



UNIVERSITI PUTRA MALAYSIA

***EFFECTS OF APPLYING THE INSTRUCTIONAL SYSTEMS DESIGN
PROCESS ON TRANSFER OF TRAINING TO WORKPLACE***

ROBABEH MALEKZADEH

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**EFFECTS OF APPLYING THE INSTRUCTIONAL SYSTEMS DESIGN
PROCESS ON TRANSFER OF TRAINING TO WORKPLACE**

By

ROBABEH MALEKZADEH

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

February 2014



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DEDICATION

In Memory of My Beloved Mother and Father



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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the Degree of Doctor of Philosophy

**EFFECTS OF APPLYING THE INSTRUCTIONAL SYSTEMS DESIGN
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February 2014

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The ultimate purpose of training transfer is to improve individual and organisational performance. It is a huge waste of organizational resources, if training cannot be transferred into the workplace. Therefore, measuring transfer of training achievement is essential to ensure that employees apply what they have learned from training context on their job. Numerous researches have studied the issues of training transfer in the past decades, however, training transfer literature shows that because of lack of a standard and widely accepted methodology, measuring transfer of training still is a complicated component. Therefore, this study, aims to explore the effects of application of the ISD process (in terms of the ADDIE model) on transfer of training in order to define a systematic instructional procedure that could address a sound method for measuring transfer of training at the workplace.

This study involved 51 “Administrative Assistants” and their immediate supervisors working at all divisions of the Ministry of Science, Technology and Innovation (MOSTI) in Malaysia. The study is a Type 2 developmental research that utilized a quasi-experimental design (posttest only nonequivalent control group design) to determine the difference in the transfer of training achievement. Two groups of employees were trained on the effective communication skills at workplace. The experimental group received a structured training program using the ISD process in terms of ADDIE model (Analyze, Design, Develop, Implement, and Evaluate) through the researcher while the control group received the conventional training by the training department. The two groups were assessed using a self-assessment checklist containing a five-point behavioural observation itemized rating scale, five months after the period of training. Also, the immediate supervisors of these groups assessed them in the same way and period.

The findings of this study indicate that transfer of training was affected by using the ISD process. Although, the assessment of the trainees by their immediate supervisors did not report the different scores of training transfer achievement for them, the results showed that there is a significant difference between the experimental and control groups on training transfer achievement and the experimental group had better transfer of training achievement than the control group. The study contributes to the HRD research and practice by empirically investigation of the effects of applying the ISD process on transfer of training and provides the HRD researchers and practitioners with a sound instructional procedure for measuring transfer of training which is a key indicator of training effectiveness.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

**KESAN PENGAPLIKASIAN PROSES REKA BENTUK SISTEM
PENGAJARAN KE ATAS PEMINDAHAN LATIHAN KE TEMPAT
KERJA**

Oleh

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Tujuan utama pindahan latihan adalah untuk meningkatkan prestasi individu dan organisasi. Suatu kerugian besar terhadap sumber organisasi jika latihan tidak diterapkan di tempat kerja. Oleh itu, organisasi harus menilai pencapaian pindahan latihan untuk memastikan pekerja dapat mengaplikasikan perkara yang telah dipelajari oleh mereka dari konteks latihan berdasarkan kerja mereka. Walaupun beberapa penyelidik telah mengkaji isu pindahan latihan ini sejak bertahun-tahun yang lalu, namun disebabkan kekurangan metodologi yang standard dan diterima umum, maka ukuran pindahan latihan masih merupakan suatu komponen yang rumit.

Oleh itu, kajian ini bertujuan menyelidik kesan aplikasi proses ISD (dari sudut model ADDIE) terhadap pindahan latihan dalam mengenal pasti prosedur pengajaran sistematik yang boleh menunjukkan kaedah yang tepat untuk menilai pindahan latihan di tempat kerja..

Kajian ini melibatkan 51 orang Pembantu Tadbir dan penyelia terdekat mereka yang bekerja di semua bahagian di Kementerian Sains, Teknologi dan Inovasi (MOSTI) Malaysia. Kajian ini ialah penyelidikan pembangunan Jenis 2 yang menggunakan reka bentuk separa eksperimen (reka bentuk kelompok kawalan pascaujian sahaja) untuk mengkaji perbezaan dalam pencapaian pindahan latihan. Dua kelompok pekerja dilatih dengan kemahiran komunikasi di tempat kerja. Kelompok uji kaji ini menerima program latihan yang berstruktur menggunakan proses ISD dari segi model ADDIE (Analisis, Reka bentuk, Membangunkan, Melaksanakan, dan Menilai) oleh penyelidik, sementara kelompok kawalan menerima latihan konvensional oleh Jabatan Latihan. Dua kelompok pekerja ini dinilai menggunakan senarai semak penilaian sendiri yang mengandungi lima mata skala perkadaran butiran kawalan tingkah laku, lima bulan selepas tempoh latihan.

Penyelia terdekat mereka juga menilai kelompok ini dengan cara dan dalam tempoh yang sama.

Dapatan kajian ini menunjukkan pindahan latihan terjejas dengan penggunaan proses ISD. Walaupun penilaian pelatih oleh penyelia terdekat tidak melaporkan perbezaan skor pencapaian pindahan latihan mereka, keputusannya menunjukkan terdapat perbezaan signifikan antara eksperimen dengan pencapaian pindahan latihan kumpulan kawalan, dan didapati pencapaian kumpulan eksperimen lebih baik daripada kumpulan kawalan. Kajian ini memberikan sumbangan kepada penyelidikan HRD dan amalan penyiasatan kesan pengaplikasian proses ISD secara empirikal terhadap pindahan latihan dan membekalkan penyelidik dan pengamal HRD dengan prosedur pengajaran yang tepat untuk menilai pindahan latihan, iaitu penunjuk utama keberkesanan latihan.



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I certify that a Thesis Examination Committee has met on 17 February 2014 to conduct the final examination of Robabeh Malekzadeh on her thesis entitled "Effects of Applying the Instructional Systems Design Process on Transfer of Training to Workplace" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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LIST OF ABBREVIATIONS

ADDIE	Analysis, Design, Development, Implementation, and Evaluation
HRD	Human Recourse Development
ISD	Instructional Systems Design
KSA	Knowledge, Skills, Attitude
MOSTI	Ministry of Science, Technology and Innovation
SAT	Systematic Approach to Training
SME	Subject Matter Expert



CHAPTER 1

INTRODUCTION

This chapter consists of eight sections that include the background of the study, statement of the problem, significance of the study, objectives of the study, hypotheses, scope and limitations of the study, assumptions and the definition of terms. The organization of the thesis is given at the end of the chapter.

1.1 Background of the Study

Human resource development (HRD) is a set of systematic and planned activities to ensure that employees perform their jobs effectively (DeSimone, Werner, & Harris, 2002). Training as a function of HRD, is a systematic process which affects the individuals' knowledge, skills and attitudes; and improves the individual, team and organizational effectiveness (Aguinis & Kraiger, 2009). Nowadays, human resource training is an essential factor for every organization because without knowledgeable and skilful employees, organizations will be less likely to succeed (Salas, Wilson, Priest, & Guthrie, 2006), and therefore, the organizational objectives could not be achieved effectively. Hence, organizations spend huge amount of their budget for employee training. With regard to such expenditures, evaluation of effectiveness of employee training becomes a necessary component to ensure that training activities improve employees' performance. The reason is that only an effective training is able to increase the employees' knowledge, skills and abilities in order to optimize organizational benefits (Combs, Liu, Hall, & Ketchen, 2006).

Two critical outcomes of effective training are learning and transfer of training (Holton, Bates, & Ruona, 2000). Learning at work is defined as the observed changes in the workplace behaviour attributable to the new knowledge, skills and attitudes (Ivergard & Hunt, 2004) that takes place in the context of use and application (Paivi & Paivi, 2005). Learning measures alone do not provide adequate evidence to influence performance results (Collins, 2002). Therefore, the transfer of training is the most meaningful and critical factor in judging the effectiveness of training (Burrow & Berardinelli, 2003). Training transfer is defined as the application of knowledge, skills and attitudes gained in a training context to the work setting (Baldwin & Ford, 1988; Baldwin, Ford, & Blume, 2009). Transfer of knowledge, skills and attitudes learned in training programs to the work environment is important to achieve effective performance on the job. Without the transfer of training from the training context to the work settings, the costs and time spent in training is simply wasted (Velada, Caetano, Michel, Lyons, & Kavanagh, 2007). Consequently, organizations need to evaluate and ensure that the transfer of training has been occurred and the employees apply what they have learned from training context on their job performance. This has made necessary to

pay much attention on the issues of the training transfer and subsequently, it has been recognized as an important area of practice and research (Baldwin et al., 2009).

As noted by Brown and Sitzmann (2011), Baldwin and Ford's (1988) model is the most cited model in the training transfer literature. This model presents a framework for the transfer of training process that is one of the first conceptual frameworks to describe the transfer of training process. Baldwin and Ford (1988) asserted that effective training transfer is related to many variables, and categorized these variables in three main components: 1) trainee characteristics; 2) training design; and 3) work-environment characteristics. Based on the first category, several studies investigated trainee influences such as motivation (Liebermann & Hoffmann, 2008), goal-setting (Chiaburu & Lindsay, 2008), self-efficacy (Smith, Jayasuriya, Caputi, & Hammer, 2008), personality (Machin & Fogarty, 2004). Other studies have been conducted on training design and delivery factors such as training methods (Taylor, Russ-Eft, & Chan, 2005; Sitzmann, Kraiger, Stewart, & Wisher, 2006), training content relevance (Lim & Morris, 2006), training objectives (Taylor et al., 2005), need assessment (Swanson, 2003), design of training (Velada & Caetano, 2007), instructional technology (McManus & Rossett, 2006), practice and feedback (Velada & Caetano, 2007), self-management strategies (Pattni, Soutar, & Klobas, 2007), and active learning (Silberman & Auerbach, 2006). Some other studies also have examined work-environment characteristics such as Lim and Morris (2006) who have worked on transfer climate, Liebermann and Hoffmann (2008) on supervisor support, Lim and Morris (2006) on opportunity to apply acquired knowledge and skills, and Longnecker (2004) who has studied accountability.

Instructional Systems Design (ISD) is a process to create the instructional systems and organize the instructional resources and procedures (Gagne, Wager, Golas, & Keller, 2005) which, as a methodology to develop the systematic training, evolved from the post-World War II research in the U.S. military to find a more effective and manageable way to create training programs (Swanson & Holton, 2001). It has been supported as a core for any training program (Islam, 2006; Saks & Belcourt, 2006). Using the ISD to create training programs assures the highly effectiveness of these programs (Myers, Watson, & Watson, 2008).

ADDIE is a well-known model of the ISD. Gagne et al. (2005) describe the five phases of the ADDIE model (analysis, design, development, implementation and evaluation) as follows: In the analysis phase, the training needs are determined based on the differences between what the trainees already know and can do and what the job requires them to know and be able to do. In the design phase, the learning objectives/outcomes relevant to the needed training programs are identified by considering the knowledge, skills and attitude to be learned. In this phase also, the learner outcomes or the observable behaviours/actions relevant to the needed training programs which are expected to be demonstrated on the job behaviour are specified. In development phase, the lesson plan, the training content,

the assessment tests, and the instructional media are developed. In the implementation phase, the target training programs are delivered; and in evaluation phase, the adequacy of the training programs is determined before, during and after training process.

Several studies have been conducted in Malaysia on training evaluation, transfer of training and ADDIE instructional system design model. For example, Kin and Mathuvay (2011) have studied training evaluation practices in Malaysian hospital setting. Their study showed that training evaluation is perceived to be important for the public hospitals in Malaysia. Kin and Mathuvay (2011) came up with the conclusion that some organizations were aware and agreed that evaluation of training programs is important but evaluation of training effectiveness was not enough and more often, training departments focused on providing training programs rather than evaluating the program's effectiveness. Although, the belief in importance of training evaluation could facilitate evaluating training activities in organizations, however; only the practice of training evaluation could improve the performance of employees, and the perception of training evaluation is not an important factor. Another study was conducted by Hashim (2001) on training evaluation practices in Malaysia which are used through the training providers approved by the 'Human Resource Development Council'. She found that trainees' feedback (reaction evaluation) was the most frequently used evaluation method rather than other methods such as training transfer measurement. Hashim's (2001) study further showed that almost 90% of training providers evaluated the training programs immediately after training was conducted. Such results demonstrate that evaluation of training programs in terms of outcome levels has been ignored by training providers, since they only required the trainees to fill up the standard evaluation forms and return of it to the HRD Council for further analysis.

Azman, Sahol, Kueh, and Fazilatulaili (2011) investigated the correlation between manager's role and training transfer. The results of this study showed a correlation between managers' support and training transfer. Abdullah and Suring (2011) found a significant relationship between the motivation and transfer of training. Haslinda and Mahyuddin (2009) examined the effectiveness of training in the public sector using training evaluation framework and transfer of training elements. Their study showed that the factors such as lack of support from top management and peers, employees' individual attitudes, job-related factors and also, the deficiencies in training practice could affect the training transfer and the effectiveness of training in the public sector. Hua, Ahmad, and Ismail (2011) investigated the relationship between a supervisor's role in training and the transfer of training in four East Malaysian local government departments. The results of the study demonstrated a significant relationship between supervisor's role in training and transfer of training. In addition, supervisor communication acted as a main factor in enhancing the transfer of training.

In addition, Kasim and Ali (2011) studied the perspective of the low training transfer activities among the supporting staff of a public higher learning institution in Malaysia. The results of this study showed that training design, its content validity and transfer design explain 65% of the training transfer. This study confirmed the strength of the third level of Kirkpatrick's evaluation model. In other study, Wahidin (2008) examined the transfer of learning, the catalysts and barriers to transfer and the trainee characteristics, ability, motivation, work environment and personality factors influencing the transfer of learning in a Malaysian corporation. Transfer of learning was measured using the Learning Transfer System Inventory (LTSI) five months after completion of the training program. The results showed all variables identified as barriers were relevant to the work environment factor and a supervisor sanction was the most severe. The study suggested that transfer of learning was influenced by motivation to transfer of learning, transfer design, and opportunity to use. The study also found that the trainees transferred 42% of the knowledge and skills learned in the training to their jobs.

Some researchers in Malaysia have used the ADDIE instructional systems design model as the framework for the design and development of the online coursewares in the higher education environments. For instance, Parsons (2009) used the ADDIE model to create an e-learning program at a university. He found the ADDIE model to be effective in the higher education environment. Other researchers such as Abd.Manan, Embi, and Mahamod (2010), Edalati Fard, Tasir, and Abu Ziden (2010), Asmawi and Razak (2006), Mahmud, Ismail, and Lim (2009), and Shiong, Ahmad, Ali, Harun, and Zaidatun (2008) used the ADDIE model for developing online courses.

1.2 Statement of the Problem

Transfer of training as an important factor for improving performance is a critical area for research and practice (Swanson & Dobbs, 2006; Baldwin et al., 2009). Measuring transfer of training ensures that training leads to improve the job performance. Training transfer measurement examines whether the newly knowledge, skills and attitudes acquired in training programs are applied onto the job performance (Arthur, Bennett, Edens, & Bell, 2003; Kirkpatrick & Kirkpatrick, 2006). Therefore, it is essential to understand how to effectively measure training transfer in organizations. Noe (2000) emphasizes that to evaluate transfer of training, the concentration should be on the factors such as training design that the organization can influence directly. Training design is a systematic process for developing training programs to increase the chance of training transfer to occur (Noe, 2008). Training design is a factor which has the most possibility to be managed and controlled (Merriam & Leahy, 2005) for achieving training transfer, compared to other factors influencing transfer of training such as trainee characteristics and work-environment factors that are out of control or less manageable for the transfer researchers and practitioners.

The successful training needs to be designed with systemic consideration of the context in which the training is developed (Wilson, Jonassen, & Cole, 1993) because training transfer as a sub-system of training that is a result of the systematic influences (Swanson & Holton, 2001) cannot be occurred in a vacuum (Holton, Chen, & Naquin, 2003; Brown & Sitzmann, 2011) and without interaction with other components of training system. The Instructional system design (ISD) process that has been proven to be effective in getting results to improve job performance (Dubois & Rothwell, 2004) could be used to design and develop training in a systematic way ((Baruque & Melo, 2004). ADDIE is a generic model of the ISD process and the most commonly used model for systematic training in many organizations (Cowell, Hopkins, McWhorter, & Jorden, 2006; Sink, 2008; Wick, Pollock, & Jefferson, 2010). ADDIE provides a systematic process for the determination of training needs, the design and development of training programs and materials, implementation of the program and the evaluation of the effectiveness of the training (Gagne et al., 2005). Several researches have advocated the ADDIE model to have a proven record of creating training that results in the trainees' job performance (Allen, 2006; Pittenger, Janke, & Bumgardner, 2009; Chevalier, 2011; Davis, 2013; Hsu, Lee-Hsieh, Turton, & Cheng, 2014). ADDIE has been designed around this idea that training outcomes can be observed, measured, planned and evaluated in a valid and reliable manner (Pittenger et al., 2009). Using this model, the process of training could be managed for measuring training transfer as a key outcome of training program.

Training transfer must be defined within the context of what is relevant to the objectives of a particular training program (Ford, 1994). Training objectives describe the skills, knowledge, and attitudes to be learned and to be applied at work setting. Therefore, training objectives should be selected among the criteria to evaluate training (Goldstein & Ford, 2002) and transfer of training. Brown and Sitzmann (2011) emphasize that when the training focuses on objectives, then the researches would be able to determine the training to be effective. With regard to the importance of training objective as the operational measures of training transfer, Blume et al. (2010) encourage training transfer researchers to focus on the ways that transfer of training should be operationalized and measured. Since, training transfer is not an isolated function, training objectives to reflect the training transfer expectation should be systematically integrated with the other components of training system using the models such as ADDIE.

Numerous researches have been conducted on transfer of training in the past decades which have focused on the factors that influence transfer of training (Grossman & Salas, 2011; Zumrah, Boyle, & Fein, 2013). However, training transfer literature shows that measuring transfer of training has remained as a complicated component because, there is no a standardized widely accepted methodology for measuring transfer of training (Chen, Holton, & Bates, 2006; Taylor, Russ-Eft, & Taylor, 2009; Blume et al., 2010) and how to measure the training transfer achievement is still an unanswered question (Collins, 2002). Although a large body of literature exists on training design factors affecting transfer of training (Saks & Belcourt, 2006; Velada et al., 2007; Burke & Hutchins,

2008; Baldwin et al., 2009; Blume et al., 2010) nevertheless, these studies mostly have attempted to predict the relationships of these factors to transfer variables, and the issues of designing training for transfer of training and measuring training transfer, also considering the training programs' objectives (Blume et al., 2010) for measuring transfer from a systematic instructional design perspective have been remained largely unexplored.

Similarly, several researches have been conducted in Malaysia on transfer of training (Abdullah & Suring, 2011; Hua et al., 2011; Kasim & Ali, 2011; Bhatti, Kaur, & Battour, 2013; Lau & McLean, 2013; Zumrah et al., 2013). Also, some studies have been reported in Malaysia which have used the ADDIE instructional system design model to design and develop the online coursewares (Shiong et al., 2008; Mahmud et al., 2009; Parsons, 2009; Abd.Manan et al., 2010). However, the training transfer researches in Malaysia have mostly concentrated on the study of the relationship between the factors influencing transfer of training rather than how training should be designed for transfer of training to occur and how to measure training transfer achievement. In addition, the ADDIE researches have only concentrated to design and develop the online coursewares in the higher education environments and there is no known research in the Malaysian organizational settings to use ISD models as a framework for systematic investigation in training transfer evaluation. Subsequently, using a comprehensive way such as ADDIE instructional system design model has been neglected and not explored for measuring transfer of training in Malaysian context. The present study was conducted to address this gap.

It seems exploring the systematic ways integrated with other components of the training system is necessary to respond the issue of measuring training transfer in organizational context (Blume et al., 2010). Therefore, There is a need for the application of the instructional based systematic models such as ADDIE to measure transfer of training because this model utilizes a “systems” view which addresses all aspects that can impact designing training for transfer and measuring training transfer as well. ADDIE model views the training objectives from a systemic perspective and as an element in interaction with other components related to the training design operating in the training system. Measuring transfer of training through training objectives systemically and within ADDIE procedure would better explain the process of measuring transfer of training.

The present study attempts to investigate the effects of the application of the ADDIE model on transfer of training to define an instructional procedure that could address a systematic way for measuring training transfer achievement. It is expected that the study will provide the HRD researchers and practitioners with a sound and instructional based mechanism to measure transfer of training as a key indicator of training effectiveness.

1.3 Objectives of the Study

The purpose of this study is to draw the effects of using the ADDIE instructional systems design model on transfer of training in order to define an instructional procedure that could address a systematic way for measuring the training transfer achievement. To fulfil this purpose, specifically the research aims:

- 1- To determine the difference in rating of training transfer achievement between the participants of experimental group and the control group.
- 2- To determine the difference in rating of training transfer achievement between the supervisors of the experimental and control groups.
- 3- To determine the difference in rating of training transfer achievement between the supervisors and the participants of experimental and control groups.
- 4- To define an instructional-based procedure for measuring transfer of training based on the ADDIE model.

1.4 Null Hypotheses

Because of the lack of sufficient literature on the effects of applying the ISD process on transfer of training, there was not enough data to suggest the directional null hypotheses for the present research. Therefore, the results of this study were interpreted based on the non-directional null hypotheses as follows:

- Ho1: There is no significant difference in rating of training transfer achievement between the participants in experimental group and the control group.
- Ho2: There is no significant difference in rating of training transfer achievement between the supervisors of experimental and control groups.
- Ho3: There is no significant difference in rating of training transfer achievement between the experimental group and the supervisors of experimental group.
- Ho4: There is no significant difference in rating of training transfer achievement between the control group and the supervisors of control group.

1.5 Significance of the Study

The present study contributes to the research and practice of HRD, particularly in Malaysia through investigation of the effects of using ADDIE instructional system design model on transfer of training to define a systematic based approach for measuring training transfer achievement. The rationale behind this study is that training transfer could be effectively measured only if the training process is well designed and managed systematically for transfer of training and measuring training transfer as well. HRD professionals will find the study very helpful

because it investigates the transfer of training from the designing perspective which is considered as the area to be most controlled (Merriam & Leahy, 2005).

The study provides some insights for both researchers and practitioners on how to systematically design the instructions to lead to the transfer of training; how to systematically manage the training process for measuring training transfer; how to incorporate the components of training system such as analysis, design, development, implementation and evaluation in order to communicate the training transfer objectives; and finally, how to involve the supervisors and trainees in the process of measuring training transfer and make them accountable for this measurement.

From a theoretical perspective, the study expands the empirical literature on the training transfer area through a new practice of exiting ideas and improves our understanding for using the ADDIE instructional system design model when addressing the issues of measuring the transfer of training because, yet there is no adequate knowledge on the effects of using the ADDIE model on transfer of training and measuring training transfer achievement through the training objectives as the evaluation criteria within the ADDIE process. The most important practical contribution of this study is providing the HRD professionals with a specific instructional procedure to measure transfer of training to assist organizations that experience difficulties for measuring transfer of training due to lack of a standard and widely accepted methodology to measure training transfer (Chen et al., 2006; Taylor et al., 2009; Blume et al., 2010). In addition, this study may develop the organizations' policies and procedures in Malaysia regarding the training service providers in order to offer the effective instructional services for design, implementation and evaluation of the training programs that could be led to application of what the trainees have learned in training context when they are back on the job.

1.6 Assumptions

The following assumptions were made in conducting this research:

- Organizational settings are ideal settings for investigating the transfer of training from training context to the job performance in the work setting.
- Learning has occurred before in the training context, after that; the transfer of training on job performance has been investigated.
- The immediate supervisors know their sub-ordinate employees well in order to inform the researcher of the employees displayed behaviours in communication with others in the workplace.
- The employees are honest in self-assessment of their communication behaviours and the immediate supervisors perform accurately and with responsibility in providing the assessment of their sub-ordinate's behaviours in communication with others.

1.7 Scope and Limitations of the Study

This study was primarily an attempt to investigate the effects of applying the instructional systems design (ISD) process on transfer of training to define an instructional procedure that address a systematic way for measuring the transfer of training achievement. Here, the training transfer achievement was confined to the specific actions or behaviours which demonstrate the knowledge, skills, and attitudes which were acquired by trainee as the result of a training experience applied on the job.

The first subsidiary purpose of the study was to explore the difference in training transfer achievement between the group that received a training program based on the ADDIE instructional system design model done by the researcher (as the instructional treatment) and the group that received the conventional training conducted by the host organization. The second subsidiary purpose was defining a systematic instructional procedure to measure training transfer achievement using the ADDIE model.

There are some limitations for this study. The research data were only obtained from the employees of the Ministry of Science, Technology and Innovation (MOSTI) as one organization in the public sector in Malaysia. The gathering of data from a single context decreases the generalizability of research findings and limits the external validity of the study. However, the findings of the research could be generalized to the Malaysian public sector because MOSTI's training process follows the federally accepted guidelines and naturally, there are similarities between MOSTI's training system and other governmental departments in Malaysian public sector.

The research findings are also restricted by using only one assessment checklist containing a five-point behavioural observation itemized rating scale to measure the achievement of the training transfer. Measurement of training transfer might not be fully captured by a single quantitative rating scale. But, this scale contained the accurately defined learner outcomes based on the specific content of the effective communication skills program that could provide the criteria to evaluate the achievement of training transfer of the employees involved in this program.

Direct and long observation of trainees' behaviours by the researcher could be a better measure of the actual achievement of training transfer. However, the effective communication skills are soft skills that are naturally difficult to be documented at workplace. Therefore, the direct observation, considering the realities of the organizational settings, was beyond the time frame of the study. Consequently, the researcher obtained help from the immediate supervisors who are the closest people to the employees, and responsible for their performance appraisal. A rating checklist containing the observable actions and behaviours relevant to the effective communication skills training program was completed by

these supervisors and their sub-ordinate employees who were involved in the training program to measure the achievement of training transfer.

Rating the actions and observable behaviours of trainees participating in the experimental and control groups which are under supervision of the same supervisors in formal settings, could be considered as appraising these employees' performance. Therefore, the results might be limited by using experimental research design that compared the achievement of transfer between two control and experimental groups.

Demographic data were not considered as variables in this study. However, they were required to ensure that the administrative assistants met the criteria of participation in the effective communication skills training program and their immediate supervisors served in the supervision roles. The demographic characteristics of the employees and supervisors might influence their rating of the training transfer achievement.

Although, the researcher assured the participants that the results of assessing the effective communication skills will be kept confidential; the thought that their assessment results could somehow be revealed to others, might influence the achieved results.

1.8 Definition of Terms

The important terms used in this study are defined as follows:

Knowledge: Knowledge refers to the individual's understanding of a subject.

Skill: Skill refers to an ability that has been acquired by training or experience.

Attitude: Attitude refers to the individuals' mind state or feeling that affects their action toward a specific object, person, or event.

Training: Training refers to a systematic process which affects the individuals' knowledge, skills, and attitudes in order to improve the individual and organizational performance.

Training objectives: Training objectives refer to the observable behavioural statements that begin with an action verb and describe the knowledge, skills, or attitude that the trainees should acquire and demonstrate as a result of the specific training experience.

Training design: Training design refers to a systematic process for developing training programs in order to achieve training objectives.

Transfer of Training: Training transfer refers to the application of the knowledge, skills, and attitudes that trainees have gained in a training context when they are back on the job.

Transfer of training achievement: Training transfer achievement refers to the specific actions or behaviours which demonstrate the knowledge, skills, and attitudes acquired by trainee as the result of a training experience applied on the job.

Transfer of training measurement: Training transfer measurement refers to a systematic process to determine whether and to what degree the trainees have applied the knowledge, skills, and attitude gained in the training context, on their job.

Training evaluation: Training evaluation refers to a systematic investigation in order to determine whether the objectives of a training program were achieved.

Instructional systems design (ISD) process: ISD refers to a systematic process to create and organize the instructional procedures and resources in five phases- analysis, design, development, implementation, and evaluation.

ADDIE: ADDIE stands for analysis, design, development, implementation, and evaluation. It is a generic model of ISD process.

Experimental group: The experimental group is the group that received a training program on the effective communication skills based on the ISD process as the instructional treatment.

Control group: The control group is the group that did not get any training through the research but it received the conventional training with the same topic provided by the HRDC section of MOSTI.

Supervisor: “Supervisor” refers to the one who is in charge of a trainee at work setting.

MOSTI: “MOSTI” refers to the Ministry of Science, Technology and Innovation in Malaysia.

HRDC Section: “HRDC Section” refers to the human resource development and competency section which is responsible to manage all matters relating to the training, development and competency assessment affairs within the MOSTI.

1.9 Organization of the Thesis

This study is presented in five chapters. Chapter one is the introductory chapter that consists of the background of the study, the statement of the problem, the significance of the study, the objectives of the study, the null hypotheses, the scope and limitations of the study, the assumptions and the definition of terms used in the study. Chapter two presents a review of the literature including the training for performance improvement; Training evaluation; the role of training objectives in training programs; training transfer and systematic perspective and also, its underlying concepts, and elements including transfer types, theories and models; relationship between learning and transfer of training; factors influencing training transfer; training design for transfer of training; transfer strategies and partnership for facilitating training transfer and measuring transfer of training; the ISD process and models consisted of the ADDIE model, Dick and Carey's model, and Kemp's Model, and the application of learning theories for ISD; and finally the studies on the literature are discussed. Chapter three describes the methodology used for this study. It includes the type of research; research design and procedures; instructional treatment procedures; conational training program; conceptual framework of the study; population and sampling procedures; context of the study; ethical considerations; research instrumentation including the translation of the instrument; piloting procedures and reliability and validity of the instruments; validity of the study; the data collection procedures; and the data analysis. Chapter four presents the results and discusses the findings of the study. It includes the data screening, statistics of participants' profile, hypotheses testing and discussion. Chapter five summarizes the study, states the conclusion and implications, and offers recommendations for the practice and future studies.

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