

According to Noe (2012), employees are expected to (a) Gain knowledge and skills, (b) Apply them on the job and (c) Share this knowledge with others. Managers, on the other hand, are expected to (a) Identify the training needs and (b) support the trainees post the training to ensure on-the-job application. Agreeing to the impact of manager support in increasing the training transfer to the workplace, Nijman et al. (2006) stated that there is an indirect relationship between supervisor support and transfer of training. The researchers explained this relationship by highlighting that manager support affects both the trainees' motivation to transfer and the transfer climate aspect. However, Ng (2013) reported contradictory findings with supervisory support not having a significant impact on the training transfer.

Clarke's (2002) qualitative research, which was a part of a training evaluation strategy aimed at investigating the factors that impact the training transfer in a UK social services department, compared those factors to lecture findings. The study was based on using Kirkpatrick (1995) model to evaluate reaction, learning and behavior change for the participants of a risk management training that was offered to 14 trainees within the social services department. The evaluations included quantitative and qualitative research. The quantitative research measured the period before the training, immediately after the training and five months after the training. The qualitative research was conducted through semi-structured interviews that took place six months after attending the training. During those interviews, the focus was on (a) Trainee's perceived benefits of the training, (b) Evidence of learning transfer, (c) Learning transfer barriers and (d) Factors that helped in the learning transfer. The findings of this study suggested that many of the learning transfer factors can be linked to (a) Support (both peer and supervisory) and (b) Opportunity to use the learning.

He provided positive support that Baldwin and Ford's (1988) training transfer model is valid when applied to human service organizations.

Diamantidis and Chatzoglou (2014) conducted a study with an objective of examining and presenting the relationship between (a) Design to facilitate transfer (Transfer design), (b) Trainee's self-efficacy and (c) Job environment feedback request on (a) post-training job-related behavior and (b) training content application (training transfer) which both, in turn, affect employee performance (training results). Accordingly, they constructed a research model with eight hypotheses , as illustrated in Figure 2.3.Their study is based on the survey results of employees who attended the training at least one year earlier and within the 3-year period of the study from 2006 to 2008.

Figure 2.3

Diamantidis & Chatzoglou Training Model
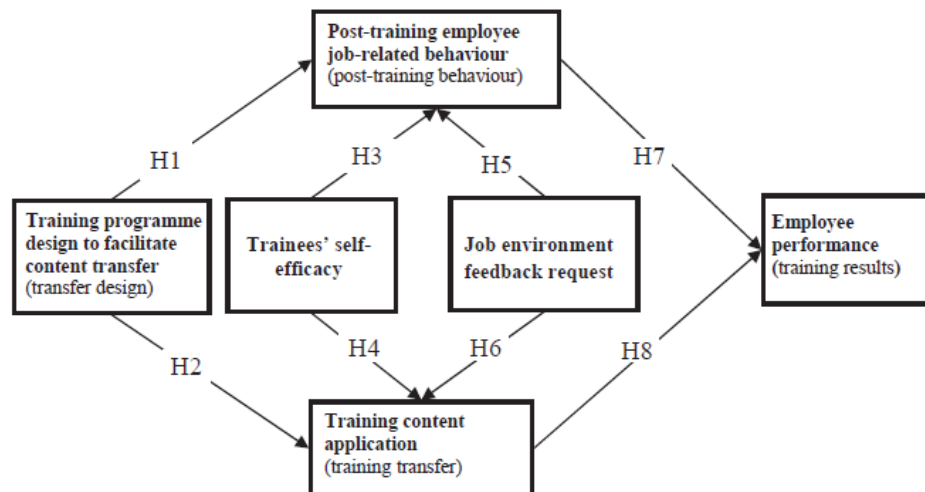
Source: **(Diamantidis and Chatzoglou 2014)**

The results of the study indicated that all the proposed hypotheses of Figure 2.3 are accepted. It also highlights the fact that the transfer design is the essence to achieving the aspired training results. Researchers found that the impact of transfer design on the training results is strengthened by the

fact that the transfer design has a high influence on other factors like self-efficacy, job environment feedback request, post-training behavior and training transfer, which in turn, affect the employee performance. Additionally, the researchers reported that post-training behavior and trainees' self-efficacy also have a strong impact on the training transfer. Therefore, the researchers stated that for a training program to achieve its business results, it has to be designed to give the trainees solid confidence that they can apply the learning on-the-job, use practical examples that are inspired by what the trainees experience on their job environment and clearly demonstrates the behaviors that the trainees need to follow in their roles. By doing this, it becomes possible for the training graduates to modify their behaviors and increase the training transfer level. This will lead to improving employees' performance as a result of the training provided and the subsequent support by their managers and supervisors.

"Candidates must have many opportunities to share their existing knowledge and expertise and to build on it" (Coverstone 2003). This means that the IT training needs to be designed in a way that accounts for social involvement. Therefore, corporate IT training programs need to accommodate opportunities for interaction, collaboration and group activities between all learners through social interactions and also between the learners and the IT professionals (Coverstone 2003; Santhanam, Seligman, & Kang 2007). In other words, "collaborative learning" imposes the importance of collaboration and knowledge sharing between the learners as a group. This is in line with the findings by Wang-Audia and Tauber (2014), who described the "Modern Learner" as being collaborative in addition to being empowered, distracted, impatient, overwhelmed, and untethered.

2.5.3 Other Factors

Hamid, Saman and Saud (2012) conducted a study on participants six months after completing a training program. To gather information about the transfer status and the factors that influence the learning transfer, the researchers used face-to-face semi-structured interviews with the trainees,

followed by field observations and documents inspection at the trainers' workplace, as well as, open-ended online interviews. They classified trainees' factors that impact training transfer into four categories: (a) Trainees' ability, (b) Motivation, (c) Self-efficacy and (d) Attitudes and commitment.

Santhanam, Seligman & Kang (2007), reported that little research is available about the learning that happens post the implementation of a new IT system in organizations i.e. when the users use the new system routinely. Our study will help in addressing this gap in research as trainees before the training already use the software systems that are subject to the study and they continue to use it after the training (with higher proficiency levels if the training was effective). In this study, the measure for the Prerequisite impact is the actual transfer of the knowledge and skills learned during the training to the workplace.

Santhanam, Seligman, and Kang (2007) suggested that organizations should not only rely on helpdesks to educate the software systems users about using IT systems, they must also establish ways for users to learn from other users and faceto face discussions with IT professionals.

2.5.4 Barriers to Training Transfer

Identifying transfer barriers is essential as training stakeholders can then mitigate, remove, or even convert them to positive contributors for the success of training transfer (Newstrom 1986; Tannenbaum and Yukl 1992). Newstrom (1986) reported that the main barriers to training transfer are: lack of on-the-job reinforcement, a non-supportive work environment and a non-supportive organizational climate

The barriers found by Clarke (2002) were:

(a) The short duration of the training program, (b) the lack of a chance for continuous practice, and reinforcement on the job, (c) workload pressure, (d) lack of performance feedback and (e) the lack of time.

Although the main purpose of the research by Latif et al (2013) was to study the association of training satisfaction with employee development aspect of job satisfaction, they were able to recognize some factors that have a strong association with the transfer of Learning. The factors highlighted in this study were: trainer satisfaction, training session satisfaction, and training content satisfaction.

In summary, this chapter gave a background about "IT Training Transfer to the Workplace". It discussed the main theories and models related to this subject and concluded by highlighting how these theories guided the definition of the scope of this study. The next chapter will discuss the research practical framework.

Chapter 3: The Research Practical Framework

3.1 Introduction

This chapter highlights the scope of the study, presents the methodology of the study and defines the population, sample and the unit of data analysis. In addition, the research dimensions and measures are discussed. Lastly, the questionnaire is introduced next along with a discussion of its validity and reliability.

3.2 Scope of the Research

The IT training team in the Company offers both, generic and customized training programs (basic, intermediate and advanced levels) for various software applications. The IT training programs selected for the purposes of this study are the generic instructor-led training programs for applications that are a part of the Office 2010 suite. These include MS Word, Excel, PowerPoint, OneNote and MS Project. These applications are accessed by most of the employees of The Company. It is estimated that at least 40 thousand employees have access to these applications. Figure 3.1 illustrates the scope of this study.

Figure 3.1

Research Scope
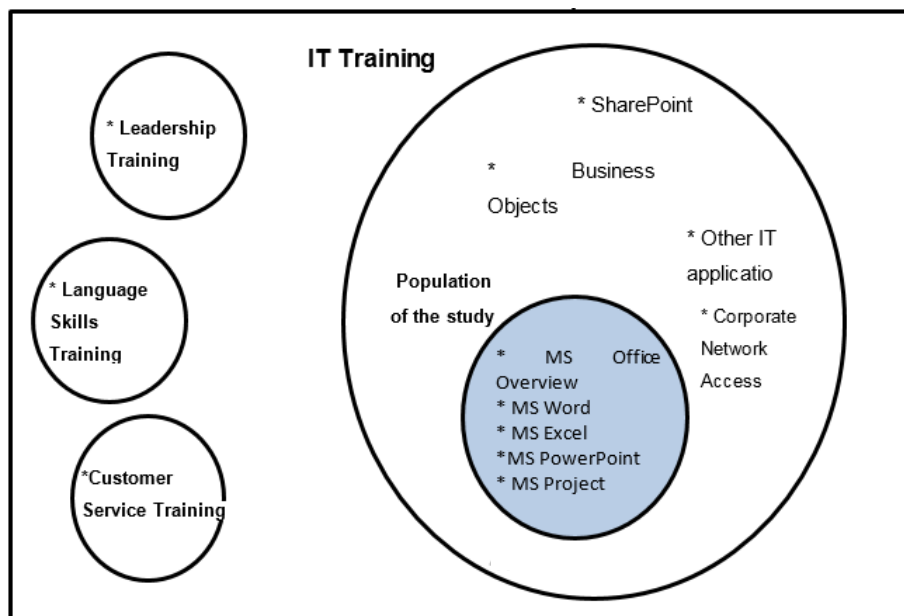
3.3 Methodology of the Study

In this study, the researcher intended to investigate the statistical relationship between pre-training, as well as, post-training activities and the transfer of training to the job. This study primarily uses a quantitative approach for collecting data. This made it possible to reach out to a large spectrum of the population of the study. As per Saunders, et al. (2015), quantitative research integrates control to ensure the validity of the study, in addition to enabling the generalization of the results to the population. The following sections will explain the criteria for population identification, the questionnaire sample and the measures used to collect the data.

3.4 Population of the Study

The population of the study consisted of all the employees who attended any of the generic training programs for MS Office 2010, 3-18 months prior to the study. These training programs include MS Office 2010 – An Overview, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft OneNote and Microsoft Project.

Various measures obtained from the review of learning transfer literature suggested the formation of the list of the learning transfer support factors and barriers used in this study. The researcher decided to allocate sufficient time for the learning transfer and behavior changes to take place (Kirkpatrick 1996). Therefore, the survey participants were selected from the list of trainees who attended an IT Training program 3-18 months prior to the data collection. Participants reviewed and rated the factors that were considered supportive or inhibitive to the transfer of the IT skills to the workplace, in their opinions.

3.5 Sample and Unit of Analysis

The survey unit of analysis consisted of 646 training participants. To collect the data, the questionnaire was uploaded to SharePoint (Internet-mediated questionnaires).An e-mail with a link to the questionnaire was sent to the respondents. This ensured that participants received some background about the study and were reassured about the confidentiality of data and

their anonymity by the researcher. The participants were informed that their participation in the study was completely voluntary.

To ensure confidentiality of the data and anonymity of participants' identities, there was no request or track for the name of the respondent or his/her staff number and their individual responses were kept hidden from the management. As this was an online questionnaire, there was no researcher bias in the responses as participants responded to the questionnaire without the presence of the researcher.

Out of the 634 e-mails that were sent out, 230 employees responded with completely filled-in questionnaires, showing a 36% response rate. All 230 questionnaires were made a part of the study.

3.6 Questionnaire Instrument

The instrument selected for data collection in this study was a questionnaire survey. This is a cost efficient, speedy, and straightforward data collection measure that ensures that all aspects of a study question can be incorporated with limited respondent bias. Some of the statements in the questionnaire were rewritten from the questions used by Xiao (1996) and Coverstone (2003). The questionnaire used in the study is attached in Appendix 1.

Training participants who had completed one or more generic training programs of MS Office 2010 3-18 months before the time of data collection for this study were only selected to form a part of the final sample. The names of the training participants along with their email addresses were obtained from the LMS (learning Management System) of the Company. The generic training programs that are subject to this study include MS Office 2010 – An Overview, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft OneNote and Microsoft Project.

The questionnaire was developed using SharePoint. The questionnaire was first pilot-tested for a duration of one week on a group of 10 IT training graduates who had completed an IT training program in the last 3-18 months. A pilot test ensures that the questions are valid, clearly understood

by respondents and that the questionnaire is reliable. The feedback received from the pilot group was considered and changes were made to improve the questionnaire items, making it more suited to the current study.

When the survey was ready to go live, an e-mail was sent out to the participants. The e-mail gave a background of this study and reassured the participants that their responses will be treated with complete confidentiality and anonymity. It also encouraged the participants to reach out to the researcher if they had any feedback, concerns or queries or needed any clarifications. Training participants who accepted to be a part of this study responded to an online structured questionnaire. A reminder was also sent with a link to the survey. The survey was closed after one week.

The questionnaire was divided into nine sections. The first section was designed to capture the demographic information of the respondent, while the second section was designed to collect data about the training applications used by the respondent in the workplace. The 3-8 sections were devised to collect data regarding the perceptions of the respondents' about their pre-training and post-training activities associated with the training programs attended by them 3-18 months ago. The last section collated data about the issues that the training participants may have faced and could have hindered their application of the learning from the training program in the workplace.

3.7 Research Dimensions

This section highlights the different dimensions of the questionnaire. These dimensions include both the independent and dependent variables which are linked to the hypotheses considered in this study. Table 3.1 explains the dimensions of the questionnaire used in this research.

Table 3.1

The Dimensions of the Questionnaire

Dimension	Sub dimension	Number of items in each dimension	Total number of items
Pre-training factors	Pre-Training Assessment	5	15
	Goals & Learning Objectives Setting	5	
	Prerequisite Activities	5	
Post-training factors	Peer support	4	12
	Supervisor/Manager support	5	
	Reward and recognition	3	
Learning transfer to workplace	-	4	4
Barriers to learning	-	8	8

As is evident from the table above, almost half of the items discussed pre-training factors while post-training factors were considered by the other half.

In the second section, which measures the training transfer to the workplace, the respondents had to select a percentage value from 0-100%.The remaining research dimensions were assessed using a 5-point Likert scale (1=strongly disagree, 2=-disagree, 4= neutral, 4= agree and 5=strongly agree).

3.7.1 Dependent Variable

The transfer of training to the workplace was measured in the second section of the questionnaire. It is covered by 4 items. The respondents had to select a percentage value from 0-100%.

3.7.2 Independent Variables

The independent variables were the demographic profile of the respondents which was collected in section 1, the pre-training activities that were addressed in sections 3-5, the post training activities that were addressed in sections 6-8 and data about the issues that hindered the training participants from applying the training in the workplace, i.e. barriers to training.

The demographic profile of the candidates was collected in the first section. It included questions about the years of service in the Company, the current grade of the respondent and the history of training courses attended.

The second section captured information about the transfer of training to the workplace. It included four questions that captured data about work improvement, speed in accomplishing work, quality and accuracy of the work. The 3-8 sections were designed to collect data regarding pre-training and post-training activities that the training participants may have participated in. These sections have a total of 27 items covering both pre-training activities (15 items) and post-training activities (12 items). Participants were asked to respond to the items based on a 5-point Likert scale.

3.8 Validity and Reliability

This section focuses on testing the validity and reliability of the questionnaire used in this study. Validity refers to the degree to which an instrument contains the right items that relate to the study variables and so measure what they are intended to measure Reliability, on the other hand, refers to the extent to which a measure can be interpreted consistently across repeated situations. In other words, it measures the degree to which

a technique can be depended upon to deliver consistent results when the experiment is repeated. (Field 2009).

3.8.1 Validity of the Questionnaire

To ensure the validity of the questionnaire, there were four types of validity that had to be addressed: content-related validity, criterion-related validity, structure-related validity and factor analysis. These types of validity will be discussed in detail in the following subsections.

3.8.1.1 Content-Related Validity

Content validity is a non-statistical type of validity that is concerned about validating whether the items included in the measure sufficiently represent the universe of questions that could have been asked. To ensure that this is the case with the questionnaire used in this study, a panel of experts was asked to review the questionnaire before it was utilized. This panel of experts included the research supervisor, two senior managers (IT Training manager & Learning Technologies manager), as well as, three Learning and Development specialists, all of whom have extensive experience in the field of IT training in the Company. The experts reviewed the survey items and shared their comments on how well questionnaire items represent the research aims. The suggestions and feedback of these experts were taken into consideration and a few amendments to the questionnaire items were carried out.

3.8.1.2 Criterion-Related Validity

The criterion validity of the questionnaire was measured by calculating the correlation coefficient between each item in one section with all items in the entire section.

(a) Measuring the correlation between each item in the "Training Transfer to the Workplace" and the entire section.

Table 3.3 demonstrates the correlation coefficient for each statement related to "Training Transfer to the workplace" and the total of this field.

Table 3.3

Measuring content validity of Training Transfer to the Workplace

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	Work improvement	0.896	0.000*
2	Speed to accomplish my work	0.915	0.000*
3	The quality of my work	0.909	0.000*
4	Fewer mistakes	0.892	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

The P-values that measure the significance value being less than 0.05 show a significant relationship amongst each other. Hence, it can be deciphered that the statements of this section are consistent and valid to measure Transfer of training construct.

(b) Measuring the correlation between the "Pre-Training Assessment" and the entire section.

Table 3.4 demonstrates the correlation coefficient for each statement related to "Pre-training activities" and the other items in the section.

Table 3.4

Measuring content validity of Pre-Training Assessment

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	Trainees undertook a skills assessment before attending the training.	0.788	0.000*
2	A knowledge and skills assessment was conducted for the trainees before the training to identify the appropriate training level for them.	0.814	0.000*
3	Trainees' skill level was assessed before the training.	0.827	0.000*
4	The course content was relevant to trainees' job role.	0.811	0.000*
5	Trainees were aware of the topics to be covered in the training before attending it.	0.762	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

The P-values (Sig.) being less than 0.05, indicate that the items in this section are related significantly. It can be concluded that the Pre-training Assessments are consistent and valid to measure what they were supposed to measure.

   (c) Measuring the correlation between the "Goal & learning objectives setting" and the entire section.

Table 3.5 demonstrates the correlation coefficient for each statement related to "Goal & learning objectives setting" and the other statements from that section.

Table 3.5

Measuring content validity of Goal & learning objectives setting

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	Improving IT skills in the software applications for which participants attended the training was documented as a goal in their development plan.	0.869	0.000*
2	Trainees documented "upskilling in using the software learned in the training" as a goal in their development plans.	0.884	0.000*
3	Trainees discussed their learning objectives with their line managers before attending the training.	0.871	0.000*
4	Trainees agreed on the performance expectations with their managers before the training to work on them after the training.	0.855	0.000*
5	Before the training, trainees discussed (with their managers) what they will be doing differently when they come back from the training.	0.848	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

Since the P-values are less than 0.05, the items of Goal & learning objectives setting are significantly related to each other, showing that this section is also valid and measuring what it intends to measure.

(d) Measuring the correlation between the "Prerequisite Activities" and the entire section.

Table 3.6 demonstrates the correlation coefficient for each statement related to "prerequisite activities" and the entire section.

Table 3.6

Measuring content validity of Prerequisite Activities

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	Trainees did a prerequisite activity before attending the training.	0.875	0.000*
2	Trainees did a preparatory reading prior to attending the training.	0.889	0.000*
3	Trainees had an assignment before attending the training.	0.895	0.000*
4	Trainees prepared for the training program before attending it	0.851	0.000*
5	An activity was completed before attending the training as a prerequisite.	0.884	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

With all significance values less than 0.05, this construct is also valid and all items in this section are measuring the intended construct.

(e) Measuring the correlation between the "Post-training Peer Support" and the entire section

Table 3.7 demonstrates the correlation coefficient for each statement related to "Post-training Peer Support" and the entire section's items.

Table 3.7

Measuring content validity of "Post-training Peer Support"

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	I received assistance from my peers post training.	0.910	0.000*
2	I received feedback from my peers post the training.	0.927	0.000*
3	My peers assisted me to implement the training on the job.	0.931	0.000*
4	I cooperated with my colleagues who participated in the training to achieve the training goals and to apply the new knowledge and skills on the job	0.887	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

All items showing significant relationships among each other (p=0.00), this construct is also found to be valid and all items are measuring the right construct in this section.

(f) Measuring the correlation between the "Post-training Manager Support" and the entire section.

Table 3.8 demonstrates the correlation coefficient for each item related to Post-training Manager Support" and the entire section.

Table 3.8

Measuring content validity of "Post-training Manager Support"

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	I received enough support from my manager after the training to apply the learned skills on my job.	0.889	0.000*
2	I participated in an interview or discussion with my supervisor/manager as a part of a follow-up to the training program I attended.	0.868	0.000*
3	After the training, my manager accepted my suggestions to improve the work and gave me the opportunity to apply the new knowledge and skills developed in the training program.	0.917	0.000*
4	My manager provided me with the time, tools and suitable environment that I need to apply the learned skills on my job	0.925	0.000*
5	My manager provides me with constant reminders on how to apply the acquired skills on my job and helps me to solve the problems I face while implementing the new knowledge and skills.	0.886	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

As is evident from the above table, the P-values (Sig.) are less than 0.05, so the items in this section are correlated significantly with each other. Hence, it can be concluded that the statements of this section are consistent and valid to measure what they were set for.

(g) Measuring the correlation between the "Post-training Reward & Recognition" and the entire section.

Table 3.9 demonstrates the correlation coefficient for each item related to "Post-training Reward & Recognition" and the entire section.

Table 3.9

Measuring content validity of "Post-training Reward & Recognition"

S. No.	Questionnaire Item	Pearson Correlation Coefficient	P-Value (Sig)
1	I was praised or rewarded for using the newly acquired skills developed in the training program.	0.934	0.000*
2	Applying the new skills was recognized and rewarded by my manager.	0.952	0.000*
3	Applying the learned skills was acknowledged by my manager.	0.949	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

With all significance values less than 0.05, this construct is also valid and all items in this section are measuring the intended construct.

3.8.1.3 Structure-related validity

Structure validity measures the correlation coefficient between each section and all the other sections that have the same scale level. It is the second statistical test that was used to test the validity of the questionnaire structure. Table 3.91 demonstrates the correlation coefficient of all the pre-training and post-training sections and the entire questionnaire.

Table 3.10

Measuring Structure Validity

S. No.	Section	Pearson Correlation Coefficient	P-Value (Sig)
1	Training Transfer to the Workplace	0.652	0.000*
2	Pre-training Assessment	0.655	0.000*
3	Goal & learning objectives setting	0.800	0.000*
4	Prerequisite activities	0.738	0.000*
5	Post-training Peer Support	0.797	0.000*
6	Post-training Manager Support	0.834	0.000*
7	Post-training Reward & Recognition	0.795	0.000*

*Correlation is significant at the 0.05 level (2-tailed).

The P-values (Sig.) being less than 0.05, all sections are significantly correlated, signifying that structural validity conditions are met.

3.8.1.4 Factor Analysis

To further ensure the validity of the items and that they represent the variables of the study, the researcher conducted factor analysis using SPSS. As per Field (2009), one of the uses of the factor analysis is to compress the data set and produce one that combines multiple relevant variables together. In other words, it transforms the data set from a larger group of variables that are interrelated to a smaller group of substantive factors where each one of those factors is comprised of interrelated variables.

In this manner, factor analysis achieves parsimony by explaining the maximum amount of common variance in a correlation matrix using the smallest number of explanatory constructs.

Table 3.11

Factor Analysis

Rotated Component Matrixa						
	Component					
	1	2	3	4	5	6
Item 1 Post-training Reward & Recognition	.767					
Item 2 Post-training Reward & Recognition	.764					
Item 1 Post-training Manager Support	.757					
Item 2 Post-training Manager Support	.757					
Item 3 Post-training Reward & Recognition	.751					
Item 3 Post-training Manager Support	.744					
Item 4 Post-training Manager Support	.737					
Item 5 Post-training Manager Support	.663					
Item 1 pre-training prerequisite		.830				
Item 2 pre-training prerequisite		.804				
Item 3 pre-training prerequisite		.784				
Item 4 pre-training prerequisite		.750				
Item 5 pre-training prerequisite		.747				

Item 1 Pre-training Goal & learning objectives setting			.795			
Item 2 Pre-training Goal & learning objectives setting			.746			
Item 3 Pre-training Goal & learning objectives setting			.715			
Item 4 Pre-training Goal & learning objectives setting			.707			
Item 5 Pre-training Goal & learning objectives setting			.700			
Item 1 Training Transfer to the work Place				.855		
Item 2 Training Transfer to the work Place				.840		
Item 3 Training Transfer to the work Place				.822		
Item 4 Training Transfer to the work Place				.784		
Item 1 Pre-training Assessment					.795	
Item 2 Pre-training Assessment					.775	
Item 3 Pre-training Assessment					.771	
Item 4 Pre-training Assessment					.742	
Item 5 Pre-training Assessment					.667	
Item 1 Post-training Peer Support		.406				.745

Item 2 Post-training Peer Support						.734
Item 3 Post-training Peer Support						.723
Item 4 Post-training Peer Support						.652
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 8 iterations.						

As indicated from the results of the factor analysis in the above table, the factor/variable for pre-training assessment, Pre-training Goal & learning objectives setting, prerequisite and post training peer support loaded as a separate component. On the other hand, the factors for the post-training manager support and reward & recognition loaded in the same component. This could be due to the fact that the survey respondents considered the reward and recognition they received from their managers as a form of support that is extended to them from their managers.

3.8.3 Reliability Testing

The reliability of the study indicates the stability, dependability and internal consistency of the instrument. It indicates the likelihood to get the same results from the study if we repeat the test at different points in time. When a measure produces consistent results with almost nil variations, it is considered to have a high degree of reliability.

For testing the reliability of the questionnaire, Cronbach's Alpha was utilized. The range of Cronbach's Alpha is between 0.0 and +1.0 (a higher value indicates a higher degree of reliability). The minimal acceptable value for Cronbach's Alpha to ensure the reliability of the instrument is considered to be above 0.7 (Field 2009).

Reliability tests were conducted for each section of the questionnaire and also, the questionnaire as a whole. The details and results of these tests are available in Appendix 2.

Table 3.2

Reliability Test for the Questionnaire

S. No.	Factor	Field	Reliability Coefficient	Number of items
1	Pre-Training	Pre-Training Assessment	0.860	5
2		Pre-Training Goals & Learning Objectives Setting	0.916	5
3		Prerequisite Activities	0.926	5
4	**Total**		**0.919**	**15**
5	Post-Training	Post-training Peer Support	0.934	4
6		Post-training Supervisor/Manager Support	0.939	5
7		Post-training Reward & Recognition	0.940	3
8	**Total**		**0.950**	**12**
10	**Both Pre-Training and Post Training Fields**		**0.955**	**27**
9	Training Transfer	Training Transfer to the Workplace	0.924	4
10	Entire Questionnaire		0.958	31

Table 3.2 illustrates the values of Cronbach's Alpha for each section of the questionnaire and the value for the whole questionnaire. For the individual sections, the values of Cronbach's Alpha were in the range of 0.860 to 0.940 which is considered to be a high value. This indicates that each section of

the questionnaire is considered to be reliable. For the entire questionnaire, the Cronbach's Alpha was found to be 0.958, which again indicates a very high value of reliability.

With the validity and reliability tests, it has been proved that the questionnaire is valid and reliable. In the next section, a detailed analysis of factor analysis will be conducted

Chapter 4: Analyzing Relationships between Pre-Training and Post-Training Activities with Transfer of Training

4.1 Introduction

In the last chapter, the research methodology utilized in the current study was explained in detail. This chapter begins with a description of the demographic characteristics of the sample. To correctly identify the characteristics of the respondents, they were asked to indicate the number of years they have been working in the company, their grade and the list of the IT courses they attended in the past 18 months before the survey. Later, Pearson's correlation is used to analyze the relationships between pre-training and post-training factors and transfer of training.

In order to analyze the collected data, IBM's Statistical Package for Social Sciences (SPSS) version 24 was utilized. Before beginning the analysis, the questionnaires were checked and responses with missing data were omitted. After that, the data was properly coded, labeled (especially the nominal data was updated as per the survey parameters) and entered into the computer system.

4.2 Demographic Profile of the respondents

1. Years' of Service in the Company

Table 4.1

Job Duration

Years of service in the Company	Frequency	Percentage
less than 3 years	41	17.8
3-6 years	64	27.8
7-10 years	54	23.5
11-14 years	32	13.9
more than 14 years	39	17.0
Total	230	100.0

Table 4.1 shows that the majority of respondents (27.8%) had been working with the company for a period of 3-6 years. The next category was the employees who had been working in the Company for 7-10 years (23.5).

This could be explained by the fact that the Company is hiring new employees with the required IT skills sets. Therefore, less training may be required during the first few years of employment. After the employees have completed a few years in employment, the situation changes as new technology is adopted in the Company. Hence, employees request for attending IT Training in order to remain up-to-date with the new technology.

The data in table 4.1 also shows that 69.1 % of the respondents had been working in the company for less than 10 years. Only 30.1% of the respondents had been working in the company for more than 10 years. This indicates that individuals with relatively less experience are more interested in attending the IT training programs than those who have extensive experience. This may be explained by the fact that employees with more than 10 years' experience may be opting for managerial level training programs instead of IT skills as they take on supervisory roles. This also explains that more than half (51.3%) of employees in the 3-10 years' experience bracket.

2. Grade of the Respondents

Table 4.2

Grade of the Respondents

Grade of the Employee	Frequency	Percentage
1-3	3	1.3
4-5	35	15.2
6-7	108	47.0
8-9	74	32.2
more than 9	10	4.3
Total	230	100.0

Table 4.2 shows that the majority of the employees belong to grades 6 or 7 (47%). It is important to highlight that in the Company structure, the higher the grade, higher the seniority. Hence, according to Table 4.2 employees

with grades 6 and 7 are more interested in attending an IT training maybe to get promoted to a higher grade.

3. Number of Generic IT Training Courses Attended in the Past 18 Months

Table 4.3

No. of the Generic IT Training Courses Attended in the Past 3-18 Months

No. of courses	Frequency	Percentage
1	115	50
2	58	25.2
3	22	9.6
4	11	4.8
5	20	8.7
6	4	1.7
Total	230	100.0

Table 4.3 shows that half of the employees attended only one generic IT Training in the past 18 months before the survey. This table also shows that 75.2% of the respondents attended one or two generic IT Training programs in the past 18 months.

4. Courses Attended

Table 4.4

Total number of respondents who attended each course

Course Name	Total no. of respondents who attended the course	Percentage
Microsoft Word	47	20.4
Microsoft Excel	162	70.4
PowerPoint	54	23.5
OneNote	60	26.1
MS Project	14	6.1

Table 4.4 shows that the majority of the respondents attended training programs on Microsoft Excel (70.4%). On the other hand, OneNote, PowerPoint and Microsoft Word had been attended by 26.1%, 23.5% and 20.4% respondents respectively. MS project had the least attendance percentage of 6.1.

The higher percent of MS Excel attendees could be explained by the fact that this program is used by most of the employees in the Company in the discharge of their daily duties. The higher percentage can also be justified by the perceived challenges in learning this application. Therefore, most employees enroll themselves for learning this program and upskilling themselves with the application's updates.

The lower percentage of enrollees in the other IT training programs of MS OneNote, PowerPoint and Microsoft Word can be explained by the fact that these software applications are used by fewer employees in the company. Another reason could be that the employees perceive these programs as being easier to learn and work with on their own without requiring any official training.

To summarize, most of the respondents were working in the company for 3-6 years, belonged to the grades 6 or 7 and had attended 1 training program (Excel) in the past 18 months.

4.3 Descriptive Analysis of the Research Variables

Descriptive statistical techniques were used to analyze the responses of the survey participants about the impact of the pre-training and post-training activities on the learning transfer to the workplace. The below tables summarize the results of the Mean and Standard Deviation for the pre-training and post-training activities.

(RQ1): "What does the current transfer of the IT Training to the workplace by the training participants in the Company look like?"

In order to analyze the Training Transfer variable, the data was coded in the following manner before entering it in the SPSS file:

(a) 0-20%	1
(b) 20-40%	2
(c) 40-60%	3
(d) 60-80%	4
(e) 80-100%	5

The descriptive analysis of Mean and Standard Deviation were calculated for Training Transfer. Looking at Table 4.5, it can be inferred from the overall Mean values of the IT training transfer to the workplace that respondents felt that training has improved the quality of their work the most with a Mean value of 2.47 and Standard deviation of 1.18. The next ranked factor is work improvement (Mean value 2.41, and standard deviation of 1.10) followed by speed to accomplish tasks with a Mean value of 2.33 and Standard Deviation of 1.17. The last ranked factor is "less mistakes" with a Mean of 2.29 and a standard deviation of 1.15.

Table 4.5

Descriptive statistics of "Transfer of Training"

No.	Item	Mean	Std. Deviation	Rank
1	Work improvement	2.41	1.10	2
2	Speed to accomplish my work	2.33	1.17	3
3	The quality of my work	2.47	1.18	1
4	Fewer mistakes	2.29	1.15	4

Further, the individual factors were analyzed for the range of percentage chosen by respondents regarding the transfer of training that they believed had happened.

Table 4.6

Transfer of Training

Factor	Percentage Transfer of Training				
	0-20%	20-40%	40-60%	60-80%	80-100%
Work improvement	19.6	43.0	19.6	12.6	5.2
Speed to accomplish my work	26.5	37.8	17.8	11.7	6.1
The quality of my work	21.3	37.8	20.9	12.2	7.8
Less mistakes	27.8	37.8	17.0	12.2	5.2
Average	23.8	39.1	18.8	12.2	6.1

As is evident in Table 4.6, 43% respondents have felt that training helped in improving their work by 20-40%, while 37.8% felt the training helped increase in speed after training by the same percentage of 20-40%. 37.8% respondents felt that the quality of their work was enhanced after training by the same percentage of 20-40% and the same percentage felt they were making fewer mistakes by 20-40%. Looking at the above table, it is clear that the highest cited percentage category for all factors is 20-40%.

4.3.1 Pre-Training factors (Assessment)

Table 4.7

Descriptive statistics of "Pre-Training activities (Assessment)"

S. No.	Statement	Mean	Standard Deviation	Rank
1	Trainees undertook a skills assessment before attending the training.	2.20	1.25	5
2	A knowledge and skills assessment was conducted for the trainees before the training to identify the appropriate training level for them	2.91	1.24	2
3	Trainees' skill level was assessed before the training.	2.30	1.21	4
4	The course content was relevant to trainees' job role.	2.97	1.21	1
5	Trainees were aware of the topics to be covered in the training before attending it.	2.61	1.23	3
	Overall Mean and Standard Deviation	**2.60**	**1.22**	**-**

Table 4.7 shows that the Mean values range from 2.20 to 2.97 (all the Mean values are below the neutral value of 3.00). The highest Mean value was observed for the item "The course content was relevant to trainees' job role" with a value of 2.97 and a standard deviation of 1.21. The lowest Mean value was for the item "Trainees undertook a skills assessment before attending the training" with a Mean of 2.20 and a standard deviation of 1.25. The overall Mean for the "Pre-Training activities (Assessment)" was 2.60 and the overall standard deviation was 1.22.

4.3.2 Pre-Training factors (Goals & learning objectives setting)

Table 4.8

Descriptive statistics of "Pre-Training activities (Goals & learning objectives setting)"

S. No.	Statement	Mean	Standard Deviation	Rank
1	Improving IT skills in the software applications for which participants attended the training was documented as a goal in their development plan.	2.78	1.29	2
2	Trainees documented "upskilling in using the software learned in the training" as a goal in their development plans.	2.70	1.22	4
3	Trainees discussed their learning objectives with their line managers before attending the training.	2.80	1.22	1
4	Trainees agreed on the performance expectations with their managers before the training to work on them after the training.	2.76	1.19	3
5	Before the training, trainees discussed (with their managers) what they will be doing differently when they come back from the training.	2.53	1.22	5
	Overall Mean and standard deviation	**2.71**	**1.22**	**-**

Table 4.8 shows that the Mean values range from 2.53 to 2.80 (all the Mean values are below the neutral value of 3.00). The highest Mean value was

observed for the item "Trainees discussed their learning objectives with their line managers before attending the training" with a Mean of 2.80 and a standard deviation of 1.22. The lowest Mean was for the item "Before the training, trainees discussed (with their managers) what they will be doing differently when they come back from the training" with a Mean of 2.53 and a standard deviation of 1.22. The overall Mean for the "Pre-Training activities Goal & learning objectives setting" was 2.71 and the overall standard deviation was 1.22.

4.3.3 Pre-Training Factors (Prerequisite Activities)

Table 4.9

Descriptive statistics of "Pre-Training activities (Prerequisite activities)"

S. No.	Statement	Mean	Std. Deviation	Rank
1	Trainees did a prerequisite activity before attending the training.	2.40	1.26	4
2	Trainees did a preparatory reading prior to attending the training.	2.53	1.33	2
3	Trainees had an assignment before attending the training.	2.22	1.21	5
4	Trainees prepared for the training program before attending it.	2.56	1.17	1
5	An activity was completed before attending the training as a prerequisite.	2.45	1.24	3
	Overall Mean & std. deviation	**2.43**	**1.24**	**-**

Table 4.9 shows that the Mean values range from 2.22 to 2.56 (all the Mean values are below the neutral value of 3.00). The highest Mean was observed for the item "Trainees prepared for the training program before attending it"

with a Mean of 2.56 and a standard deviation of 1.17. The lowest Mean was for the item "Trainees had an assignment before attending the training" with a Mean of 2.22 and a standard deviation of 1.21. The overall Mean for the "Pre-Training activities (prerequisite activities)" was 2.43 and the overall standard deviation was 1.24.

4.3.4 Post-Training factors (Peer support)

Table 4.10

Descriptive statistics of "Post-Training activities (Peer support)"

S. No.	Statement	Mean	Standard Deviation	Rank
1	I received assistance from my peers post training.	2.67	1.21	4
2	I received feedback from my peers post training.	2.70	1.24	2
3	My peers assisted me to implement the training at my work.	2.68	1.20	3
4	I cooperated with my colleagues who participated in the training to achieve the training goals and to apply the new knowledge and skills on the job	2.84	1.19	1
	Overall Mean and standard deviation	**2.72**	**1.21**	**-**

Table 4.10 shows that the Mean values range from 2.67 to 2.84 (all the Means values are below the neutral value of 3.00). The highest Mean was for the item "I cooperated with my colleagues who participated in the training to achieve the training goals and to apply the new knowledge and skills on the job "with a Mean of 2.84 and a standard deviation of 1.19. The lowest Mean was for the item "I received assistance from my peers post the training" with a Mean of 2.67 and a standard deviation of 1.21. The overall Mean for the "Post-Training activities (Peer support)" was 2.72 and the overall standard deviation was 1.21.

4.3.5 Post-Training Factors (Supervisor/Manager Support)

Table 4.11

Descriptive Statistics of "Post-Training Activities (Supervisor/Manager Support)"

S. No.	Statement	Mean	Standard Deviation	Rank
1	I received enough support from my manager after the training to apply the learned skills on my job.	2.87	1.33	1
2	I participated in an interview or discussion with my supervisor/manager as a part of a follow-up to the training program I attended.	2.65	1.33	4
3	After the training, my manager accepted my suggestions to improve the work and gave me the opportunity to apply the new knowledge and skills developed in the training program.	2.83	1.33	3
4	My manager provided me with the time, tools and suitable environment that I need to apply the learned skills on my job.	2.86	1.30	2
5	My manager provides me with constant reminders on how to apply the acquired skills on my job and helps me to solve the problems I face while implementing the new knowledge and skills.	2.58	1.38	5
	Overall Mean and standard deviation	**2.76**	**1.33**	-

Table 4.11 shows that the Mean values range from 2.58 to 2.87 (all the Mean values are below the neutral value of 3.00). The highest Mean was for the item "I received enough support from my manager after the training to apply the learned skills on my job" with a Mean of 2.87 and a standard deviation of 1.33. The lowest Mean was for the item "My manager provides me with constant reminders on how to apply the acquired skills on my job and helps me to solve the problems I face while implementing the new knowledge and skills" with a Mean of 2.58 and a standard deviation of 1.38. The overall Mean for the "Post-Training activities (Supervisor/Manager Support)" was 2.76 and the overall standard deviation was 1.33.

4.3.6 Post-Training Factors (Reward & Recognition)

Table 4.12

Descriptive statistics of "Post-Training activities (Reward & Recognition)"

S. No.	Statement	Mean	Standard Deviation	Rank
1	I was praised or rewarded for using the newly acquired skills developed in the training program.	2.61	1.34	2
2	Applying the new skills was recognized and rewarded by my manager.	2.53	1.27	3
3	Applying the learned skills was acknowledged by my manager.	2.63	1.34	1
	Overall Mean and standard deviation	2.59	1.31	-

Table 4.12 shows that the Mean values range from 2.53 to 2.63 (all the Mean values are below the neutral value of 3.00). The highest Mean was for the item "Applying the learned skills was acknowledged by my manager" with a Mean of 2.63 and a standard deviation of 1.34. The lowest Mean was for the item "Applying the new skills was recognized and rewarded by my

manager" with a Mean of 2.53 and a standard deviation of 1.27. The overall Mean for the "Post-Training activities (Reward & Recognition)" was 2.59 and the overall standard deviation was 1.31.

4.4 Pre-Training factors (Assessment, Pre-Training activities, Goals & learning objectives setting, and prerequisite activities)

Table 4.13

Descriptive statistics of Pre-Training activities

S. No.	Statement	Mean	Standard Deviation	Rank
1	Trainees undertook a skills assessment before attending the training.	2.20	1.25	15
2	A knowledge and skills assessment was conducted for the trainees before the training to identify the appropriate training level for them.	2.91	1.24	2
3	Trainees' skill level was assessed before the training.	2.30	1.21	13
4	The course content was relevant to trainees' job role.	2.97	1.21	1
5	Trainees were aware of the topics to be covered in the training before attending it.	2.61	1.23	7
6	Improving IT skills in the software applications for which participants attended the training was documented as a goal in their development plan.	2.78	1.29	4

7	Trainees documented "upskilling in using the software learned in the training" as a goal in their development plans.	2.70	1.22	6
8	Trainees discussed their learning objectives with their line managers before attending the training.	2.80	1.22	3
9	Trainees agreed on the performance expectations with their managers before the training to work on them after the training.	2.76	1.19	5
10	Before the training, trainees discussed (with their managers) what they will be doing differently when they come back from the training.	2.53	1.22	9
11	Trainees did a prerequisite activity before attending the training.	2.40	1.26	12
12	Trainees did a preparatory reading prior to attending the training.	2.53	1.33	10
13	Trainees had an assignment before attending the training.	2.22	1.21	14
14	Trainees prepared for the training program before attending it.	2.56	1.17	8
15	An activity was completed before attending the training as a prerequisite.	2.45	1.24	11
	Overall Mean and standard deviation	2.58	1.23	-

Table 4.13 shows that the Mean values range from 2.20 to 2.97 which are below the neutral value of 3.00. The highest Mean was observed for the item "The course content was relevant to trainees' job role" with a Mean

value of 2.97 and a standard deviation of 1.21. The lowest Mean was for the item "Trainees undertook a skills assessment before attending the training" with a Mean of 2.20 and a standard deviation of 1.25. The overall Mean for the "Pre-Training activities (Assessment, Pre-Training activities Goal & learning objectives setting and prerequisite activities)" was 2.58 and the overall standard deviation was 1.23.

4.5 Post-Training Factors (Peer Support, Supervisor/Manager Support and Reward & Recognition)

Table 4.14

Descriptive statistics of Post-Training Activities

S. No.	Statement	Mean	Standard Deviation	Rank
1	I received assistance from my peers post the training.	2.67	1.21	7
2	I received feedback from my peers post the training	2.70	1.24	5
3	My peers assisted me to implement the training on the job.	2.68	1.20	6
4	I cooperated with my colleagues who participated in the training to achieve the training goals and to apply the new knowledge and skills on the job.	2.84	1.19	3
5	I received enough support from my manager after the training to apply the learned skills on my job.	2.87	1.33	1
6	I participated in an interview or discussion with my supervisor/manager as a part of a follow-up to the training program I attended.	2.65	1.33	8

7	After the training, my manager accepted my suggestions to improve the work and gave me the opportunity to apply the new knowledge and skills developed in the training program.	2.83	1.33	4
8	My manager provided me with the time, tools and suitable environment that I need to apply the learned skills on my job.	2.86	1.30	2
9	My manager provides me with constant reminders on how to apply the acquired skills on my job and helps me to solve the problems I face while implementing the new knowledge and skills.	2.58	1.38	11
10	I was praised or rewarded for using the newly acquired skills developed in the training program	2.61	1.34	10
11	Applying the new skills was recognized and rewarded by my manager.	2.53	1.27	12
12	Applying the learned skills was acknowledged by my manager.	2.63	1.33	9
	Overall Mean and standard deviation	2.70	1.29	-

Table 4.14 shows that the Mean values range from 2.53 to 2.87 which are below the neutral value of 3.00. The highest Mean was for the item "I received enough support from my manager after the training to apply the learned skills on my job" with a Mean value of 2.87 and a standard deviation of 1.33. The lowest Mean value was observed for the item "Applying the new skills was recognized and rewarded by my manager" with a Mean value

of 2.53 and a standard deviation of 1.27. The overall Mean for the "Post-Training activities (Peer support, supervisor/manager support and Reward & Recognition)" was 2.70 and the overall standard deviation was 1.29.

4.6 Barriers to the IT Training Transfer to the workplace

Table 4.15

Descriptive Statistics for Barriers to Training Transfer

S. No.	Statement	Frequency	Percentage	Rank
1	Haven't had the opportunity to apply training	85	37	1
2	Job changed	22	9.6	4
3	Lack of manager's support	42	18.3	2
4	Resistance to change (self)	19	8.3	7
5	Resistance to change (group)	22	9.6	4
6	Didn't learn anything new	18	7.8	8
7	Don't recall content	24	10.4	3
8	Resources not available	22	9.6	4

Table 4.15 shows that the majority of respondents indicated that the three main barriers to the IT training transfer to the workplace, according to them are:

(a) Not having the opportunity to apply the learning in the workplace with 37% of the participants indicating it,

(b) Lack of manager support (18.3% of the respondents) and

(c) Not recalling the content (10.4% of the respondents).

These results are comparable to the findings by other researchers who have reported that the lack of time to apply learning, lack of on-the-job reinforcement, lack of management support and buy-in, non-supportive work environment and non-supportive organizational climate were significant barriers to transfer. (Cromwell & Kolb 2004; Newstrom 1986).

This data forms a strong basis for the recommendations of this research. It helps in pinpointing the gaps in the current IT training process. Further, it provides clear guidance about where the efforts should be focused in order to improve the IT training transfer to the workplace. The research recommendations will be discussed in detail in chapter 6.

Chapter 5: Responses Analysis and Hypotheses Testing

5.1 Introduction

The last chapter presented the demographic profile of the respondents and the descriptive analyses of the independent variables under study, i.e. Pre-Training activities and Post-Training Activities. This chapter presents the analysis of the responses of the participants, to adjudge the validity of the hypotheses that were introduced in chapter 3.

5.2 Relationship between Pre-Training and Post-Training Factors

Pearson's Correlation Coefficient is used to determine the extent to which the dependent variable varies based on a change in the independent variable. To conclude that there is a correlation between the two (the dependent and the independent variables), a significance value of less than 0.01 must be obtained (Arkkelin 2014).

In addition to the significance value, the direction and the degree of the relationship need to be identified. A negative correlation indicates that an increase in the independent variable will lead to a decrease in the dependent variable. A positive correlation, on the other hand, indicates than an increase in the independent variable will lead to an increase in the dependent variable. The strength of the relationship is identified by the Pearson Correlation value (r). A relationship can be labeled as a strong one when the r-value is greater than 0.5, moderate when the r-value is around 0.3 and weak if the r-value is less than 0.2 percent. (Arkkelin 2014).

Table 5.1

Correlation between Pre-Training and Post-Training Factors and Transfer of Training

		All Pre-Training Factors	All Post-Training Factors
IT Training Transfer to the Workplace	Pearson Correlation	.447**	.557**
	Sig. (2-tailed)	.000	.000
	N	230	230

Table 5.1 displays the results of the Pearson's Correlation where it is evident that there is a strong positive relationship between "Training Transfer to the Workplace" dependent variable and both the pre-training activities and the post-training activities at significance levels of .000. This supports both hypothesis 1 and hypothesis 2.

Next, an analysis will be conducted to break down the pre-training activities into (a) assessment, (b) Goals & learning objectives setting and (c) prerequisite activities while the post-training activities will be broken down into (a) peer support, (b) manager support and (c) Reward & Recognition. For the Pre-training activities, Pearson Correlation will be conducted between each aspect of the independent variables and the "Training Transfer to the Workplace" dependent variable.

Table 5.2

Pearson Correlation between pre-training activities and Training Transfer

		Pre-training Assessment	Goal & learning objectives setting	Prerequisite activities
IT Training Transfer to the Workplace	Pearson Correlation	.287**	.542**	.251**
	Sig. (2-tailed)	.000	.000	.000
	N	230	230	230

Table 5.2 displays the results of the Pearson's Correlation where it is apparent that there is a strong positive relationship between the "Goals & learning objectives setting" independent variable and "Training Transfer to the Workplace" dependent variable at a significance level of .000 which supports hypothesis 1.2. The data also shows that there is a positive weak-to-moderate relationship between the "Pre-training assessment" independent variable and "Training Transfer to the Workplace" dependent variable which supports hypothesis 1.1. Moreover, there is a weak positive relationship between the "Pre-training prerequisite activities" independent variable and "Training Transfer to the Workplace" dependent variable which supports hypothesis 1.3.

Hence, we find that all individual factors of Pre-Training Activities are positively correlated to Transfer of Training.

The data in table 5.2 also provides answers to the research questions RQ2, RQ3 and RQ4. For RQ2, table 5.2 shows that there is a positive weak-to-moderate relationship between the "Pre-training assessment" independent variable and "Training Transfer to the Workplace" dependent variable. For RQ3, table 5.2 shows that there is a strong positive relationship between the "Goal & learning objectives setting" independent variable and "Training

Transfer to the Workplace" dependent variable. And for RQ3, table 5.2 shows that there is weak relationship between the "Pre-training prerequisite activities" independent variable and "Training Transfer to the Workplace" dependent variable.

5.3 Post-training Factors

Table 5.3

Pearson's Correlation between Post-Training Factors and Transfer of Training

		Post-training Peers' Support	Post-training Manager's Support	Post-training Reward & Recognition
IT Training Transfer to the Workplace	Pearson Correlation	.415**	.537**	.502**
	Sig. (2-tailed)	.000	.000	.000
	N	230	230	230

Table 5.3 displays the results of the Pearson's Correlation where it is clear that there is a moderate relationship between "Training Transfer to the Workplace" dependent variable and the post-training independent variables "peers support" and a strong positive relationship between "Training Transfer to the Workplace" dependent variable and the post-training independent variables "manager support" and "Reward & Recognition" at significant levels of .000 which denies hypothesis 2.1 but supports hypothesis 2.2 and 2.3.

The data in table 5.3 also provide answers to the research questions RQ5, RQ6 and RQ7. For RQ5, table 5.3 shows that there is a moderate positive relationship between the "Post-training Peers' Support" independent variable and "Training Transfer to the Workplace" dependent variable. For RQ6, table 5.3 shows that there is a strong positive relationship between the "Post-training Manager's Support" independent variable and "Training

Transfer to the Workplace" dependent variable. For RQ7, table 5.3 shows that there is a strong relationship between the "Post-training Reward & Recognition" independent variable and "Training Transfer to the Workplace" dependent variable.

5.4 Relationship between Demographic characteristics and Transfer of Training

Pearson's Correlation was conducted to ascertain if there is any correlation between the dependent variable "IT Training Transfer to the Workplace" and the independent variables of respondent's years of service in the organization, the participant grade and the number of the IT training programs attended, i.e. the demographic characteristics of the respondents.

Table 5.4

Pearson's Correlation between the years of service, participant grade and the number of the IT Training programs attended

		Years of service	Participant grade	Number of the IT training programs attended
IT Training Transfer to the Workplace	Pearson Correlation	-.071	-.002	.007
	Sig. (2-tailed)	.281	.973	.912
	N	230	230	230

Table 5.4 displays the results of the Pearson's Correlation which provides an answer to RQ10. It is apparent that all demographic characteristics have no significant relationships with Transfer of training as significance levels are greater than 0.05.

In summary, the analysis presented in this section provides an answer to RQ10 where the data suggests that there is no statistically significant

relationship between IT training transfer to the workplace and the years of service in the organization, the participant grade or the number of the IT training programs attended.

5.5 Regression Analysis

In order to test the influence of pre-training and post-training factors on the transfer of training, regression analysis was chosen as the method of study. As regression analysis is employed to study relationships between two or more independent variables and a dependent variable, individual factors within pre-training and post-training activities were considered to be independent variables in their own right. The preconditions for regression analysis were met for both independent variables:

As described earlier, all factors of the two independent variables depicted significant correlation with the transfer of training. Also, in none of the cases, the correlation was higher than 0.7, which may have suggested the removal of the stronger variable from the test.

To ensure that there was no issue of multicollinearity, i.e. high correlations among the independent variables that interfere with the regression analysis, Tolerance and VIF values were considered. None of the independent factors showed multicollinearity.

This section analyzes the results of the statistical regression tests conducted to validate the research hypotheses. The details of the regression tests conducted are available in appendix 4.

H1: Pre-training factors have a significant positive impact on the IT training transfer to the workplace.

The results of the regression analysis for testing the first hypothesis of the study "Pre-training factors have a significant impact on the IT training transfer to the workplace" are discussed later. To find the prediction of the impact of the pre-training factors on IT training transfer to the workplace, the analysis was conducted using SPSS 24.0.

The value of R^2 in the regression test results indicates that pre-training activities explained 20% of the variance in IT training transfer to the

workplace. The R-square and adjusted R-square values of .200 and .197 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio is 57.081and significant at p < .001. The beta value of .447 indicates that if the pre-training activities increase, then it will lead to an increase in IT Training transfer to the workplace which reiterates the results of the correlation test conducted in chapter 4 and further substantiates Hypothesis 1.

H1.1. Pre-training assessment has a significant positive impact on the transfer of IT training to the workplace.

The results of the regression analysis for testing the second hypothesis of the study "Pre-training assessment has a significant positive impact on the transfer of IT training to the workplace" are shown in section 12.2. To find the prediction of the impact of the pre-training assessment on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that pre-training activities explained 8% of the variance in IT training transfer to the workplace. The R-square and adjusted R-square values of .082 and .178 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio is determined to be 20.443, and significant at p < .001. The beta value of .287 indicates that if the pre-training assessment activities are strengthened, then it will lead to an increase in IT Training transfer to the workplace by 8% (based on r square value) which reiterates the results of the correlation test conducted previously, and therefore, supports Hypothesis 1.1.

H1.2: Pre-training goals & learning objectives setting has a significant positive impact on the transfer of IT training to the workplace.

The results of the regression analysis for testing the next hypothesis of the study "Pre-training goals & learning objectives setting has a significant positive impact on the transfer of IT training to the workplace" are shown in section 12.3. To find the prediction of the impact of the Pre-training goals &

learning objectives setting on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that pre-training goals and objectives setting explained 29.4% of the variance in IT training transfer to the workplace. The R-square and adjusted R-square values of .294 and .291 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio is found to be 94.931 and, significant at $p < .001$. The beta value of .542 indicates that if the "pre-training goals & learning objectives setting" activities are conducted well, then it will lead to an increase in IT Training transfer to the workplace which reiterates the results of the earlier described and support Hypothesis 1.2

This result is similar to the findings of other researchers and provides an evidence that goal setting improves the transfer of training as it helps the trainees to focus on the activities and actions they need to do to achieve their career aspirations and increase their pre-training motivation (Hesketh 1997; Richman-Hirsch 2001; Chiaburu and Marinova 2005). It is worth mentioning that similar findings were reported by Beausaert et al. (2013) who recommended using personal development plans to plan for future learning activities in order to help employees' acquisition of new skills, develop competence and achieve aspired career plan.

H1.3: Prerequisite activities have a significant positive impact on the transfer of IT training to the workplace.

The results of the regression analysis for testing the next hypothesis of the study "Prerequisite activities have a significant positive impact on the transfer of IT training to the workplace" are shown in section 12.4. To find the prediction of the impact of the pre-training assessment on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that pre-training activities explained 6.3% of the variance in IT training transfer to the workplace. The R-square and adjusted R-square values of .063 and .059

respectively indicate that there is a high degree of goodness of fit of the regression model. Looking at the F-ratio which is 15.283 and significant at p < .001, we find that the regression model results in significantly better prediction of IT Training transfer to the workplace than if we used the Mean value of the IT training transfer to the workplace alone (Field, 2009). In short, the regression model overall predicts IT Transfer to the workplace significantly well. The beta value of .251 indicates that if the Pre-training Prerequisite activities increase, then it will lead to an increase in IT Training transfer to the workplace which reiterates the results of the correlation test conducted previously and therefore, supports H1.3.

H2: Post-training factors have an impact on the IT training transfer to the workplace.

The results of the regression analysis for testing the next hypothesis of the study "Post-training factors have an impact on the IT training transfer to the workplace" are shown in section 12.5. To find the prediction of the impact of the pre-training assessment on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that post-training activities explained 31% of the variance in IT training transfer to the workplace. The R-square and adjusted R-square values of .310 and .307 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio is determined to be 102.573 and significant at p < .001. The beta value of .557 indicates that if the Post training activities increase, then it will lead to an increase in IT Training transfer to the workplace by 31% which reiterates the results of the correlation test conducted previously and therefore validate H2.

These results are in line with Olfman and Bostrom (1991) finding that a lack of post-training support could result in low software usage levels. The same was emphasized by Burke & Hutchins (2008) who indicated that activities that can increases training transfer are best implemented post the training

or during it. However, during-training activities are not a part of this research.

H2.1: Post-training peers' support has a significant positive impact on the transfer of IT training to the workplace.

The results of the regression analysis for testing the next hypothesis of the study "Post-training peers' support has a significant positive impact on the transfer of IT training to the workplace" are shown in section 12.6. To find the prediction of the impact of the pre-training assessment on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that the post-training activities explained 17% of the variance in IT training transfer to the workplace. The R-square and adjusted R-square values of .172 and .169 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio, which is 47.435 and significant at $p < .001$ indicates that the regression model results in a significantly better prediction of IT Training transfer to the workplace than if we had used the Mean value of the IT training transfer to the workplace alone (Field, 2009). The beta value of .415 indicates that if the "Post-training peers' support increase, then it will lead to an increase in IT Training transfer to the workplace which reiterates the results of the correlation test conducted previously, therefore supporting H2.1. These conclusions support the findings by other researchers who reported that organizational peer support is essential to nurture continual learning and have a positive influence on the transfer of training (Sein et al. 1989; Hua, 2013; Bates et al., 2000; Cromwell & Kolb 2004; Maung and Chemsripong 2014).

H2.2: Post-training manager's support has a significant positive impact on the transfer of IT training to the workplace.

The results of the regression analysis for testing the next hypothesis of the study "Post-training manager support has a significant positive impact on the transfer of IT training to the workplace" are shown in section 12.7. To find the prediction of the impact of the pre-training assessment on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that post-training manager's support explained 29% of the variance in IT training transfer to the workplace, which is a high percentage value. The R-square and adjusted R-square values of .290 and .287 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio is 92.957, and significant at $p < .001$. The regression model, hence, predicts IT Transfer to the workplace significantly well. The beta value of .538 indicates that if the "Post-training manager's support increases, then it will lead to an increase in IT Training transfer to the workplace which reiterates the results of the correlation test conducted in Chapter 4 and further validates H2.2.

These results are similar to the findings of other studies that reported that supervisor support is one of the most critical work environment variables for training transfer (Nijman et al. 2006; Cromwell & Kolb 2004; Baldwin & Ford 1988; Brinkerhoff & Montesino 1995; Burke and Hutchins 2008; Xiao 1996; Bates et al. 2000). These findings provide evidence that supervisors or managers play an integral role, before and after, the training process as they help in setting the goals, give the time and opportunity to apply the training and reward the training transfer. These activities that are done by supervisor and managers lead to a greater transfer of training. However, other studies have reported that supervisory support was not significantly associated with the transfer of training (Hua, 2013; van der Klink, Gielen, & Nauta 2001; Chiaburu and Marinova 2005)

H2.3: Post-training reward and recognition have a significant positive impact on the transfer of IT training to the workplace.

The results of the regression analysis for testing the next hypothesis of the study "Post-training reward and recognition have a significant positive impact on the transfer of IT training to the workplace" are shown in section 12.8. To find the prediction of the impact of the pre-training assessment on IT training transfer to the workplace, the analysis was conducted using SPSS.

The value of R^2 in the regression test results indicate that Post-training reward and recognition explained 25% of the variance in IT training transfer to the workplace. The R-square and adjusted R-square values of .252 and .249 respectively indicate that there is a high degree of goodness of fit of the regression model. The F-ratio is determined to be 76.729, and significant at $p < .001$. This indicates that the regression model results in significantly better prediction of IT Training transfer to the workplace than if we had used the Mean value of the IT training transfer to the workplace alone (Field, 2009). In short, the regression model overall predicts IT Transfer to the workplace to be significantly related to post-training reward and recognition. The beta value of .502 indicates that if the "Post-training reward and recognition increase, then it will lead to an increase in IT Training transfer to the workplace which reiterates the results of the correlation test conducted previously, therefore, supporting H2.3.

This finding is in line with the results of Yi and Davis (2003) who reported that IT training needs to consider motivation as one of their observational learning processes. Yi and Davis (2003) defended this by explaining: "the symbolic memory of actions will weaken unless the perceived consequences of performing the actions are sufficiently favorable to cause reported performance". The findings from the current study prove that reward and recognition of training transfer can increase the motivation of the trainees. Consequently, this contributes to increasing the training transfer further.

Table 5.5

Comparison between the Pre-training and Post-training factors

S. No.	Factor name	Correlation coefficient	R square
1	All the pre-training factors	0 .447	0.20
1.1	Pre-training assessment	0.287	0.082

1.2	Pre-training goal & learning objectives setting	0.542	0.294
1.3	Prerequisite activities	0.251	0.063
2	All the Post-training factors	0.557	0.31
2.1	Post-training peers' support	0.415	0.172
2.2	Post-training manager's support	0.537	0.290
2.3	Post-training reward and recognition	0.502	0.252

Table 5.5 above shows a summary comparison between all the pre-training and post-training factors that have an impact on the IT Training transfer to the workplace. By comparing the correlation coefficient and the R-square values, it can be concluded that the strongest relationship exists between "Pre-training goal & learning objectives setting" independent variable and the "IT Training transfer to the workplace" dependent variable with a correlation of 0.542 and an R-square value of 0.294 which means that "Pre-training goal & learning objectives setting" explained 29.4% of the variance in IT training transfer to the workplace.

Almost equally strong is the relationship between "Post-training manager's support" independent variable and the "IT Training transfer to the workplace" dependent variable with a correlation of 0.537 and a R-square value of 0.290 which means that "Post-training manager's support" explained about 29.0% of the variance in IT training transfer to the workplace.

Another strong relationship is the one that exists between "Post-training reward and recognition" independent variable and the "IT Training transfer to the workplace" dependent variable with a correlation of 0.502 and an R-

square value of 0.252 which means that "Post-training reward and recognition" explained about 25.0% of the variance in IT training transfer to the workplace.

Additionally, there is a fairly strong relationship between "Post-training peers' support" independent variable and the "IT Training transfer to the workplace" dependent variable with a correlation of 0.415 and an R-square value of 0.172 which means that "Post-training peers' support" explained about 17.2% of the variance in IT training transfer to the workplace. Table 5.5 also provides an answer to RQ8 where it can be concluded that "Pre-training goal & learning objectives setting" is the pre-training activity with the biggest impact on the "IT Training transfer to the workplace". Moreover, RQ9 is also answered, where it can be concluded that "Post-training manager's support" is almost equally important and has a big impact on the "IT training transfer to the workplace".

In summary, it can be concluded that all the factors related to post-training activities have a stronger impact on the "IT Training transfer to the workplace" while only one factor related to the pre-training activities has a strong impact on the IT Training transfer to the workplace.

In this chapter, we have described the relationships between various pre-training and post-training factors and transfer of training. Regression analysis has helped to estimate the percentage influence of the independent variables on the dependent variable. We have also validated Hypotheses and found answers to the research questions. These findings will next be discussed in Chapter 6.

Chapter 6: Conclusion and Recommendations

6.1 Introduction

This chapter summarizes the conclusion of this research and highlights the findings of the study. Additionally, recommendations to improve the IT training transfer to the workplace will be discussed and the future research topics will be suggested.

6.2 Conclusion

This research aimed at identifying the pre-training activities and the post-training activities that have an impact on the IT training transfer to the workplace. For this purpose, a questionnaire was sent out to the trainees who attended an IT training 3-18 months before the questionnaire was sent out. The collected data was then analyzed using SPSS statistical software 24.0. In addition to validity and reliability testing, the correlation and regression tests were conducted and the findings were analyzed.

Most of the respondents of the questionnaire had 3-10 years of service in the Company, belonged to grade 6 or 7, and had attended one or two training programs 3-18 months prior to the study. Additionally, most of the survey participants reported that they attended Microsoft Excel training 3-18 months prior to the study.

The independent variables of the study were the pre-training factors: (pre-training assessment, pre-training goals & learning objectives setting, and Prerequisite activities) and the post-training factors (Post-training peers' support, Post-training manager support, Post-training reward and recognition). While the dependent variable was the IT training transfer to the workplace. The research had summarized the correlation between each one of these independent variables and the dependent variable.

The study found pre-training and post-training activities to have a strong impact on the IT training transfer to the workplace. In particular, pre-training goals & learning objectives setting, post-training manager support, post-training reward and recognition and post-training peers support have a significant impact on the IT training transfer to the workplace. Additionally,

Pre-training assessment and completing prerequisite activities before the training have a relatively weaker impact on the IT training transfer to the workplace.

The study also shed light on the factors that are perceived as barriers to the IT training transfer to the workplace.

Moreover, the research questions were answered in detail using different statistical testing methods. A summary of the research questions along with their answers is listed in Table 6.1.

Table 6.1

Research Questions

S. No.	Research Question	Findings
RQ1	What does the current transfer of the IT Training to the workplace by the training participants in the Company look like?	The highest percentage of respondents cited 20-40% training transfer.
RQ2	Is there any significant impact of conducting a "pre-training assessment" on the IT training transfer to the workplace?	There is a weak-to-moderate correlation between "pre-training assessment" and IT training transfer to the workplace.
RQ3	Is there any significant impact of "pre-training Goals & learning objectives' setting" on the IT training transfer to the workplace?	There is a strong correlation between "pre-training Goals & learning objectives' setting" and IT training transfer to the workplace.
RQ4	Is there any significant impact of "pre-training prerequisite	There is a weak correlation between "pre-training prerequisite activities"

	activities" on the IT training transfer to the workplace?	and IT training transfer to the workplace.
RQ5	Is there any significant impact of post-training "Peers' support" on the IT training transfer to the workplace?	There is a moderate correlation between "post-training Peers' support" and IT training transfer to the workplace.
RQ6	Is there any significant impact of "post-training Manager's support" on the IT training transfer to the workplace?	There is a strong correlation between "post-training Manager's support" and IT training transfer to the workplace.
RQ7	Is there any significant impact of "post-training reward and recognition" on the IT training transfer to the workplace?	There is a strong correlation between "post-training reward and recognition" and IT training transfer to the workplace.
RQ8	Amongst the pre-training activities, which one has the biggest impact on the IT training transfer to the workplace?	"Goals & learning objectives' setting" has the strongest impact on the IT training transfer to the workplace.
RQ9	Amongst the post-training activities, which one has the biggest impact on the IT training transfer to the workplace?	Post-training manager's support is the post training activity with the strongest impact on the IT training transfer to the workplace.
RQ10	Is there any significant correlation between the years of service in the organization, the participant grade, the number of courses attended or the type of courses attended and the IT training transfer to the workplace?	There is no significant correlation between the years of service in the organization, the participant grade, the number of courses attended or the type of courses attended and the IT training transfer to the workplace.

RQ11	What barriers do trainees perceive as the most critical to the transfer of the IT training to the workplace?	The top three perceived barriers are: 1- Lack of Opportunity 2- Lack of Manager's Support 3- Don't recall content

The findings of this study are very important as they could influence the training process in the Company so that the training outcomes are optimized to enhance the IT training transfer to the workplace, which in turn will improve employees' performance. The next section discusses in more detail the recommendations of this research.

6.3 Recommendations

Based on the findings of this study, the following IT training process is proposed to increase the IT training transfer to the workplace:

- It is recommended that the IT training participants clearly identify their learning goals before the training. To ensure this is put into practice and that training participants take ownership of their learning, training participants need to document their learning goals and objectives in their development plans before the training.

- It is recommended that before the IT training is attended, the IT training participants discuss with their managers their learning goals and the expected performance improvements that they expect to exhibit after the training.

- It is recommended that before the IT training is attended, the work environment needs to be ready to support the IT training participants with encouraging peers' support.

- Managers play a critical role in enhancing the IT training transfer to the workplace. However, the study participants reported that the lack of manager support was one of the main barriers that hindered the IT training transfer to the workplace. Therefore, it is essential to ensure that the process warrants that managers are involved before,

as well as, after the training by giving the time, opportunity and resources to transfer the IT training to the workplace.

- Rewarding those who transfer their IT training to the workplace will play an essential role in ensuring this practice is repeated by all team members. Therefore, the IT training process needs to include reward and recognition mechanisms to praise those who successfully transfer the IT training to the workplace.

- Trainees need to be given the opportunity to apply the IT training at the workplace. However, the study participants reported that the lack of opportunity is one of the main barriers that hindered their IT training transfer to the workplace. Therefore, it is recommended to ensure that post the IT training, participants are engaged in work assignments that require them to use the skills gained in the IT training, enough time is given to them to apply the learning and they are also being supported.

- The training process in the Company needs to be improved so that it accounts for more reinforcement of the training after the training.

To combine these recommendations together, the IT training unit needs to implement a new IT training process. Figure 6.1 demonstrates a proposal to the new IT training process. This illustration of the proposed IT training process is simple and clear and could be placed in the LMS (Learning Management System) of the Company so that it can easily be accessed by IT training candidates. The proposed process clearly defines the pre-training and post-training activities that need to be practiced in order to increase the IT training transfer to the workplace.

t

1. Define & Document

•1.1 Define your learning goals

•1.2 Document your learning goals in your development plan

2. Assess

•Assess your knowledge & skills to know the right IT training level for you.
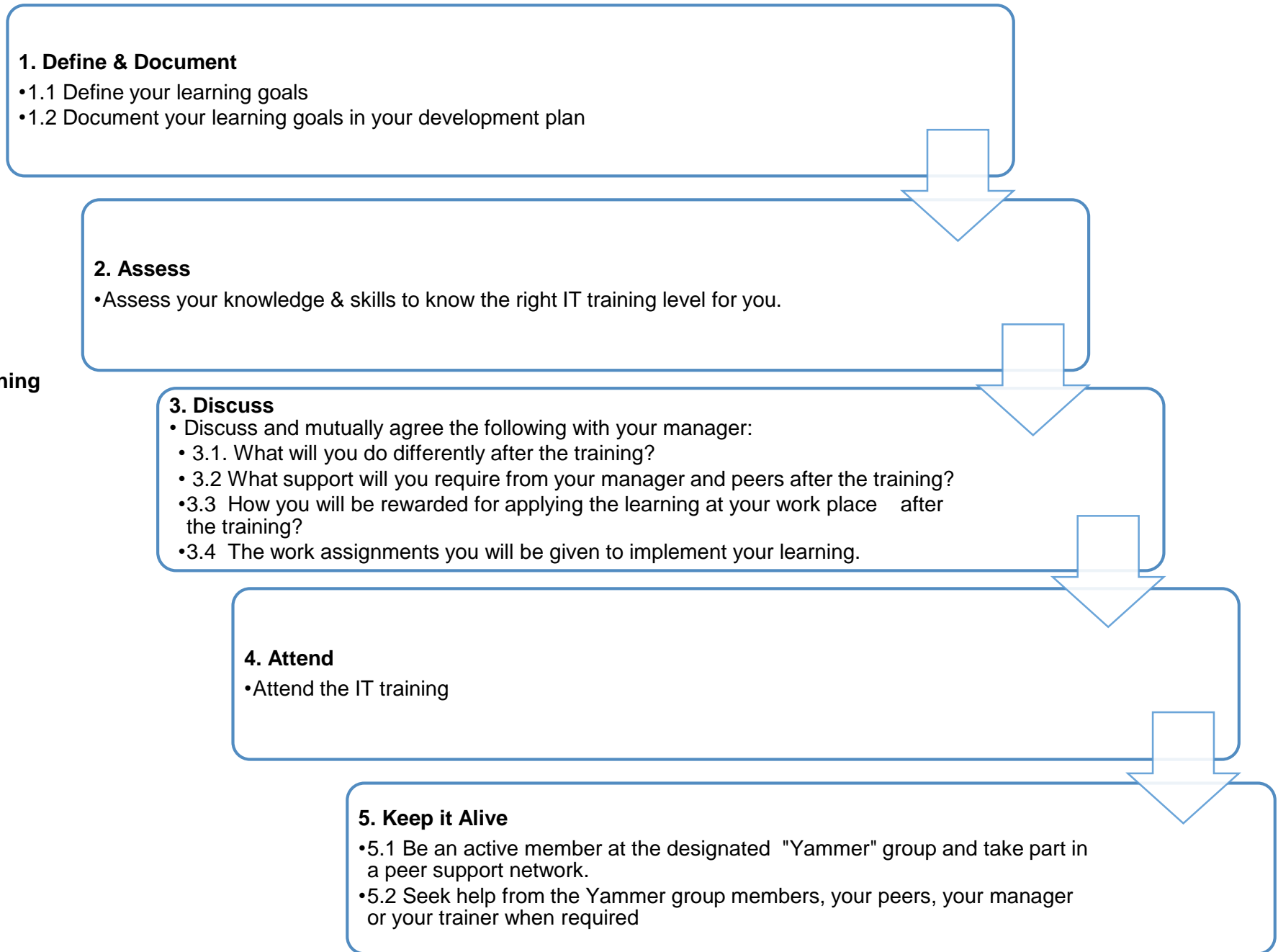
Figure 6.1 Proposed Training Process

3. Discuss
• Discuss and mutually agree the following with your manager:
 • 3.1. What will you do differently after the training?
 • 3.2 What support will you require from your manager and peers after the training?
 •3.3 How you will be rewarded for applying the learning at your work place   after the training?
 •3.4 The work assignments you will be given to implement your learning.

4. Attend

•Attend the IT training

5. Keep it Alive

•5.1 Be an active member at the designated "Yammer" group and take part in a peer support network.

•5.2 Seek help from the Yammer group members, your peers, your manager or your trainer when required

6.4 Future Research

This section highlights some of the future prospects areas that could be explored in the future.

In this study, the survey was sent out to training participants who attended an IT Training 3 to 18 months before the study. In the future, the study could be repeated to include different time spans like 3 months, 6 months, and one year after the training to see if there are any differences in the training transfer rate.

Additionally, this study relied on self-reporting to derive the findings and did not include the views of the IT trainers or the managers of the IT training participants. Therefore, as a future direction, the views of the IT trainers and the managers of the IT training participants need to be investigated to have a better understanding about the IT training transfer to the workplace.

Another point to consider in future research is to control for some research variables like pre-training motivation to learn and transfer, self-efficacy, subject characteristics, learning and the duration of the training. Furthermore, these results need to be tested before generalization for IT training candidates with little or no prior knowledge about using computers and those who are very familiar with the target software application.

Further, this research concluded with a proposed IT training process which needs to be tested in the future to measure the impact of implementing pre-training and post-training activities on the IT training transfer to the workplace. This proposed transfer design could also be tested in other domains and contexts outside the Company to establish external validity.

Bibliography

1   Arkkelin, D., 2014. Using SPSS to Understand Research and Data. s.l.:Psychology Curricular Materials. Book 1.

2   Baldwin, T.T. and Ford, K.J. (1988). Transfer Of Training: A Review And Directions For Future Research, *Personnel Psychology*, vol. 41(1), pp. 63–105.

3   Chiaburu, D. S. & Marinova, S. V., 2005. What predicts skill transfer? An exploratory study of goal orientation, training self-efficacy and organizational supports. International Journal of Training and Development, 9(2), p. 110–123.

4   Clarke, N., 2002. Job/work environment factors influencing training transfer within a human service agency: Some indicative support for Baldwin and Ford's transfer climate construct, *International Journal of Training and Development*. Vol.6(3), pp. 146–162..

5   Coverstone, P.D. (2003). It Training Assessment And Evaluation: A Case Study. *ITE Information Technology Education Conference*. New York, NY, USA, ACM Association for Computing Machinery. pp. 206–215.

6   Dabale, W.P., Jagero, N. and Nyauchi, M. (2014). The Relationship Between Training And Employee Performance: The Case Of Mutare City Council, Zimbabwe. *International Journal of Human Resource Studies*, vol.4(4), p. 61.

7   Diamantidis, A.D. and Chatzoglou, P.D. (2014). Employee post-training behaviour and performance: Evaluating the results of the training process, International Journal of Training and Development, Vol. 18(3), pp. 149–170.

8   Field, A., 2009. Discovering Statistics. 3rd ed. Londen: Sage.

9   Fitzpatrick, R., 2001. The strange case of the transfer of training estimate. The Industrial-*Organizational Psychologist*, 39(2), pp. 18-19.

10 Georgenson, D.L. (1982) The problem of transfer calls for partnership. *Training and development journal,* vol. 36(10), pp. 75–78.

11 Gitonga , J. . W. (2006). Work environment factors influencing the transfer of learning for online learners. University of Illinois at Urbana-Champaign.

12 Hafeez, U. & Akbar, W., (2015). Impact of Training on Employees Performance. *Business Management and Strategy*, vol. 6(1), pp. 49-64.

13 Hamid, W.W.H., Saman, M.M.Z. and Saud, M.S. (2012). Exploring factors influencing the transfer of training using a grounded theory study:

Issues and research agenda. *Procedia - Social and Behavioral Sciences*, vol. 56, pp. 662–672.

14 Holton, E.F. (1996). The flawed Four-Level evaluation model. *Human Resource Development Quarterly* vol.7 (1), pp. 21–5.

15 Holton, E.F. (2005). Holton's evaluation model: New evidence and construct Elaborations. *Advances in Developing Human Resources*, vol.7(1), pp. 37–54.

16 Kirkpatrick, D., 1996. Great Ideas Revisited. Techniques for Evaluating Training Programs. Revisiting Kirkpatrick's Four-Level Model. *Training and Development*, vol.50 (1), pp. 54-59.

17 Kirkpatrick, D. L. & Kirkpatrick, J. D. (2005). Evaluating training programs: The Four levels. s.l.:Berrett-Koehler Publishers, Inc.

18 Latif, K., Jan, S. & Shaheen, N., 2013. Association of training satisfaction with employee development aspect of job satisfaction. Journal of Managerial Sciences, 1.

19 Najeeb, A. Z. (2013). The impact of training and information and communication technology on employees performance: An empirical study on pharmaceutical manufacturing companies in Amman MSC. . thesis. Middle East University.

20 Noe, R. (2012). *Employee training and development*. McGraw-Hill Higher Education

21 Olfman, L. & Bostrom, R.P. (1991). End-user software training: An experimental comparison of methods to enhance motivation. *Information Systems Journal*, vol. 1(4), p. 249–266.

22 Saks, A. M., 2002. *So What is a Good Transfer of Training Estimate? A Reply to Fitzpatrick*. The Industrial- Organizational Psychologist, vol. 39, pp. 29-30.

23 Saks, A.M. and Belcourt, M. (2006). *An investigation of training activities and transfer of training in organizations*. Human Resource Management, vol.45(4), pp. 629–648.

24 Sarv, D. & Ramesh, B., 2004 . How to measure the relationship between training and job performance. Communications of the ACM , 47(5), pp. 62-67 .

25 Saunders, M. N. K., Lewis, P. & Thornhill, A., 2015. Research methods for business students. 7th ed. Harlow, United Kingdom: Pearson Education.

26 Sein, M.K., Sein, R.P., Bostrom, R.P. and Olfman, L. (1989) Training end users to compute: Cognitive, motivational and social issues, End-user computing. John Wiley & Sons, Inc. pp. 137–156.

27   Shayo, C., Olfman, L. & Teitelroit, R. (1999). An exploratory study of the value of pretraining end-user participation. *Information Systems Journal*, vol. 9(1), pp. 55–79.

28   Subedi , B. S., 2004. Emerging trends of research on transfer of learning. *International Education Journal,* vol. 5(4).

29   Sultana, A., Ahmed, K., Mehmood, N. & Irum, S. (2012) Impact Of Training On Employee Performance: A Study Of Telecommunication Sector In Pakistan. *Interdisciplinary Journal Of Contemporary Research In Business,* vol. 4(6), pp. 646-661.

30   Wexley, K.N. and Latham, G.P. (2002). Developing and Training Human Resources in Organizations. 3rd edn. Prenticee Hall Series in Human Resources: Pearson.

31   Wang-Audia, W. and Tauber, T. (2014). Meet the Modern Learner: Engaging the Overwhelmed, Distracted, and Impatient Employee. Available at: https://www.bersin.com/Practice/Detail.aspx?id=18066 (Accessed: 18 Jan 2016).

32   Nijman Derk-JanJ.M., Nijhof, W.J., Wognum, A.A.M.(Ida). and Veldkamp, B.P. (2006) . *Exploring differential effects of supervisor support on transfer of training*. Journal of European Industrial Training, vol. 30(7), pp. 529–549.

33   Cromwell, S.E. and Kolb, J.A. (2004). *An examination of work-environment support factors affecting transfer of supervisory skills training to the workplace*. Human Resource Development Quarterly, vol.15(4), pp. 449–471.

34   Tonhäuser, C. and Büker, L.(2016). *Determinants of transfer of training: A comprehensive literature review*. International Journal for Research in Vocational Education and Training (IJRVET), vol.3(2), pp. 127–165.

35   Ng, K.-H. (2013).*The Influence Of Supervisory And Peer Support On The Transfer Of Training*. Studies in Business and Economics, vol.8(3), pp. 82–97.

36   Rouiller, J.Z. and Goldstein, I.L. (1993). *The relationship between organizational transfer climate and positive transfer of training*. Human Resource Development Quarterly, vol.4(4), pp. 377–390.

37   van der Klink, M., Gielen, E. and Nauta, C. (2001). *Supervisory support as a major condition to enhance transfer. International Journal of Training and Development*, vol.5(1), pp. 52–63.

38   Dostie, B. (2015). *Who benefits from firm-sponsored training?. IZA World of Labor*, vol.145.

39 Dearden, L., Reed, H. and Van Reenen, J. (2006). *The impact of training on productivity and wages: Evidence from British panel Data*. Oxford Bulletin of Economics and Statistics vol.68(4), pp. 397–421.

40 Training Industry. (2016). *Instructor-led training* [online]. [Accessed 30 September 2016]. Available at: https://www.trainingindustry.com/taxonomy/i/instructor-led-training.aspx

41 training magazine Network. (2015). *2015 Training industry Report [online].* [Accessed: 1 September 2016].Available at: https://trainingmag.com/sites/default/files/magazines/2014_11/2014-Industry-Report.pdf

42 Santhanam, R., Seligman, L. and Kang, D. (2007). *Postimplementation knowledge transfers to users and information technology professionals*. Journal of Management Information Systems, 24(1), pp. 171–199.

43 Beausaert, S., Segers, M., Fouarge, D. and Gijselaers, W. (2013). *Effect of using a personal development plan on learning and development*. Journal of Workplace Learning, vol. 25(3), pp. 145–158.

44 Emanuel Froehlich, D., Beausaert, S., Segers, M. and Gerken, M. (2014). *Learning to stay employable*. Career Development International, vol.19 (5), pp. 508–525.

45 Allan, L. (2016) *From Training to Enhanced Workplace Performance* [online]. [Accessed: 1 August 2016]. .Available at: http://www.businessperform.com/products/training-performance/effective_training_tools.html

46 Broad, M. L., & Newstrom, J. W. (1992). *Transfer of training: Action-packed strategies to ensure high payoff from training investments*. Reading MA: AddisonWesley.

47 John W. Newstrom (1986). *Leveraging Management Development through the Management of Transfer*. Journal of Management Development, Vol. 5 Iss: 5, pp.33 – 45

48 Machin, A.M. (2002). Planning, managing, and optimizing transfer of training (2002). In K. Kraiger (Ed.), Creating, implementing, and managing effective training and development, (pp. 263-301). San Francisco: Jossey-Bass.

49 Hesketh, B. (1997). *Dilemmas in training for transfer and retention*. Applied Psychology: An International Review, vol.46, 317-339.

50 Salas, E. and Cannon-Bowers, J.A (2001). *The science of training: a decade of progress.* Annual review of psychology, 52, 471-499.

Klein, Katherine J. (Ed); Kozlowski, Steve W. J. (Ed). (2000). Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions , (pp. 157-210). San Francisco, CA, US: Jossey-Bass, xxix, 605 pp.

51 Richman-Hirsch WendyL (2001). *Posttraining interventions to enhance transfer: The moderating effects of work environments*, *Human Resource Development Quarterly*, vol.12(2), pp. 105–120.

52 Tannenbaum, S.I. and Yukl, G. (1992). *Training and development in work organizations. Annual Review of Psychology*, vol.43(1), p. 399.

53 Brinkerhoff, R.O. and Montesino, M.U. (1995). *Partnerships for training transfer: Lessons from a corporate study*. Human Resource Development Quarterly, vol.6(3), pp. 263–274.

54 Yi, M.Y. and Davis, F.D. (2003). *Developing and validating an observational learning model of computer software training and skill acquisition*. Information Systems Research, vol.14(2), pp. 146–169.

55 Jaidev, U.P. and Chirayath, S. (2012). *Pre-Training, during-training and post-training activities as predictors of transfer of training*. The IUP Journal of Management Research, vol.11(4), pp. 54–70.

56 Burke, L.A. and Hutchins, H.M. (2008). *A study of best practices in training transfer and proposed model of transfer*. Human Resource Development Quarterly, vol.19(2), pp. 107–128.

57 Hua, N.K. (2013). *The Influence Of Supervisory And Peer Support On The Transfer Of Training*, Studies in Business and Economics, vol.8(3), pp. 82–97.

58 Xiao, J. (1996). *The relationship between organizational factors and the transfer of training in the electronics industry in Shenzhen, China*. Human Resource Development Quarterly, vol.7(1), pp. 55–73.

59 Bates, R.A, Holton, E.F., Seyler, D.L. and Carvalho, M.A. (2000). *The role of interpersonal factors in the application of computer-based training in an industrial setting*. Human Resource Development International, vol.3(1), pp. 19–42.

60 Brown, T.C. and Warren, A.M. (2009). *Distal goal and proximal goal transfer of training interventions in an executive education program.* Human Resource Development Quarterly, 20(3), pp. 265–284.

61 Maung, K. and Chemsripong, S. (2014). *The results of the importance of supervisor suppport and peer support in transfer of training. ,* International Journal of Business, Economics and Law, 4(1), pp. 82–88.

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Appendix 1: Research Questionnaire

		Respondent Information		
	1.	How long have you been working for the company? (a) Less than 3 years (b) 3-6 years (c) 7-10 years (d) 11-14 years (e) More than 14 years		
	2.	Your Grade a) 1-3 b) 4-5 c) 6-7 d) 8-9 e) Above 9		
		Which of the following IT Training programs did you attend in the past 18 months (Dec 2014- May 2016) (select all that apply)		

MS Word	MS Excel	PowerPoint	OneNote
(a) Basic	(b) Basic	(c) Basic	(i) OneNote
(d) Intermediate	(e) Intermediate	(f) Intermediate	
(g) Advance	(h) Advance		

In a scale from 0 to 100, to what extent did the training impact your job performance in the below aspects?

		0-20%	20-%40%	40%-60%	60%-80%	80%-100%
4.	Work improvement					
5.	Speed to accomplish your work					
6.	The quality of your work					
7.	Fewer mistakes					

Comments:

To what degree do you agree to the following statements:						
Pre-Training activities (Assessment)						
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
8.	Trainees undertook a skill assessment before attending the Training.					
9.	A knowledge and skills assessment was conducted for the trainees before the training to identify the appropriate training level for them.					
10.	Trainees' skill level was assessed before the training.					
11.	The course content was relevant to trainees' job role.					
12.	Trainees were aware of the topics to be covered in the training before attending it.					

Pre-Training activities (Goals and learning objectives setting)						
13	Improving IT skills in the software applications for which participants attended the training was documented as a goal in their development plan.					
14	Trainees documented "upskilling in using the software learned in the training" as a goal in their development plans.					
15	Trainees discussed their learning objectives with their line managers before attending the training.					
16	Trainees agreed on the performance expectations with their managers before the training to work on them after the training.					
17	Before the training, trainees discussed (with their managers) what they will be doing differently when they come back from the training.					
Pre-Training activities (Prerequisite activities)						
18	Trainees did a prerequisite activity before attending the training.					
19	Trainees did a preparatory reading prior to attending the training.					
20	Trainees had an assignment before attending the training.					
21	Trainees prepared for the training program.					
22	An activity was completed before attending the training as a prerequisite.					
Post-Training activities (Peer support)						
23	I received assistance from my peers post training.					
24	I received feedback from my peers post training.					
25	My peers assisted me to implement the training at my work.					
26	I cooperated with my colleagues who participated in the training to achieve the training goals and to apply the new knowledge and skills on the job.					

	Post-Training activities (Supervisor/manager support)					
27.	I received enough support from my manager after the training to apply the learned skills on my job.					
28.	I participated in an interview or discussion with my supervisor/manager as a part of a follow-up to the training program I attended.					
29.	After the training, my manager accepted my suggestions to improve the work and gave me the opportunity to apply the new knowledge and skills developed in the training program					
30.	My manager provided me with the time, tools and suitable environment that I need to apply the learned skills on my job.					
31.	My manager provides me with constant reminders on how to apply the acquired skills on my job and helps me to solve the problems I face while implementing the new knowledge and skills.					
	Post-Training activities (Reward & Recognition)					
32.	I was praised or rewarded for using the newly acquired skills developed in the training program.					
33.	Applying the new skills was recognized and rewarded by my manager.					
34.	Applying the learned skills was acknowledged by my manager.					
35.	**To what extent the below reasons contributed to NOT being able to use your skills/knowledge properly (5 is the highest)**	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	(A) Haven't had the opportunity to apply training.					
	(B) Job changed					
	(C) Lack of Manager's support					
	(D) Resistance to change (self)					

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	(E) Resistance to change (group)					
	(F) Didn't learn anything new					
	(G) Don't recall content					
	(H) Resources not available					
	(I) Other, please specify					

Appendix 2: Results for the Reliability Tests

Pre-training Assessment

Reliability Statistics

Cronbach's Alpha	N of Items
.860	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Pre-training Assessment	10.7957	16.093	.656	.836
Item 2 Pre-training Assessment	10.0870	15.783	.695	.826
Item 3 Pre-training Assessment	10.7000	15.809	.718	.820
Item 4 Pre-training Assessment	10.0261	15.982	.694	.826
Item 5 Pre-training Assessment	10.3913	16.493	.620	.845

Pre-training Goals & learning objectives setting

Reliability Statistics

Cronbach's Alpha	N of Items
.916	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

Item 1 Pre-training Goals & learning objectives setting	10.7957	18.041	.785	.898
Item 2 Pre-training Goals & learning objectives setting	10.8739	18.285	.814	.892
Item 3 Pre-training Goals & learning objectives setting	10.7739	18.473	.794	.896
Item 4 Pre-training Goals & learning objectives setting	10.8130	18.860	.773	.900
Item 5 Pre-training Goals & learning objectives setting	11.0391	18.763	.760	.902

Pre-Training prerequisite

Reliability Statistics	
Cronbach's Alpha	N of Items
.926	5

Item-Total Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 pre-training prerequisite activities	9.7522	19.401	.800	.911
Item 2 pre-training prerequisite activities	9.6217	18.699	.816	.908
Item 3 pre-training prerequisite activities	9.9261	19.457	.834	.904
Item 4 pre-training prerequisite activities	9.5913	20.304	.771	.916

Item 5 pre-training prerequisite	9.7000	19.355	.815	.908

All the Pre-Training fields

Reliability Statistics	
Cronbach's Alpha	N of Items
.919	15

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Pre-training Assessment	36.5174	143.142	.521	.917
Item 2 Pre-training Assessment	35.8087	144.286	.481	.918
Item 3 Pre-training Assessment	36.4217	142.350	.567	.915
Item 4 Pre-training Assessment	35.7478	142.268	.568	.915
Item 5 Pre-training Assessment	36.1130	141.411	.591	.915
Item 1 Pre-training Goals & learning objectives setting	35.9435	139.075	.641	.913
Item 2 Pre-training Goals & learning objectives setting	36.0217	138.877	.688	.911
Item 3 Pre-training Goals & learning objectives setting	35.9217	140.457	.632	.913
Item 4 Pre-training Goals & learning objectives setting	35.9609	140.771	.636	.913
Item 5 Pre-training Goals & learning objectives setting	36.1870	139.131	.680	.912
Item 1 pre-training prerequisite activities	36.3261	138.483	.682	.912
Item 2 pre-training prerequisite activities	36.1957	138.272	.646	.913
Item 3 pre-training prerequisite activities	36.5000	139.535	.672	.912

Item 4 pre-training prerequisite activities	36.1652	139.868	.684	.912
Item 5 pre-training prerequisite activities	36.2739	137.650	.719	.910

Post-Training Peer Support

Reliability Statistics

Cronbach's Alpha	N of Items
.934	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Post-training Peer Support	8.2174	11.289	.838	.917
Item 2 Post-training Peer Support	8.1913	10.924	.865	.908
Item 3 Post-training Peer Support	8.2043	11.133	.876	.904
Item 4 Post-training Peer Support	8.0478	11.627	.802	.928

Post-training Manager Support

Reliability Statistics

Cronbach's Alpha	N of Items
.939	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

Item 1 Post-training Manager Support	10.9087	23.376	.824	.927
Item 2 Post-training Manager Support	11.1348	23.707	.793	.933
Item 3 Post-training Manager Support	10.9565	22.898	.868	.919
Item 4 Post-training Manager Support	10.9261	23.003	.881	.917
Item 5 Post-training Manager Support	11.2043	23.019	.817	.929

Post-Training Reward & Recognition

Reliability Statistics	
Cronbach's Alpha	N of Items
.940	3

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Post-training Reward & Recognition	5.1652	6.339	.850	.933
Item 2 Post-training Reward & Recognition	5.2391	6.445	.894	.899
Item 3 Post-training Reward & Recognition	5.1435	6.228	.883	.906

All the Post-Training fields

Reliability Statistics	
Cronbach's Alpha	N of Items
.950	12

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Post-training Peer Support	29.7739	134.246	.652	.949
Item 2 Post-training Peer Support	29.7478	131.901	.720	.947
Item 3 Post-training Peer Support	29.7609	131.938	.750	.946
Item 4 Post-training Peer Support	29.6043	132.266	.740	.946
Item 1 Post-training Manager Support	29.5696	128.831	.776	.945
Item 2 Post-training Manager Support	29.7957	129.019	.770	.945
Item 3 Post-training Manager Support	29.6174	128.001	.804	.944
Item 4 Post-training Manager Support	29.5870	128.444	.808	.944
Item 5 Post-training Manager Support	29.8652	127.218	.801	.944
Item 1 Post-training Reward & Recognition	29.8348	129.152	.759	.946
Item 2 Post-training Reward & Recognition	29.9087	129.900	.774	.945
Item 3 Post-training Reward & Recognition	29.8130	128.755	.779	.945

All the Pre-Training and Post Training Fields

Reliability Statistics	
Cronbach's Alpha	N of Items
.956	27

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

Item 1 Pre-training Assessment	68.9609	508.090	.495	.956
Item 2 Pre-training Assessment	68.2522	509.430	.472	.956
Item 3 Pre-training Assessment	68.8652	505.951	.551	.955
Item 4 Pre-training Assessment	68.1913	509.902	.476	.956
Item 5 Pre-training Assessment	68.5565	507.794	.508	.956
Item 1 Pre-training Goals & learning objectives setting	68.3870	499.208	.636	.954
Item 2 Pre-training Goals & learning objectives setting	68.4652	498.966	.678	.954
Item 3 Pre-training Goals & learning objectives setting	68.3652	501.333	.634	.954
Item 4 Pre-training Goals & learning objectives setting	68.4043	502.382	.630	.954
Item 5 Pre-training Goals & learning objectives setting	68.6304	498.548	.687	.954
Item 1 pre-training prerequisite activities	68.7696	498.589	.665	.954
Item 2 pre-training prerequisite activities	68.6391	499.192	.616	.955
Item 3 pre-training prerequisite activities	68.9435	502.272	.622	.955
Item 4 pre-training prerequisite activities	68.6087	502.283	.643	.954
Item 5 pre-training prerequisite activities	68.7174	497.191	.698	.954
Item 1 Post-training Peer Support	68.4957	499.020	.685	.954
Item 2 Post-training Peer Support	68.4696	497.132	.701	.954
Item 3 Post-training Peer Support	68.4826	495.867	.754	.953
Item 4 Post-training Peer Support	68.3261	498.011	.715	.954
Item 1 Post-training Manager Support	68.2913	493.159	.722	.954
Item 2 Post-training Manager Support	68.5174	495.631	.679	.954

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 3 Post-training Manager Support	68.3391	492.644	.729	.954
Item 4 Post-training Manager Support	68.3087	493.935	.723	.954
Item 5 Post-training Manager Support	68.5870	491.693	.719	.954
Item 1 Post-training Reward & Recognition	68.5565	494.108	.700	.954
Item 2 Post-training Reward & Recognition	68.6304	494.513	.730	.954
Item 3 Post-training Reward & Recognition	68.5348	492.547	.732	.953

Training Transfer to the Workplace

Reliability Statistics	
Cronbach's Alpha	N of Items
.924	4

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Training Transfer to the work Place	7.0957	10.270	.817	.904
Item 2 Training Transfer to the work Place	7.1739	9.725	.845	.895
Item 3 Training Transfer to the work Place	7.0304	9.706	.832	.899
Item 4 Training Transfer to the work Place	7.2130	10.020	.806	.908

All the questionnaire fields

Reliability Statistics	
Cronbach's Alpha	N of Items
.958	31

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 Post-training Peer Support	78.0000	617.616	.665	.956
Item 2 Post-training Peer Support	77.9739	614.742	.695	.956
Item 3 Post-training Peer Support	77.9870	613.541	.744	.956
Item 4 Post-training Peer Support	77.8304	615.277	.717	.956
Item 1 Post-training Manager Support	77.7957	609.578	.728	.956
Item 2 Post-training Manager Support	78.0217	612.327	.686	.956
Item 3 Post-training Manager Support	77.8435	608.954	.736	.956
Item 4 Post-training Manager Support	77.8130	609.961	.737	.956
Item 5 Post-training Manager Support	78.0913	607.577	.731	.956
Item 1 Post-training Reward & Recognition	78.0609	610.887	.702	.956
Item 2 Post-training Reward & Recognition	78.1348	610.868	.740	.956
Item 3 Post-training Reward & Recognition	78.0391	608.702	.742	.956
Item 1 Pre-training Assessment	78.4652	626.425	.498	.958
Item 2 Pre-training Assessment	77.7565	628.403	.467	.958
Item 3 Pre-training Assessment	78.3696	624.994	.538	.957
Item 4 Pre-training Assessment	77.6957	629.531	.460	.958
Item 5 Pre-training Assessment	78.0609	628.075	.478	.958
Item 1 Pre-training Goals & learning objectives setting	77.8913	615.678	.653	.957
Item 2 Pre-training Goals & learning objectives setting	77.9696	615.366	.696	.956

Item 3 Pre-training Goals & learning objectives setting	77.8696	618.315	.647	.957
Item 4 Pre-training Goals & learning objectives setting	77.9087	619.559	.641	.957
Item 5 Pre-training Goals & learning objectives setting	78.1348	615.558	.694	.956
Item 1 pre-training prerequisite activities	78.2739	618.208	.629	.957
Item 2 pre-training prerequisite activities	78.1435	618.578	.587	.957
Item 3 pre-training prerequisite activities	78.4478	621.742	.594	.957
Item 4 pre-training prerequisite activities	78.1130	621.681	.616	.957
Item 5 pre-training prerequisite activities	78.2217	615.929	.673	.956
Item 1 Training Transfer to the Workplace	78.2609	628.211	.539	.957
Item 2 Training Transfer to the Workplace	78.3391	626.050	.543	.957
Item 3 Training Transfer to the Workplace	78.1957	625.975	.536	.957
Item 4 Training Transfer to the Workplace	78.3783	622.472	.614	.957

Appendix 3: Regression Analysis Outputs

H1-Pre-training factors have a significant positive impact on the IT training transfer to the workplace.

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method
1	total all Pre-Training[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.447[a]	.200	.197	3.71926

a. Predictors: (Constant), total all Pre-Training

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	789.598	1	789.598	57.081	.000[b]
	Residual	3153.898	228	13.833		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), total all Pre-Training

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.824	.791		4.835	.000
	total all Pre-Training	.147	.019	.447	7.555	.000

a. Dependent Variable: Training Transfer to the Workplace Total

H1.1.: Pre-training assessment has a significant positive impact on the transfer of IT training to the workplace.

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Pre-Training Assessment total[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.287[a]	.082	.078	3.98408

a. Predictors: (Constant), Pre-Training Assessment total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	324.482	1	324.482	20.443	.000[b]
	Residual	3619.013	228	15.873		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), Pre-Training Assessment total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.359	.744		8.550	.000
	Pre-Training Assessment total	.242	.054	.287	4.521	.000

a. Dependent Variable: Training Transfer to the Workplace Total

H1.2: Pre-training goals & learning objectives setting has a significant positive impact on the transfer of IT training to the workplace.

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Pre-training Goals & learning objectives setting total[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542[a]	.294	.291	3.49451

a. Predictors: (Constant), Pre-training Goals & learning objectives setting total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1159.255	1	1159.255	94.931	.000[b]
	Residual	2784.241	228	12.212		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), Pre-training Goals & learning objectives setting total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.762	.633		5.946	.000
	Pre-training Goals & learning objectives setting total	.423	.043	.542	9.743	.000

a. Dependent Variable: Training Transfer to the Workplace Total

115

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method
1	pre-training prerequisite activities total[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.251[a]	.063	.059	4.02610

a. Predictors: (Constant), pre-training prerequisite total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	247.727	1	247.727	15.283	.000[b]
	Residual	3695.769	228	16.210		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), pre-training prerequisite activities total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.191	.649		11.087	.000
	pre-training prerequisite activities total	.190	.049	.251	3.909	.000

a. Dependent Variable: Training Transfer to the Workplace Total

H2.0: Post-training factors have an impact on the IT training transfer to the workplace.

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method
1	total all Post Training[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.557[a]	.310	.307	3.45388

a. Predictors: (Constant), total all Post Training

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1223.624	1	1223.624	102.573	.000[b]
	Residual	2719.871	228	11.929		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), total all Post Training

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.461	.639		5.418	.000
	total all Post Training	.186	.018	.557	10.128	.000

a. Dependent Variable: Training Transfer to the Workplace Total

H2.1: Post-training peers' support has a significant positive impact on the transfer of IT training to the workplace.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Post-training Peer Support total[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.415[a]	.172	.169	3.78382

a. Predictors: (Constant), Post-training Peer Support total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	679.145	1	679.145	47.435	.000[b]
	Residual	3264.351	228	14.317		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), Post-training Peer Support total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.265	.664		7.927	.000
	Post-training Peer Support total	.389	.057	.415	6.887	.000

a. Dependent Variable: Training Transfer to the Workplace Total

H2.2: Post-training manager support has a significant positive impact on the transfer of IT training to the workplace.

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method

Model	Variables Entered	Variables Removed	Method
1	Post-training Manager Support total[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.538[a]	.290	.287	3.50524

a. Predictors: (Constant), Post-training Manager Support total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1142.133	1	1142.133	92.957	.000[b]
	Residual	2801.363	228	12.287		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), Post-training Manager Support total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.390	.579		7.587	.000
	Post-training Manager Support total	.372	.039	.538	9.641	.000

a. Dependent Variable: Training Transfer to the Workplace Total

H2.3: Post-training reward and recognition has a significant positive impact on the transfer of IT training to the workplace.

Variables Entered/ Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Post-training Reward & Recognition total[b]	.	Enter

a. Dependent Variable: Training Transfer to the Workplace Total

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.502a	.252	.249	3.59736

a. Predictors: (Constant), Post-training Reward & Recognition total

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	992.945	1	992.945	76.729	.000b
	Residual	2950.550	228	12.941		
	Total	3943.496	229			

a. Dependent Variable: Training Transfer to the Workplace Total

b. Predictors: (Constant), Post-training Reward & Recognition total

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.154	.550		9.363	.000
	Post-training Reward & Recognition total	.560	.064	.502	8.759	.000

a. Dependent Variable: Training Transfer to the Workplace Total

120