THE INFLUENCE OF WORK ENVIRONMENT INHIBITORS ON THE VARIOUS ENGAGEMENTS IN INFORMAL WORKPLACE LEARNING ACTIVITIES AMONGST MALAYSIAN ACCOUNTANTS

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ABSTRACT

Informal learning activities are important for accountants in public accounting firms to develop and maintain knowledge and skills within the professional environment. However, recent evidence indicates that their frequency of engagement in the learning activities is less encouraging. Although this problem is associated with work environment inhibitors, the influence of these factors on various informal learning activities has yet to be explained by any empirical research. Therefore, the main objective of this study was to examine the extent to which the inhibitors influence the accountants' frequency of engagement in various informal learning activities. A total of 258 chartered accountants in the firms across Malaysia participated in this study. The data of the study was collected through self-administered survey questionnaires and analysed using the descriptive approach and multiple regression analysis. The findings showed that the meeting was the most frequently engaged informal learning activity. The results indicated that lack of time due to heavy workload, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, limited influence on firm's operation and lack of tolerance to mistakes negatively and significantly influenced the frequency of engagement in various (at least three out of five activities) informal learning activities. The findings also showed that lack of support from others was the most influential inhibitor to reading job related materials. The most influential inhibitor to audio/video tapes usage and group discussion was lack of time due to heavy workload. Lack of meaningful rewards and limited influence on firms operation were the most influential inhibitors to meeting and briefing session respectively. Based on the findings, theoretical and practical implications of the study as well as suggestions for future research are also discussed.

Keywords: Accountant education, informal workplace learning, work environment inhibitors, public accounting firm, survey

ABSTRAK

Aktiviti-aktiviti pembelajaran tidak formal penting bagi para akauntan di firma-firma perakaunan awam membangunkan dan mengekalkan pengetahuan dan kemahiran dalam persekitaran profesional. Walau bagaimanapun, bukti terkini menunjukkan bahawa kekerapan penglibatan mereka dalam aktiviti-aktiviti tersebut kurang memberangsangkan. Meskipun masalah ini dikaitkan dengan halangan-halangan dalam persekitaran kerja, namun pengaruh faktor-faktor ini terhadap pelbagai aktiviti pembelajaran tidak formal masih belum dijelaskan oleh mana-mana kajian empirikal. Justeru, tujuan utama kajian ini adalah untuk mengkaji sejauh mana halangan-halangan tersebut mempengaruhi kekerapan penglibatan akauntan dalam pelbagai aktiviti pembelajaran tidak formal. Seramai 258 akauntan bertauliah di firma-firma perakaunan awam seluruh Malaysia telah terlibat dalam kajian ini. Data kajian ini dikutip melalui bancian soal selidik kendiri dan dianalisa menggunakan kaedah deskriptif dan analisa regresi berganda. Dapatan kajian menunjukkan bahawa mesyuarat merupakan aktiviti pembelajaran tidak formal yang paling kerap dilakukan oleh akauntan. Dapatan kajian juga menunjukkan bahawa kekurangan masa akibat beban kerja yang berat, kurang sokongan daripada staf lain, halangan struktur, kurang ganjaran bermakna, kurang dana, kurang pengaruh terhadap operasi firma dan kurang toleransi terhadap kesilapan telah mempengaruhi kekerapan penglibatan mereka dalam pelbagai (sekurang-kurangnya tiga daripada lima aktiviti) aktiviti pembelajaran tidak formal secara negatif dan signifikan. Hasil kajian juga menunjukkan bahawa kurang sokongan daripada staf lain merupakan halangan yang paling kuat mempengaruhi pembacaan bahan-bahan berkaitan kerja. Halangan yang paling kuat mempengaruhi penggunaan pita audio/video dan perbincangan kumpulan adalah kurang masa disebabkan oleh beban kerja yang berat. Kurang ganjaran bermakna dan kurang pengaruh terhadap operasi firma masing-masing merupakan halangan yang paling kuat mempengaruhi mesyuarat dan sesi taklimat. Berdasarkan dapatan kajian, implikasi teoritikal dan praktikal serta cadangan kajian pada masa hadapan juga dibincangkan.

Kata Kekunci: Pendidikan akauntan, pembelajaran tidak formal di tempat kerja, halangan persekitaran kerja, firma perakaunan, tinjauan

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LIST OF ABBREVIATIONS

Abbreviations

AICPA	American Institute of Certified Public Accountants
AOB	Audit Oversight Board Malaysia
BTOS	Bartlett test of Sphericity
By-Laws	By-Laws on Professional Ethics, Conduct and Practice
CoP	Communities of Practice
CPD	Continuing Professional Development
CPE	Continuing Professional Education
EDC	Education Development Center
FRS	Financial Reporting Standards
HRD	Human Resources Development
IASB	International Accounting Standards Board
IES	International Education Standard
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IT	Information Technology
KMO	Kaiser-Meyer-Olkin
MASB	Malaysian Accounting Standards Board
MCE	Malaysian Certificate of Education
MIA	Malaysian Institute of Accountants
MPDC	MIA Professional Development Center
MSA	Measure of Sampling Adequacy
RM	Ringgit Malaysia
SPM	Sijil Pelajaran Malaysia
UK	United Kingdom
USA	United State of America
USD	United State of America Dollar
PCA	Principal Component Analysis
VIF	Variation Inflation Factor

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Workplace learning is the learning that takes place in the working environment context to handling novel and ambiguous work problems (Billet, 1995; Doornbos, Bolhuis, & Jan Simons, 2004). Over the last decade, workplace learning related issues has received widespread attention, both by business organizations (such as Motorola, Boeing, Northwest Airline and Ford Motors), and academic literature (Benson, 1997; Billet, 2002a, Colley, 2012; Leslie, Aring, & Brand, 1998; Sloman & Webster, 2005). This attention reflects an increased recognition that workplace learning is the foundation for the organizations to sustain competitiveness and corporate value in dynamic economic environment (Illeris, 2003; Sambrook, 2005; Senge, 1990; Van Woerkom, Nijhof, & Nieuwenhuis, 2002).

Workplace learning can be categorized into formal and informal (Cofer, 2000; Merriam, Caffarella, & Baumgartner, 2007). Formal learning refers to organized activities that take place in educational or training institutions and often lead to some form of official recognition (for example, a degree or certificate) (Lohman, 2009; Marsick & Watkins, 1990). The examples of formal learning are courses, seminars and conferences (Watkins & Marsick, 1992). Meanwhile, informal learning refers to activities initiated by the employees in work setting that results in professional

knowledge and skills development (Lohman, 2009). Reading, discussion and meeting are amongst the examples of informal learning activities (Watkins & Cervero, 2000). Recent reports indicate that informal learning is more prominent at the workplace through which professionals develop and maintain their knowledge and skills in current and future work roles (Ellinger & Cseh, 2007; Lohman, 2009; Wofford, Ellinger, & Watkin, 2013). Several studies suggested that more than 70 percent of workplace learning is informal in nature (Benson, 1997; Dobbs, 2000; Sorohan, 1993). It is a current trend and becomes an integral part of lifelong learning (Hoekstra, Konthagen, Brekelmans, Beijaard, & Imants, 2009). Such learning is important to enhance professionalism amongst employees in the organizations (Boud & Middleton, 2003; Kyndt, Dochy, & Nijs, 2009). Given the importance of informal learning activities in the rapidly changing business environment, it is considered as a critical area and thus is selected as the focus of this study (Eraut, 2004; Marsick, 2009; Wofford *et al*., 2013).

Previous researches consistently show that informal learning is important to various professions such as education (Jurasaite-Harbison, 2009; Lohman, 2009), business management (Ashton, 2004; Billett, 2003; Bratton, 2001; Gieskes *et al*., 2002) and accounting (Hicks, Bagg, Doyle, & Young, 2007; Watkins & Cervero, 2000). The focus of this research is accountants in public accounting firms. Such attention is warrated for following reasons.

First, informal learning activities are important for the accountants to avoid professional obsolescence (International Federation of Accountants (IFAC), 2009; Foy, 1999; Malaysian Institute of Accountants (MIA), 2007; Philips, 1987). Professional obsolescence is the accountants' failure to update knowledge and skills through informal learning activities to ensure a high level of service integrity and delivery performance (Houle, 1980; Kaufman, 1974). Recent Audit Oversight Board Malaysia (AOB) (2010, 2011) reports indicate that informal learning activities are essential to update the accountants' knowledge and skills on audit documentation since they have failed to properly document audit evidence. The learning activities are also vital for them to avoid lack of capability when making professional judgments in the subjective areas such as determining asset fair value and evaluating going concern issues (AOB, 2010, 2011).

Second, informal learning activities are imperative for the accountants to keep abreast with changes in the accounting and auditing standards as well as regulatory issues that affect their professional duties (Davidson & Gist 1996; Harding & Trotman, 1999; Hicks *et al*., 2007; IFAC, 2008; MIA, 2007; Ramsay 1994; Vera-Munoz, Ho, & Chow, 2006). Accounting environment in Malaysia has changed tremendously over the years in terms of financial reporting practices (Lazar, Choo, & Arshad, 2006; MIA, 2012). All reporting entities are required to adopt new Financial Reporting Standards (FRS) that issued by the Malaysian Accounting Standards Board (MASB) (Lazar *et al*., 2006; MIA, 2012). Such adoptions have impacts on

preparation, presentation and auditing of financial reporting (Lazar, *et al*., 2006; MIA, 2012).

Third, informal learning activities are essential to enhance the accountants' capabilities in detecting accounting malpractices of the audited financial statements (Debreceny, Nugent, & Gray, 1997; Keller, Smith, & Smith, 2007; MIA, 2008; 2012). The major cases involving accounting malpractices due to fraud such as Enron and WorldCom scandals had been associated with the accountants' lack of professional competence and due care to detect such malpractices (Yuthas *et al*., 2004; Vera-Munoz, Ho, & Chow, 2006). Many scholars argued that these two weaknesses can be addressed by the accountants through continous informal learning activities at the workplace (Arens *et al*., 2014; Harrison & Horngren, 2008; Yuthas *et al*., 2004; Vera-Munoz *et al*., 2006).

Last but not least, informal learning activities are important to continuously develop the accountants' capability in order to offer professional services that create high value in the eyes of the public (AOB, 2011; Debreceny *et al*., 1997; IFAC, 2008, 2009; MIA, 2009c). Such professional services would enable the accountants to remain relevant in the changing economic environment (IFAC, 2008, 2009; MIA, 2012). Currently, the accountants are facing competitive pressures from various factors such as non-accountants offering financial-based services, the tendency of sophisticated clients (for instance, banks and business leaders) to substitute audited financial information with their own procedures when making economic decisions

and accounting softwares become less expensive, more powerful and more user-friendly (AOB, 2011; Debreceny *et al*., 1997). In short, the above four issues highlight the importance of informal learning activities amongst the accountants and therefore is declared as the main concern of this research.

Despite the importance of informal learning for the accountants, recent AOB (2010, 2011) reports indicate that their frequency of engagement in the learning activities is less encouraging. AOB (2010, 2011) relates this problem with work environment inhibitors. Thus, a research must be undertaken to better understand this issue. Current understanding on this issue is still at the unsatisfactorily level (Ellinger & Cseh, 2007). A review of the current literature in this area indicates the following gaps.

Recent studies have highlighted work environment inhibitors to informal learning activities but the extent to which they influence the frequency of engagement in various informal learning activities is less evident (Ellinger, 2004; Ellinger & Cseh, 2007; Ellstrom, Ekholm, & Ellstrom, 2008; Hicks *et al*., 2007; Lancester, Milia & Cameron, 2013; Lohman, 2000, 2005, 2006, 2009; Lohman & Woolf, 2001). This is because most of them are descriptive in nature and hence limited in terms of statistical conclusion validity and generalization in the findings (Skule, 2004; Straub, Boudreau, & Gefen, 2004).

In addition, several work environment inhibitors to informal learning activities that found significant in other professions, namely, structural inhibitor, poor working policy and lack of tolerance to mistakes have yet been examined amongst the accountants (Ellinger & Cseh, 2007; Jurasaite-Harbison, 2009; Lohman, 2005, 2006, 2009; Tannenbaum, 1997). Informal learning is highly contextual (Ellinger & Cseh, 2007; Marsick, 2009). For example, work environment of teachers is not similar with other professions (Marsick, 2009). Thus, work environment inhibitors to informal learning activities that found significant in a particular profession should be extended to other professions including accounting (Hoskin & Gough, 2004; Marsick, 2009).

This research addresses the above gaps by taking the following actions. First, since no conceptual framework addresses this issue from the perspective of professionals including the accountants, a new conceptual framework is developed. This study is the first attempt to develop such framework from the perspective of Malaysian accountants. The framework is grounded by behaviourist, social cognitive and constructivist orientations of adult learning theory. The framework is used to examine the extent to which work environment inhibitors influence the frequency of engagement in various informal learning activities amongst the accountants. Second, since structural inhibitor, poor working policy and lack of tolerance to mistakes have yet been examined amongst the accountants, they are also included in the new framework. In other words, this study is the first attempt to examine the influence of these three inhibitors on the accountants' informal learning activities. Third, inferential statistic that is multiple regression analysis is utilized to test the influence

as it can provide more conclusive and generalized empirical evidence on this issue. Last but not least, all study variables are measured using multiple items. The items validity and reliability are assessed through instrument development process and goodness of measures tests (such as factor and reliability analyses) in order to establish the credibility of the research findings.

1.2 Problem Statement

Informal learning activities are important for the accountants to develop and maintain the required levels of capabilitities in line with the current accounting and auditing standards (Arens *et al*., 2014; MIA, 2012, 2007). However, recent AOB reports (AOB, 2010, 2011) indicate that the accountants' frequency of engagement in the learning activities is less encouraging. For instance, AOB (2010, 2011) observed that group discussion and reading activities to develop a greater understanding of complex, new and revised accounting standards occur infrequently in the firms. AOB (2010, 2011) also revealed that meeting and briefing sessions to share and review significant issues arising from the audit of financial statements were rarely implemented. AOB (2010, 2011) raises concern over this situation since it would lead to professional obsolescence amongst the accountants. Although AOB (2010, 2011) claims that this problem is due to work environment inhibitors (for instances, time constraint due to high workload, structural and administrative issues, and lack of support from each others), their influence on various informal learning activities still remains unclear. Since one of the priorities in the firms is examining informal learning activities inhibiting factors systematically and empirically (Rosenblum &

Keller, 1994), a research must be undertaken to further explain this issue. Thus, the purpose of this study is to examine the extent to which work environment inhibitors influence the frequency of engagement in various informal learning activities amongst the accountants across Malaysia. Findings from this study would provide more conclusive and generalized empirical evidence on this issue. Such empirical evidence is important for accounting profession to reassess work environment of the firms to make it more conducive for informal learning activities.

1.3 Research Questions

Based on the above problem statement, the research questions of this study are determined as follows:

(a) What is the frequency of engagement in various informal learning activities amongst accountants in public accounting firms?

(b) Do work environment inhibitors influence the frequency of engagement in various informal learning activities amongst accountants in public accounting firms?

(c) What is the most influential work environment inhibitor on the frequency of engagement in various informal learning activities amongst accountants in public accounting firms?

1.4 Research Objectives

To answer the above research questions, the following objectives are developed as a benchmark:

(a) To examine the frequency of engagement in various informal learning activities amongst accountants in public accounting firms.

(b) To examine the influence of work environment inhibitors on the frequency engagement in various informal learning activities amongst accountants in public accounting firms.

(c) To identify the most influential work environment inhibitor on the frequency of engagement in various informal learning activities amongst accountants in public accounting firms.

1.5 Significance of the Study

Basically, the findings of the study are significant to theoretical and practical aspects of informal learning practice. This study contributes to informal learning theory in several ways. First, findings from this study are important to provide more conclusive empirical evidence on the extent to which work environment inhibitors

influence the frequency of engagement in various informal learning amongst Malaysian accountants in public accounting firms.

Second, the findings from this study will provide additional knowledge into the existing body of knowledge on informal learning activities from the perspective of Malaysian accountants by incorporating three new work environment inhibitors as the independent variables to the research conceptual framework. The inhibitors are structural inhibitor, poor working policy and lack of tolerance to mistakes (Ellinger & Cseh, 2007; Hicks *et al*., 2007; Jurasaite-Harbison, 2009; Lohman, 2005, 2006, 2009; Tannenbaum, 1997).

Third, the use of behaviorist (Pavlov, 1927; Skinner, 1938; Watson, 1930), social cognitive (Bandura, 1977, 1986) and constructivist theories (Lave & Wenger, 1991) will provide additional theoretical basis when viewing informal learning activities of the accountants from the adult learning perspective.

Fourth, this research is also important towards informal learning literature since it confirms empirically the appropriateness of various constructs and validates a new conceptual framework from the perspective of Malaysian accountants.

Fifth, due to the scant empirical research on accountants' informal learning activities in public accounting firms (Hicks *et al*., 2007; Vera-Munoz *et al*., 2006), it is hoped that the findings from this study will create interest and provides an avenue

for the development of future research in the same or related areas such human resource development (HRD), business practice, working adult education and psychology.

From the practical perspective, the importance of research findings to facilitate informal learning practice at the workplace can be seen from various aspects. First, as informal learning is an integral part of lifelong learning in the country, Malaysian government through policies such as National Agenda of Enculturation of Lifelong Learning (2011-2020) (Ministry of Higher Education, 2011) and Tenth Malaysian Plan (2011-2015) (Government of Malaysia, 2010) has demonstrated its aspiration to establish a condusive work environment for the learning across professions including accounting (Ali, 2005; Hager, 2004; MIA, 2012; Skule, 2004). Therefore, findings from this study can be used by accounting profession to support the aspiration by reassessing work environment of the accountants to make it more conducive for the learning.

Second, findings from this study will help the accountants to make continous improvements to informal learning since it is an integral part of Continuing Professional Education (CPE) (IFAC, 2008; MIA, 2007). Such improvements are important for the accountants to keep abreast with current changes and issues that affect their professional work in order to uphold the public interest and trust (AOB, 2010; Harrison & Horngren, 2008; IFAC, 2008; MIA, 2007, 2012).

Third, findings from this study will make MIA becomes more aware about work environment factors that could inhibit the accountants from various informal learning activities. Such awareness is important for MIA to monitor and assist the accountants to address the identified problems in order to facilitate the learning activities at the workplace (MIA, 2007, 2012). For instance, MIA can suggest remedial actions to address the inhibitors as found in this study through various communication mediums such as e-news, circulars, articles, forums and members engagement sessions.

Fourth, findings from this study will serve as a reference for the AOB to conduct inspection activities towards public accounting firms. In this case, it can use these findings to identify improvement areas and ensure remedial actions will be taken by the firms towards enhancing informal learning activities amongst the accountants (AOB, 2010, 2011).

Last but not least, the findings of this research will be particularly beneficial to public accounting firms, which have been noted for their less conducive environment for informal learning activities as indicated by AOB (2010, 2011). In this case, information about the inhibiting factors is critical to those responsible for HRD at a particular firm to develope appropriate strategies to overcome the inhibitors. This in turn leads to the increase in accounting professionalism amongst the accountants (Hicks *et al*., 2007).

1.6 Scope of the Research

This study investigates chartered accountants in public accounting firms throughout Malaysia who are MIA members since informal learning activities are compulsory to them (MIA, 2007, 2009b). In addition, this study only focuses on the influence of work environment inhibitors on the frequency of engagement in various informal learning activities. This is because informal learning activities inhibiting factors resided in the accountants' work environment (AOB, 2010, 2011; Hicks *et al*., 2007).

1.7 Dissertation Outline

This dissertation is composed of seven chapters. Each of them provides an understanding to various issues viewed to be critical for this research. The descriptions of each chapter are presented as follows:

Chapter 1 offers the introduction to the research including the background of the study and the research problems. The chapter also outlines the research questions and objectives of this study. Thereafter, the research significance is provided. Finally, the layout and contents of the chapters are offered.

Chapter 2 presents the literature review on the topic of study. It also reviews and examines the previous studies on work environment inhibitors to informal

learning activities. The gaps found in the previous studies will be highlighted and the strategies to overcome them are discussed.

Chapter 3 highlights the research hypotheses on work environment factors that are argued to inhibit the accountants from various informal learning activities. The inhibitors are illustrated in the proposed conceptual framework.

Chapter 4 discusses the reasoning behind the adopted research methods. The suitability of the adopted method is provided.

Chapter 5 discusses in depth the survey instrument development process. The findings from pilot study are also described and discussed within this chapter.

Chapter 6 presents the data analyses and results of the study. Particularly, this chapter provides the empirical findings of the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst Malaysian accountants.

Chapter 7 presents the discussion and conclusion of the study. Specifically, this chapter includes discussion of the findings in accordance with the objectives of the study, implications of the study, limitations and suggestions for future research.

1.8 Summary

The purpose of this chapter is to lay the foundations of the research by providing its background, research problems, research objectives, significance, scope and dissertation outline. In short, this chapter aims to provide a brief description of the adopted route. The next chapter will present a literature review on the topic of study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter summarizes relevant literature as well as pertinent concepts related to the objectives of this study, which include CPE framework of Malaysian accountants and theories of informal workplace learning in detail. Thereafter, the concept of work environment inhibitors to informal learning activities, previous studies on it and orientations of adult learning are offered. Finally, summary of the discussion of the chapter is provided.

2.2 Continuing Professional Education Framework of Accountants in Malaysia

Before describing informal workplace learning in detail, a short explanation of CPE framework of accountants in Malaysia is warranted. The discussions evolve around the history and background of CPE and its monitoring mechanism in Malaysia. Subsections 2.2.1 and 2.2.2 will discuss this in detail.

2.2.1 The Background of Continuing Professional Education Framework of Accountants in Malaysia

In accounting profession workplace learning is coined as CPE. The concept of CPE was started from the late 1960s to describe a field of educational practice and then evolved out of the need for on-going learning in the professions (Cervero, 1988; Mott, 2000). During that time, CPE continued to be voluntary activities although support was growing for the idea that accountants need to engage in learning programs to maintain their professional competence (Schlosser, Lee, & Rabito, 1987). Realizing the importance of CPE to accountants, Marvin L. Stone, the 1967-68 president of the American Institute of Certified Public Accountants (AICPA) was the first person who proposed the idea of "compulsory continuing education" in the president's column of the November 1967 issue of "The CPA" (Beamer, 1972; Schlosser *et al*., 1987). In the column, Stone expressed his conviction that most substandard work was the result of ignorance rather than willfulness. He acknowledged that the profession is not able to control quality to the extent the medical profession does and suggested that the problem can be reduced by introducing compulsory continuing education (Beamer, 1972). This suggestion was based on series of discussion and majority of the respondents were in favor of the idea (Beamer, 1972; Schlosser *et al*., 1987).

MIA, which was established under the Accountants Act 1967, is responsible for regulating and governing accounting profession in Malaysia (MIA, 2012). Since

March 1992, MIA has made CPE as a compulsory requirement to ensure that the accountants keep abreast with the current developments that affect their current and future professional work (MIA, 2009b). Considering constant changes affecting the accounting profession and to ensure that local CPE requirement is aligned with IFAC's global standards, MIA has revised its By-Laws on Professional Ethics, Conduct and Practice (By-Laws), in 2002 and 2007. Major changes arising from these revisions include the change of Continuing Professional Development (CPD) to CPE and CPD credit points to CPE credit hours. The rational for the changes were to recognize the importance of CPE through learning experience in order to develop and maintain knowledge and skills (MIA, 2009b). Another significant change was the minimum CPE credit hours that have to be obtained by accountants (MIA, 2009b).

Table 2.1 summarizes the changes in minimum credit hours of formal and informal learning activities for members in public accounting firms - according to the three versions of By-Laws (MIA 2007, 2009b). Currently, this mandate requires the accountants to obtain 120 credit hours in CPE activities every three calendar year with minimum of 20 verifiable CPE credit hours in any one of year of the reporting cycle (MIA, 2007). For more details on the accredited learning activities, please refer to Appendix V of By-Laws (MIA, 2007). This information is provided in Appendix 2.1 of this dissertation.

Table 2.1
Minimum Credit Hours of Formal and Informal Learning Activities for Members in Public Accounting Firms

By-Laws Version (Continuing Professional Education Section)*	Minimum Credit Hours of Formal Learning	Minimum Credit Hours of Informal Learning	CPE Audit Cycle
By-Laws - 1992	40	60	Yearly Basis
By-Laws - 2002	90	Not Mentioned	Every 3 Calendar Year
By-Laws - 2007	60	60**	Every 3 Calendar Year

Note* : The version is based on the year the By-Laws comes into effect.

** : Section 410.4 to the By-Laws states that the members of MIA are required to complete at least 120 CPE credit hours for every rolling 3 calendar period, of which 60 CPE credit hours should be formal and verifiable, thus the remaining of 60 credit hours comes from informal learning activities.

The above discussion indicates that accounting profession has long recognized the importance of CPE in order to keep its members up-to-date with the changes that affect their work. Accountants are also expected to maintain a high level of proficiency and provide high standard of services to clients at all time. The education process of accountants is accredited by professional bodies. This is to ensure that they are able to discharge duties according to required professional standards. Most importantly, the accountants' learning requirement recognizes informal learning as integral part of CPE.

2.2.2 Monitoring Continuing Professional Education amongst Malaysian Accountants

CPE is an important requirement which an accountant must comply with to maintain his or her professionalism and gain more knowledge and skills. CPE is also a condition to membership requirement including re-registration, renewal of permit to practice or re-licensing and validation of professional designation. In other words, CPE is a mechanism for controlling the practice of public accounting and establishing a continuous career development amongst accountants (Beamer, 1972; IFAC, 2008; Matusiak, 1960; MIA, 2007; Trump & Hendrickson, 1972). MIA (2007, 2009a) argued that it is unfair to the majority of professional accountants who comply with the CPE requirements to allow those who do not comply to claim the same status or competencies.

As stated above, CPE comprises of formal and informal learning activities and both are compulsory to all MIA members (MIA, 2007). However, only formal activities are verifiable (for instance, evidences are provided in the form of receipts, certificates of attendance and academic awards) while informal activities are not. Accountants are no longer required to provide supporting documents or evidence for informal learning activities since the amendments of By-Laws in 2002 (MIA, 2007, 2009b). This decision might due to accreditation challenges because it is so ingrained with work that hard to be recognized (Dale & Bell, 1999; Doornbos *et al*., 2004; Merriam *et al*., 2007; Muhammad & Idris, 2005). In other words, the accounting

professional bodies still grapple with the problem of monitoring accountants' informal learning activities (Meyer, 2007). Although it is recognized that accountants learn more through informal ways, the diversity of potential informal learning experiences precludes any systematic evaluation (Beamer, 1972; Hicks *et al*., 2007).

In short, as monitoring informal learning activities amongst accountants is quite challenging and problematic in nature, there is an urgent need to know the frequency of engagement in various informal learning activities and their influencing factors amongst accountants in Malaysia. Thus, this study aims to seek an explanation about this phenomenon by documenting research evidence empirically.

2.3 Informal Workplace Learning

2.3.1 The Emergence of Informal Workplace Learning

Informal learning is not a new field of study (Marsick, 2009). Although some authors claimed that the term was firstly introduced by Knowles (1950) through his pioneer work of "Informal Adult Education" (Cseh, Marsick, & Watkins, 1999; Merriam *et al*., 2007), Conlon (2004) argued that informal learning has been long recognized and valued by Dewey (1938), an education philosopher. Dewey (1938) believed that informal learning was nurtured at birth and spanned one's entire life.

The emergence of informal learning activities in the late 1980s is due to failure of formal learning activities to deliver its expected benefits (Clifford & Thorpe, 2007). For instance, Rothwell (2003) found that only less than 30 percent of what people learn in formal learning activities that are actually transferred to job in a way that improves work performance. In other words, formal learning activities are no longer sufficient for on going learning at the workplace (Marsick, 2009). Thus, the focus of staff development has shifted from formal to informal learning activities (Clifford & Thorpe, 2007; Marsick, 2009).

Many authors have written about the concept of informal learning at the workplace (Cofer, 2000; Conlon, 2004). Marsick and Watkins (1990), Illeris (2004a, 2004b), Ellinger and Cseh (2007), Lohman (2000, 2005, 2006, 2009) and Eraut (2004) are amongst prominent theorists and researchers of informal learning at the workplace. Most of the discussions in this dissertation are based on their findings.

2.3.2 Defining Informal Workplace Learning and Its Importance to Accountants

From the above discussions, it can be said that informal learning refers to the experiences of daily life in all private and non-organized contexts from which an individual learns something and often at a subconscious level (Bell 1977; Illeris, 2004a; Marsick & Watkins, 1990; Merriam *et al*., 2007; Skule, 2004). From the workplace context, informal learning refers to part of the job that is invisible in nature

as it is highly embedded in work activities (Boud & Middleton, 2003; Sambrook, 2005). It is also known as just in time learning that occurs every day at the workplace (Benson, 1997).

Given the variations in defining informal learning, this research adopts the definition of informal learning that is stipulated in By-Laws (MIA, 2007). This definition is chosen as it is directly related to accountants and similar to the definition offered by the IFAC in its International Education Standard (IES) (IFAC, 2008). Informal learning refers to unstructured learning activities that develop and maintain capabilities of accountants in terms of knowledge and skills to perform competently within professional environments (MIA, 2007). In practical setting, such learning is normally related to accounting and auditing activities (MIA, 2007, 2009a).

The above definition indicates that informal learning is important to accountants' capability and competence. The concepts of capability and competence can be described as being the two sides of a coin (IFAC, 2008). Capabilities are the attributes held by accountants that enable them to perform their roles. Capability can be expressed as informal learning outcomes relating to knowledge and skills such as intellectual, technical, non-technical, personal and interpersonal (IFAC, 2008). The possession of capabilities gives an indication that an accountant has the ability to perform competently at the workplace (IFAC, 2008).

According to IFAC (2008), competence refers to the ability to perform work role at a defined standard, with reference to real working environments. It can be expressed as performance outcomes relating to functional, managerial, and ethical and professional conduct (IFAC, 2008). When an accountant draws on capabilities to perform the required tasks to the required standards such as accounting and auditing, competence is deemed to have been achieved (IFAC, 2008).

2.3.3 Characteristics of Informal Workplace Learning

The dependent variables of this research are various informal learning activities of the accountants (MIA, 2007). Therefore, it is important to understand the learning characteristics. There are several characteristics of informal learning. Amongst them are unique to individuals, under the control of the learner and take places outside formal classroom settings (Boud & Middleton, 2003; Doornbos *et al*., 2004). Informal learning occurs serendipitously as a result of task completion, problem solving or some other informal activities (for instance, discussion can trigger reading) (Lohman, 2000, 2006; Watkins & Marsick, 1992). In addition, individuals are often unaware of the learning, and it is either planned or unplanned and structured or unstructured (Berg & Chyung, 2008; Boud & Middleton, 2003; Doornbos *et al*., 2004; Lohman, 2000, 2006; Watkins & Marsick, 1992). Marsick (2009) characterized informal learning as the learning that hard to standardize, systemize and assess. The learning is highly contextual, that is, highly influenced by the particular environment where it occurs (Marsick, 2009; Marsick & Watkin, 1990). Other characteristics of

informal learning include takes place without lesson plan, externally imposed curriculum, instructor and examination (Bell, 1977; Livingstone, 2001a). In short, there are various characteristics of informal learning as suggested by prior literature. These characteristics are applicable to explain the nature of the accountants' informal learning in this study (Hicks *et al*., 2007).

2.3.4 Informal Workplace Learning Model

Over the years, Cseh and colleagues had developed a model to explain informal learning phenomenon at the workplace (Cseh *et al*., 1999). This model is grounded by action science model of Argyris and Schon (1996) and theory of learning from the experience of Dewey (1938). According to this model, informal learning is experimental in nature and involves dialectical process that is triggered by challenging work situations and the following eight steps of problem solving process: (1) framing the context; (2) responding to triggers to a potential learning experience; (3) interpreting the experience; (4) examining alternative solutions; (5) choosing learning strategies; (6) producing alternative solutions; (7) assessing intended and unintended consequences; and (8) evaluating lessons learned (Cseh *et al*.,1999). Please refer to Figure 2.1 for details.

As shown in Figure 2.1, the process of informal learning cycle describes how people frame a situation as a problem that is typically a non-routine problem. As they frame it within their context based on their beliefs and assumptions that are often

unconscious, they understand a situation and consider strategies for solving that problem. Through this process, there is a presence of action and reflection and there are often intended and unintended consequences as a result of the learning process (Cseh *et al*., 1999; Ellinger, 2004).

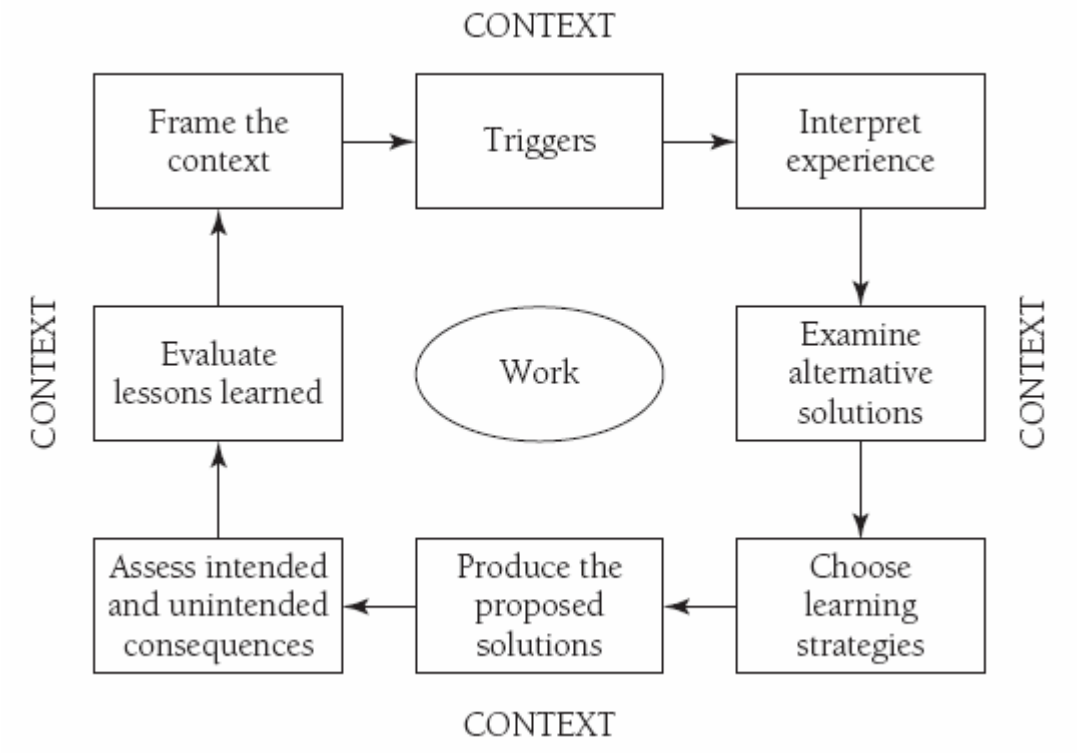

Figure 2.1
Cseh et al. (1999) Informal Workplace Learning Model
Source: Cseh *et al*., 1999

Although the above model has been used by other scholars to explain informal learning phenomenon at the workplace (Ellinger, 2004; Ellinger & Cseh, 2007), it is not applicable in the context of this study. This is due to the following limitations. First, as argued by Lohman (2006, 2009), this model recognizes work environment as a context that influences informal learning activities, however, it does not propose any work environment factors (for instance, work environment inhibitors) that

influence the learning activities (Lohman, 2006, 2009). Second, although this model provides an explanation about the cognitive process of informal learning, it does not specify the activities that can be used by employees to learn informally at the workplace (for instances, discussion, meeting and reading) (Lohman, 2006, 2009).

Therefore, the aim of this study is to narrow the above gaps by developing a new conceptual framework. The framework consists of two main components. First, the framework consists of the work environment inhibitors that are expected to impede informal learning activities. The second component of the framework states various informal learning activities that can be used to develop and maintain one's knowledge and skills at the workplace. In other words, the newly developed framework will be utilized to examine the extent to which the inhibitors influence the frequency of engagement in various informal learning activities from the perspective of the accountants.

2.3.5 The Preference towards Informal Workplace Learning

Informal learning is the most prevalent form of learning in the workplace and it has become more important in the changing nature of today's organization (Dobbs, 2000; Eraut 2004; Illeris, 2004a; Marsick, 2009; Wofford *et al*., 2013). The USA Bureau of Labor Statistics confirms this by stating that 70 percent of the workplace learning is informal in nature (Benson, 1997; Dobbs, 2000; Leslie *et al*., 1998). Meanwhile, Sorohan (1993) found that the percentage is almost 90 percent. Those

figures illustrate that informal learning is the most popular learning activity amongst employees.

In general, informal learning is more pervasive nowadays because employees consider it as the effective means to improve tasks (Marsick, 2009). Employees prefer flexible learning opportunities, playing an important role in the learning process and engaging in learning activities irrespective of time, space and place (Ali, 2005). In addition, informal learning is more flexible, employable, adaptable to context, rapid transfer to practice and resolution of work-related problems through regular review of work practices and performance (Dale & Bell, 1999).

Accountants in the firms also prefer informal learning than formal learning (Beamer, 1958, 1972). Hicks *et al*. (2007) found that informal learning is more popular than formal learning in which the accountants develop and maintain knowledge and skills to tap with current and future work roles. This is quite surprising since public accounting firms and accounting profession have spent considerable time and effort on formal learning programs (Hicks *et al*., 2007; MIA, 2008, 2009d). For instance, MIA through its training and development arm, MIA Professional Development Centre (MPDC), has organized more than 2000 formal learning programs in the last five years throughout the country. More than Ringgit Malaysia (RM) 10 millions has been spent to organize such programs (MIA, 2009d). There are no specific reasons why the accountants prefer informal than formal

learning. However, the discussion by Cervero (1992) and Mott (2000) could shed a light on this matter.

Professionals prefer informal learning because for them acquiring knowledge through practice is more effective than acquiring knowledge through formal education (Cervero, 1992). Mott (2000) argued that the routine, complex and conflicting knowledge acquired and used in daily work practice as well as reflection on complexities and challenges are the richest source of learning for professionals. These phenomena could justify the popularity of informal learning amongst accountants in the firms.

2.3.6 Informal Workplace Learning Activities

In general, learning activities are the practices that individuals use to aid the acquisition and development of knowledge and skills in a particular context (Holman & Epitropaki, 2001). Following are the various activities (but not limited) that employees normally use to learn informally at the workplace.

Informal learning can occur as a result of working in team (Eraut, 2004), mentoring relationship (Billet & Choy, 2013; Bjørk, Tøien, & Sørensen, 2013; Darwin, 2000; Rusaw, 1995; Waaland, 2013), learning from experience (Billet & Choy, 2013; Kleiner & Roth, 1997; Ferry & Ross-Gordon, 1998; Kolb, 1984), role modeling, observation (Bjørk *et al*., 2013) and trial and error (Van Woerkom *et al*.,

2002). Reading professional materials such as journals and books (Cervero, 1988), knowledge exchanging (Lohman & Woolf, 2001) and asking critical questions (Benson, 1997; Eraut, 2004) are also recognized as informal learning activities. Other informal learning activities include using video and audio tapes, sharing resources, discussions amongst peers, searching information through internet and meetings (Benson, 1997; Cheetham & Chivers, 2001; Day, 1998; Lancester *et al*. 2013; Marsick & Watkins, 1990; Marsick, 2009).

Informal learning activities in this study refer to those listed in Appendix V of the By-Laws (Appendix 2.1 of this study). The activities include reading technical, professional, financial or business literature, use of audio tapes or videotape and correspondence courses (for example, distance learning) that are relevant to the accounting profession (MIA, 2007). Other forms of the learning activities are meetings, briefing sessions and group discussion not organized by MIA and other professional accounting bodies aimed at developing accountants' capabilities (MIA, 2007, 2009a). In short, there are various activities can be used by the accountants to learn informally at the workplace.

2.4 The Concept of Work Environment Inhibitors to Informal Workplace Learning

Over the past decades, the interest in work environment as a place for informal learning activities has intensified (Billett, 2002a, 2004, 2006; Bryson, Pajo, Ward, &

Mallon, 2006; Gibson, 2004; Illeris 2004b; Lancester *et al*. 2013; Wofford *et al*., 2013). Although workplace is the important site for informal learning activities, the existence of work environment inhibitors can disrupt various informal learning activities (Bierema & Cseh, 2003; Fenwick, 2004; Hodkinson, 2005; Holford & Jarvis, 2000; Welton, 1995). This highlights the need for further research to understand this issue (Cervero, 1988; Gieskes, Hyland, & Magnusson, 2002; Lancester *et al*. 2013).

There is no formal definition of work environment inhibitors to informal learning activities found in the literature. However, the concepts of informal learning inhibitors in the workplace have been proposed by several authors. Both Hicks *et al*. (2007) and Crouse *et al*. (2011) defined informal learning inhibitors are simply those factors that prevent the learning from commencing, impede or interrupt the learning or cause the learning to be terminated earlier than what should be. Ellinger and Cseh (2007) argued that working conditions such as lack of commitment from other colleagues, structural inhibitor, lack of time due to workload, and negative attitude amongst staff members are negative organizational contextual factors that inhibit informal learning activities. Meanwhile, Ellstrom *et al*. (2008) stated that a constraining environment refers to working conditions and practices that are likely to inhibit informal learning activities.

Thus, by using the above concepts, the work environment inhibitors in this study refer to any working conditions, practices or situations within a public

accounting firm environment that can inhibit accountants from various informal learning activities.

2.5 Previous Studies on Work Environment Inhibitors to Informal Workplace Learning

There are many work environment inhibitors to informal learning activities. These inhibitors have been identified across a variety of professions such as teachers, manufacturing employees, financial services managers, civil servants, social workers, IT and HRM practitioners and accountants. The inhibitors that are included in this research conceptual framework are as follows: (1) lack of time due to heavy workload; (2) lack of proximity to colleagues' working areas; (3) lack of support from others; (4) structural inhibitor; (5) lack of meaningful rewards; (6) lack of fund; (7) lack of access to updated learning materials; (8) lack of access to computer; (9) limited influence on firm's operation; (10) poor working policy; and (11) lack of tolerance to mistakes. The definition and description of each inhibitor are provided in subsections 2.5.1 till 2.5.11. Thereafter, discussion on the gaps of previous studies is also offered in subsection 2.5.12.

2.5.1 Lack of Time due to Heavy Workload

This inhibitor refers to the availability of time for informal learning activities at the workplace is restricted by heavy workload (Hicks *et al*., 2007; Lohman, 2005,

2006, 2009). This inhibitor has been frequently cited in the informal learning literature. Hicks *et al*. (2007) discovered that having too many jobs to do makes informal learning more difficult for the accountants. Several studies indicated that this inhibitor restricts IT practitioners (Lohman, 2009) and teachers (Lohman, 2000, 2005, 2006; Lohman & Woolf, 2000) from talking, collaborating, observing others, searching internet and reading magazines and journals.

Bryson *et al*. (2006) found that limited time due to heavy daily workload disrupts the ability of wine company employees to systematically reflect their role at the workplace and to exploit the opportunities to learn outside the workplace. This scenario was also observed in other sectors such as telecommunication (Gieskes *et al*., 2002), healthcare (White *et al*., 2000) and banking (Tannenbaum, 1997). In addition, social workers (Ellstrom *et al*., 2008) and factory workers (Billet, 2003; Ellinger, 2004; Sambrook & Stewart, 2000) and HRM practitioners (Crouse *et al*., 2011) also reported that lack of time due to heavy workload is one of the major inhibitors to their informal learning activities.

Based on the above discussion, it is suggested that there is a potential influence of lack of time due to heavy workload on various informal learning activities. Thus, it is included in this research conceptual framework.

2.5.2 Lack of Proximity to Colleagues' Working Areas

This inhibitor is defined as colleagues in the same professional or technical area who can support informal learning activities are not located near to each other at the workplace (Lohman, 2005, 2006, 2009; Macneil, 2001; White *et al*., 2000). Previous studies have reported mixed results on this inhibitor. Prior studies from various contexts such as teachers (Lohman, 2000, 2005, 2006; Lohman & Woolf, 2001) and IT practitioners (Lohman, 2009) also found that this inhibitor reduces opportunities to talk, consult, observe, interact, ask questions and share learning resources.

Contrastingly, Hicks *et al*. (2007) found that accountants in the firms did not experience this inhibitor at the workplace. This means that the accountants are located near to each other according to their technical or professional area (Doornbos *et al*., 2004; Hicks *et al*. 2007, Lohman 2000, 2006).

To recapitulate, although previous studies showed mixed findings on this inhibitor, it is suggested that there is a potential influence of lack of proximity to colleagues' working areas on various informal learning activities. This is because if organizational members are far away from their colleagues at the workplace, it is likely to reduce opportunities to learn informally from each other. Thus, it is included in this research conceptual framework.

2.5.3 Lack of Support from Others

This inhibitor is defined as knowledgeable colleagues in the organization are less supportive to one's informal learning activities (Ellinger & Cseh, 2007; Ellstrom *et al*., 2008; Lohman, 2005, 2009; McCracken, 2005). The status of knowledgeable colleagues is determined by the employees at a particular organization (Billet, 1996). Their position can be higher, at peer, or lower than the learners (Doornbos *et al*., 2004). This is because knowledgeable colleagues at various positions have some information, understanding and skills that they have gained through working experience, which in turn, can contribute something to one's informal learning (Marsick & Watkins, 1990; Vygotsky, 1978). Billett (1995, 1996) argued that the reluctance of knowledgeable employees to support other colleagues is a major stumbling block to informal learning. This is because knowledgeable employees can provide guidance and instruction when dealing with complex tasks (Billett, 1995, 1996).

Knowledgeable colleagues are reluctant to share knowledge because of fear of losing status and control and concern about displacement by those they have guided (Ashton, 2004; Ellinger, 2004; Billett, 1995, 1996, 2006; Gieskes *et al*., 2002; Lave & Wenger, 1991; Munro *et al*., 2000; Sambrook & Stewart, 2000; Tannenbaum, 1997). For instance, if an employee thought that he or she is competing with other colleagues for higher post and salary, he or she is not inclined to sharing knowledge and teaching others, that is, for the sake of self-competitive advantage (Ashton, 2004). Another

possible reason is that some knowledgeable colleagues believe that the best way for an employee to learn is through self-initiative (Ashton, 2004; Bryson *et al*., 2006; Cheetham & Chivers, 2001; Ellinger, 2004; Munro *et al*., 2000). In this case, the employees have to learn organizational procedures and practices without proper guidance and support (Ashton, 2004; Ellinger, 2004; Jurasaite-Harbison, 2009).

From the context of accounting profession, Hicks *et al*. (2007) discovered that accountants are difficult to find someone to assist them in accomplishing job assignments. Other empirical studies amongst IT practitioners (Lohman, 2009), social workers (Ellstrom *et al*., 2008) and financial services managers (McCracken, 2005) showed that some knowledgeable colleagues do not provide informal learning opportunities such as lack of organized meetings for planning and knowledge exchange. Ellinger and Cseh's (2007) study on factory employees discovered that some knowledgeable employees are not committed to informal learning as they are not facilitating others to learn. Findings gathered from other contexts such as teachers (Lohman, 2005), manufacturing workers (Sambrook & Stewart, 2000), nurses (White *et al*., 2000) and bankers (Tannenbaum, 1997) also indicated that the reluctance of knowledgeable colleagues to support others makes informal learning difficult.

Based on the above discussion, it is suggested that there is a potential influence of lack of support from others on various informal learning activities. Thus, it is included in this research conceptual framework.

2.5.4 Structural Inhibitor

This inhibitor refers to "a silo mentality – functional walls" (Ellinger, 2004; Ellinger & Cseh, 2007). It occurs because of building structure, office space and metaphorical walls (Ellinger, 2004; Ellinger & Cseh, 2007). In this case, each unit or department within the organization may be described as sharing a core of common behavioral characteristics directly associated with their respective functions (Gieskes *et al*., 2002). For instance, some units or departments are primarily concerned with project management while others are highly concentrated on development and manufacturing activities (Gieskes *et al*., 2002).

Structural nature of the workplace as an inhibitor to informal learning has been reported in several studies. Jurasaite-Harbison (2009) found that such architectural impediments create obstacles for teachers to interact across grades and thus reduce informal opportunities such as discussing students' work. Ellinger and Cseh (2007) reported that this kind of organizational structure inhibits informal learning activities amongst factory employees because apparently every room is being blocked off. Meanwhile, Gieskes *et al*. (2002) indicated that being physically separated results in telecom multinational corporation employees at one unit or department does not know what is happening at other units or departments and in turn creates ineffective decisions making and communications.

Based on the above discussion, it is suggested that there is a potential influence of structural inhibitor on various informal learning activities. Thus, it is included in this research conceptual framework.

2.5.5 Lack of Meaningful Rewards

This inhibitor is defined as sufficient rewards for informal learning activities at the workplace are not provided by the organizations (Ashton, 2004; Bryson *et al*., 2006; Lohman, 2000). Rewards for informal learning include promotion, salary increment and complimentary words such as "thank you" and "congratulation" (Ashton, 2004; Bryson *et al*., 2006; Lohman, 2000).

The employees in the manufacturing companies (Bryson *et al*., 2006; Sambrook & Stewart, 2000) and multinational corporations (Ashton, 2004) indicated that the existing reward system do not motivate them to learn informally since it is not considered as a priority by their employers. Similarly, Lohman (2000) found that teachers seldom receive rewards for participating in non-teaching activities such as sponsoring student clubs, reviewing curriculum, mentoring colleagues, leading teams and departments and supervising student teachers. As a consequence, they stop participating in those activities although their roles in teaching and learning, reflecting current practice and sharing knowledge activities are paramount (Lohman, 2000).

However, lack of meaningful rewards was not perceived by IT practitioners (Lohman, 2009), accountants (Hicks *et al*., 2007) and teachers (Lohman, 2006) as the inhibitor to informal learning activities. This means that the professionals did not experience this inhibitor at the workplace (Hicks *et al*., 2007; Lohman, 2006, 2009).

Based on the above discussion, although prior studies showed mixed findings on this inhibitor, it is suggested that there is a potential influence of lack meaningful rewards on various informal learning activities. This is because if organizational members receive few rewards for the learning at the workplace, it is likely to reduce various informal learning opportunities. Thus, it is included in this research conceptual framework.

2.5.6 Lack of Fund

This inhibitor refers to sufficient fund to support informal learning activities at the workplace is not provided by the organizations (Ellinger, 2004; Lohman, 2000; Sambrook & Stewart, 2000). Sloman and Webster (2005) stated that the fund to support staff informal learning is a major challenge to the organizations. For example, a report by the USA Bureau of Labor Statistics indicated that the wage and salary costs associated with informal learning was approximately USA Dollar (USD) 48.4 billion per year and the figure almost equal to the estimated cost per year for formal learning which was about USD 55.3 billion (Benson, 1997). Rowden (1996) estimated that annual expenditure for informal learning was nearly to USD 180

billion. Although there is an increasing attention to encourage organizational investment in informal learning, it is not given an appropriate emphasis since employees' participation in informal learning is not recognized as learning (Gold & Smith, 2003; Muhammad & Idris, 2005). This results in unequal distribution of the organizational fund (Muhammad & Idris, 2005).

Previous studies have reported mixed results on this inhibitor. Lohman (2006, 2005) discovered that insufficient fund inhibits teachers from conducting peer teaching observation and purchasing instructional resources such as professional magazines and journals and computer software. Several other studies found that teachers (Jurasaite-Harbison, 2009), wine company employees (Bryson *et al*., 2006) and civil servants (Munro *et al*., 2000) who signed up for professional development activities often pay themselves. This budget constraint also distracts and restricts informal learning activities amongst factory employees (Ellinger, 2004; Sambrook & Stewart, 2000) and HRM practitioners (Crouse *et al*., 2011). However, Hicks *et al*. (2007) found that accountants in the firms did not experience this inhibitor at the workplace since their informal learning is sufficiently funded.

Based on the above discussion, although previous studies showed mixed findings on this inhibitor, it is suggested that there is a potential influence of lack of fund on various informal learning activities. This is because if organizational members have limited fund to support informal learning activities at the workplace, it

is likely to make the learning activities difficult for them. Thus, it is included in this research conceptual framework.

2.5.7 Lack of Access to Updated Learning Materials

This inhibitor is defined as sufficient access to updated learning materials to support informal activities at the workplace are not provided by the organizations (Eraut, 2004; Lohman, 2000; Sambrook & Stewart, 2000). According to Eraut (2004) and Hicks *et al*. (2007), updated learning materials include latest manuals, reference books, documentations, protocols, audio or video tapes, standards and regulatory documents. These materials are important to support informal learning activities such as reading, discussion, meeting and knowledge sharing activities (Eraut, 2004; Bell, 1977).

Previous studies have reported mixed results on this inhibitor. Lohman (2000) indicated that teachers' informal learning activities were less likely to take place due to this inhibitor. Manufacturing and service employees (Sambrook & Stewart, 2000) as well as HRM practitioners (Crouse *et al*., 2011) also reported that lack of access to updated learning materials was the inhibitor to informal learning activities. In contrast to these studies, Hicks *et al*. (2007) found that this inhibitor was not considered as an inhibitor to informal learning by the accountants. This means that the accountants did not experience this problem at the workplace (Hicks *et al*., 2007).

Based on the above discussion, although prior studies revealed mixed findings on this inhibitor, it is suggested that there is a potential influence of lack of access to updated learning materials on various informal learning activities. This is because if organizational members have limited access to the learning materials, it is likely to restrict informal learning activities amongst them. Thus, it is included in this research conceptual framework.

2.5.8 Lack of Access to Computer

This inhibitor refers to sufficient access to computer to support informal activities at the workplace is not provided by the organizations (Lohman, 2000, 2006, 2009). Previous studies have reported mixed results on this inhibitor. Crouse *et al*. (2011) reported that lack of access to computer reduces HRM practitoners' accessibility to other colleagues. Lohman (2009) discovered that this factor is the inhibitor to informal learning activities amongst IT practitioners. From the context of education, this inhibitor restricts teachers' ability to communicate with others via electronic mail, develop technological skills, conduct research and search professionals' publications on the internet (Lohman, 2006, 2000). However, Hicks *et al*. (2007) reported that this inhibitor was least evident amongst accountants. This means that the accountants have adequate access to computer to support their informal learning activities at the workplace (Hicks *et al*., 2007).

Based on the above discussion, although prior studies revealed mixed findings on this inhibitor, it is suggested that there is a potential influence of lack of access to computer on various informal learning activities. This is because if organizational members have limited access to computer at the workplace, it is likely to reduce their opportunities to learn informally at the workplace. Thus, it is included in this research conceptual framework.

2.5.9 Limited Influence on Firm's Operation

This inhibitor is defined as lack of capacity to influence organizational operation (Hager, 2004; Lohman & Woolf, 2001; Tannenbaum, 1997). According to Colley (2012) and Fenwick (2004), one of the main dilemmas in the HRD field is the issue of influence amongst employees in organizational affairs. This issue can distract informal learning activities since employees are barred from taking actions and making decisions (Gee, Hull, & Lankshear, 1996; Hager, 2004).

Within teaching profession, Jurasaite-Harbison (2009) reported that school management was less likely to allow teachers to make decisions on work. Similarly, Lohman and Woolf (2001) and Lohman (2000) reported that school management had rejected teachers' study group interim findings and ideas to improve teaching policies. As a consequence, teachers did not participate in observations, reflections and discussions because they felt disillusioned and stripped of power (Lohman, 2000; Lohman & Woolf, 2001). In the telecom multinational corporation (Gieskes *et al*.,

2002) and financial services (Tannenbaum, 1997) contexts, this inhibitor is attributed to the difficulty of staff members to express views, to accept others' views or suggestions and the tendency to maintain status quo. In short, limited influence in organizational operation creates inconducive working environment for informal learning activities.

Based on the above discussion, it is suggested that there is a potential influence of limited influence on organizational operation on various informal learning activities. Thus, it is included in this research conceptual framework.

2.5.10 Poor Working Policy

This inhibitor refers to working policy that does not address employees' continuous career development needs (Ashton, 2004; Bryson *et al*., 2006; Munro *et al*., 2000). This kind of working policy is not advisable since it causes employees are less likely to pay attention to what is unique, surprising or expected about a situation and reflect on the new dimensions of the situation (Billet, 1996; Marsick & Watkins, 1990; McCracken, 2005).

Poor working policy inhibits informal learning activities in various forms. Bryson *et al*. (2006) found that wine company employees have to learn informally about work without proper career development programs. Empirical studies on social workers (Ellstrom *et al*., 2008), civil servants (Munro *et al*., 2000) and multinational

corporation employees (Ashton, 2004) indicated that most work activities related to routine discourages informal learning activities. Ashton (2004) further argued that movement from one job to another job on ad-hoc basis is also the poor working policy amongst multinational corporation employees. Tannenbaum's (1997) study on bankers reported that such working policy amongst them is lack of opportunities to learn new things at the workplace.

Based on the above discussion, it is suggested that there is a potential influence of poor working policy on various informal learning activities. Thus, it is included in this research conceptual framework.

2.5.11 Lack of Tolerance to Mistakes

This inhibitor is defined as mistakes are less considered as the opportunities for informal learning at the workplace (Hodgkinson, 2000; Suarez, 1994; Tannenbaum, 1997). According to Sender and Morray (1991), mistake is something which is not correct. Misjudgment, poor planning, incomplete analysis, incomplete information, carelessness, misunderstanding and uncontrolled conditions are amongst the most common causes of mistakes (Anonymous, 1989). Although mistakes can be categorized as "stupidity" (for instance, carelessness or negligence) and "intelligency" (for examples, mistakes stem from the experimentation and calculated risk-taking), the implicit value is that what people can learn from it (Honey & Mercer, 2008).

However, having an atmosphere where employees are afraid to admit their mistakes can turn them into negative informal learning experience (Cheetham & Chivers, 2001). Such organizational practice is associated with lack of risk taking, innovation, and diversity of opinion and experimentation, which in turn, restrict informal learning activities such as reflections, discussions, observations and feedbacks (Hodgkinson, 2000; McGill, Slocum, & Lei, 1992; Suarez, 1994; Tannenbaum, 1997). Cheetham and Chivers's (2001) study found that some physiotherapists are reluctant to admit that 'they do not know' because mistakes are not tolerated when undertaking new tasks. As a consequence, they were less likely to ask questions from each other. An earlier study by Tannenbaum (1997) also indicated that mistakes unacceptability discourages bankers from applying new ideas and skills at the workplace.

Based on the above discussion, it is suggested that there is a potential influence of lack of tolerance to mistakes on various informal learning activities. Thus, it is included in this research conceptual framework.

2.5.12 Gaps of Previous Studies on Work Environment Inhibitors to Informal Workplace Learning

Table 2.2 summarizes work environment inhibitors to informal learning activities of previous studies.

Table 2.2
Summary of Previous Studies on Work Environment Inhibitors to Informal Workplace Learning

Researcher(s)	**Country/ Context**	**Work Environment Inhibitors**	**Nature of Study**
Tannenbaum (1997)	USA/ Financial Services Employees and Bankers	-Lack of time -Lack of peer and supervisor support -Mistakes are not tolerated during learning and early application of new ideas and skills -Lack of opportunities to learn new things -Maintain status quo	Descriptive (Survey and Interview)
Lohman (2000)	USA/ Teachers	-Lack of time -Lack of proximity to learning resources -Lack of meaningful rewards -Limited decision-making power in organizational affairs	Descriptive (Interview)

Table 2.2
(Continued)

Researcher(s)	Country/ Context	Work Environment Inhibitors	Nature of Study
White *et al*. (2000)	USA/ Nurses	-Lack of colleagues guidance -Lack of opportunities to learn -Lack of time due to job responsibilities	Descriptive (Interview)
Munro *et al*. (2000)	UK/ Civil Servants	-Lack of support from management and supervisors -Lack of fund -Lack of time -Work activities concentrate on routine -Lack of reward -Lack of information about learning opportunities	Descriptive (Interview)
Sambrook and Stewart (2000)	European Countries/ Manufac-turing and Service Sectors Employees	-Lack of resources -Lack time due to high work load -Lack of reward -Resistance to and fear of change -Insufficient learning culture/commitment to learning -Lack of information about learning	Descriptive (Interview)
Cheetham and Chivers (2001)	UK/ Physiotherapists	-Time constraint -Unsupportive of others -Blaming culture	Descriptive (Interview)
Lohman and Woolf (2001)	USA/ Teachers	-Lack of proximity to colleagues' work areas -Lack of power in organizational affairs -Lack of meaningful rewards	Descriptive (Interview)

Table 2.2
(Continued)

Researcher(s)	Country/ Context	Work Environment Inhibitors	Nature of Study
Gieskes *et al*. (2002)	European Countries/ Telecom Multi-National Corporation Employees	-Lack of time -Skeptical towards solutions from outside -Unwillingness to share information -Do not have sufficient knowledge about others works -Lack of autonomy in works	Descriptive (Interview)
Billett (2003)	Australia/ Factory Employees	-Lack of time -A demanding workload -Insufficient opportunities due to production considerations	Descriptive (Interview)
Ashton (2004)	Malaysia/ European Multi-National Corporation Employees	-Unsupportive leaders/managers -Lack of openness amongst workers -Lack of access to manager/leaders -Competition amongst colleagues in the process of ranking and rewarding -Reward system did not recognize learning efforts -Ad-hoc allocation to posts	Descriptive (Interview)

Table 2.2
(Continued)

Researcher(s)	Country/ Context	Work Environment Inhibitors	Nature of Study
Ellinger (2004)	USA/ Factory Employees	-Lack of time because of job pressures and responsibilities -Unsupportive leaders/managers -Micromanagers/ Microleaders -Budget constraint -Physical architectural barriers -Workers do not want to share knowledge -The existence of old guard/old school cynicism	Descriptive (Interview)
Lohman (2005)	USA/ Teachers	-Lack of time -Lack of proximity to colleagues' work areas -Unsupportive organizational culture -Unwillingness of others to support learning -Inaccessibility of other colleagues -Lack of fund	Descriptive (Survey)
McCracken (2005)	Scotland/ Financial Services Managers	-Lack of commitment from management -Lack of development opportunities -Development plan does not address individual's needs	Descriptive (Interview)
Lohman (2006)	USA/ Teachers	-Lack of time -Lack of proximity to colleagues' work areas -Insufficient funds	Descriptive (Survey)

Table 2.2
(Continued)

Researcher(s)	Country/ Context	Work Environment Inhibitors	Nature of Study
Bryson *et al*. (2006)	New Zealand/ Wine Company Employees	-Lack of support as learners -Lack of opportunities for participate in any other CoPs -Lack of recognition for learning -Lack of fund for learning -Time pressures	Descriptive (Interview)
Hicks *et al*. (2007)	Canada/ Accountants in Public Accounting Firms	-Acquisition of inappropriate knowledge -Lack of access to authentic tasks -Lack of expert guidance -Lack of time -Increased multi-tasking -Use of technology -Lack of proximity to learning resources -Lack of meaningful rewards -Limited or lost autonomy in organizational affairs	Descriptive (Survey)
Ellinger and Cseh (2007)	USA/ Factory Employees	-Management not committed to learning -Structural Inhibitor -Lack of time manifested by workload -Negative attitude	Descriptive (Interview)

Table 2.2
(Continued)

Researcher(s)	Country/ Context	Work Environment Inhibitors	Nature of Study
Ellstrom *et al*. (2008)	Sweden/ Social Workers	- Lack of time -Task orientation limited to workers' own work situation -Work content limited to practical and social tasks -Lack of formal meetings for planning and knowledge exchange -Low accessibility to managers -Lack of management initiatives to provide learning activities	Descriptive (Interview)
Jurasaite-Harbison (2009)	USA and Lithuania/ Teachers	- Structural inhibitor -Reluctant to share learning experiences -Lack of time because of workload -Lack of support from management -Lack of power in decision making -Lack of fund for learning	Descriptive (Interview)

Table 2.2
(Continued)

Researcher(s)	Country/ Context	Work Environment Inhibitors	Nature of Study
Lohman (2009)	USA/ IT Practitioners	-Lack of time -Lack of proximity of colleagues work areas -Unsupportive organizational culture -Inaccessibility of others -Lack of equipment and technology -Lack of meeting	Descriptive and Correlation (Survey)
Crouse et. al (2011)	Canada/ HRM Practitioners	-Lack of time -Heavy workload -Lack of money -Insufficient technology -Lack of access to learning resources	Descriptive (Interview)

Table 2.2 indicates that most of the prior studies in informal learning were mainly focusing on non-accountants. With exception to Ashton (2004), the above studies were oversea based. Thus, informal learning amongst Malaysian accountants is still understudied. In addition, it is surprising to observe that prior studies have highlighted work environment inhibitors to informal learning activities, however, the extent to which the inhibitors influence the frequency of engagement in various informal learning activities is less evident (Crouse *et al*., 2011; Ellinger 2004; Ellstrom *et al*., 2008; Munro *et al*., 2000; White *et al*., 2000). This limitation can also be observed within the accountants' informal learning literature (Hicks *et al*., 2007).

Only Lohman (2009) examined the relationship between work environment inhibitors and informal learning activities using correlational analysis. However, the examination was limited to four work environment inhibitors, namely, lack of time due to heavy workload, lack of proximity to colleagues' working areas, lack of access to computer and lack of meaningful rewards. This means that the influence of other seven work environment inhibitors on various informal learning activities have yet to be investigated. Another limitation is that Lohman's (2009) study was amongst IT practitioners and not accountants in the firms. In short, most of informal learning literature, including accountants, were descriptive in nature and not statistically tested the influence of the inhibitors on the frequency of engagement in various informal learning activities. Hence, they are limited in terms of statistical conclusion validity and generalization in the findings (Skule, 2004; Straub *et al*., 2004). Thus, in this study, the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst Malaysian accountants will be statistically examined in details using standard multiple regression analysis. The regression analysis is utilized since it allows a more sophisticated exploration of interrelationship among a set of variables and has more ability to predict a particular outcome when compared to correlational analysis as used by previous informal learning research (for instance, see Lohman, 2009) (Pallant, 2010).

In addition to the above limitations, three work environment inhibitors to informal learning activities, namely, structural inhibitor, poor working policy and lack of tolerance to mistakes, have yet to be examined amongst accountants in the

firms (Ellinger & Cseh, 2007; Hicks *et al*., 2007; Jurasaite-Harbison, 2009; Lohman, 2005, 2006, 2009; Tannenbaum, 1997). In this study, these inhibitors are included in the proposed conceptual framework. In turn, their influence on accountants' frequency of engagement in various informal learning activities will be statistically tested using the regression analysis as mentioned above. To recapitulate, considering the limitations of the current literature, the apparent gaps will be reduced in the current study. Thus, this warrants the need of this research.

2.6 Orientations of Adult Learning Theory

Adult learner is a student age more than 25 years and engages in formal and informal learning activities (Wlodkwoski, 2003). However, in Malaysia, adult learners are defined as those above 17 years old (Merriam & Muhamad, 2001). As stipulated in the Accountants Act 1967, Malaysian Certificate of Education (MCE) or Sijil Pelajaran Malaysia (SPM) is the entry requirement to become a chartered accountant in Malaysia. Malaysian students normally acquire the certificate at or above 17 years old**.** Implicit in this criterion is that the accountants in Malaysia are categorized as adult learners.

Since accountants are adult learners, this research adopts the orientations of adult learning theory as the underpinning theories. These orientations direct the researcher to the variables that are crucial in explaining informal learning phenomenon amongst accountants (Holton, Swanson, & Naquin, 2001; Merriam *et*

al., 2007). Prior studies that have applied them when studying professional informal learning, including, accountants are such as Cervero (1988), Cheetham and Chivers (2001), and Lohman and Woolf, (2001).

Due to little consensus on the number of adult learning theories, Merriam *et al*. (2007) categorized them into five orientations, namely, behaviorist, humanist, cognitive, social cognitive and constructivist. In the following paragraphs these orientations will be briefly discussed and their relevancies to this study are also explained.

The first orientation is behaviorist. Prominent theorists to behaviorism orientation are Pavlov (1927), Skinner (1938) and Watson (1930). Behaviorists view learning as a potential change in behavior (Pavlov 1927; Skinner, 1938; Watson, 1930). This orientation reinforces the influence of environment in shaping one's learning behavior (Cervero, 1988; Merriam *et al*., 2007; Warr & Allen, 1998). The behavioral learning theory can be related to HRD (Merriam *et al*., 2007). HRD is the process of developing human expertise through informal learning for the purpose of improving knowledge and skills (Swanson, 2001).

The second orientation is humanist. Maslow (1970) and Rogers (1983) are amongst the theorists who have significantly contributed to the development of humanistic theory. Humanists view learning as a function of internal motivation and involves choice and responsibility (Maslow, 1970; Merriam *et al*., 2007; Rogers,

1983). This orientation focuses on human nature, human potential, human emotions that affect learning. Many models of self-directed learning are grounded in humanistic assumptions (Maslow, 1970; Merriam *et al*., 2007; Rogers, 1983).

The third orientation is cognitive. Prominent cognitive theorists are Ausubel (1967) and Piaget (1966). Cognitive theorists view learning as information processing (Ausubel, 1967; Piaget, 1966). This orientation focuses more on how age affects an adult's ability to process and retrieve information and internal mental structures (Ausubel, 1967; Piaget, 1966). This orientation is much evident from the developmental perspective of adult learning study (Cervero, 1988; Merriam *et al*., 2007; Shuell, 1986).

The fourth orientation is social cognitive. Prominent theorists under this orientation are Bandura (1977, 1986) and Rotter (1954). Originally, the theory was known as social learning and later renamed as social cognitive to more accurately reflect its emphasizes on both learning and cognition (Bandura, 1977, 1986; Gibson, 2004). This orientation differs from the above three orientations in its focus on social setting in which the learning occurs (Bandura, 1977, 1986). Based on this orientation, learning occurs through observation of people in a social environment (Bandura, 1977, 1986; Merriam *et al*., 2007). This orientation also recognizes the importance of interaction between the learner and the environment in which he or she operates (Bandura, 1986). Social cognitive theory contributes to adult learning by highlighting

the importance of social context and the processes of modeling and mentoring (Bandura, 1977, 1986; Gibson, 2004; Merriam *et al*., 2007).

The fifth orientation is constructivist. Candy (1991) and Lave and Wenger (1991) are amongst the most prominent constructivism theorists. Constructivism posits that the learners construct, organize, index and extend their own knowledge from the experiences (Billett, 1996; Lave & Wenger, 1991; Merriam *et al*., 2007). The gist of constructivism can be found in communities of practice (CoP) (Merriam *et al*., 2007). A community of practice is a group of people who share concerns and problems, and who deepen their knowledge and expertise through informal interaction (Blaka & Filstad, 2007; Wenger, 1996).

Since the focus of this research is on the interplay between informal learning activities of the accountants and their work environment, it is suggested that several assumptions of behaviorist, social cognitive and constructivist orientations are relevant to this research. Table 2.3 summarizes the orientations of adult learning theory and their relevancies to the current study.

As can be seen in Table 2.3, Behaviorist is the orientation that underlies HRD (Merriam *et al*., 2007 Warr & Allen, 1998). It is relevant to informal learning activities because these activities are importance in the development and maintainance of an accountant's knowledge and skills to tap with current and future work roles as stated in the By-Laws (IFAC, 2008; MIA, 2007).

Table 2.3

Summary of Orientations of Adult Learning Theory and Their Relevancies to the Current Study

Orientations	Prominent Theorists	Basic Assumptions	Relevant to the Study
Behaviorist	Pavlov (1927), Skinner (1938) and Watson (1930)	• Informal learning is important to develop and maintain knowledge and skills. • Work environment conditions influence one's informal learning.	• Accountants' informal learning is important to develop and maintain knowledge and skills to tap with current and future work roles. • Work environment inhibitors influence various informal learning activities amongst the accountants.
Humanist	Maslow (1970) and Rogers (1983)	• Informal learning as a function of internal motivation and involves choice and responsibility. • Human nature, potential, emotions affect informal learning.	• It is not used in the current study since it emphasizes on subjective aspects of learners such personalities.
Cognitive	Ausubel (1967) and Piaget (1966)	• Informal learning as information processing. • Age and internal mental structure affect informal learning	• It is not used in the current study since it emphasizes on subjective aspects of learners such as internal mental ability.

Table 2.3
(Continued)

Orientations	Prominent Theorists	Basic Assumptions	Relevant to the Study
Social Cognitive	Bandura (1977, 1986) and Rotter (1954)	• Informal learning is a social phenomenon. • Work environment conditions influence one's informal learning.	• Accountants' informal learning involves socialization amongst them. • Work environment inhibitors influence various informal learning activities amongst the accountants.
Constructivists	Candy (1991) and Lave and Wenger (1991)	• Informal learning occurs through one's experience in CoP. • Work environment conditions influence one's informal learning.	• Accountants in the firm considered as CoP since they learn informally through working experience. • Work environment inhibitors influence various informal learning activities amongst the accountants.

Table 2.3 indicates that social cognitive orientation recognizes learning as a social phenomenon (Merriam *et al*., 2007). Informal learning is a social phenomenon in the accounting profession since it involves socialization between accountants through activities such as sharing learning materials, meeting, briefing and discussion (Lave & Wenger, 1991; MIA, 2007; Stamps, 1998).

As shown in Table 2.3, Constructivists argue that human learn informally within work based groups or CoP (Lave & Wenger, 1991; Stamps, 1998). Accountants in public accounting firms can be considered as CoP because they share

a common concern and work, and learn public accounting practice collectively and informally (Blaka & Filstad, 2007; Vera-Munoz *et al*., 2006; Wenger, 1996).

In addition, behaviorist, social cognitive and constructivist orientations recognize the importance of interaction between professionals' informal learning activities and the environment where they work (see Table 2.3) (Bandura, 1977, 1986; Cheetham & Chivers, 2001; Gibson, 2004; Merriam *et al*., 2007). The purpose of this study is to investigate the influence of work environment inhibitors on various informal learning activities as suggested by prior informal learning literature (Colley, 2012; Ellinger & Cseh, 2007; Ellstrom *et al*., 2008; Hicks *et al*., 2007; Lohman, 2000, 2005, 2006, 2009; Lohman & Woolf, 2001). Therefore, this study makes use of behaviorist, social cognitive and constructivist orientations to explain the influence of work environment inhibitors, namely, lack of time due to heavy workload, lack of proximity to colleagues' working areas, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, lack of access to updated learning materials, lack of access to computer, limited influence on firm's operation, poor working policy and lack of tolerance to mistakes on the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion, meeting, briefing session and correspondence courses amongst accountants in the firms (Hicks *et al*., 2007; Lohman, 2006, 2009). The above mentioned eleven work environment inhibitors will be included as the independent variables in the current research conceptual framework. Meanwhile, frequency of engagement in the six informal

learning activities will be included as the dependent variables in the conceptual framework.

As indicated in Table 2.3, both humanist and cognitive assumptions are not used to understand informal learning phenomena in this study. This is because they emphasize more on the internal and subjective aspects of learners such as learners' personalities and internal mental process and not an individual's immediate work environment factors that influence informal learning activities (Ausubel, 1967; Cheetham & Chivers, 2001; Maslow, 1970; Shuell, 1986).

To recapitulate, it is declared that three orientations of adult learning theory, namely, behaviorist, social cognitive and constructivist are relevant to explain the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst the accountants. The influence is illustrated in the current research conceptual framework (see Figure 3.1 in Chapter 3).

2.7 Summary

This chapter offers theoretical aspects of this research. To achieve this, previous studies on work environment inhibitors to informal learning activities are reviewed and examined extensively. The gaps in the previous studies are highlighted and the strategies to reduce them are discussed.

The next chapter will develop research hypotheses on the work environment inhibitors that are argued to influence an accountant's various informal learning activities.

CHAPTER THREE

RESEARCH CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

3.1 Introduction

This chapter illustrates the research conceptual framework. Then, hypotheses on work environment factors which are argued to inhibit accountants from various informal learning activities are developed. Thereafter, summary of the research hypotheses and the chapter summary are presented.

3.2 Research Conceptual Framework

Based on the discussion in Chapter 2, a diagram of this research conceptual framework is developed. The diagram is as illustrated in Figure 3.1.

The framework postulates that the frequency of engagement in (a) reading job related materials, (b) audio/video tapes usage, (c) group discussion, (d) meeting, (e) briefing session and (f) correspondence courses amongst the accountants are influenced by the following work environment inhibitors: (*H1*) lack of time due to heavy workload; (*H2*) lack of proximity to colleagues' working areas; (*H3*) lack of support from others; (*H4*) structural inhibitor; (*H5*) lack of meaningful rewards; (*H6*) lack of fund; (*H7*) lack of access to updated learning materials; (*H8*) lack of access to computer; (*H9*) limited influence on firm's operation; (*H10*) poor working policy;

and (*H11*) lack of tolerance to mistakes. This is in tandem with behaviorist, social cognitive and constructivist orientations of adult learning theory, which postulated that an individual's immediate work environment conditions influence informal learning activities (Bandura, 1977, 1986; Lave & Wenger, 1991; Pavlov, 1927; Skinner, 1938; Watson, 1930).

The framework also postulates that the independent variables are expected to have direct negative influence on dependent variables of this research. This is consistent with previous informal learning literature (Hicks *et al*., 2007; Lohman 2006, 2009; Marsick & Watkins, 1990) which suggested that the greater an accountant experiences work environment inhibitors, the lower frequency of engagement in various informal learning activities at the workplace and vice versa.

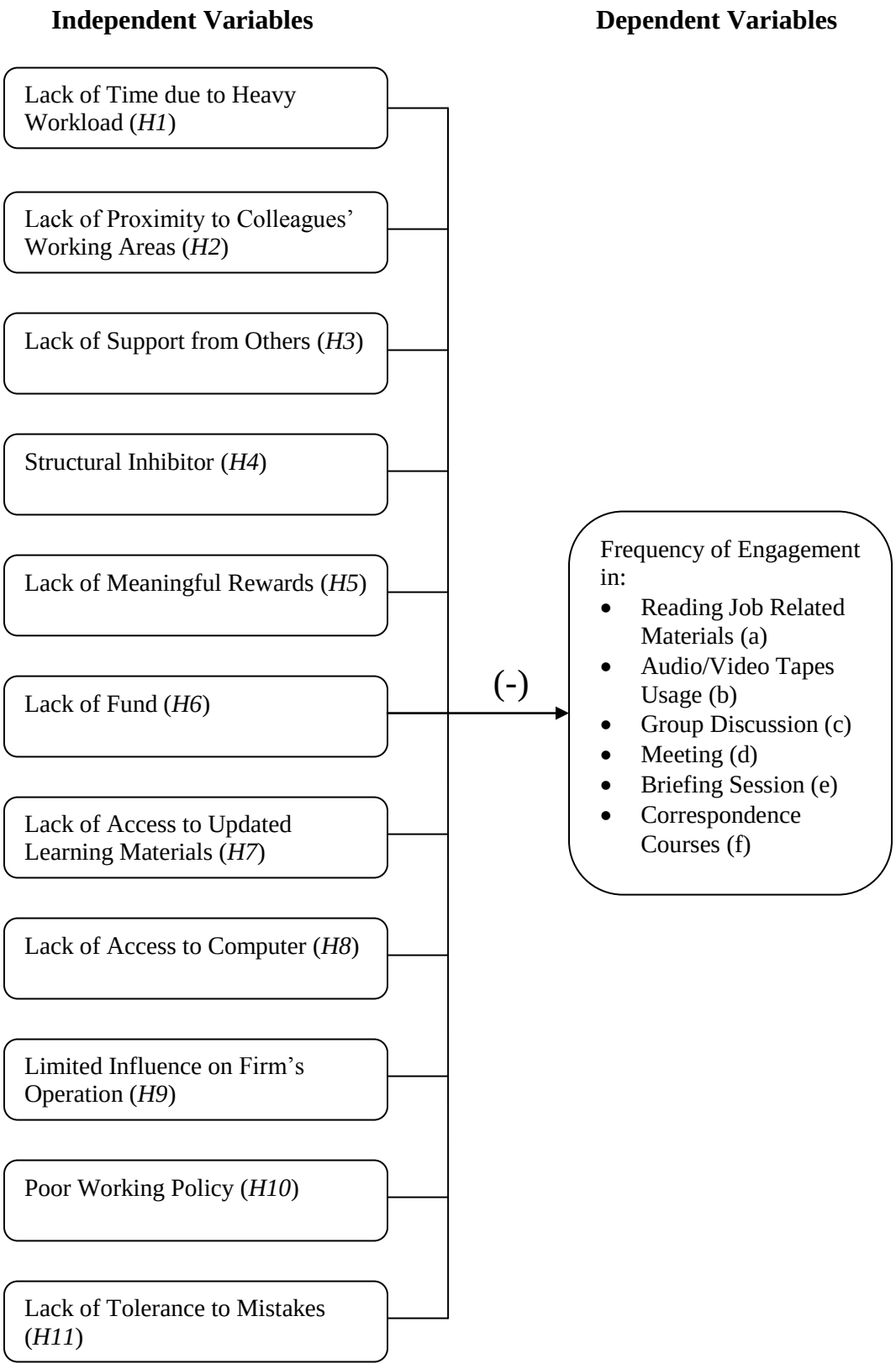
Independent Variables
Dependent Variables
Lack of Time due to Heavy Workload (H1)
Lack of Proximity to Colleagues' Working Areas (H2)
Lack of Support from Others (H3)
Structural Inhibitor (H4)
Lack of Meaningful Rewards (H5)
Lack of Fund (H6)
Lack of Access to Updated Learning Materials (H7)
Lack of Access to Computer (H8)
Limited Influence on Firm's Operation (H9)
Poor Working Policy (H10)
Lack of Tolerance to Mistakes (H11)
(-)
Frequency of Engagement in:
Reading Job Related Materials (a)
Audio/Video Tapes Usage (b)
Group Discussion (c)
Meeting (d)
Briefing Session (e)
Correspondence Courses (f)

Figure 3.1
Conceptual Framework for Examining the Influence of Work Environment Inhibitors on the Frequency of Engagement in Various Informal Learning Activities

3.3 Hypotheses Development

Based on the proposed conceptual framework illustrated in Figure 3.1, this section discusses the hypotheses of this study. As mentioned earlier, this study examines the influence of work environment inhibitors on the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion, meeting, briefing session and correspondence courses activities. The description of hypothesis for each inhibitor is dealt with in subsections 3.3.1 till 3.3.11.

3.3.1 Lack of Time due to Heavy Workload

Usually adult learners spend most of their office hours in completing the assigned works (Merriam *et al*., 2007). Hence, time is often cited as the reason for less informal learning activities at the workplace (Merriam *et al*., 2007). Previous studies found that the greater limited time due to heavy daily workload experienced at the workplace, the lower informal activities such as reflection (Bryson *et al*., 2006; Lohman, 2009), observing others, talking, collaborating, searching internet and reading magazines and journals amongst professionals (Lohman, 2000, 2005, 2006, 2009; Lohman & Woolf, 2001). This relationship is further supported by Billett (2003), Crouse *et al*. (2011), Ellinger (2004), Ellinger and Cseh (2007), Ellstrom *et*

al. (2008), Gieskes *et al*. (2002), Hicks *et al*. (2007), Tannenbaum (1997) and White *et al*. (2000). Thus, it is argued that if an accountant experiences lack of time due to heavy workload at the workplace, various informal learning activities would be less likely to take place. In turn, the following hypotheses are proposed:

H1a: *Lack of time due to heavy workload will have a negative influence on frequency of engagement in reading job related materials.*

H1b: *Lack of time due to heavy workload will have a negative influence on frequency of engagement in audio/video tapes usage.*

H1c: *Lack of time due to heavy workload will have a negative influence on frequency of engagement in group discussion.*

H1d: *Lack of time due to heavy workload will have a negative influence on frequency of engagement in meeting.*

H1e: *Lack of time due to heavy workload will have a negative influence on frequency of engagement in briefing session.*

H1f: *Lack of time due to heavy workload will have a negative influence on frequency of engagement in correspondence courses.*

3.3.2 Lack of Proximity to Colleagues' Working Areas

Macneil (2001) argued that physical location either within or outside the workplace can disrupt employees' informal learning activities. Prior studies found that lack of proximity to colleagues' working areas, particularly those in the same

technical or professional area, reduces opportunities to talk, consult, observe, interact, ask questions and share learning resources with others (Lohman 2000, 2005, 2006, 2009; Lohman & Woolf, 2001; White *et al*., 2000). Therefore, it is argued that if an accountant experiences lack of proximity to the colleagues' working areas, various informal learning activities would be less likely to occur. Thus, the following hypotheses are developed:

H2a: *Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in reading job related materials.*

H2b: *Lack of proximity to colleagues' working areas will have a negative influence on frequency engagement in audio/video tapes usage.*

H2c: *Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in group discussion.*

H2d: *Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in meeting.*

H2e: *Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in briefing session.*

H2f: *Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in correspondence courses.*

3.3.3 Lack of Support from Others

The reluctance of knowledgeable colleagues to support informal learning activities results in other staff members feel helpless and directionless (Conlon, 2004; Lohman, 2005, 2009; Marsick & Watkins, 1990). Previous studies indicated that when professionals difficult to get support from others, various informal learning activities such as meeting for planning and knowledge exchange will take place less frequently (Ellinger, 2004; Ellstrom *et al*., 2008; Lohman, 2009; McCracken, 2005). The negative influence of this inhibitor on informal learning activities amongst professionals was also reported in many other studies such as Ashton (2004), Bryson *et al*. (2006), Cheetham and Chivers (2001), Ellinger and Cseh (2007), Gieskes *et al*. (2002), Hicks *et al*. (2007), Jurasaite-Harbison (2009), Sambrook and Stewart (2000), and Tannenbaum (1997). Thus, it is argued if an accountant experiences lack of support from others, various informal learning activities would be less likely to take place. The following hypotheses are then developed:

H3a: *Lack of support from others will have a negative influence on frequency of engagement in reading job related materials.*

H3b: *Lack of support from others will have a negative influence on frequency of engagement in audio/video tapes usage.*

H3c: *Lack of support from others will have a negative influence on frequency of engagement in group discussion.*

H3d: *Lack of support from others will have a negative influence on frequency of engagement in meeting.*

H3e: *Lack of support from others will have a negative influence on frequency of engagement in briefing session.*

H3f: *Lack of support from others will have a negative influence on frequency of engagement in correspondence courses.*

3.3.4 Structural Inhibitor

Physical separation between units or department in the organizations creates obstacles to learn informally amongst staff members (Ellinger & Cseh, 2007; Gieskes *et al*., 2002; Jurasaite-Harbison, 2009). Prior studies found that this architectural impediment is associated with low frequency of interaction, discussion (Jurasaite-Harbison, 2009) and communication amongst professionals (Ellinger & Cseh, 2007; Gieskes *et al*., 2002). Therefore, it is argued that if structural inhibitor exists in an accountant's work environment, it tends to constraint an accountant's various informal learning activities. Hence, the following hypotheses are developed:

H4a: *Structural inhibitor will have a negative influence on frequency of engagement in reading job related materials.*

H4b: *Structural inhibitor will have a negative influence on frequency of engagement in audio/video tapes usage.*

H4c: *Structural inhibitor will have a negative influence on frequency of engagement in group discussion.*

H4d: *Structural inhibitor will have a negative influence on frequency of engagement in meeting.*

H4e: *Structural inhibitor will have a negative influence on frequency of engagement in briefing session.*

H4f: *Structural inhibitor will have a negative influence on frequency of engagement in correspondence courses.*

3.3.5 Lack of Meaningful Rewards

It is postulated that individuals' behavior is affected by various forms of reward (Cheetham & Chivers, 2001; Deci, 1975). Previous studies consistently reported that when professionals receive unsatisfactory meaningful rewards, various informal learning activities such as mentoring, supervision, reflection on current practice and sharing knowledge tend to be low (Ashton, 2004; Bryson *et al*., 2006; Lohman, 2000; Munro *et al*., 2000; Sambrook & Stewart, 2000). Thus, it is argued that an accountant's various informal learning activities would be less likely to take place if he/she receives unsatisfactorily meaningful rewards. Thus, the following hypotheses are proposed:

H5a: *Lack of meaningful rewards will have a negative influence on frequency of engagement in reading job related materials.*

H5b: *Lack of meaningful rewards will have a negative influence on frequency of engagement in audio/video tapes usage.*

H5c: *Lack of meaningful rewards will have a negative influence on frequency of engagement in group discussion.*

H5d: *Lack of meaningful rewards will have a negative influence on frequency of engagement in meeting.*

H5e: *Lack of meaningful rewards will have a negative influence on frequency of engagement in briefing session.*

H5f: *Lack of meaningful rewards will have a negative influence on frequency of engagement in correspondence courses.*

3.3.6 Lack of Fund

The availability of fund to support informal learning activities is a major challenge to any organizations (Ellinger, 2004; Crouse *et al*., 2011; Merriam *et al*., 2007; Sambrook & Stewart, 2000). Many studies showed that the greater the limited of fund experienced at the workplace, the lower peer teaching observation and purchasing instructional resources amongst professionals (Lohman, 2005, 2006; Bryson *et al*., 2006; Jurasaite-Harbison, 2009; Munro *et al*., 2000). Consistent with the above discussion, it is argued that if an accountant experiences lacks of fund at the workplace, various informal learning activities are less likely to occur. Thus, the following hypotheses are developed:

H6a: *Lack of fund will have a negative influence on frequency of engagement in reading job related materials.*

H6b: *Lack of fund will have a negative influence on frequency of engagement in audio/video tapes usage.*

H6c: *Lack of fund will have a negative influence on frequency of engagement in group discussion.*

H6d: *Lack of fund will have a negative influence on frequency of engagement in meeting.*

H6e: *Lack of fund will have a negative influence on frequency of engagement in briefing session.*

H6f: *Lack of fund will have a negative influence on frequency of engagement in correspondence courses.*

3.3.7 Lack of Access to Updated Learning Materials

Access to updated learning materials is critical to informal learning activities (Eraut, 2004; Crouse *et al*., 2011; Hicks *et al*., 2007). Previous studies found that limited access to updated learning materials at the workplace negatively related to various informal learning activities such as reading, discussion, meeting and knowledge sharing amongst professionals (Eraut, 2004; Bell, 1977; Lohman, 2000; Sambrook & Stewart, 2000). Thus, this study assumes that if lack of access to updated learning materials exists in an accountant's work environment, it would

restrict various informal learning activities. Therefore, this research proposes the following hypotheses:

H7a: *Lack of access to updated learning materials will have a negative influence on frequency of engagement in reading job related materials.*

H7b: *Lack of access to updated learning materials will have a negative influence on frequency of engagement in audio/video tapes usage.*

H7c: *Lack of access to updated learning materials will have a negative influence on frequency of engagement in group discussion.*

H7d: *Lack of access to updated learning materials will have a negative influence on frequency of engagement in meeting.*

H7e: *Lack of access to updated learning materials will have a negative influence on frequency of engagement in briefing session.*

H7f: *Lack of access to updated learning materials will have a negative influence on frequency of engagement in correspondence courses.*

3.3.8 Lack of Access to Computer

The access to computer is amongst the significant factors that influence professionals' informal learning activities (Berg & Chyung, 2008; Crouse *et al*., 2011). Previous studies indicated that limited access to computer at the workplace is associated with low communication with others via electronic mail, development of technological skills, research activities and searching professionals' publication on

the internet (Lohman, 2000, 2006, 2009). Therefore, this research argues that if an accountant experiences lacks of access to computer at the workplace, various informal learning activities are less likely to take place. Thus, the following hypotheses are suggested:

H8a: *Lack of access to computer will have a negative influence on frequency of engagement in reading job related materials.*

H8b: *Lack of access to computer will have a negative influence on frequency of engagement in audio/video tapes usage.*

H8c: *Lack of access to computer will have a negative influence on frequency of engagement in group discussion.*

H8d: *Lack of access to computer will have a negative influence on frequency of engagement in meeting.*

H8e: *Lack of access to computer will have a negative influence on frequency of engagement in briefing session.*

H8f: *Lack of access to computer will have a negative influence on frequency of engagement in correspondence courses.*

3.3.9 Limited Influence on Firm's Operation

Limited influence on organizational operation creates inconducive working environment for informal learning activities (Fenwick, 2004; Hager, 2004). Prior empirical research found that when professionals have limited capacity to influence

their organizational affairs, various informal learning activities, namely, observation, reflection, discussion and suggestions to improve work performance will occur less frequently (Lohman 2000; Lohman & Woolf, 2001; Gieskes *et al*., 2002; Jurasaite-Harbison, 2009). Therefore, it can be assumed that if an accountant has limited influence on firms' operation, various informal learning activities would be less likely to take place. Thus, this research proposes the following hypotheses:

H9a: *Limited influence on firm's operation will have a negative influence on frequency of engagement in reading job related materials.*

H9b: *Limited influence on firm's operation will have a negative influence on frequency of engagement in audio/video tapes usage.*

H9c: *Limited influence on firm's operation will have a negative influence on frequency of engagement in group discussion.*

H9d: *Limited influence on firm's operation will have a negative influence on frequency of engagement in meeting.*

H9e: *Limited influence on firm's operation will have a negative influence on frequency of engagement in briefing session.*

H9f: *Limited influence on firm's operation will have a negative influence on frequency of engagement in correspondence courses.*

3.3.10 Poor Working Policy

Working policy that does not address employees continuous career development needs restricts opportunities to learn informally (Ashton, 2004; McCracken, 2005). Prior studies indicated that this kind of working policy discourages various informal learning activities such as reflecting dimension of new situations (Billet, 1996; Marsick & Watkins, 1990; McCracken, 2005) and opportunities to learn new things amongst professionals (Tannenbaum, 1997). Thus, this research assumes that if an accountant experiences such working policy, various informal learning activities would be less likely to occur. Therefore, the following hypotheses are offered:

H10a: *Poor working policy will have a negative influence on frequency of engagement in reading job related materials.*

H10b: *Poor working policy will have a negative influence on frequency of engagement in audio/video tapes usage.*

H10c: *Poor working policy will have a negative influence on frequency of engagement in group discussion.*

H10d: *Poor working policy will have a negative influence on frequency of engagement in meeting.*

H10e: *Poor working policy will have a negative influence on frequency of engagement in briefing session.*

H10f: *Poor working policy will have a negative influence on frequency of engagement in correspondence courses.*

3.3.11 Lack of Tolerance to Mistakes

Suarez (1994) argued that there is no room for informal learning activities if the employees feel afraid to tell that they have made a mistake. Previous studies reported that if professionals' mistakes are not tolerated during early application of new ideas and skills, informal learning activities such as reflection, discussion, observation and feedback tend to be low (Cheetham & Chivers, 2001; Hodgkinson, 2000; Tannenbaum, 1997). Thus, it can be assumed that if an accountant's mistakes are not tolerated at the workplace, various informal learning activities are less likely to take place. This leads to the formulation of the following hypotheses:

H11a: *Lack of tolerance to mistakes will have a negative influence on frequency of engagement in reading job related materials.*

H11b: *Lack of tolerance to mistakes will have a negative influence on frequency of engagement in audio/video tapes usage.*

H11c: *Lack of tolerance to mistakes will have a negative influence on frequency of engagement in group discussion.*

H11d: *Lack of tolerance to mistakes will have a negative influence on frequency of engagement in meeting.*

H11e: *Lack of tolerance to mistakes will have a negative influence on frequency of engagement in briefing session.*

H11f: *Lack of tolerance to mistakes will have a negative influence on frequency of engagement in correspondence courses.*

3.4 Summary of Research Hypotheses

Table 3.1 presents the summary of research hypotheses. Overall, 66 hypotheses will be tested in the current research.

Table 3.1
Summary of Research Hypotheses

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H1a	*Lack of Time due to Heavy Workload*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H1b	*Lack of Time due to Heavy Workload*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H1c	*Lack of Time due to Heavy Workload*	*Frequency of Engagement in Group Discussion*	*Negative*
H1d	*Lack of Time due to Heavy Workload*	*Frequency of Engagement in Meeting*	*Negative*
H1e	*Lack of Time due to Heavy Workload*	*Frequency of Engagement in Briefing Session*	*Negative*

Table 3.1
(Continued)

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H1f	*Lack of Time due to Heavy Workload*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H2a	*Lack of Proximity to Colleagues' Working Areas*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H2b	*Lack of Proximity to Colleagues' Working Areas*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H2c	*Lack of Proximity to Colleagues' Working Areas*	*Frequency of Engagement in Group Discussion*	*Negative*
H2d	*Lack of Proximity to Colleagues' Working Areas*	*Frequency of Engagement in Meeting*	*Negative*
H2e	*Lack of Proximity to Colleagues' Working Areas*	*Frequency of Engagement in Briefing Session*	*Negative*
H2f	*Lack of Proximity to Colleagues' Working Areas*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H3a	*Lack of Support from Others*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H3b	*Lack of Support from Others*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H3c	*Lack of Support from Others*	*Frequency of Engagement in Group Discussion*	*Negative*
H3d	*Lack of Support from Others*	*Frequency of Engagement in Meeting*	*Negative*

Table 3.1
(Continued)

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H3e	*Lack of Support from Others*	*Frequency of Engagement in Briefing Session*	*Negative*
H3f	*Lack of Support from Others*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H4a	*Structural Inhibitor*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H4b	*Structural Inhibitor*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H4c	*Structural Inhibitor*	*Frequency of Engagement in Group Discussion*	*Negative*
H4d	*Structural Inhibitor*	*Frequency of Engagement in Meeting*	*Negative*
H4e	*Structural Inhibitor*	*Frequency of Engagement in Briefing Session*	*Negative*
H4f	*Structural Inhibitor*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H5a	*Lack of Meaningful Rewards*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H5b	*Lack of Meaningful Rewards*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H5c	*Lack of Meaningful Rewards*	*Frequency of Engagement in Group Discussion*	*Negative*

Table 3.1
(Continued)

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H5d	*Lack of Meaningful Rewards*	*Frequency of Engagement in Meeting*	*Negative*
H5e	*Lack of Meaningful Rewards*	*Frequency of Engagement in Briefing Session*	*Negative*
H5f	*Lack of Meaningful Rewards*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H6a	*Lack of Fund*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H6b	*Lack of Fund*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H6c	*Lack of Fund*	*Frequency of Engagement in Group Discussion*	*Negative*
H6d	*Lack of Fund*	*Frequency of Engagement in Meeting*	*Negative*
H6e	*Lack of Fund*	*Frequency of Engagement in Briefing Session*	*Negative*
H6f	*Lack of Fund*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H7a	*Lack of Access to Updated Learning Materials*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H7b	*Lack of Access to Updated Learning Materials*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*

Table 3.1
(Continued)

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H7c	*Lack of Access to Updated Learning Materials*	*Frequency of Engagement in Group Discussion*	*Negative*
H7d	*Lack of Access to Updated Learning Materials*	*Frequency of Engagement in Meeting*	*Negative*
H7e	*Lack of Access to Updated Learning Materials*	*Frequency of Engagement in Briefing Session*	*Negative*
H7f	*Lack of Access to Updated Learning Materials*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H8a	*Lack of Access to Computer*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H8b	*Lack of Access to Computer*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H8c	*Lack of Access to Computer*	*Frequency of Engagement in Group Discussion*	*Negative*
H8d	*Lack of Access to Computer*	*Frequency of Engagement in Meeting*	*Negative*
H8e	*Lack of Access to Computer*	*Frequency of Engagement in Briefing Session*	*Negative*
H8f	*Lack of Access to Computer*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H9a	*Limited Influence on Firm's Operation*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*

Table 3.1
(Continued)

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H9b	*Limited Influence on Firm's Operation*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H9c	*Limited Influence on Firm's Operation*	*Frequency of Engagement in Group Discussion*	*Negative*
H9d	*Limited Influence on Firm's Operation*	*Frequency of Engagement in Meeting*	*Negative*
H9e	*Limited Influence on Firm's Operation*	*Frequency of Engagement in Briefing Session*	*Negative*
H9f	*Limited Influence on Firm's Operation*	*Frequency of Engagement in Correspondence Courses*	*Negative*
H10a	*Poor Working Policy*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H10b	*Poor Working Policy*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H10c	*Poor Working Policy*	*Frequency of Engagement in Group Discussion*	*Negative*
H10d	*Poor Working Policy*	*Frequency of Engagement in Meeting*	*Negative*
H10e	*Poor Working Policy*	*Frequency of Engagement in Briefing Session*	*Negative*
H10f	*Poor Working Policy*	*Frequency of Engagement in Correspondence Courses*	*Negative*

Table 3.1
(Continued)

Hypothesis	Independent Variables	Dependent Variables	Expected Sign
H11a	*Lack of Tolerance to Mistakes*	*Frequency of Engagement in Reading Job Related Materials*	*Negative*
H11b	*Lack of Tolerance to Mistakes*	*Frequency of Engagement in Audio/Video Tapes Usage*	*Negative*
H11c	*Lack of Tolerance to Mistakes*	*Frequency of Engagement in Group Discussion*	*Negative*
H11d	*Lack of Tolerance to Mistakes*	*Frequency of Engagement in Meeting*	*Negative*
H11e	*Lack of Tolerance to Mistakes*	*Frequency of Engagement in Briefing Session*	*Negative*
H11f	*Lack of Tolerance to Mistakes*	*Frequency of Engagement in Correspondence Courses*	*Negative*

3.5 Summary

This chapter has illustrated the diagram for this research conceptual framework and the resulted research hypotheses. All these will be a basis for the research instrument development, data analysis and results interpretation. The research methodology employed in this study is presented in the next chapter.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

As outlined in the preceding chapters, this study is designed to examine the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst accountants in Malaysian public accounting firms. A conceptual framework has been developed to study this issue. This chapter discusses the methodology that will be utilized to assess its validity and reliability. The discussion is divided into five sections, namely, overview of philosophical assumptions**,** measurement of variables, research equation, data collection and data analysis. At the end of this chapter, a summary is presented.

4.2 Overview of Philosophical Assumptions

Quantitative or qualitative research is based on some underlying assumptions about what constitute valid research and which research methods are appropriate (Myers & Avison, 2002). It is important for the researcher to know what these assumptions are to enable him/her to conduct and/or evaluate research. There are various philosophical assumptions but the most relevant philosophical assumptions are those that relate to underlying epistemology or epistemological paradigm which guides the research (Merriam 1998; Myers & Avison, 2002). The term "paradigm" can be defined as a system of philosophical beliefs or worldview that leads and

governs an investigation or individuals respecting their position in that world and the range of possible relationship to it and its parts (Guba & Lincoln, 1994). The research paradigm shapes the entire research process and offers valuable directions and principles concerning the approach, methods and techniques for conducting a research within its philosophical setting (Guba & Lincoln, 1994).

Orlikowski and Barudi (2002), by following Chua (1986), suggested three distinct research paradigms which are as follows: (1) positivist, (2) interpretive and (3) critical. These three paradigms are philosophically distinct (Myers & Avison, 2002). The following subsections discuss the paradigms and their relevancy to this research in detail.

4.2.1 Positivist Paradigm

Positivist paradigm believes that theory is separate from observations that may be used to verify or falsify a theory (Chua, 1986). In this sense, empirical reality is objective and external to the subject (Chua, 1986). This paradigm emphasizes on the quantitative methods of data analysis and collection which allow generalization (Chua, 1986). Survey methods, laboratory experiments and mathematical modeling are amongst the sources of quantitative data in social science research (Straub *et al*., 2004). Positivist research is evidence from the use of quantifiable measures of variables, hypotheses testing and the drawing of inferences about a phenomenon from the sample to the stated population (Orlikowski & Barudi, 2002; Straub *et al*., 2004).

In other words, numbers rather than words and pictures are used to convey findings of the phenomenon under study (Merriam, 1998). Since this study intends to provide empirical evidence of quantifiable measures of variables, hypotheses testing and the drawing of inferences about the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst the research respondents using survey approach, it is suggested that the positivist paradigm is more relevant to this research.

4.2.2 Interpretive Paradigm

It is argued that qualitative research such as case studies and participant observation is largely associated with interpretivism" or is fundamentally interpretive (Chua, 1986; Marshall & Rossman, 2006; Snape & Spencer, 2003). The foundational assumption of interpretive is that "most of our knowledge is gained, or at least filtered, through social constructions such as language, consciousness, shared meanings, documents and other artifacts" (Trauth, 2001, p. 219). Interpretive paradigm emphasized on the importance of understanding people's perspectives in the context of the conditions and circumstances of their lives (Merriam, 1998; Trauth, 2001). Researchers have to explore and understand the social world through the participants' and their own perspectives (Snape & Spencer, 2003). Since this research does not intend to build interactive relationship between the researcher and the research participants, and gathers and analyzes empirical data in a qualitative manner in order to understand the influence of work environment inhibitors on the frequency

of engagement in various informal learning activities, this paradigm is considered less relevant.

4.2.3 Critical Paradigm

Critical paradigm assumes that social reality is historically constituted and that is produced and reproduced by people (Myers & Avison, 2002). Critical researchers believe that there are no theory-independent facts that can conclusively prove or disapprove a theory (Chua, 1986; Myers & Avison, 2002). Critical research focuses on historical development and changes within the totality of relation (Myers & Avison, 2002). Historical development, ethnographic research and case studies are commonly used data collection methods for critical paradigm researchers (Chua, 1986). Since this research has no intention to build a theory based on detailed historical explanations using ethnographic or case study approach; instead it examines work environment inhibitors that influence the frequency of engagement in various informal learning activities at one particular point of time, critical paradigm is also considered less relevant to this research.

To recapitulate, since this study examines the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst Malaysian accountants, positivist paradigm is considered appropriate and feasible than interpretive and critical. In turn, positivist paradigm becomes the basis for developing this research conceptual framework, collecting the empirical evidence

and testing the entailed research hypotheses. This study utilizes survey method to gather empirical evidence. This is because such method is one of the sources of quantitative data in positivist paradigm research. Quantitative data analyses such as descriptive statistics and standard multiple regression analyses are therefore adopted to answer the research questions as posited in Chapter 1.

4.3 Measurement of Variables

This section discusses operational definitions and measurement of variables. As mentioned earlier, independent variables of this research consist of eleven work environment inhibitors to informal learning activities. These inhibitors are then linked with the dependent variable of this study that is frequency of engagement in various informal learning activities. The operational definition and measurement of each variable is offered in the following subsections.

4.3.1 Independent Variables

Independent variables of this study are as follows: (1) lack of time due to heavy workload; (2) lack of proximity to colleagues' working areas; (3) lack of support from others; (4) structural inhibitor; (5) lack of meaningful rewards; (6) lack of fund; (7) lack of access to updated learning materials; (8) lack of access to computer; (9) limited influence on firm's operation; (10) poor working policy; and

(11) lack of tolerance to mistakes. Operational definition and measurement for each independent variable is discussed below.

4.3.1.1 Lack of Time due to Heavy Workload

This variable is operationalized as the extent to which an accountant agrees that the availability of time for various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws, is restricted by heavy workload (Hicks *et al*., 2007; Lohman, 2005, 2006, 2009; MIA, 2007). As shown in Table 4.1, five items were used to measure this variable.

Table 4.1
Items Constituting the Lack of Time due to Heavy Workload Scale

1.	Having too many jobs to do makes informal learning difficult for me
2.	I have limited time to learn informally about my job
3.	I have problem in getting time off for informal learning due to heavy workload
4.	Time for informal learning is insufficient
5.	Time to spend on informal learning is restricted by heavy workload

The first three items were adapted from Hicks *et al*. (2007) and the last two items were adapted from Tannenbaum (1997) and White *et al*. (1999). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities and the lowest score (5 items x 1 point = 5 points) indicates vice versa.

4.3.1.2 Lack of Proximity to Colleagues' Working Areas

This variable is operationalized as the extent to which an accountant agrees that colleagues in the same professional area who can support various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws, are far away from him/her (Lohman, 2005, 2006, 2009; Macneil, 2001; MIA, 2007; White *et al*., 2000). As indicated in Table 4.2, five items were used to measure this variable.

Table 4.2
Items Constituting the Lack of Proximity to Colleagues' Working Areas Scale

1.	I feel physically separated from my colleagues at work
2.	I feel difficult to interact with my colleagues since they are at different places
3.	I am far away from my colleagues who can support my informal learning
4.	Physical arrangement at my office provides few opportunities to learn from my colleagues
5.	There are few informal learning opportunities due to physical distance

The first item was adapted from Hicks *et al*. (2007), the second and the third items were adapted from Lohman and Woolf (2001) and the last two items were adapted from White *et al*. (1999). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities whereas the lowest score (5 items x 1 point = 5 points) indicates vice versa.

4.3.1.3 Lack of Support from Others

This variable is operationalized as the extent to which an accountant agrees that knowledgeable colleagues in the firm are less supportive to his/her various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Ellinger & Cseh, 2007; Ellstrom *et al*., 2008; Lohman, 2005, 2009; McCracken, 2005; MIA, 2007). As illustrated in Table 4.3, six items were used to measure this variable.

Table 4.3
Items Constituting the Lack of Support from Others Scale

1.	At my firm, knowledgeable colleagues offer little guidance for informal learning
2.	At my firm, knowledgeable colleagues provide few informal learning opportunities
3.	At my firm, knowledgeable colleagues reluctant to support my informal learning
4.	I find it difficult to get someone in my firm to coach me
5.	I feel difficult to get informal learning opportunities from knowledgeable colleagues in the firm
6.	At my firm, knowledgeable colleagues hesitate to share their knowledge with me

The first two items were adapted from Tannenbaum (1997), item three was adapted from Ashton (2004) and the last three items were adapted from Hicks *et al*. (2007). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (6 items x 7 points = 42 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities and the lowest score (6 items x 1 point = 6 points) indicates vice versa.

4.3.1.4 Structural Inhibitor

This variable is operationalized as the extent to which an accountant agrees that the physical separation between units/departments in the firm provides few various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Ellinger, 2004; Ellinger & Cseh, 2007; Gieskes *et al*., 2002; MIA, 2007). As shown in Table 4.4, five items were utilized to measure this variable.

Table 4.4
Items Constituting the Structural Inhibitor Scale

1.	I have little knowledge on how my job relates to other units/departments
2.	I lack of knowledge about the work activities of other units/departments
3.	I feel difficult to be close with staff members from other units/departments
4.	My office building (e.g. different floors/buildings) provides few opportunities to interact between units/departments
5.	There are few opportunities to learn informally across units/departments

The first two items were adapted from Tannenbaum (1997) and the last three items were adapted from Gieskes *et al*. (2002), Jurasaite-Harbison (2009) and Bryson *et al*. (2006). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities and the lowest score (5 items x 1 point = 5 points) indicates vice versa.

4.3.1.5 Lack of Meaningful Rewards

This variable is operationalized as the extent to which an accountant agrees his/her firm does not provide sufficient rewards for various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Ashton, 2004; Bryson *et al*., 2006; Lohman, 2000; MIA, 2007). As indicated in Table 4.5, six items were used to measure this variable.

Table 4.5
Items Constituting the Lack of Meaningful Rewards Scale

1.	Informal learning is less rewarded in my firm
2.	My firm's reward system rarely recognizes my effort to learn informally
3.	Motivation to learn informally is less appreciated in my firm
4.	I receive few praises for informal learning in the firm
5.	I receive unsatisfactory extrinsic rewards (e.g. promotion, salary increment) for my informal learning
6.	My firm's reward system rarely acknowledges the time that I spend on informal learning

The first three items were adapted from Hicks *et al*. (2007), Ashton (2004) and Bryson *et al*. (2006). The last three items were adapted from Lohman (2000). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (6 items x 7 points = 42 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities whereas the lowest score (6 items x 1 point = 6 points) indicates vice versa.

4.3.1.6 Lack of Fund

This variable is operationalized as the extent to which an accountant agrees that his/her firm does not provide sufficient fund to support various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Ellinger, 2004; Lohman, 2000; MIA, 2007; Sambrook & Stewart, 2000). As can be seen from Table 4.6, six items were utilized to measure this variable.

Table 4.6
Items Constituting the Lack of Fund Scale

1.	My firm spends limited amount of money on informal learning
2.	At my firm, fund to support informal learning is inadequate
3.	My firm expects me to personally cover the costs of informal learning
4.	I experience some budget constraints to my informal learning
5.	My firm has limited fund for informal learning
6.	I feel difficult to get financial support for informal learning in the firm

The first two items were adapted from Tannenbaum (1997), the third and the fourth items were adapted from Hicks *et al*. (2007) and the last two items were adapted from Ellinger (2004) and Bryson *et al*. (2006). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (6 items x 7 points = 42 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities and the lowest score (6 items x 1 point = 6 points) indicates vice versa.

4.3.1.7 Lack of Access to Updated Learning Materials

This variable is operationalized as the extent to which an accountant agrees that his/her firm does not provide sufficient access to updated learning materials to support various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Eraut, 2004; MIA, 2007; Sambrook & Stewart, 2000). As indicated in Table 4.7, five items were used to measure this variable.

Table 4.7
Items Constituting the Lack of Access to Updated Learning Materials Scale

1.	My access to updated learning materials is limited in the firm
2.	I feel difficult to obtain sufficient updated learning materials in the firm
3.	My firm rarely takes initiatives to provide staff with updated learning materials
4.	It is hard to find updated learning materials in the firm
5.	Most of the learning materials in the firm are outdated

The first three items were adapted from Tannenbaum (1997) and the last two items were adapted from Lohman (2000) and Hicks *et al*. (2007). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities whereas the lowest score (5 items x 1 point = 5 points) indicates vice versa.

4.3.1.8 Lack of Access to Computer

This variable is operationalized as the extent to which an accountant agrees that his/her firm does not provide sufficient access to computer to support various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Lohman, 2000, 2006, 2009; MIA, 2007). As shown in Table 4.8, five items were used to measure this variable.

Table 4.8
Items Constituting the Lack of Access to Computer Scale

1.	I have limited access to computer for informal learning in the firm
2.	I have to share computers with others for informal learning in the firm
3.	I have to compete with others for computers in the firm
4.	The number of computers in the firm is smaller than the number of staff
5.	Limited access to computer in the firm makes informal learning difficult for me

The first four items were adapted from Lohman (2000) and the fifth item was adapted from Hicks *et al*. (2007). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities and the lowest score (5 items x 1 point = 5 points) indicates vice versa.

4.3.1.9 Limited Influence on Firm's Operation

This variable is operationalized as the extent to which an accountant agrees that his/her capacity to influence the firm's operation is limited (Hager, 2004; Lohman & Woolf, 2001; Tannenbaum, 1997). Such scenario in turn provides few various informal learning activities, as stated as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Lohman & Woolf, 2001; MIA, 2007). As can be seen from Table 4.9, six items were utilized to measure this variable.

Table 4.9
Items Constituting the Limited Influence on Firm's Operation Scale

1.	In my firm, questioning others' work is less acceptable
2.	In my firm, it is better to ignore problems than to suggest improvements
3.	I rarely given the opportunities to solve work problems
4.	New ideas are less valued in my firm
5.	There is lack of openness to accept others' views in the firm
6.	Any suggestions made are limited to my working areas

The first five items were adapted from Tannenbaum (1997) and the sixth item was adapted from Lohman (2000). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (6 items x 7 points = 42 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities whereas the lowest score (6 items x 1 point = 6 points) indicates vice versa.

4.3.1.10 Poor Working Policy

This variable is operationalized as the extent to which an accountant agrees that firm's working policy does not address his/her continuous career development needs (Ashton, 2004; Bryson *et al*., 2006; Munro *et al*., 2000). Such working policy in turn provides few various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Ashton, 2004; Bryson *et al*., 2006; MIA, 2007; Munro *et al*., 2000). As shown in Table 4.10, five items were used to measure this variable.

The first two items were adapted from Tannebaum (1997) and the last three items were adapted from Hicks *et al*. (2007), Ashton (2004) and Bryson *et al*. (2006). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities and the lowest score (5 items x 1 point = 5 points) indicates vice versa.

Table 4.10
Items Constituting the Poor Working Policy Scale

1.	My firm rarely provides me with opportunities to learn new things
2.	In my firm, informal learning is less considered as an important part of career development
3.	Most of my work activities are related to routine tasks
4.	My movement from one task to another task is more on unplanned basis
5.	My firm expects me to learn informally about work with less aspiration to improve career development

4.3.1.11 Lack of Tolerance to Mistakes

This variable is operationalized as the extent to which an accountant agrees that mistakes are less acceptable as the opportunities for various informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws (Hodgkinson, 2000; MIA, 2007; Suarez, 1994; Tannenbaum, 1997). As indicated in Table 4.11, five items were used to measure this variable.

The first three items were adapted from Tannenbaum (1997) and the last two items were adapted from Cheetham and Chivers (2001). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for these items. The highest score (5 items x 7 points = 35 points) indicates that an accountant perceives this variable as the inhibitor to the informal learning activities whereas the lowest score (5 items x 1 point = 5 points) indicates vice versa.

Table 4.11
Items Constituting the Lack of Tolerance to Mistakes Scale

1.	In my firm, mistakes are rarely discussed as a mechanism for informal learning
2.	My firm typically less tolerates to mistakes when applying new knowledge and skills
3.	My firm rarely encourages me from doing new task unless I am confident to do it with free mistake
4.	Blaming culture exists in the firm
5.	I afraid to openly discuss my mistakes with others in the firm

4.3.2 Dependent Variable

4.3.2.1 Frequency of Engagement in Various Informal Workplace Learning Activities

This variable is operationalized as an accountant's self-reported frequency of engagement in various informal learning activities at the workplace to develop and maintain knowledge and skills (MIA, 2007; Lohman, 2006; Lu, Zhou, & Wang, 2009). According to Blair and Burton (1987), self-reported frequency is appropriate as relative measure for survey respondents to answer behavioral frequency questions. As can be seen in Table 4.12, six informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws, were adopted to measure the frequency of engagement (MIA, 2007).

Table 4.12
Items Constituting the Frequency of Engagement in Various Informal Learning Activities Scale

1.	Reading job related materials
2.	Using audio/video tapes
3.	Participating in group discussion
4.	Participating in meeting
5.	Participating in briefing session
6.	Using correspondence courses (e.g. distance learning)

A Likert scale ranging from 1 (extremely infrequent) to 7 (extremely frequent) was used for the above six items.

4.4 Research Equation

Research equation of this study is formed based on standard multiple regression analysis since it is the most appropriate technique to test the influence of a set of independent variables (X1, X2,…Xn) on one dependent variable (Y) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). In this case, all the independent variables are entered into the equation simultaneously and each independent variable is evaluated in terms of its predictive power (Regression Coefficient = β) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010).

In making the prediction of the dependent variable, accuracy can be improved by using a constant (a) in the regression mode known as the intercept (Hair *et al*., 2006). The intercept represents the value of the dependent variable when all of the independent variables have a value of zero (Hair *et al*., 2006). If the value of independent variables never can have a true value of zero such as perceptions, the intercepts assists in improving the prediction process, but has no explanatory value (Hair *et al*., 2006). Meanwhile, Residual (e) is the error in predicting sample data. This error is an estimate of the true random error in population (ϵ) (Hair *et al*., 2006). The general mathematical equation in standard multiple regression analysis is as follows:

$$Y = a + \beta 1X1 + \beta 2X2 + \ldots + \beta nXn + e$$

Where:

Y = Dependent Variable

a = Constant

β = Regression Coefficient

X = Independent Variable

e = Residual

Therefore, the research equations of this study are expressed as follows:

$$ila1 = a + \beta 1LOT + \beta 2LOP + \beta 3LOS + \beta 4STI + \beta 5LOR + \beta 6LOF + \beta 7LOU + \beta 8LOC + \beta 9LIF + \beta 10PWP + \beta 11LOM + e$$

$$ila2 = a + \beta 1LOT + \beta 2LOP + \beta 3LOS + \beta 4STI + \beta 5LOR + \beta 6LOF + \beta 7LOU + \beta 8LOC + \beta 9LIF + \beta 10PWP + \beta 11LOM + e$$

$$ila3 = a + \beta 1LOT + \beta 2LOP + \beta 3LOS + \beta 4STI + \beta 5LOR + \beta 6LOF + \beta 7LOU + \beta 8LOC + \beta 9LIF + \beta 10PWP + \beta 11LOM + e$$

$$ila4 = a + \beta 1LOT + \beta 2LOP + \beta 3LOS + \beta 4STI + \beta 5LOR + \beta 6LOF + \beta 7LOU + \beta 8LOC + \beta 9LIF + \beta 10PWP + \beta 11LOM + e$$

$$ila5 = a + \beta 1LOT + \beta 2LOP + \beta 3LOS + \beta 4STI + \beta 5LOR + \beta 6LOF + \beta 7LOU + \beta 8LOC + \beta 9LIF + \beta 10PWP + \beta 11LOM + e$$

$$ila6 = a + \beta 1LOT + \beta 2LOP + \beta 3LOS + \beta 4STI + \beta 5LOR + \beta 6LOF + \beta 7LOU + \beta 8LOC + \beta 9LIF + \beta 10PWP + \beta 11LOM + e$$

Where:

ila1 = Frequency of Engagement in Reading Job Related Materials

ila2 = Frequency of Engagement in Audio/Video Tapes Usage

ila3 = Frequency of Engagement in Group Discussion

ila4 = Frequency of Engagement in Meeting

ila5 = Frequency of Engagement in Briefing Session

ila6 = Frequency of Engagement in Correspondence Courses

a = Constant

β = Regression Coefficient

LOT = Lack of Time due to Heavy Workload

LOP = Lack of Proximity to Colleagues' Working Areas

LOS = Lack of Support from Others

STI = Structural Inhibitor

LOR = Lack of Meaningful Rewards

LOF = Lack of Fund

LOU = Lack of Access to Updated Learning Materials

LOC = Lack of Access to Computer

LIF = Limited Influence on Firm's Operation

PWP = Poor Working Policy

LOM = Lack of Tolerance to Mistakes

e = Residual

The above equation shows that eleven work environment inhibitors (a set of independent variables) are used to examine the frequency of engagement in each informal learning activity (a dependent variable). The relative contribution of each work environment inhibitor is assessed in terms of Regression Coefficient (β) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). The set of work environment inhibitors forms the regression variate, a linear combination of the work environment inhibitors used collectively to examine the frequency of engagement in each informal learning activity (Hair *et al*., 2006).

Since work environment inhibitors never can have a true value of zero, the intercept or constant (a) in the equation has no explanatory value (Hair *et al*., 2006). Therefore, the purpose of intercept is to improve the prediction accuracy of the frequency of engagement in each informal learning activity (Hair *et al*., 2006). In addition, Residual (e) is the error in predicting the research sample data. This error is an estimate of the true random error in the research population (ϵ) (Hair *et al*., 2006).

4.5 Data Collection

4.5.1 Data Gathering

Data of this study were gathered through a survey approach. Survey is considered to be the favored tool for data collection amongst quantitative researchers (Fowler, 2009). In addition, it is one of the most common data collection methods for examining informal learning activities at the workplace (Hicks *et al*., 2007; Lohman, 2005, 2006, 2009; Tannenbaum, 1997).

Survey approach suits the unit of analysis of this study, which are accountants in public accounting firms across Malaysia. Dwivedi (2005) suggested that when the unit of analysis is individual rather than organization, survey approach is more favored than other approaches such as case study. This can be attributed to issues such as convenience, cost, time and accessibility (Dwivedi, 2005; Gilbert, 2001). In other words, survey approach facilitates the collection of data within short period of time from majority of respondents, which was a critical issue of this research (Fowler, 2009; Zikmund, 2003). In addition, survey is the appropriate approach to conduct a study that requires hypotheses testing and validation of conceptual framework (Dwivedi, 2005). This is applicable to this research since, as discussed in Chapter 3, it has conceptual framework and hypotheses.

To recapitulate, survey is the most appropriate and feasible approach for this research. This results in the use of questionnaire. The discussion on survey instrument development process is dealt with in Chapter 5.

4.5.2 Population

The population of this study was chartered accountants in public accounting firms across Malaysia. They were selected because: (1) informal learning activities are compulsory to develop and maintain their knowledge and skills in current and future work roles (MIA, 2007); and (2) their professional work is critical to public given that they provide an increasing array of services across sectors such as auditing, IT, management consulting and taxation (Hicks *et al*., 2007; MIA, 2007). The sample frame was identified from the current MIA membership database (MIA, 2011). In 2011, there were 6,513 active members in the firms throughout the country (MIA, 2011).

4.5.3 Sample Size

Krejcie and Morgan (1970) suggested that 364 respondents as an appropriate sample size to statistically represent a population of 6,000 to 7000. Since the larger sample size is required to overcome the possibility of the respondents do not return the questionnaires (Sekaran, 2003), a total of 660 (approximately 10% of the population) were distributed (Hemdi, 2005).

4.5.4 Survey Procedure

This study utilized simple random sampling as a sampling technique. It allows every element in the population to have equal probability of being chosen as a sample (Fowler, 2009; Sekaran, 2003). It also has the least bias and offers the most generalizability (Sekaran, 2003). Since the researcher does not have access to MIA membership database, a formal request was made to MIA for the sampling process. A random sampling software was used by MIA Membership Department to randomly select 660 MIA members in public accounting firms across Malaysia from the current MIA membership database, which has 6,513 active members (MIA, 2011). The questionnaires were mailed to the respondents' correspondence addresses as provided by the Membership Department.

The main advantage of mail survey is that a wide geographical area can be covered in the survey (Sekaran, 2003). Since the respondents of this research are scattered across Malaysia, mail survey is considered the most appropriate one. Mail survey is less expensive compared to other survey methods such as face-to-face and telephone (Ahmad-Mahdzan, 1997; Fowler, 2009). This method is expected to provide a high precision rate if the questionnaires are returned within the same time or nearly the same time (Ahmad-Mahdzan, 1997). Besides that, mistakes or errors that caused by enumerators can be avoided (Ahmad-Mahdzan, 1997). Another advantage of this approach is that the respondents can complete the questionnaires at their own convenience such as at their house or workplace (Sekaran, 2003).

However, there are several disadvantages when using mail survey. The response rate of mail survey is typically low. To encourage a high response rate, the cover letter was written on the Universiti Utara Malaysia letterhead and explained the benefits of participating in the study (Fowler, 2009). Other techniques used to achieve a better response rate were enclosing the cover letter from MIA (see Appendix 4.1), increasing the sample size, sending follow-up letters (see Appendix 4.2), enclosing tokens as incentives with the questionnaire, and providing the respondents with self-addressed and stamped return envelopes (Sekaran, 2003). In addition, mail survey is not suitable for complicated and difficult survey questions (Ahmad-Mahdzan, 1997). This problem was overcome by conducting survey instrument development process (see Chapter 5). In this sense, feedbacks and findings received from the instrument development process were utilized to improve the questionnaire. Another disadvantage of mail survey is that any doubts the respondents might have cannot be clarified (Sekaran, 2003). This problem was minimized by forming clear, concise and specific items in the questionnaire (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In addition, there is a possibility that the respondents' answers are influenced by other people (Ahmad-Mahdzan, 1997). This problem is beyond the researcher's control. However, in the cover letter, the respondents were asked to offer sincere views. Bearing the advantages and disadvantages of mail survey in mind, it was then employed in this research.

4.5.5 Administration and Field Work

The questionnaires were sent together with two cover letters (one from the researcher and one from the MIA), a token (bookmark) and a postage-paid return envelope. The respondents were asked to answer and return the questionnaires within four weeks to the researcher's address. After this period, a follow-up letter was sent together with a questionnaire and a postage-paid return envelope. Data collection was stopped when the sample size had achieved sufficient level for statistical analyses. The data collection period took approximately three months from March 2012 to May 2012.

4.6 Data Analysis

The collected data of this research was analyzed using Statistical Package for Social Research (SPSS) version 19.0. SPSS was selected because it facilitates and offers all the required statistics for data analysis such as descriptive statistics, Chi-square tests, independent sample *t*-tests, factor analysis, reliability analysis and standard multiple regression analysis (Pallant, 2010). Data analysis of this study involved four stages, namely, data examination, goodness of measures, descriptive statistics and standard multiple regression analysis. The following subsections will discuss the data analysis of this research in detail.

4.6.1 Data Examination

The first stage of data analysis of this research was data examination and it involved two main steps, namely, data screening and data testing to fulfill the multivariate assumptions. This stage is essential to ensure that the data meet the requirements for multivariate analyses such as factor analysis and standard multiple regression analysis (Hair *et al*., 2006).

4.6.1.1 Data Screening

The purpose of data screening is to clean the data to a format most suitable for multivariate analysis (Hair *et al*., 2006). For the data screening, three tests were performed. They were missing data, response bias and outliers identification.

4.6.1.1.1 Missing Data

Missing data refers to valid values on one or more variables are not available for analysis (Hair *et al*., 2006). Two options are available when dealing with missing data (Hair *et al*., 2006). If the sample size is adequate, the questionnaires that have missing data will be excluded from this study. However, if excluding the questionnaires that have missing data will cause inadequate sample size for statistical analyses, remedies for missing data will be applied such as mean substitution method (Hair *et al*., 2006).

4.6.1.1.2 Response Bias

Response bias test is performed to examine whether there is a significant difference between early and late response groups. For this purpose, the early response group was coded as 1 and the late response group was coded as 2. A period of four weeks was chosen as the benchmark to demarcate between the two groups. The time period is assumed to be sufficient for the respondents to complete and return the questionnaires to the researcher. Chi-square tests and independent sample *t*-tests were applied to both groups. The chi-square test was conducted for categorical variables (demographic profiles) of respondents such as gender, age, number of years as MIA member, and number of years working in the firm. Independent sample *t*-tests were conducted on study variables. Significant values ($p<0.05$) for both tests indicate the existence of response bias while non-significant ($p>0.05$) values show vice versa (Coakes & Steed, 2003; Pallant, 2010).

4.6.1.1.3 Outliers Identification

Outliers are observations with a unique combination of characteristics identifiable as distinctly different from the other observations (Hair *et al*., 2006). This study used multiple regression procedure to detect both univariate outliers on dependent variable and multivariate outliers on independent variables (Coakes & Steed, 2003). Univariate outliers can be detected using studentized residuals. Studentized residuals are *z*-scores computed for a case based on the data for all other

cases in the data set (Coakes & Steed, 2003). Coakes and Steed (2003) suggested that a case in the data set is univariate outlier if the *z*-score for studentized residual is greater than ± 3.0. Meanwhile, multivariate outliers can be detected by inspecting Mahalanobis distances that are presented in the data set (Pallant, 2010). To identify which cases are multivariate outliers, the researcher determines the critical chi-square value using the number of independent variables as the degrees of freedom at alpha level of 0.001 (Pallant, 2010; Tabachnick & Fidell, 2007). In this study, there are 11 independent variables, therefore, the critical value is 31.26 (Tabachnick & Fidell, 2007). Any of the cases in the data set that have a Mahalanobis distance value exceeding this value is designated as multivariate outlier. The identified univariate and multivariate outliers will be removed from this study.

4.6.1.2 Tests on Multivariate Assumptions

Multivariate assumption tests are foundation for making conclusions and providing statistical results (Hair *et al*., 2006). They are also a pre-requisite before factor analysis and standard multiple regression analysis can be performed (Hair *et al*., 2006). Data testing to meet the multivariate assumptions involved four tests, namely, normality, linearity, homoscedasticity and multicolinearity (Hair *et al*., 2006).

4.6.1.2.1 Normality

The first multivariate assumption is normality. Data normality test is important to assess whether score for each variable is normally distributed or not (Hair *et al*., 2006). This study used statistics for skewness and kurtosis to assess data normality because they are appropriate for interval level data (Coakes & Steed, 2003). Skewness and kurtosis refer to the shape of the distribution (Coakes & Steed, 2003). Positive values for skewness indicate a positive skew, while positive values for kurtosis indicate a distribution that is peaked. Meanwhile, negative values for skewness indicate a negative skew, while negative values for kurtosis indicate a distribution that is flatter (Coakes & Steed, 2003). Normality of data is assumed if statistics for skewness and kurtosis are less than ± 2.58 (Coakes & Steed, 2003; Hair *et al*., 2006). If the statistics for skewness and kurtosis are more than ± 2.58, transformation is an option (Coakes & Steed, 2003).

4.6.1.2.2 Linearity

The second test to meet the multivariate assumption is linearity. The purpose of linearity test is to assess whether the relationship between the independent and dependent variables of this study is linear or otherwise. This study used residual scatterplots to test this assumption (Coakes & Steed, 2003). From the scatterplot of residuals against predicted values, assumption of linearity is achieved if there is no

clear relationship (such as curvilinear pattern or clustering of the residuals) between the residuals and the predicted values (Coakes & Steed, 2003).

4.6.1.2.3 Homoscedasticity

The next multivariate assumption is homoscedasticity. Homoscedasticity refers to the assumption that dependent variable(s) exhibit equal level of variance across the range of independent variables (Hair *et al*., 2006). For this purpose, Levene test was conducted on the metric variables against the non-metric variable (gender) of this study (Hair *et al*., 2010). Homoscedasticity assumption is achieved if the relationship between the metric and nonmetric variables is not significant ($p>0.001$). Meanwhile, the data is said to be heteroscedastic if the relationship between these variables is significant ($p<0.001$) (Coakes and Steed, 2003; Hair *et al*., 2006).

4.6.1.2.4 Multicolinearity

The last multivariate assumption is multicollinearity. Multicollinearity refers to high correlations amongst two or more independent variables (Hair *et al*., 2010). Hair *et al*. (2006) argued that the existence of multicollinearity negatively affects the predictive power of each independent variable. This study used Pearson product-moment correlation coefficient, tolerance and variation inflation factor (VIF) to trace if data suffers with the problem of multicollinearity. Based on Pearson product-moment correlation coefficient, multicollinearity problem exists if the correlation

between independent variables is above 0.80 (Hair *et al*., 2006). Based on the tolerance and VIF, data suffers multicollinearity problem if the tolerance value is below a common cutoff threshold value, which is 0.10. This value corresponds to a VIF value of 10 as recommended by Hair *et al*. (2006).

4.6.2 Goodness of Measures

The second stage of data analysis of this study was to establish the goodness of measures for testing the research hypotheses. The data of this study were initially submitted for factor analysis. Thereafter, the internal consistency of the factors was examined by conducting reliability analysis.

4.6.2.1 Factor Analysis

After examining data, the next stage of data analysis was factor analysis. This analysis is important to examine the underlying patterns or relationships for a large number of variables, to determine whether the information can be condensed or summarized in a smaller set of factors or components and to determine the most parsimonious set of factors (Gerbing & Anderson, 1988; Hair *et al*., 2006).

Factor analysis is also utilized to assess to the construct validity of the study variables (Hair *et al*., 2006). Construct validity refers to the extent to which a set of measured items actually reflects the theoretical latent construct those items are

designed to measure (Hair *et al*., 2006). Thus, it deals with the accuracy of measurements (Hair *et al*., 2006). It also provides confidence that item measures from a sample represent the actual true score that exists in the population (Hair *et al*., 2006). Construct validity can be categorized into convergent and discriminant. Convergent validity refers to items that are indicators of a specific factor should converge or share a high proportion of variance in common (Hair *et al*., 2006). Meanwhile, discriminant validity refers to the extent to which a factor truly distinct from other factors (Hair *et al*., 2006). This means that high discriminant validity provides evidence that a construct is unique and captures some phenomena other measures do not (Hair *et al*., 2006). In this research, construct validity for both convergent and disriminant were established by examining the factor loadings to ensure that, once cross-loading items are dropped, items load cleanly on factors upon which they are posited to load and do not cross-load on factors upon which they should not load (see below) (Straub *et al*., 2004).

Several statistical values in factor analysis were observed to examine whether the items are suitable to be factor analyzed. The first criterion is the anti-image correlation matrix. This matrix is used to assess the sampling adequacy of each item (Coakes & Steed, 2003). Items with a measure of sampling adequacy (MSA) that falls below the acceptable level of 0.50 should be excluded from the analysis (Coakes & Steed, 2003). The second criterion is Kaiser-Meyer-Olkin (KMO), the measure of sampling adequacy for overall items (Coakes & Steed, 2003; Hair *et al*., 2006). If the KMO value is greater than 0.6, the factorability is assumed (Coakes & Steed, 2003;

Hair *et al*., 2006). The last criterion was the Bartlett test of Sphericity (BTOS), a statistical test for the presence of correlations amongst the variables (Hair *et al*., 2006). A large and significant BTOS (sig.<0.05) indicates that sufficient correlations exist amongst the variables to proceed with the factor analysis (Coakes & Steed, 2003; Hair *et al*., 2006).

Once the items are suitable to be factor analyzed, the next step of factor analysis is to select the factor extraction and rotational methods (Coakes & Steed, 2003; Hair *et al*., 2006). The factor extraction method of this study was Principal Component Analysis (PCA) while Varimax was the factor rotational method. PCA with a Varimax rotation is the appropriate approach because the purpose of factor analysis in this research is to summarize most of the original information (variance) in a minimum number of factors for prediction purposes (Coakes & Steed, 2003; Hair *et al*., 2006). The data that have the same uniqueness are grouped as one construct. In other words, PCA with a Varimax rotation is the most preferred method when the research goal is data reduction to either a smaller number of variables or a set of uncorrelated measures for subsequent use in other multivariate techniques (Hair *et al*., 2006).

This research used several criteria to interpret the factors. First, eigenvalues of the factors should exceed 1.0. The factors with eigenvalues greater than 1.0 are considered significant (Hair *et al*., 2006). Second, the derived factors should have a cumulative percentage of variance explained which is 60% or higher (Hair *et al*.,

2006). Third, values of rotated factor loading should exceed ±0.50. The factor loadings values greater than ±0.50 are considered practically significant and appropriate for interpretation of structure for a sample size of around 200 (Hair *et al*., 2006). The next interpretation criterion was all items should have high (significant) loadings only on a single factor. When items are found to have more than one significant loading, they are termed as cross-loading. A cross-loading item is an item that loads at 0.35 or higher on two or more factors (Hair *et al*., 2006). In this study, items that cross-load will be eliminated to avoid difficulty when interpreting the factor loading matrix (Hair *et al*., 2006; Singhapakdi, Marta, Rallapalli, & Rao, 2000). Once all the significant loadings have been identified, the last criterion was to assess the communalities of items (Hair *et al*., 2006). Hair *et al*. (2006) argued that communality is important to assess whether the items meet acceptable levels of explanation or not. In this case, items should generally have communalities of greater than 0.50 to be retained in the analysis (Hair *et al*., 2006).

Once an acceptable factor solution has been obtained in which all items have a significant loading on a factor, the next step is to assign a name or label to a factor that accurately reflects the items loading on that factor (Hair *et al*., 2006). However, this step is not required if the items do load onto their original factors (Hemdi, 2005).

4.6.2.2 Reliability Analysis

The purpose of reliability analysis is to indicate how well the items measuring a concept hang together as a set (Sekaran, 2003). This analysis is important to assess the quality of the survey instrument (Churchill, 1979). This study used Cronbach's alpha value to estimate the internal consistency of items in the instrument. This approach was selected since Cronbach's alpha is an adequate test of internal consistency reliability in almost every case (Churchill, 1979; Sekaran, 2003). The closer Cronbach's alpha value is to 1, the higher the internal consistency reliability (Sekaran, 2003). The generally agreed upon lower limit for Cronbach's alpha value is 0.60 (Hair *et al*., 2006). Therefore, the variables (or factors) with Cronbach's alpha values less than 0.60 should be deleted from the analysis (Hair *et al*., 2006).

4.6.3 Descriptive Statistics

The third stage of data analysis of this study was descriptive statistics. The purposes of descriptive statistics in this study are to describe the characteristics of the gathered data and to address the specific research objectives (Pallant, 2010). Frequencies and percentages were calculated to describe the profile of research respondents such as gender, age, number of years as MIA member and number of years working in the current public accounting firms. Minimum and maximum scores, mean scores and standard deviations were computed to describe the study variables. In addition, mean scores were also used to examine the frequency of

engagement in various informal learning activities amongst the respondents (Research Objective 1).

4.6.4 Standard Multiple Regression Analysis

The fourth stage of data analysis of this study was standard multiple regression analysis. It is also known as simultaneous multiple regression analysis (Pallant, 2010). This analysis was used to test the research hypotheses as posited in Chapter 3. According to Straub *et al*. (2004), the use of inferential statistics such as standard multiple regression analysis to test research hypotheses is important to improve statistical conclusion validity and generalization of the research findings. The multiple regression analysis is appropriate in this study because it can be used to test the direct relationship between a number of independent variables (work environment inhibitors to informal learning activities) and a dependent variable (frequency of engagement in each informal learning activity) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). It is also appropriate since independent and dependent variables of this research were measured using continuous scales (Likert scale) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). Prior to conducting the analysis, the four assumptions underlie multivariate analysis, namely, normality, linearity, homoscedasticity and multicolinearity were initially examined (see data examination subsection) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010).

The strategy for analyzing data in this stage involved several steps. In the first step, summated scale scores were computed for each independent variable (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). Then, all the independent variables were regressed simultaneously on the independent variables (frequency of engagement in each informal learning activity) of this study. Thereafter, Adjusted R Square value was examined to know how much of the variance in the dependent variables can be explained by the independent variables (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). To examine the statistical significance of the result, the table labeled ANOVA was assessed in the fourth step. The research model reaches statistical significant if p=.000; this really means p<0.0005 (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010).

Next, the 0.05 level of significance ($p \leq 0.05$) was used as the critical level for decision making regarding the research hypotheses (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). In this case, *t* value 1.96 and above indicates that the influence (or relationship) is significant at $p \leq 0.05$ (Research Objective 2) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). In addition, to examine the directions (negative or positive) between independent and dependent variables of this study, signs (- or +) at the front of Regression Coefficients (β) were also inspected (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010).

In the sixth step, to identify the most influential significant independent variable on each informal learning activity, the Regression Coefficient (β) value was

used (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010). In this sense, the largest Regression Coefficient (β) value indicates the most influential work environment inhibitor to the frequency of engagement in each informal learning activity studied (Research Objective 3) (Coakes & Steed, 2003; Hair *et al*., 2006; Pallant, 2010).

4.7 Summary

This chapter provides an overview of the adopted research methods of this research. The discussions consist of methods suitability, advantages and also their disadvantages. The study of a complex phenomenon such as the influence of work environment inhibitors on the frequency of engagement in various informal learning activities demands detailed research work. Therefore, the decision to adopt the quantitative survey approach fits with the research questions, objectives and statistical analyses. In the next chapter, instrument development process will be presented.

CHAPTER FIVE

SURVEY INSTRUMENT DEVELOPMENT

5.1 Introduction

This chapter discusses the process of survey instrument development of this study. The discussion is divided into two sections, namely, general appearance of the questionnaire and refinement of the questionnaire. Finally, a summary of the chapter is provided.

5.2 General Appearance of the Questionnaire

According to Sekaran (2003), besides focusing on wording and measurement, it is also necessary to pay attention to how the questionnaire should look like. The following principles were applied to enhance the respondents' motivation in completing the questionnaire. First, a cover letter that discloses the identity of the research, conveys the purpose and importance of the survey and mentions about the confidentiality of the information provided by the respondents was attached to the questionnaire (Sekaran, 2003). Second, the items were grouped based on content similarity and areas (Dillman, 1978; Sekaran, 2003). Third, the items in the questionnaire were arranged in descending order in terms of importance and usefulness (Dillman, 1978). Fourth, the instructions on how to complete the items in each section were provided (Sekaran, 2003). Last but not least, a courteous note,

reminding the respondents to check that all items have been completed was also stated at the end of the questionnaire (Sekaran, 2003).

Since the range of possible responses for a scale can vary (Dawes, 2008), all items for dependent (frequency of engagement in various informal learning activities) and independent variables (work environment inhibitors to informal learning activities) of this study were measured using seven points Likert scale. Seven points Likert scale was utilized since it is one of the most commonly used point scales to capture information on a range of phenomena in social science research (Dawes, 2008; Malhotra & Peterson 2006; Tannenbaum, 1997). Dawes (2008) argued that previous simulation and empirical studies have generally concurred that reliability and validity are improving when using seven points scale that those with fewer scale points. He further argued that in relation to the distribution of data, more scale points (for instance, seven versus five points scales), provide more options for the respondents and would result in a greater spread of the data and larger variance (Dawes, 2008).

The final questionnaire of this study is illustrated in Appendix 5.1. The questionnaire has 65 variable items, one open-ended item and four demographic questions. They are on ten-page-double-sided paper using English as the command language setted in a booklet form. It is divided into 14 sections. The sections are as follows: (A) Frequency of Engagement in Various Informal Learning Activities; (B) Lack of Time due to Heavy Workload; (C) Lack of Proximity to Colleagues'

Working Areas; (D) Lack of Support from Others; (E) Structural Inhibitor; (F) Lack of Meaningful Rewards; (G) Lack of Fund; (H) Lack of Access to Updated Learning Materials; (I) Lack of Access to Computer; (J) Limited Influence on Firm's Operation; (K) Poor Working Policy; (L) Lack of Tolerance to Mistakes; (M) Additional Question and; (N) Demographic Information. The description of each questionnaire section is offered in the following subsections.

5.2.1 Section A: Frequency of Engagement in Various Informal Learning Activities

This section requires the respondents to rate the frequency of engagement in various informal learning activities at the workplace to develop and maintain knowledge and skills (MIA, 2007; Lohman, 2006; Lu *et al*., 2009). Six informal learning activities, as stated in Appendix V (Appendix 2.1 of this study) of the By-Laws, were adopted to measure the frequency of engagement (MIA, 2007). They were measured using Likert scales ranging from 1 (extremely infrequent) to 7 (extremely frequent).

5.2.2 Section B: Lack of Time due to Heavy Workload

This section requires the respondents to rate the extent that lack of time due to heavy workload is the work environment inhibitor to various informal learning activities at the workplace. It consists of five items that were constructed based on the

work of Hicks *et al*. (2007), Tannenbaum (1997) and White *et al*. (1999). The five items were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.3 Section C: Lack of Proximity to Colleagues' Working Areas

In this section, the respondents are required to rate the extent that lack of proximity to colleagues' working areas is the work environment inhibitor to various informal learning activities at the workplace. It consists of five items which were adapted from Hicks *et al*. (2007), Lohman and Woolf (2001), and White *et al*. (1999). The five items were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.4 Section D: Lack of Support from Others

The respondents are then required to rate the extent that lack of support from others is the work environment inhibitor to various informal learning activities at the workplace. This section consists of six items that were constructed based on the work of Tannenbaum (1997), Ashton (2004) and Hicks *et al*. (2007). The six items were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.5 Section E: Structural Inhibitor

This section consists of items that rate the extent that structural inhibitor is the work environment inhibitor to various informal learning activities at the workplace. It consists of five items that were adapted from Tannenbaum (1997), Gieskes *et al*. (2002), Jurasaite-Harbison (2009) and Bryson *et al*. (2006) and measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.6 Section F: Lack of Meaningful Rewards

This section aims to rate the extent that lack of meaningful rewards is the work environment inhibitor to various informal learning activities at the workplace. It consists of six items that were constructed based on the work of Hicks *et al*. (2007), Ashton (2004) and Bryson *et al*. (2006). The six items were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.7 Section G: Lack of Fund

This section intends to obtain feedback from the respondents regarding the extent that lack of fund is the work environment inhibitor to various informal learning activities at the workplace. It consists of six items that were adapted from Tannenbaum (1997), Hicks *et al*. (2007), Ellinger (2004) and Bryson *et al*. (2006).

The six items were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.8 Section H: Lack of Access to Updated Learning Materials

This section intends to obtain feedback from the respondents regarding the extent that lack of access to updated learning materials is the work environment inhibitor to various informal learning activities at the workplace. It consists of five items that were constructed based on the work of Tannenbaum (1997), Lohman (2000) and Hicks *et al*. (2007). The five items were measured using Likert scales in the range of 1 (strongly disagree) to 7 (strongly agree).

5.2.9 Section I: Lack of Access to Computer

The purpose of this section is to rate the extent that lack of access to computer is the work environment inhibitor to various informal learning activities at the workplace. It has five items which were adapted from Lohman (2000) and Hicks *et al*. (2007). These items were measured using Likert scales in the range of 1 (strongly disagree) to 7 (strongly agree).

5.2.10 Section J: Limited Influence on Firm's Operation

The respondents are then requested to give feedback on the extent that limited influence on firm's operation is the work environment inhibitor to various informal learning activities at the workplace. To achieve this, six items were constructed based on Tannenbaum (1997) and Lohman (2000). They were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.11 Section K: Poor Working Policy

This section aims to rate the extent that poor working policy is the work environment inhibitor to various informal learning activities at the workplace. It has five items, which were adapted from Tannebaum (1997), Hicks *et al*. (2007), Ashton (2004) and Bryson *et al*. (2006). Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree) were utilized to measure all the items.

5.2.12 Section L: Lack of Tolerance to Mistakes

The objective of this section is to gain the feedback from the respondents regarding the extent that lack of tolerance to mistakes is the work environment inhibitor to various informal learning activities at the workplace. To achieve this, five items were constructed based on the work of Tannenbaum (1997), and Cheetham and

Chivers (2001). These items were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

5.2.13 Section M: Additional Question

In this section, an open-ended item was provided so that the respondents could share additional environmental factors that inhibit them from various informal learning activities at the workplace (Lohman, 2006). The item was adapted from Lohman (2006).

5.2.14 Section N: Demographic Information

This section contains four demographic questions to identify gender, age, number of years as MIA member and number of years working in the current public accounting firms of the respondents. Gender was measured using nominal scale (Male and Female). Ordinal scales were used to measure age (21-30 years, 31-40 years, 41-50 years and Over 50 years), number of years as MIA member (1-5 years, 6-10 years, 11-15 years, 16-20 years and Over 21 years) and number of years working in the current public accounting firms (1-5 years, 6-10 years, 11-15 years and Over 16 years).

5.3 Refinement of the Questionnaire

Several scholars suggested that the reliability and validity of the adapted items in the questionnaire should be re-evaluated (Sekaran, 2003; Straub *et al*., 2004). Thus, before gathering the primary research data, several steps were carried out to further refine the questionnaire of this study. The researcher undertook content validity, pre-testing and pilot study to further improve the quality of the research questionnaire as suggested by Straub *et al*. (2004).

Table 5.1 summarizes the list of study variables included in the various stages of refinement of the questionnaire. The discussions on the content content validity, pre-testing and pilot study are dealt with in Subsections 5.3.1 till 5.3.3.

Table 5.1
List of Study Variables Included in the Various Stages of Refinement of the Questionnaire

Study Variables	Content Validity	Pre-Testing	Pilot Study
1. Lack of Time due to Heavy Workload	Yes	Yes	Yes
2. Lack of Proximity to Colleagues' Working Areas	Yes	Yes	Yes
3. Lack of Support from Others	Yes	Yes	Yes
4. Structural Inhibitor	Yes	Yes	Yes
5. Lack of Meaningful Rewards	Yes	Yes	Yes
6. Lack of Fund	Yes	Yes	Yes
7. Lack of Access to Updated Learning Materials	Yes	Yes	Yes
8. Lack of Access to Computer	Yes	Yes	Yes
9. Limited Influence on Firm's Operation	Yes	Yes	Yes

Table 5.1(Continued)

Study Variables	Content Validity	Pre-Testing	Pilot Study
10. Poor Working Policy	Yes	Yes	Yes
11. Lack of Tolerance to Mistakes	Yes	Yes	Yes
12. Frequency of Engagement in Various Informal Learning Activities	Yes	Yes	Yes

5.3.1 Content Validity

Hair *et al*. (2006) argued that content validity must be established prior to any statistical analyses. In general, content validity is an issue of representation (Straub *et al*., 2004). Specifically, it refers to the degree to which items in an instrument reflect the content universe to which the instrument will be generalized (Straub *et al*., 2004). Straub *et al*. (2004) argued that empirical assessment of this validity is generally not required. Thus, content validity of the research survey instrument was established through literature review and expert panels' recommendations (Sekaran, 2003; Straub *et al*., 2004).

The process of constructing items in this study began with a review of the relevant theories and previous research work (Cheetham & Chivers, 2001; Hicks *et al*., 2007; Merriam *et al*., 2007; Tannenbaum, 1997). Items (statements) found to be useful were then adapted in this research (see measurement of variables section in Chapter 4).

As suggested by Hair *et al*. (2006) and Straub *et al*. (2004), to further check for content validity, several rounds of meeting with different expert panels were conducted. For this purpose, personal communications were held between the researcher and six chartered accountants in the firms. In addition, three academicians who are experts in the field of study and two panels from MIA Membership Department were also consulted. Several recommendations from the experts were taken into consideration.

One of the panel's recommendations was to include an open-ended item in the questionnaire. This is important to provide a mechanism for capturing additional work environment inhibitors to informal learning activities that were not found in the previous studies. Thus, the following open-ended question was included "Please identify any other aspects of your work environment that can inhibit you from engaging in informal learning activities". This question was adapted from Lohman (2006) (see Section M).

Several panel experts also suggested that the use of excessive negative words such as "do not" should be avoided because it tends to confuse the respondents. For instance, second item in the lack of time due to heavy workload section was changed from "I do not have time to learn informally about my job" to "I have limited time to learn informally about my job".

The third recommendation was to relocate the demographic information section. In the original version, the demographic information was located at the first section in the questionnaire. In the revised version, the information was located at the last section of the questionnaire. Several panel experts believed that the relocation is important to maintain confidence amongst the respondents that their identity is confidential and their responses are for academic purposes.

Fourth, two panels from MIA membership department mentioned that ethnicity question in the demographic section is quite sensitive to the accounting profession. They also opined that job title and area of specialization questions in the section are irrelevant to the research objectives since informal learning requirements as stated in the By-Laws (MIA, 2007) are applied equally to all members regardless of functional/level classification in the firms. Therefore, these three questions were dropped from the final questionnaire.

The fifth recommendation by the panel experts was to simplify the first item in the frequency of engagement in various informal learning activities section. Thus, the item was rephrased from "reading technical, professional, financial or business literature" to "reading job related materials".

The sixth recommendation was to further clarify the fourth item in the structural barrier section. To improve the clarity of the item, it was rephrased from "my office building provides few opportunities to interact between

units/departments" to "my office building (e.g. different floors/buildings) provides few opportunities to interact between units/departments.

The seventh recommendation was to avoid using technical terms that can confuse the respondents. For example, the original version of the fourth item in the poor working policy section, "my movement from one task to another task is more on ad-hoc basis" was changed to "my movement from one task to another task is more on unplanned basis".

In addition, several chartered accountants indicated that they were unfamiliar with the term "inhibitor" as stated in the questionnaire. As a consequence, the term "inhibitor" was replaced with "barrier". Another recommendation by the panel experts was to change a few spelling and grammatical errors.

5.3.2 Pre-Testing

It is important to pre-test the questionnaire to ensure that the items are understood by the respondents and there are no problems with the wording or measurement (Sekaran, 2003). Pre-testing involves the use of a small number of respondents to test the appropriateness of the items and their comprehension (Sekaran, 2003). Boyd, Westfall and Stasch (1977) recommended that a sample of twenty is satisfactory for pre-testing. In addition, the pre-testing should use the respondents who are as similar as possible to the target respondents (Tull & Hawkin,

1976). Thus, twenty questionnaires were pre-tested on chartered accountants from ten public accounting firms in Alor Setar, Kedah in December 2011.

In pre-testing the questionnaire, five fundamental issues were addressed, namely, the length of the questionnaire, the understandable of the items, the suitability of the scales, the design of the questionnaire and the time required in completing the questionnaire (Hunt, Sparkman, &, Wilcox, 1982; Sekaran, 2003). Table 5.2 summarizes findings from the pre-testing.

As shown in Table 5.2, 13 (65%) respondents opined that the length of the questionnaire was appropriate. 16 (80%) respondents reported that the items were understandable and 15 (75%) of them indicated that the scales used were suitable to measure the items. 17 (85%) Respondents opined that the design of the questionnaire was suitable for mail survey. In addition, the respondents spent between 10 and 20 minutes to complete the questionnaire. Since the results of the pre-testing were quite encouraging, the modification was not required.

Table 5.2
Pre-Test Results (N=20)

Questions	Frequencies	Percentage
1. Is the length of the questionnaire appropriate?		
Yes	13	65
No	7	35
2. Are the items understandable to answer?		
Yes	16	80
No	4	20
3. Are the scales suitable to measure the items?		
Yes	15	75
No	5	25
4. Is the design of the questionnaire suitable for mail survey?		
Yes	17	85
No	3	15
5. How long it takes to complete the questionnaire?		
Between 10 and 15 Minutes	12	60
Between 16 and 20 Minutes	8	40

5.3.3 Pilot Study

This subsection discusses the empirical results and analysis process for the pilot study. The term "pilot study" is used in two different ways in social science research. It can refer to so-called feasibility studies, which are small scale version[s] or trial run[s], done in preparation for the major study (Polit, Beck, & Hungler, 2001).

However, a pilot study can also be the pre-trial or "trying out" of a particular research instrument (Baker, 1994). One of the advantages of conducting a pilot study is that it might provide advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. As De Vaus (1993) stated "Do not take the risk. Pilot test first" (p.54). Thus, the purpose of undertaking the pilot study in this study was to establish the reliability of survey instrument. The refined survey instrument is then used to collect and analyze the primary data.

A pilot study was conducted with 150 chartered accountants in public accounting firms located in Northern region states, namely, Perlis, Kedah and Pulau Pinang in January 2012. Out of 150 distributed questionnaires, 51 questionnaires were returned. However, only 48 can be used for data analysis due to missing data, yielding a response rate of 32%. A response rate of 30% is considered appropriate for mail survey research (Sekaran, 2003). Thus, the response rate for pilot study of this research was considered acceptable.

Table 5.3 illustrates the Cronbach's alpha values that were calculated to examine the internal consistency of the survey instrument. In overall, the Cronbach's alpha values for all study variables varied between 0.79 for lack of fund and 0.96 for lack of access to computer. Three variables possessed Cronbach's alpha values above 0.90 (lack of meaningful rewards, lack of access to updated learning materials and lack of access to computer), eight between 0.80 and 0.90 (lack of time due to heavy

workload, lack of proximity to colleagues' working areas, lack of support from others, structural inhibitor, limited influence on firm's operation, poor working policy, lack of tolerance to mistakes and frequency of engagement in various informal learning activities) and only one below than 0.80 (lack of fund). In other words, none of the variables demonstrated below the minimum reliability level (<0.60) (Hair *et al*., 2006). The good Cronbach's alpha values for all variables imply that they are internally consistent and measuring the same content universe (Churchill, 1979; Sekaran, 2003).

To recapitulate, as the results and analysis process of the pilot study were considered acceptable, it was suggested that the survey instrument does not require any modification and was considered appropriate for the primary data collection.

Table 5.3
Reliability of Survey Instrument (N=48)

Study Variables	Number of Items	Cronbach's Alpha Values
1. Lack of Time due to Heavy Workload	5	.88
2. Lack of Proximity to Colleagues' Working Areas	5	.87
3. Lack of Support from Others	6	.89
4. Structural Inhibitor	5	.86
5. Lack of Meaningful Rewards	6	.91
6. Lack of Fund	6	.79
7. Lack of Access to Updated Learning Materials	5	.91
8. Lack of Access to Computer	5	.96
9. Limited Influence on Firm's Operation	6	.81
10. Poor Working Policy	5	.87
11. Lack of Tolerance to Mistakes	5	.86
12. Frequency of Engagement in Various Informal Learning Activities	6	.80

5.4 Summary

This chapter describes the survey instrument development process in depth. The process is important to establish validity and reliability of the instrument. Data analysis and results of this research are presented in the next chapter.

CHAPTER SIX

DATA ANALYSIS AND RESULTS

6.1 Introduction

This chapter discusses the results of data analysis. The presentation of this chapter would be as follows. Firstly, the response rate would be highlighted. Thereafter, data examination is explained. The goodness of measures is then discussed. This is followed by the demographic profiles of the respondents. Descriptive statistics are then offered. Standard multiple regression analyses are then discussed to test the research hypotheses. Finally, a summary of the discussion is provided.

6.2 Response Rate

A total of 660 questionnaires were mailed to chartered accountants in public accounting firms across Malaysia who holding current membership in the MIA. The data collection period took approximately three months, from March 2012 to May 2012. Out of 660 distributed questionnaires, 269 were returned, yielding a response rate of 40.8%. As suggested by Sekaran (2003), a response rate of 30% is considered appropriate for mail survey research. Thus, the response rate of this study was above the recommended rate.

6.3 Data Examination

Data examination in this study involved two main steps, namely, data screening and data testing to meet the multivariate assumptions (Hair *et al*., 2006).

6.3.1 Data Screening

As stated in Chapter 4, three tests were performed for data screening. The tests were missing data, response bias and outliers identification. The results of the tests are discussed in the following subsections.

6.3.1.1 Missing Data

The first test is the evaluation of missing data. Out of 269 returned questionnaires, nine questionnaires had missing data. Consistent with Hair *et al*. (2006), all of these questionnaires were excluded from this study. Therefore, only 260 questionnaires (39.4%) were coded and analyzed.

6.3.1.2 Response Bias

The second test for data screening is to examine any differences between early and late response groups. Out of 260 respondents, 137 respondents were coded as early response group (received within four weeks) while the remaining 123 were

coded as late response group (received after the four weeks). Chi-square tests and independent sample *t*-tests were undertaken to both groups.

The chi-square tests were conducted for categorical variables (demographic profiles) of this study. Table 6.1 presents the results of the tests. The SPSS output is presented in Appendix 6.1.

Table 6.1
Results of Chi-Square Tests for Response Bias between Early and Late Response Groups (N=260)

Categorical Variables	**Response Groups**		χ^2	**Significant Level (2-tails)**
	Early	**Late**		
Gender:			1.41	.24
Male	69	71		
Female	68	52		
Age:			1.12	.77
21-30 years	16	19		
31-40 years	74	60		
41-50 years	31	28		
Over 50 years	16	16		
Number of Years as MIA Member:			3.45	.49
1-5 years	39	43		
6-10 years	55	38		
11-15 years	24	20		
16-20 years	12	12		
Over 21 years	7	10		

Table 6.1 (Continued)

Categorical Variables	Response Groups		χ^2	Significant Level (2-tails)
	Early	Late		
Number of Years Working in the Firm:			1.61	.66
1-5 years	58	44		
6-10 years	46	50		
11-15 years	20	18		
Over 16 years	13	11		

As shown in Table 6.1, the results of chi-square tests did not indicate any significant differences ($p>0.05$) between the two groups of respondents in terms of gender, age, number of years as MIA member and number of years working in the firm. Thus, it can be said that there was no serious response bias for categorical variables of this study (Coakes & Steed, 2003; Pallant, 2010).

Independent sample *t*-tests were run on all variables to examine whether the mean scores for early and late response groups were significantly different from each other. Table 6.2 illustrates the results of the tests. The SPSS output is presented in Appendix 6.1.

Table 6.2
Results of Independent Samples t-Tests for Response Bias between the Early and Late Response Groups (N=260)

Variables	Early (N=137)		Late (N=123)		Significant Level (2-tails)
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	
1. Lack of Time due to Heavy Workload	28.28	2.89	27.97	2.96	.394
2. Lack of Proximity to Colleagues' Working Areas	20.11	6.43	21.28	6.11	.136
3. Lack of Support from Others	27.45	4.40	27.20	5.22	.676
4. Structural Inhibitor	26.54	2.88	26.54	2.47	.989
5. Lack of Meaningful Rewards	30.28	4.04	30.27	4.11	.974
6. Lack of Fund	29.66	4.78	29.75	4.63	.876
7. Lack of Access to Updated Learning Materials	22.02	5.69	21.67	5.53	.618
8. Lack of Access to Computer	16.83	7.79	17.01	6.09	.838
9. Limited Influence on Firm's Operation	26.17	7.19	26.98	6.37	.341
10. Poor Working Policy	23.74	5.20	23.45	4.27	.622
11. Lack of Tolerance to Mistakes	21.87	5.93	21.69	5.76	.807
12. Frequency of Engagement in Various Informal Learning Activities	15.80	4.23	15.76	4.35	.942

The results of the independent sample *t*-tests indicate that there was no significant difference ($p>0.05$) in the mean scores for the two groups of respondents. Therefore, it can be said that there was no response bias for all study variables (Coakes & Steed, 2003; Pallant, 2010). In short, the results of chi-square tests and

independent sample *t*-tests did not indicate any significant differences between the two groups of respondents. Therefore, it can be reasonably concluded that the two groups were from the same population.

6.3.1.3 Outliers Identification

The third test for data screening is the identification of outliers. Based on multiple regression procedure discussed in Chapter 4, this study found one univariate outlier (case number 136) with a *z*-score for studentized residual of 3.25 (greater than ± 3.0). In addition, one multivariate outlier (case number 151) with a mahalanobis distance value of 31.88 (greater than 31.26 of critical chi-square value at an alpha level of .001) was also detected. Consistent with Hair *et al*. (2006), Pallant (2010) and Tabachnick and Fidell (2007), the outlying cases were deleted from the data set. Therefore, only 258 cases were retained for further analyses. Coakes and Steed (2003) suggested that the ideal number of cases should be twenty times more than predictors (20 cases X 11 predictors = 220 cases). Therefore, the final sample size of this reseach (258 cases, yielding a response rate of 39.1%) was considered sufficient for statistical analyses such as factor analysis and standard multiple regression analysis (Coakes & Steed, 2003; Sekaran, 2003).

6.3.2 Tests on Multivariate Assumptions

After screening the data, tests to meet four assumptions of multivariate analyses were conducted. The tests were normality, linearity, homoscedasticity and multicolinearity (Hair *et al*., 2006). The results of the tests are discussed in the following subsections.

6.3.2.1 Normality

The first assumption is normality. Statistics for skewness and kurtosis were calculated on the variables to assess data normality. Table 6.3 presents the results of the normality tests. The SPSS output is presented in Appendix 6.2.

Table 6.3
Results of Normality Tests (N=258)

	Skewness		Kurtosis	
	Statistic	**Standard Error**	**Statistic**	**Standard Error**
1. Lack of Time due to Heavy Workload	.327	.152	-.413	.302
2. Lack of Proximity to Colleagues' Working Areas	-.486	.152	-.573	.302
3. Lack of Support from Others	-.260	.152	-.491	.302
4. Structural Inhibitor	-.597	.152	1.394	.302
5. Lack of Meaningful Rewards	.210	.152	-.052	.302
6. Lack of Fund	-.122	.152	.026	.302

Table 6.3 (Continued)

	Skewness		Kurtosis	
	Statistic	Standard Error	Statistic	Standard Error
7. Lack of Access to Updated Learning Materials	-.711	.152	.196	.302
8. Lack of Access to Computer	.173	.152	-.793	.302
9. Limited Influence on Firm's Operation	-.761	.152	.577	.302
10. Poor Working Policy	-.713	.152	.957	.302
11. Lack of Tolerance to Mistakes	-.517	.152	-.500	.302
12. Frequency of Engagement in Various Informal Learning Activities	.127	.152	-.352	.302

As shown in Table 6.3, the statistics for skewness and kurtosis of study variables were less than ± 2.58. This means that the study variables did not departure from normality. This also means that the transformation process was not required (Coakes & Steed, 2003). Thus, it can be concluded that the assumption of normality was met in this study (Coakes & Steed, 2003; Hair *et al*., 2006).

6.3.2.2 Linearity

The second multivariate assumption is linearity. Residual scatterplots were used to test this assumption (Coakes & Steed, 2003). Figure 6.1 until 6.11 show the scatterplots of each independent variable with dependent variables of this study. The SPSS output is presented in Appendix 6.3.

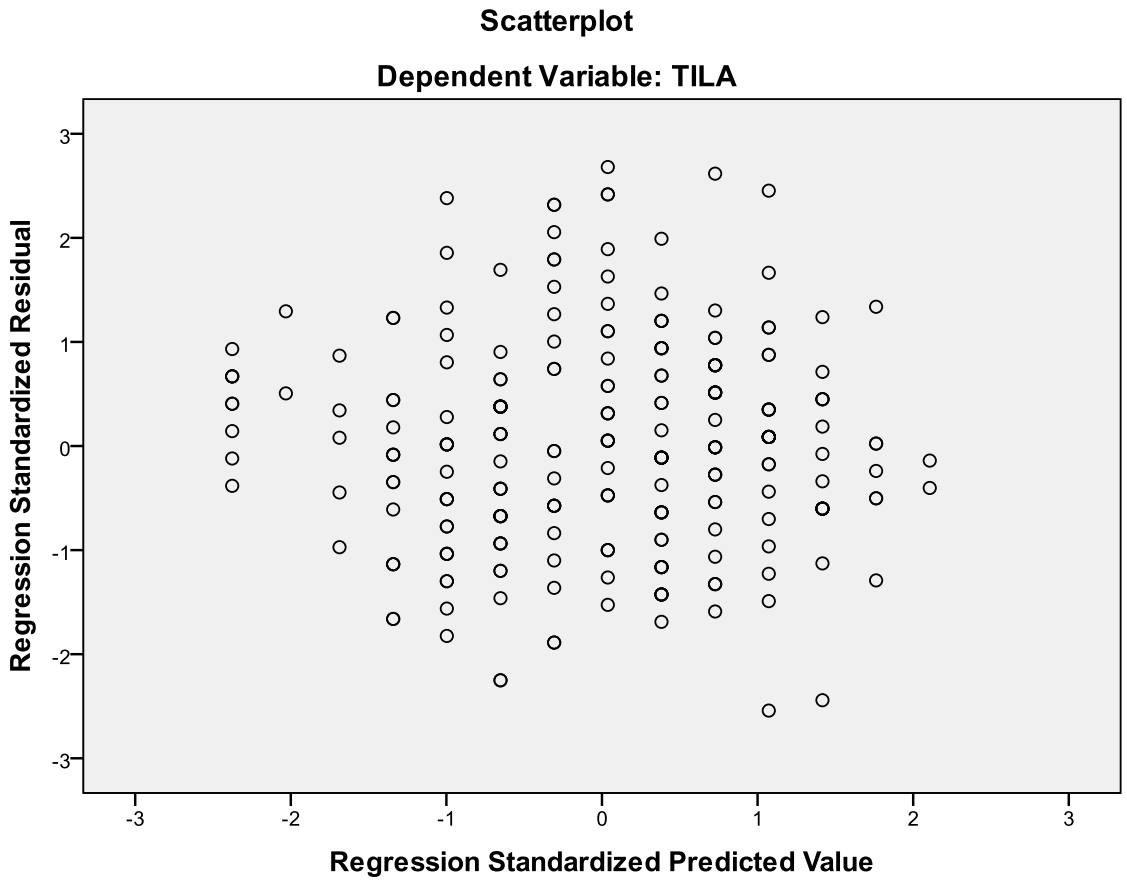

Figure 6.1
Scatterplot of Lack of Time due to Heavy Workload and Frequency of Engagement in Various Informal Learning Activities

Figure 6.1 shows the scatterplot of lack of time due to heavy workload and frequency of engagement in various informal learning activities (TILA) of this study. The above scatterplot indicated that there was no clear relationship (such as curvilinear pattern or clustering of the residuals) between the residuals and the predicted values. This means that the relationship between lack of time due to heavy workload and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

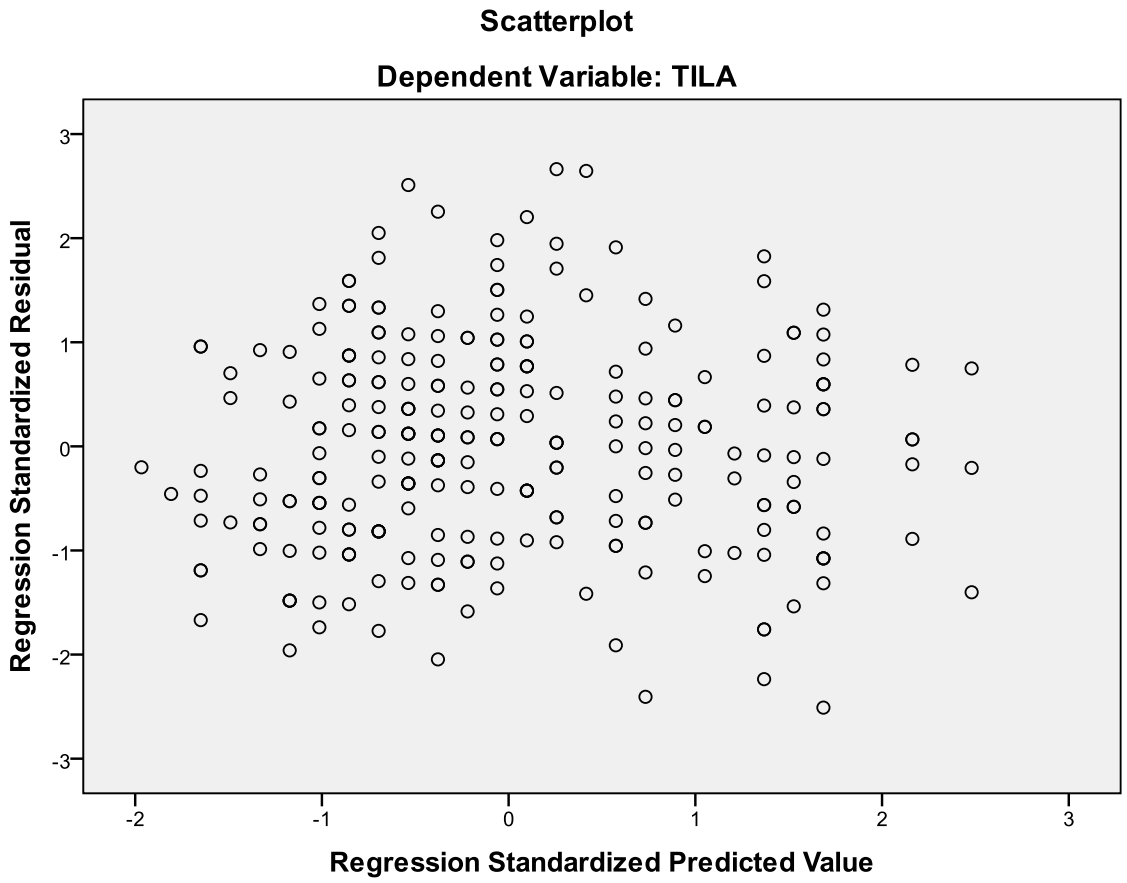

Figure 6.2
Scatterplot of Lack of Proximity to Colleagues' Working Areas and Frequency of Engagement in Various Informal Learning Activities

Figure 6.2 shows the scatterplot of lack of proximity to colleagues' working areas and frequency of engagement in various informal learning activities of this study. The above scatterplot indicated that there was no clear relationship between the residuals and the predicted values. Therefore, it is concluded that the relationship between lack of proximity to colleagues' working areas and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

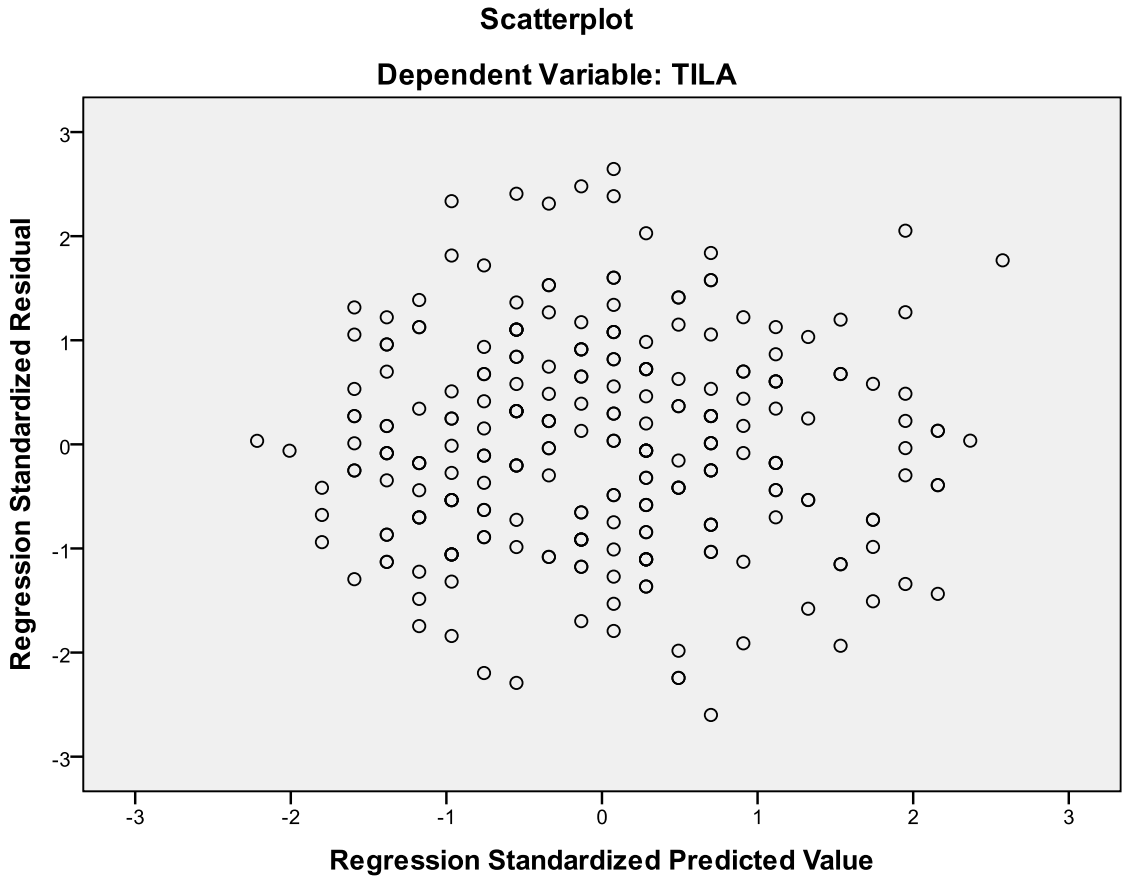

Figure 6.3
Scatterplot of Lack of Support from Others and Frequency of Engagement in Various Informal Learning Activities

Figure 6.3 indicates the scatterplot of lack of support from others and frequency of engagement in various informal learning activities of this study. An examination of the scatterplot showed that there was no clear relationship between the residuals and the predicted values. Thus, it is suggested that the relationship between lack of support from others and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

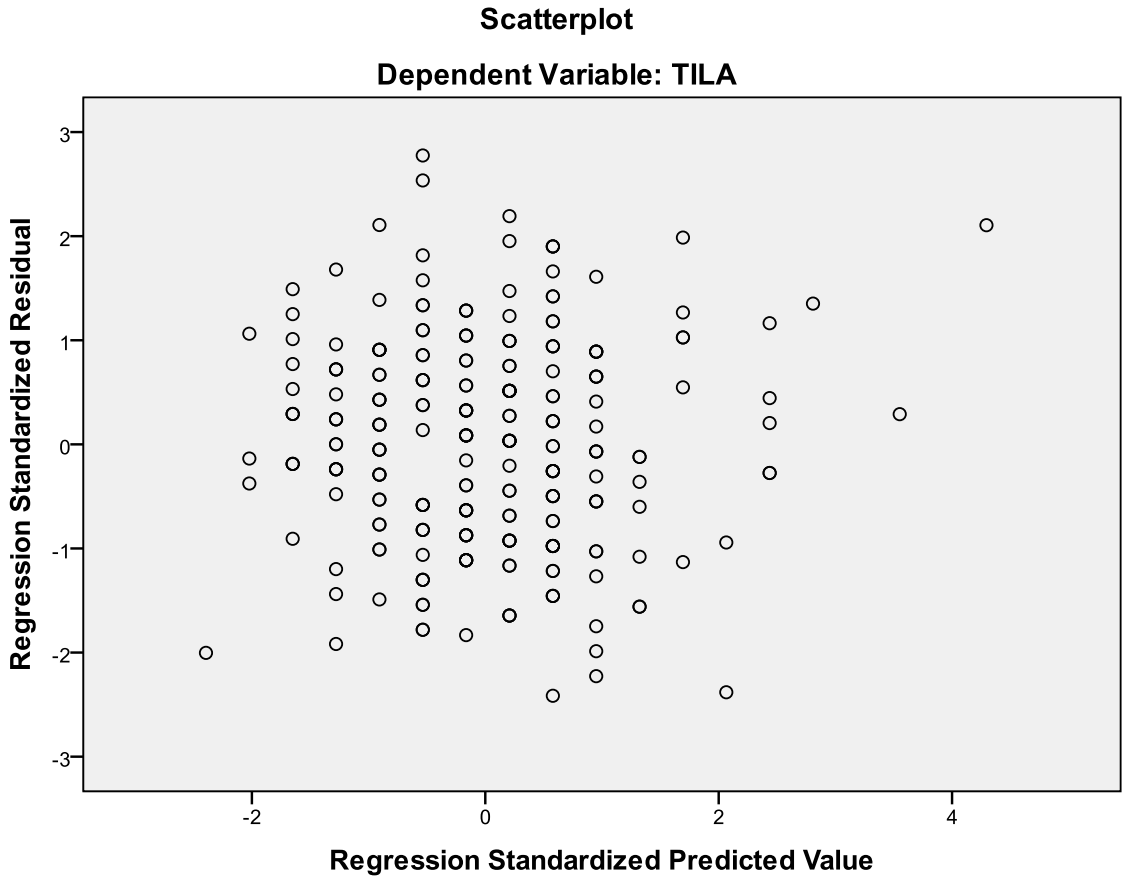

Figure 6.4
Scatterplot of Structural Inhibitor and Frequency of Engagement in Various Informal Learning Activities

Figure 6.4 indicates the scatterplot of structural inhibitor and frequency of engagement in various informal learning activities of this study. The above scatterplot showed that there was no clear relationship between the residuals and the predicted values. Consistent with Coakes and Steed (2003), it is concluded that the relationship between structural inhibitor and frequency of engagement in various informal learning activities was linear.

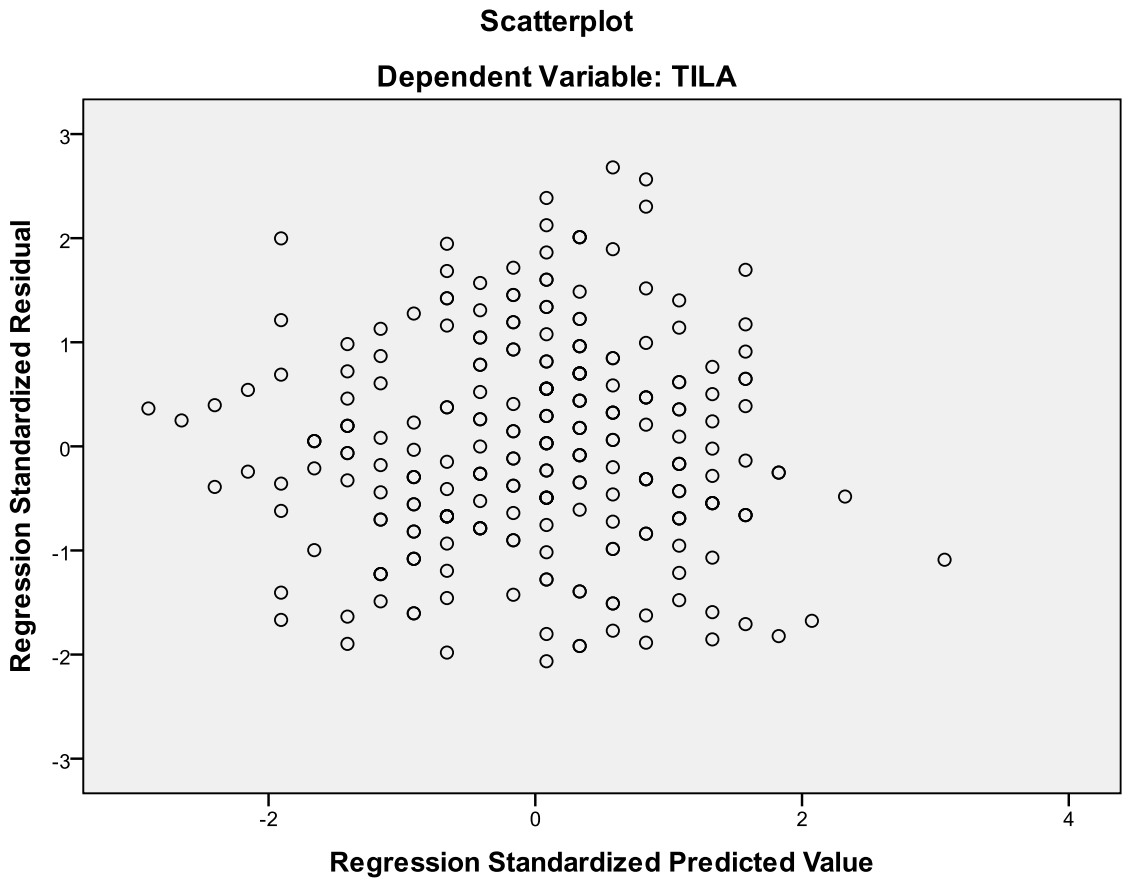

Figure 6.5
Scatterplot of Lack of Meaningful Rewards and Frequency of Engagement in Various Informal Learning Activities

Figure 6.5 shows the scatterplot of lack of meaningful rewards and frequency of engagement in various informal learning activities of this study. As can be seen from the above scatterplot, there was no clear relationship between the residuals and the predicted values. Therefore, it could be thought that the relationship between lack of meaningful rewards and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

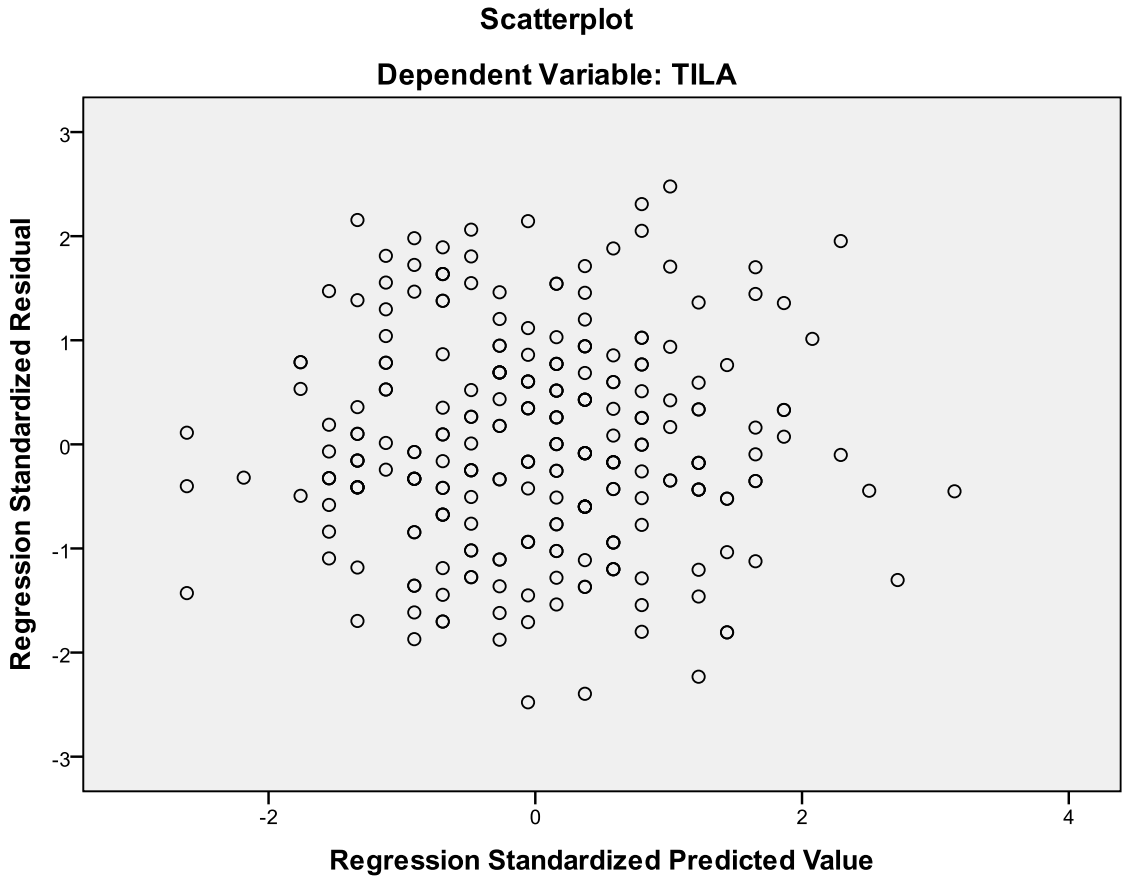

Figure 6.6
Scatterplot of Lack of Fund and Frequency of Engagement in Various Informal Learning Activities

Figure 6.6 shows the scatterplot of lack of fund and frequency of engagement in various informal learning activities of this study. As indicated in the above scatterplot, there was no clear relationship between the residuals and the predicted values. This means that the relationship between lack of fund and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

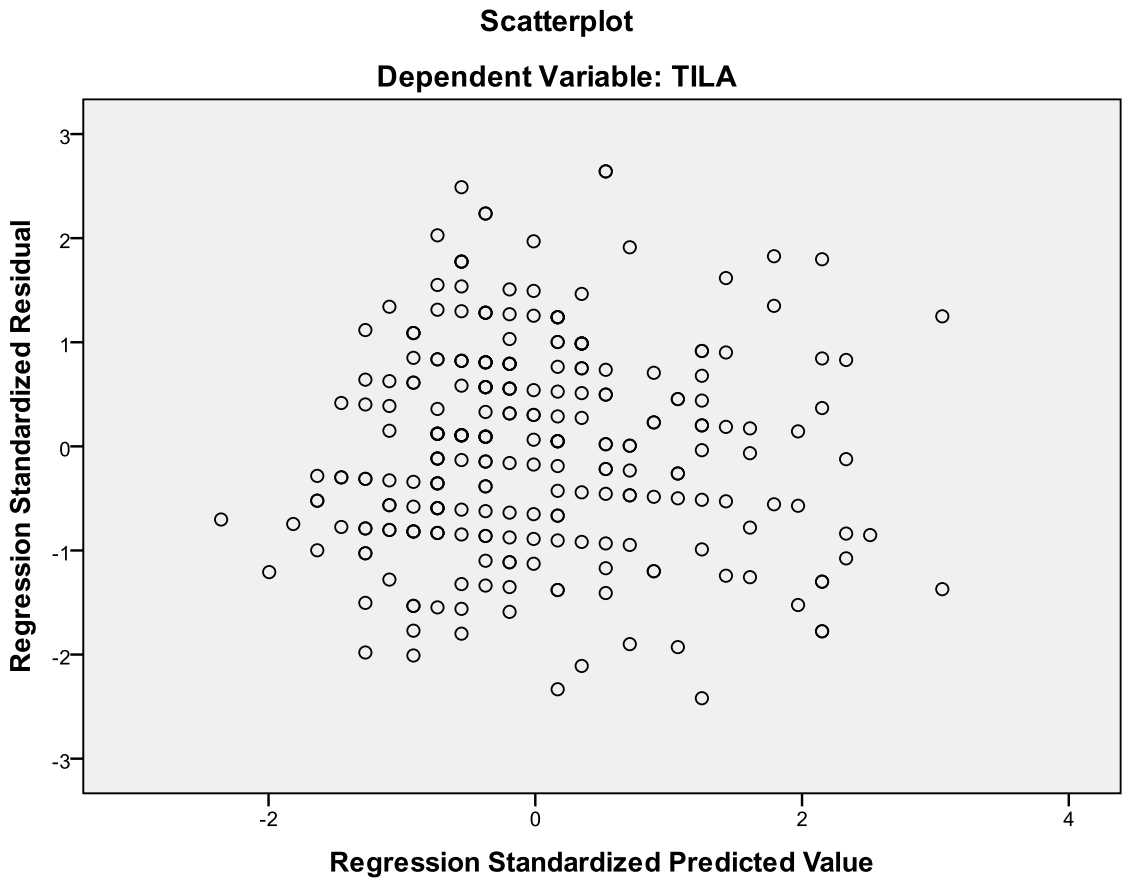

Figure 6.7
Scatterplot of Lack of Access to Updated Learning Materials and Frequency of Engagement in Various Informal Learning Activities

Figure 6.7 indicates the scatterplot of lack of access to updated learning materials and frequency of engagement in various informal learning activities of this study. An examination of the scatterplot showed that there was no clear relationship between the residuals and the predicted values. Thus, it could be concluded that the relationship between lack of access to updated learning materials and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

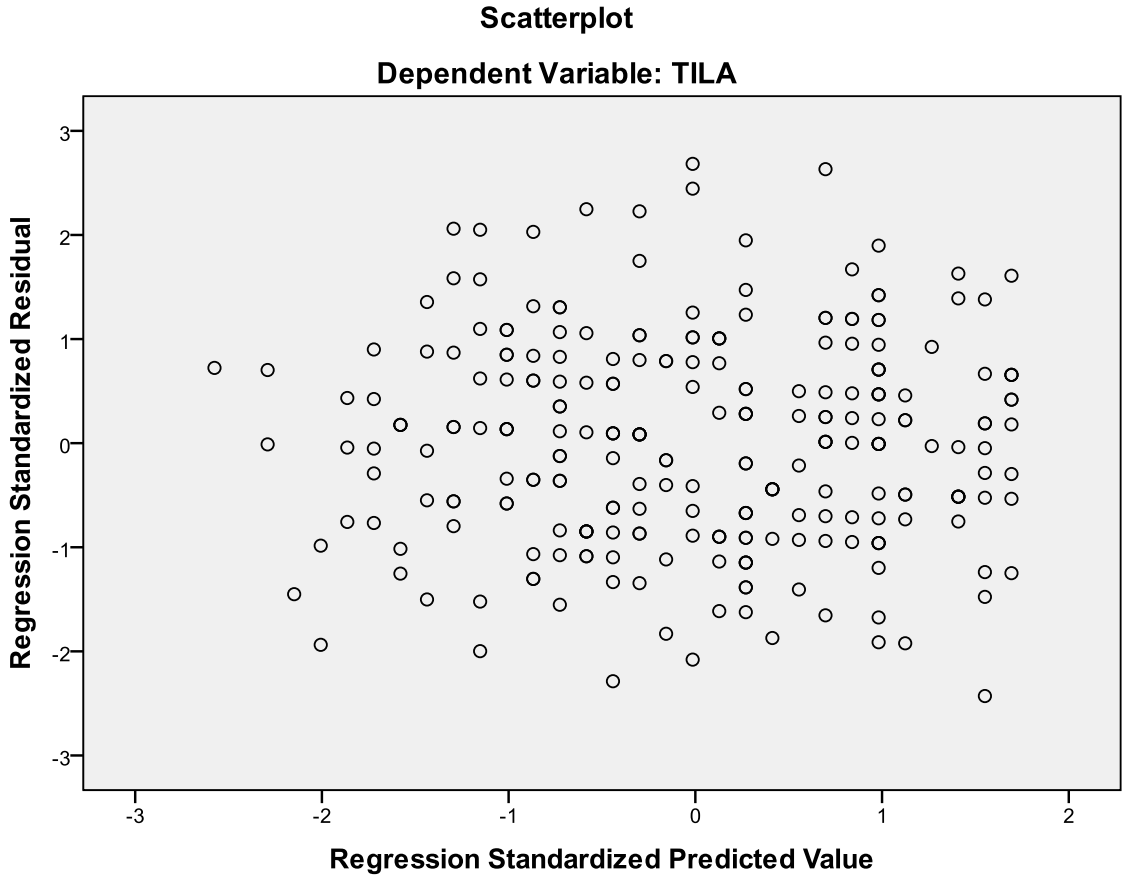

Figure 6.8
Scatterplot of Lack of Access to Computer and Frequency of Engagement in Various Informal Learning Activities

Figure 6.8 shows the scatterplot of lack of access to computer and frequency of engagement in various informal learning activities of this study. From the above scatterplot, it can be seen that there was no clear relationship between the residuals and the predicted values. This indicated that relationship between lack of access to computer and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

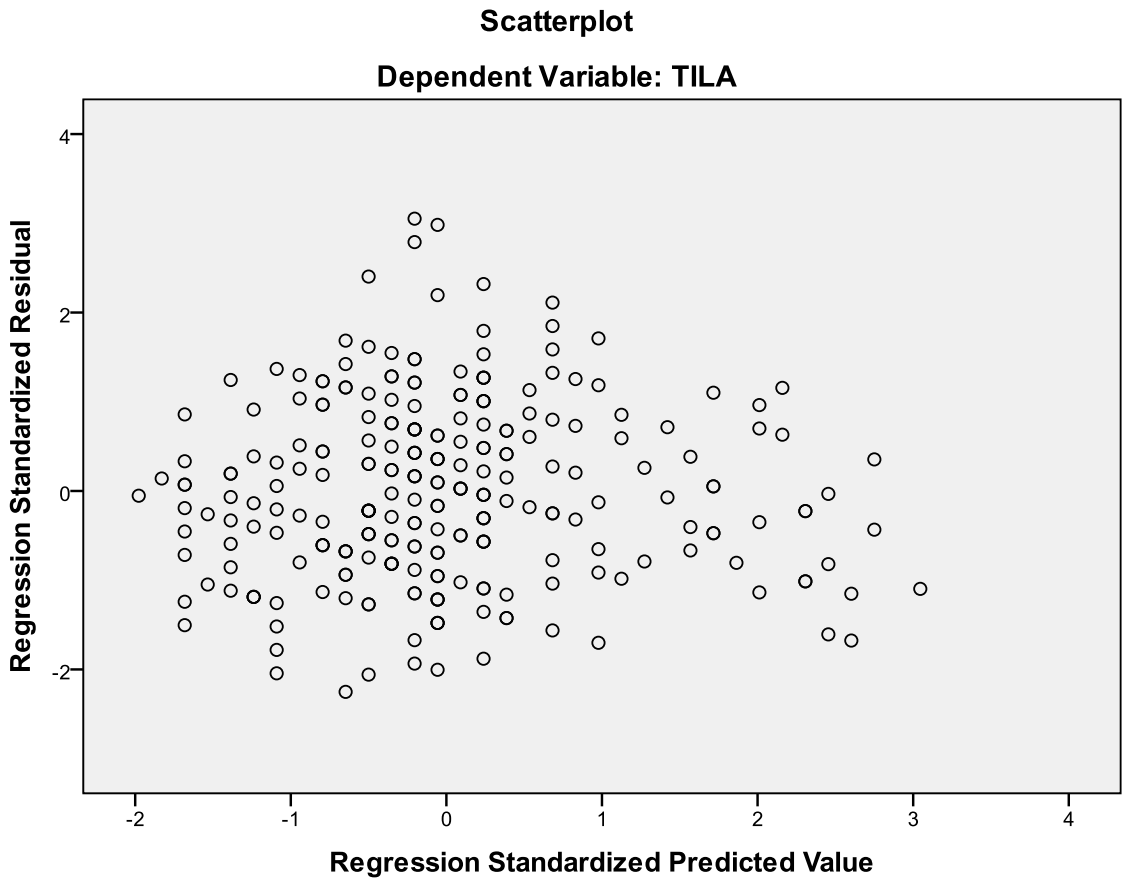

Figure 6.9
Scatterplot of Limited Influence on Firm's Operation and Frequency of Engagement in Various Informal Learning Activities

Figure 6.9 indicates the scatterplot of limited influence on firm's operation and frequency of engagement in various informal learning activities of this study. An examination of the scatterplot showed that there was no clear relationship between the residuals and the predicted values. As suggested by Coakes and Steed (2003), the relationship between limited influence on firm's operation and frequency of engagement in various informal learning activities was linear.

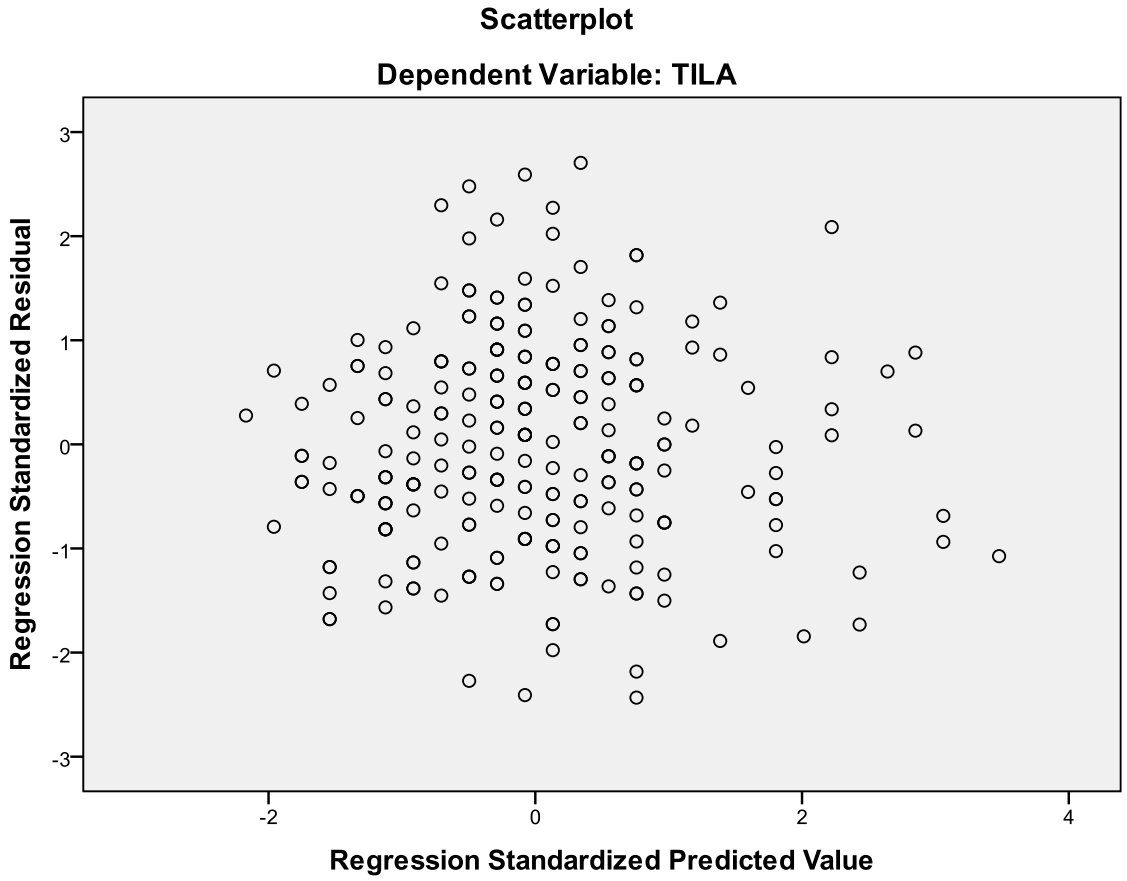

Figure 6.10
Scatterplot of Poor Working Policy and Frequency of Engagement in Various Informal Learning Activities

Figure 6.10 shows the scatterplot of poor working policy and frequency of engagement in various informal learning activities of this study. The above scatterplot indicated that there was no clear relationship between the residuals and the predicted values. Therefore, it is suggested that the relationship between poor working policy and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

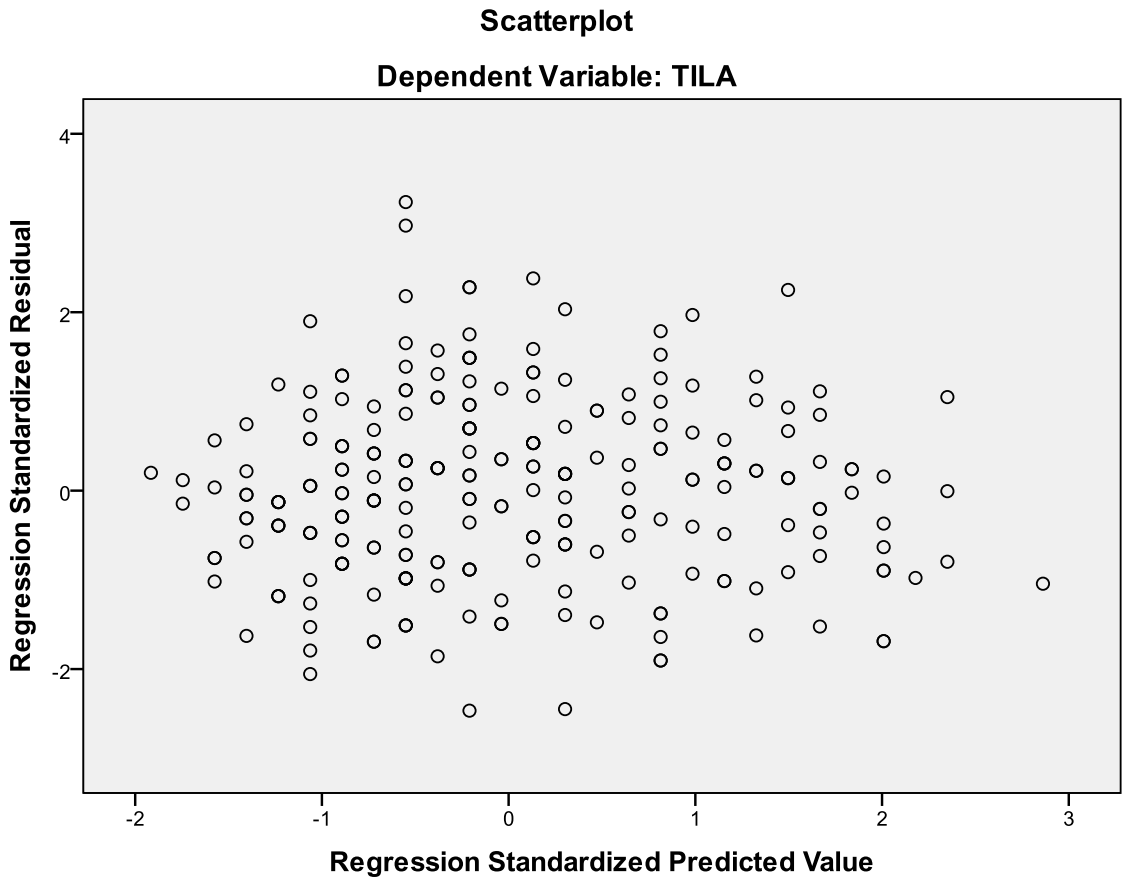

Figure 6.11
Scatterplot of Lack of Tolerance to Mistakes and Frequency of Engagement in Various Informal Learning Activities

Figure 6.11 indicates the scatterplot of lack of tolerance to mistakes and frequency of engagement in various informal learning activities of this study. As can be seen from the above scatterplot, there was no clear relationship between the residuals and the predicted values. This means that relationship between lack of tolerance to mistakes and frequency of engagement in various informal learning activities was linear (Coakes & Steed, 2003).

To recapitulate, the above scatterplots (Figure 6.1 till Figure 6.11) indicated that there were no clear relationship between the residuals and the predicted values between variables in this study. The absence of clear relationship between the residuals and the predicted values in all plots suggested that the assumption of linearity was met in this study (Coakes & Steed, 2003).

6.3.2.3 Homoscedasticity

The third multivariate assumption is homoscedasticity. To examine this assumption, Levene test was conducted on the metric variables against the non-metric variable (gender) of this study (Hair *et al*., 2006). Table 6.4 presents the results of the homoscedasticity tests. The SPSS output is presented in Appendix 6.4.

As shown in Table 6.4, the results of the Levene tests were not significant ($p>0.001$). This indicates that dependent variable exhibits equal level of variance across the range of independent variables for gender. Therefore, the assumption of homoscedasticity was met in this study (Coakes & Steed, 2003; Hair *et al*., 2006).

Table 6.4
Results of Homoscedasticity Tests (N=258)

	Non-Metric Variable - Gender	
Metric Variables	**Levene Statistic (F Value)**	**Significant Level (p<0.001)**
1. Lack of Time due to Heavy	.112	.738

Workload		
2. Lack of Proximity to Colleagues' Working Areas	.608	.436
3. Lack of Support from Others	.087	.768
4. Structural Inhibitor	.006	.936
5. Lack of Meaningful Rewards	.715	.399
6. Lack of Fund	.081	.777
7. Lack of Access to Updated Learning Materials	.060	.807
8. Lack of Access to Computer	2.967	.086
9. Limited Influence on Firm's Operation	1.867	.173
10. Poor Working Policy	.613	.435
11. Lack of Tolerance to Mistakes	.522	.471
12. Frequency of Engagement in Various Informal Learning Activities	.490	.485

6.3.2.4 Multicollinearity

The last multivariate assumption is multicollinearity. Pearson product-moment correlation coefficient, and tolerance and VIF were inspected to test this assumption. Table 6.5 presents the results of Pearson product-moment correlation coefficient. The SPSS output is presented in Appendix 6.5.

Table 6.5
Results of Pearson Product-Moment Correlation Coefficient (N=258)

	TLOT	TLOP	TLOS	TSTI	TLOR	TLOF	TLOU	TLOC	TLIF	TPWP	TLOM
TLOT	1										
TLOP	.051	1									
TLOS	.332**	.269**	1								
TSTI	-.044	-.066	.061	1							

TLOR	.388**	.236**	.422**	.027	1						
TLOF	.360**	.326**	.366**	-.004	.400**	1					
TLOU	.045	.344**	.247**	-.030	.157*	.292**	1				
TLOC	.034	.041	.182**	-.008	.064	.097	.290**	1			
TLIF	.351**	.268**	.420**	.036	.429**	.401**	.345**	.131*	1		
TPWP	.353**	.224**	.377**	-.086	.393**	.215**	.226**	.091	.450**	1	
TLOM	.401**	.225**	.414**	.079	.383**	.302**	.116	.108	.465**	.314**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed), Lack of Time due to Heavy Workload (TLOT), Lack of Proximity to Colleagues' Working Areas (TLOP), Lack of Support from Others (TLOS), Structural Inhibitor (TSTI), Lack of Meaningful Rewards (TLOR), Lack of Fund (TLOF), Lack of Access to Updated Learning Materials (TLOU), Lack of Access to Computer (TLOC), Limited Influence on Firm's Operation (TLIF), Poor Working Policy (TPWP), Lack of Tolerance to Mistakes (TLOM).

As shown in Table 6.5, the Pearson product-moment correlation coefficient between independent variables was less than 0.80. Therefore, there was no serious multicollinearity problem between independent variables based on the correlation coefficient in this study (Hair *et al*., 2006).

Tolerance and VIF values of independent variables were also examined to determine the presence of multicollinearity problem. Table 6.6 presents the two values and the SPSS output is presented in Appendix 6.5.

Table 6.6
Tolerance and VIF Values of Independent Variables (N=258)

Independent Variables	Collinearity Statistics	
	Tolerance	**VIF**
1. Lack of Time due to Heavy Workload	.678	1.476
2. Lack of Proximity to Colleagues' Working Areas	.766	1.306
3. Lack of Support from Others	.653	1.530
4. Structural Inhibitor	.959	1.042
5. Lack of Meaningful Rewards	.651	1.537
6. Lack of Fund	.671	1.491
7. Lack of Access to Updated Learning Materials	.719	1.390
8. Lack of Access to Computer	.891	1.122
9. Limited Influence on Firm's Operation	.572	1.748
10. Poor Working Policy	.682	1.467
11. Lack of Tolerance to Mistakes	.657	1.522

As can be seen from Table 6.6, tolerance value for each independent variable was not less than 0.10. This was also supported by the VIF values for the variables, which were well below the cut-off of 10. Therefore, there was no serious multicollinearity problem between independent variables in this study. In short, the results of Pearson product-moment correlation coefficient, and tolerance and VIF suggested that the data of this study did not suffer multicollinearity problem (Hair *et al*., 2006).

In short, the four assumptions of multivariate analyses, namely, normality, linearity, homoscedasticity and multicollinearity were deemed met in this study.

6.4 Goodness of Measures

The second stage of data analysis of this study was to establish the goodness of measures for testing the research hypotheses. The data of this study were initially submitted for factor analysis. Thereafter, the internal consistency of the factors was examined by conducting reliability analysis. The results of the both tests are described in the following subsections.

6.4.1 Factor Analysis

Principal Component Analysis with a Varimax rotation was utilized to identify the underlying structure or dimensions in the independent and dependent variables of this study. Altogether, two factors analyses were performed separately for each of the scale pertaining to the work environment inhibitors and frequency of engagement in various informal learning activities.

6.4.1.1 Factor Analysis for Work Environment Inhibitors to Informal Workplace Learning Activities

To assess the construct validity of the work environment inhibitors, factor analysis was undertaken. There were initially 59 items for the inhibitors. Initial results of the factor analysis on the 59 items revealed that one item for lack of time due to heavy workload, one item for lack of meaningful rewards and two items for structural

inhibitor had communalities below than 0.50. As suggested by Hair *et al*. (2006), these four items were eliminated from further analyses due to low communalities. Table 6.7 shows the items that had low communalities.

Table 6.7
Work Environment Inhibitors to Informal Learning Activities Items that Had Low Communalities (N=258)

Work Environment Inhibitors	**Items (Item Number)**	**Communalities**
1. Lack of Time due to Heavy Workload	I have problem in getting time off for informal learning due to heavy workload (3)	0.44
2. Lack of Meaningful Rewards	I receive few praises for informal learning in the firm (4)	0.45
3. Structural inhibitor	I have little knowledge on how my job relates to other units/departments (1)	0.40
	My office building (e.g. different floors/buildings) provides few opportunities to interact between units/departments (4)	0.44

Factor analysis was rerun on the remaining 55 work environment inhibitors items. Table 6.8 provides the results of the analysis and the SPSS output is given in Appendix 6.6.

Table 6.8

Results of Factor Analysis on Work Environment Inhibitors to Informal Learning Activities (N=258)

Items Coding in SPSS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
FACTOR 1: Lack of Access to Computer											
loc2	.94										
loc4	.93										
loc3	.92										
loc5	.92										
loc1	.89										
FACTOR 2: Limited Influence on Firm's Operation											
lif1		.79									
lif2		.78									
lif6		.77									
lif5		.76									
lif4		.73									
lif3		.73									
FACTOR 3: Lack Proximity to Colleagues' Working Areas											
lop3			.87								
lop5			.87								
lop1			.86								
lop2			.85								
lop4			.76								

Table 6.8
(Continued)

Items Coding in SPSS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
FACTOR 4: Lack of Tolerance to Mistakes											
lom2				.85							
lom4				.84							
lom1				.83							
lom3				.80							
lom5				.79							
FACTOR 5: Lack of Access to Updated Learning Materials											
lou3					.84						
lou1					.83						
lou2					.82						
lou4					.81						
lou5					.78						
FACTOR 6: Lack of Support from Others											
los1						.76					
los2						.74					
los6						.74					
los3						.71					
los4						.70					
los5						.69					
FACTOR 7: Lack of Fund											
lof2							.76				
lof1							.74				
lof3							.73				
lof4							.70				
lof5							.69				
lof6							.66				

Table 6.8
(Continued)

Items Coding in SPSS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
FACTOR 8: Poor Working Policy											
pwp1								.82			
pwp2								.80			
pwp3								.79			
pwp5								.75			
pwp4								.72			
FACTOR 9: Lack of Meaningful Rewards											
lor2									.73		
lor3									.68		
lor1									.68		
lor5									.65		
lor6									.63		
FACTOR 10: Lack of Time due to Heavy Workload											
lot5										.72	
lot4										.71	
lot2										.65	
lot1										.63	
FACTOR 11: Structural Inhibitor											
sti5											.81
sti3											.79
sti2											.72
Eigenvalues	12.91	4.90	4.10	2.96	2.67	2.55	2.30	1.87	1.75	1.60	1.43
Percentage of Variance Explained	8.04	7.79	7.33	7.32	7.02	6.96	6.77	6.53	5.11	4.57	3.54
Cumulative Percentage of Variance Explained	8.04	15.83	23.17	30.49	37.51	44.47	51.24	57.76	62.87	67.44	70.98
KMO	.89										
BTOS	.000										

Note: C = Component, suppress absolute values <0.30 and items were sorted by highest loading, loc = item for lack of access to computer, lif = item for limited influence on firm's operation, lop = item for lack of proximity to colleagues' working areas, lom = item for lack of tolerance to mistakes, lou = item for lack of access to updated learning materials , los = item for lack of support from others, lof = item lack of fund, pwp = item for poor working policy, lor = item for lack of meaningful rewards, lot = item for lack of time due to heavy workload, sti = item for structural inhibitor.

As shown in Table 6.8, the KMO value for the items was 0.89, exceeding the recommended value of 0.60 (Coakes & Steed, 2003; Hair *et al*., 2006). This indicated that the items were interrelated and they shared common factors (Hair *et al*., 2006). The individual item MSA values were above 0.50, indicating that the data matrix was suitable for factor analysis (Coakes & Steed, 2003). BTOS also reached statistical significance (p=0.000), supporting the factorability of the correlation matrix (Coakes & Steed, 2003; Hair *et al*., 2006). Factor loadings for the 55 items were above the recommended value of 0.50 (Hair *et al*., 2006). The results of Varimax rotated analysis also indicated the existence of eleven significant factors with eigenvalues greater than one which explained 70.98% of variance in the data. As suggested by Hair *et al*. (2006), the eleven factors retained represent 70.98% (more than 60%) of variance is deemed sufficient in terms of total variance explained.

Factor (or component) 1 included five items relating to lack of access to computer. The eigenvalue of this factor was 12.91, explaining 8.04% of variance in the data. Factor loadings for the five items ranged from 0.89 to 0.94. Since these five items did load onto original factor, the original name lack of access to computer was retained.

Factor 2, which was labeled as limited influence on firm's operation accounted for 7.79% of variance in the data with an eigenvalue of 4.90. Factor loadings for items in this factor ranged from 0.73 to 0.79. This factor consisted of six

items. Since these six items did load onto original factor, the original name limited influence on firm's operation was retained.

Factor 3 which was represented by five items was named as lack of proximity to colleagues' working areas. This factor had an eigenvalue of 4.10 accounted for 7.33% of variance in the data. Factor loadings for items in this factor ranged from 0.76 to 0.87. Since these five items did load onto original factor, the original name lack of proximity to colleagues' working areas was retained.

Factor 4 included five items relating to lack of tolerance to mistakes. The eigenvalue of this factor was 2.96, explaining 7.32% of variance in the data. Factor loadings for the five items ranged from 0.79 to 0.85. Since these five items did load onto original factor, the original name lack of tolerance to mistakes was retained.

Factor 5, which was labeled as lack of access to updated learning materials accounted for 7.02% of variance in the data with an eigenvalue of 2.67. Factor loadings for items in this factor ranged from 0.78 to 0.84. This factor consisted of five items. Since these five items did load onto original factor, the original name lack of access to updated learning materials was retained.

Factor 6 which was represented by six items was named as lack of support from others. This factor had an eigenvalue of 2.55 accounted for 6.96% of variance in the data. Factor loadings for items in this factor ranged from 0.69 to 0.76. Since these

six items did load onto original factor, the original name lack of support from others was retained.

Factor 7 included six items relating to lack of fund. The eigenvalue of this factor was 2.30, explaining 6.77% of variance in the data. Factor loadings for the six items ranged from 0.66 to 0.76. Since these six items did load onto original factor, the original name lack of fund was retained.

Factor 8 which was labeled as poor working policy accounted for 6.53% of variance in the data with an eigenvalue of 1.87. Factor loadings for items in this factor ranged from 0.72 to 0.82. This factor consisted of five items. Since these five items did load onto original factor, the original name poor working policy was retained.

Factor 9 which was represented by five items was named as lack of meaningful rewards. This factor had an eigenvalue of 1.75 accounted for 5.11% of variance in the data. Factor loadings for items in this factor ranged from 0.63 to 0.73. Since these five items did load onto original factor, the original lack of meaningful rewards was retained.

Factor 10 included four items relating to lack of time due to heavy workload. The eigenvalue of this factor was 1.60, explaining 4.57% of variance in the data. Factor loadings for the four items ranged from 0.63 to 0.72. Since these four items did

load onto original factor, the original name lack of time due to heavy workload was retained.

Factor 11 which was labeled as structural inhibitor accounted for 3.54% of variance in the data with an eigenvalue of 1.43. Factor loadings for items in this factor ranged from 0.72 to 0.81. This factor consisted of three items. Since these three items did load onto original factor, the original name structural inhibitor was retained.

6.4.1.2 Factor Analysis for Frequency of Engagement in Various Informal Workplace Learning Activities

Six items were used to measure the frequency of engagement in various informal learning activities. Initial results of the factor analysis on the six items suggested a single factor solution. However, one of the items was dropped due to low communalities (below than 0.50) (Hair *et al*., 2006). The item was "correspondence courses" (for instance, distance learning) which had communalities of 0.49. This means that the influence of all independent variables on the frequency of engagement in this learning activity cannot be tested using the regression analysis (see hypotheses *H1f*, *H2f*, *H3f*, *H4f*, *H5f*, *H6f*, *H7f*, *H8f*, *H9f*, *H10f* and *H11f*).

The remaining five items were reanalyzed. Table 6.9 summarizes the results of the analysis and the SPSS output is provided in Appendix 6.6.

Table 6.9
Results of Factor Analysis on Frequency of Engagement in Various Informal Learning Activities (N=258)

Items	C1
ila1	.81
ila2	.80
ila4	.79
ila3	.77
ila5	.76
Eigenvalue	3.08
Total Percentage of Variance Explained	61.65
KMO	.85
BTOS	.000

Note: C = Component, suppress absolute values <0.30 and items were sorted by highest loading, ila = item for frequency of engagement in various informal learning activities.

As can be seen from Table 6.9, the KMO value for the items was 0.85, exceeding the recommended value of 0.60 (Coakes & Steed, 2003; Hair *et al*., 2006). This indicated that the items were interrelated and they shared a common factor (Hair *et al*., 2006). The individual item MSA values were above 0.50, indicating that the data matrix was suitable for factor analysis (Coakes & Steed, 2003). BTOS also reached statistical significance (p=0.000), supporting the factorability of the correlation matrix (Coakes & Steed, 2003; Hair *et al*., 2006). The analysis resulted in single factor solution with eigenvalue of 3.08, explaining 61.65% of variance in the data. The factor retained represents 61.65% (more than 60%) of variance is deemed sufficient in terms of total variance explained (Hair *et al*., 2006). Factor loadings for the five items ranged from 0.76 to 0.81, thus, exceeding the recommended value of 0.50 (Hair *et al*., 2006). Since only one component was extracted, the solution could not be rotated.

To recapitulate, the factor analyses undertaken on the measures resulted in a reduction in the number of items. Of the 65 items measuring the study variables (work environment inhibitors and frequency of engagement in various informal learning activities), only five items (7.70%) were dropped due to low communalities as suggested by Hair *et al*. (2006). In addition, since all items had high (significant) loadings only on a single factor, it was confirmed that each of these constructs is factorially distinct (Moon & Kim, 2001). Therefore, it can be reasonably concluded that the results of factor analyses were consistent with the research conceptual framework and prior statistical literature (Coakes & Steed, 2003; Hair *et al*., 2006).

6.4.2 Reliability Analysis

After presenting the results of factor analyses, the internal consistency of the factors was examined by computing the Cronbach's alpha values for the remaining items after the factor analyses. Table 6.10 presents the results of reliability analysis. The SPSS output is presented in Appendix 6.7.

Table 6.10
Reliability of Survey Instrument (N=258)

Study Variables	Number of Items	Cronbach's Alpha Values
1. Lack of Time due to Heavy Workload	4	.74
2. Lack of Proximity to Colleagues' Working Areas	5	.93
3. Lack of Support from Others	6	.87
4. Structural Inhibitor	3	.70
5. Lack of Meaningful Rewards	5	.80
6. Lack of Fund	6	.86
7. Lack of Access to Updated Learning Materials	5	.91
8. Lack of Access to Computer	5	.96
9. Limited Influence on Firm's Operation	6	.92
10. Poor Working Policy	5	.89
11. Lack of Tolerance to Mistakes	5	.93
12. Frequency of Engagement in Various Informal Learning Activities	5	.84

As shown in Table 6.10, the Cronbach's alpha values for variables varied between 0.70 (structural inhibitor) and 0.96 (lack of access to computer). Five variables possessed Cronbach's alpha values above 0.90 (lack of proximity to colleagues' working areas, lack of access to updated learning materials, lack of access to computer, limited influence on firm's operation and lack of tolerance to mistakes), five between 0.80 and 0.90 (lack of support from others, lack of meaningful rewards, lack of fund, poor working policy and frequency of engagement in various informal learning activities) and only two below than 0.80 (lack of time due to heavy workload and structural inhibitor). In other words, none of the study variables demonstrated below the minimum reliability level of 0.60 (Hair *et al*., 2006). Thus, the internal

consistency of the measures used in this study was considered acceptable (Churchill, 1979; Sekaran, 2003).

6.5 Profile of Respondents

The frequency and percentage of demographic profiles are illustrated in Table 6.11. The SPSS output is given in Appendix 6.8.

The reported demographic profiles include gender, age, number of years as MIA member and number of years working in the current firm. In this research, gender distribution was slightly higher for males. Out of 258 respondents, 139 (53.9%) respondents are males and 119 (46.1%) are females.

The largest group of respondents (N=132, 51.2%) reported that they were in the "31-40" age group. The second largest group consisted of respondents with age "41-50" (N=59, 22.9%) and third largest group consisted of respondent with age "21-30" (N=35, 13.6%). The smallest group of respondents (N=32, 12.4%) reported that they were in "Over 50" age group.

Table 6.11
Profile of Respondents (N=258)

Demographic Profiles	Categories	Frequencies	Percentage
Gender:	Male	139	53.9
	Female	119	46.1
Age:	21-30 years	35	13.6
	31-40 years	132	51.2
	41-50 years	59	22.9
	Over 50 years	32	12.4
Number of Years as MIA Member:	1-5 years	81	31.4
	6-10 years	92	35.7
	11-15 years	44	17.1
	16-20 years	24	9.3
	Over 21 years	17	6.6
Number of Years Working in the Current Firm:	1-5 years	101	39.1
	6-10 years	95	36.8
	11-15 years	38	14.7
	Over 16 years	24	9.3

Majority of the respondents (N=92, 35.7%) have become MIA member for "6-10 years". The second and third largest groups reported that they have become MIA member for "1-5 years" (N=81, 31.4%) and for "11-15 years" (N=44, 17.1%) respectively. The fourth group consisted of respondents with "16-20 years" (N=24, 9.3%) membership in MIA. Finally, only 6.6% of the respondents (N=17) have become MIA member for "Over 21 years".

The largest group of respondents (N=101, 39.1%) indicated that they have worked at the current firm for "1-5 years". The second the largest group of respondents (N=95, 36.8%) reported that they have worked at the firm for "6-10 years". This is followed by "11-15 years" category (N=38, 14.7%) and "Over 16 years" (N=24, 9.3%).

6.6 Descriptive Statistics

6.6.1 Descriptive Statistics of Study Variables

The descriptive statistics of the variables were then calculated. Table 6.12 shows the minimum, maximum and mean scores, and standard deviations of the variables. The SPSS output is provided in Appendix 6.9.

As shown in Table 6.12, the scores for all variables were varied between 5 and 42. Lack of time due to heavy workload had the highest mean score (5.60) with a standard deviation of 2.42. Meanwhile, frequency of engagement in various informal learning activities had the lowest mean score (2.61) with a standard deviation of 3.59.

Table 6.12
Descriptive Statistics of Study Variables (N=258)

Study Variables	Number of Items	Minimum	Maximum	Mean	Standard Deviation
1. Lack of Time due to Heavy Workload	4	17	28	5.60	2.42
2. Lack of Proximity to Colleagues' Working Areas	5	5	33	4.12	6.30
3. Lack of Support from Others	6	15	38	4.56	4.80
4. Structural Inhibitor	3	9	20	5.36	1.88
5. Lack of Meaningful Rewards	5	14	35	5.07	3.47
6. Lack of Fund	6	15	42	4.96	4.69
7. Lack of Access to Updated Learning Materials	5	5	35	4.39	5.55
8. Lack of Access to Computer	5	5	35	3.38	7.03
9. Limited Influence on Firm's Operation	6	6	40	4.44	6.77
10. Poor Working Policy	5	7	34	4.73	4.78
11. Lack of Tolerance to Mistakes	5	5	33	4.35	5.86
12. Frequency of Engagement in Various Informal Learning Activities	5	5	23	2.61	3.59

The mean and standard deviation scores for other variables are as follows: (1) Structural inhibitor (mean = 5.36, standard deviation = 1.88); (2) lack of meaningful rewards (mean = 5.07, standard deviation = 3.47); (3) lack of fund (mean = 4.96, standard deviation = 4.69); (4) poor working policy (mean = 4.73, standard deviation = 4.78); (5) lack of support from others (mean = 4.56, standard deviation = 4.80); (6) limited influence on firm's operation (mean = 4.44, standard deviation =

6.77); (7) lack of access to updated learning materials (mean = 4.39, standard deviation = 5.55); (8) lack of tolerance to mistakes (mean = 4.35, standard deviation = 5.86); (9) lack of proximity to colleagues' working areas (mean = 4.12, standard deviation = 6.30); and (10) lack of access to computer (mean = 3.38, standard deviation = 7.03).

6.6.2 Descriptive Statistics of Frequency of Engagement in Various Informal Workplace Learning Activities

The descriptive statistics of frequency of engagement in all five informal learning activities were calculated. Table 6.13 shows the minimum, maximum and mean scores, and standard deviations of the frequency. The SPSS output is provided in Appendix 6.10. Responses to the frequency of engagement in the informal learning activities were made on a seven-point Likert scale ranging from 1 (extremely infrequent) to 7 (extremely frequent).

Table 6.13
Descriptive Statistics of Frequency of Engagement in Various Informal Learning Activities (N=258)

Informal Learning Activities	Minimum	Maximum	Mean	Standard Deviation
1. Reading Job Related Materials	1	5	2.70	.81
2. Audio/Video Tapes Usage	1	5	2.38	.93
3. Group Discussion	1	5	2.55	.93
4. Meeting	1	5	2.71	1.02
5. Briefing Session	1	5	2.69	.89
Total Scores for All Informal Learning Activities	5	25	13.03	4.58

From table 6.13, it can be seen that the total frequency scores for the informal learning activities ranged from 5 to 25 for all respondents. The overall mean and standard deviation values were 13.03 and 4.58 respectively. Table 6.13 also indicates that meeting was the most frequently engaged activity (mean = 2.71, standard deviation = 1.02) while audio/video tapes usage was the least frequently engaged activity (mean = 2.38, standard deviation = 0.93) amongst the accountants at the workplace. The mean and standard deviation values for other informal learning activities were as follows: (1) Reading job related materials (mean = 2.70, standard deviation = 0.81); (2) briefing session (mean = 2.69, standard deviation = 0.89); and (3) group discussion (mean = 2.55, standard deviation = 0.93).

6.7 Standard Multiple Regression Analyses

Standard multiple regression analyses were used to test the research hypotheses. The independent variables comprised of the eleven work environment inhibitors. They were lack of time due to heavy workload, lack of proximity to colleagues' working areas, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, lack of access to updated learning materials, lack of access to computer, limited influence on firm's operation, poor working policy and lack of tolerance to mistakes. The dependent variables were the frequency of engagement in reading job related materials (Regression Model 1), audio/video tapes usage (Regression Model 2), group discussion (Regression Model 3), meeting (Regression Model 4) and briefing session (Regression Model 5). These variables were entered into the regression equations and 258 cases were analyzed. The results of five regression models are discussed in the following subsections.

6.7.1 Regression Model 1: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Reading Job Related Materials

Table 6.14 summarizes the results of the analysis for Regression Model 1. The SPSS output is provided in Appendix 6.11.

As shown in Table 6.14, the Adjusted R Square value was .275. This means that Regression Model 1 model explains 27.5% of the variance in frequency of engagement in reading job related materials.

Table 6.14 also indicates that of the eleven work environment inhibitors, six inhibitors were found to be negatively and significantly influenced the frequency of engagement in reading job related materials. The inhibitors were lack of support from others (*H3a*) (p = .002, t = -3.07), structural inhibitor (*H4a*) (p = .047, t = -1.99), lack of meaningful rewards (*H5a*) (p = .022, t = -2.31), lack of fund (*H6a*) (p = .012, t = -2.53), limited influence on firm's operation (*H9a*) (p = .023, t = -2.29) and lack of tolerance to mistakes (*H11a*) (p = .034, t = -2.13). Thus, *H3a*, *H4a*, *H5a*, *H6a*, *H9a* and *H11a* were supported.

Table 6.14
Results of Regression Model 1: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Reading Job Related Materials (N=258)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significant Level
		B	Std. Error	Beta		
1	(Constant)	6.507	.696		9.354	.000
	1. Lack of Time due to Heavy Workload	.025	.023	.070	1.092	.276
	2. Lack of Proximity to Colleagues' Working Areas	.004	.008	.027	.447	.655
	3. Lack of Support from Others	-.037	.012	-.202	-3.073	.002*
	4. Structural Inhibitor	-.051	.025	-.110	-1.995	.047*
	5. Lack of Meaningful Rewards	-.038	.016	-.150	-2.308	.022*
	6. Lack of Fund	-.031	.012	-.165	-2.528	.012*
	7. Lack of Access to Updated Learning Materials	.016	.010	.105	1.670	.096
	8. Lack of Access to Computer	.002	.007	.013	.238	.812
	9. Limited Influence on Firm's Operation	-.021	.009	-.160	-2.285	.023*
	10. Poor Working Policy	-.006	.012	-.033	-.509	.611
	11. Lack of Tolerance to Mistakes	-.021	.010	-.141	-2.134	.034*

Note: Dependent Variable = Frequency of Engagement in Reading Job Related Materials, *Significant at $p \leq 0.05$, Adjusted R Square = .275, F = 9.840 (Sig.)

Meanwhile, lack of time due to heavy workload (*H1a*) (p = .276, t = 1.09), lack of proximity to colleagues' working areas (*H2a*) (p = .655, t = 0.45), lack of access to updated learning materials (*H7a*) (p = .096, t = 1.67), lack of access to computer (*H8a*) (p = .812, t = 0.24) and poor working policy (*H10a*) (p = .611, t = -

0.51) did not make any significant influence on the frequency of engagement in reading job related materials of this research. In short, *H1a*, *H2a*, *H7a*, *H8a* and *H10a* were not supported.

From Table 6.14, it can also be seen that amongst six significant work environment inhibitors, lack of support from others (β = -.202) had the most influence on the frequency of engagement in reading job related materials. Lack of fund had the second most influence (β = -.165), followed by limited influence on firm's operation (β = -.160), lack of meaningful rewards (β = -.150) and lack of tolerance to mistakes (β = -.141). Meanwhile, structural inhibitor (β = -.110) had the least influence on the frequency of engagement in this informal learning activity.

6.7.2 Regression Model 2: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Audio/Video Tapes Usage

Table 6.15 summarizes the results of the analysis for Regression Model 2. The SPSS output is provided in Appendix 6.11.

Table 6.15
Results of Regression Model 2: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Audio/Video Tapes Usage (N=258)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significant Level
		B	Std. Error	Beta		
2	(Constant)	6.959	.779		8.934	.000
	1. Lack of Time due to Heavy Workload	-.066	.026	-.169	-2.557	.011*
	2. Lack of Proximity to Colleagues' Working Areas	.007	.009	.050	.793	.428
	3. Lack of Support from Others	.002	.013	.011	.168	.867
	4. Structural Inhibitor	-.072	.029	-.144	-2.535	.012*
	5. Lack of Meaningful Rewards	-.011	.018	-.039	-.583	.560
	6. Lack of Fund	-.028	.014	-.138	-2.057	.041*
	7. Lack of Access to Updated Learning Materials	.010	.011	.059	.916	.360
	8. Lack of Access to Computer	.014	.008	.105	1.816	.071
	9. Limited Influence on Firm's Operation	-.021	.010	-.147	-2.042	.042*
	10. Poor Working Policy	-.018	.013	-.093	-1.392	.165
	11. Lack of Tolerance to Mistakes	-.026	.011	-.160	-2.352	.019*

Note: Dependent Variable = Frequency of Engagement in Audio/Video Tapes Usage, *Significant at $p \leq 0.05$, Adjusted R Square = .229, F = 7.933 (Sig.)

As can be seen in Table 6.15, the value of Adjusted R Square was .229. Therefore, the variability in frequency of engagement in audio/video tapes usage that accounted by Regression Model 2 was 22.9% (can be explained by the eleven independent variables in the model).

Table 6.15 also shows that five out of eleven work environment inhibitors were found to be negatively and significantly influenced the frequency of engagement in audio/video tapes usage. The inhibitors were lack of time due to heavy workload (*H1b*) (p = .011, t = -2.56), structural inhibitor (*H4b*) (p = .012, t = -2.54), lack of fund (*H6b*) (p = .041, t = -2.06), limited influence on firm's operation (*H9b*) (p = .042, t = -2.04) and lack of tolerance to mistakes (*H11b*) (p = .019, t = -2.35). Thus, *H1b*, *H4b*, *H6b*, *H9b* and *H11b* were supported.

Other work environment inhibitors, namely, lack of proximity to colleagues' working areas (*H2b*) (p = .428, t = 0.79), lack of support from others (*H3b*) (p = .867, t = 0.17), lack of meaningful rewards (*H5b*) (p = .560, t = -0.58), lack of access to updated learning materials (*H7b*) (p = .360, t = 0.92), lack of access to computer (*H8b*) (p = .071, t = 1.82) and poor working policy (*H10b*) (p = .165, t = -1.39) did not make any significant influence on the frequency of engagement in audio/video tapes usage of this research. This means that *H2b*, *H3b*, *H5b*, *H7b*, *H8b* and *H10b* were rejected.

From Table 6.15, it can also be seen that lack of time due to heavy workload (β = -.169) had the most influence on the frequency of engagement in audio/video tapes usage. The second most influential inhibitor on the frequency of engagement in audio/video tapes usage was lack of tolerance to mistakes (β = -.160). Limited influence on firm's operation (β = -.147) and structural inhibitor (β = -.144) were the third and the fourth most influential inhibitor. Meanwhile, the inhibitor that had the

least influence on the frequency of engagement in this activity was lack of fund (β = -.138).

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6.7.3 Regression Model 3: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Group Discussion

Table 6.16 summarizes the results of the analysis for Regression Model 3. The SPSS output is provided in Appendix 6.11.

As indicated in Table 6.16, the Adjusted R Square value for Regression Model 3 was .268. This value means that the research model accounted for 26.8% of the observed variations in frequency of engagement in group discussion.

Of the eleven work environment inhibitors, six inhibitors were found to be negatively and significantly influenced the frequency of engagement in group discussion. The significant inhibitors were lack of time due to heavy workload (*H1c*) (p = .002, t = -3.18), lack of support from others (*H3c*) (p = .044, t = -2.02), structural inhibitor (*H4c*) (p = .039, t = -2.07), lack of meaningful rewards (*H5c*) (p = .033, t = -2.14), limited influence on firm's operation (*H9c*) (p = .006, t = -2.76) and lack of tolerance to mistakes (*H11c*) (p = .043, t = -2.03). Thus, the results support *H1c*, *H3c*, *H4c*, *H5c*, *H9c* and *H11c*.

Table 6.16
Results of Regression Model 3: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Group Discussion (N=258)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significant Level
		B	Std. Error	Beta		
3	(Constant)	7.431	.790		9.406	.000
	1. Lack of Time due to Heavy Workload	-.083	.026	-.205	-3.180	.002*
	2. Lack of Proximity to Colleagues' Working Areas	.015	.010	.095	1.541	.125
	3. Lack of Support from Others	-.027	.014	-.133	-2.021	.044*
	4. Structural Inhibitor	-.060	.029	-.114	-2.071	.039*
	5. Lack of Meaningful Rewards	-.039	.018	-.139	-2.138	.033*
	6. Lack of Fund	-.004	.014	-.019	-.288	.774
	7. Lack of Access to Updated Learning Materials	.016	.011	.093	1.472	.142
	8. Lack of Access to Computer	.004	.008	.032	.560	.576
	9. Limited Influence on Firm's Operation	-.028	.010	-.194	-2.762	.006*
	10. Poor Working Policy	.012	.013	.059	.913	.362
	11. Lack of Tolerance to Mistakes	-.023	.011	-.135	-2.030	.043*

Note: Dependent Variable = Frequency of Engagement in Group Discussion, *Significant at $p \leq 0.05$, Adjusted R Square = .268, F = 9.549 (Sig.)

However, Table 6.16 shows that five other inhibitors have found not significant to the frequency of engagement in this informal learning activity. They were lack of proximity to colleagues' working areas (*H2c*) (p = .125, t = 1.54), lack of fund (*H6c*) (p = .774, t = -0.29), lack of access to updated learning materials (*H7c*)

(p = .142, t = 1.47), lack of access to computer (*H8c*) (p = .576, t = 0.56) and poor working policy (*H10c*) (p = .362, t = 0.91). Therefore, *H2c*, *H6c*, *H7c*, *H8c* and *H10c* were not supported.

As can be seen in Table 6.16, of the six significant work environment inhibitors, lack of time due to heavy workload (β = -.205) and limited influence on firm's operation (β = -.194) were the first and the second most influential inhibitor on the frequency of engagement in group discussion. This was followed by lack of meaningful rewards (β = -.139), lack of tolerance to mistakes (β = -.135), lack of support from others (β = -.133) and structural inhibitor (β = -.114).

6.7.4 Regression Model 4: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Meeting

Table 6.17 summarizes the results of the analysis for Regression Model 4. The SPSS output is provided in Appendix 6.11.

Table 6.17
Results of Regression Model 4: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Meeting (N=258)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significant Level
		B	Std. Error	Beta		
4	(Constant)	8.032	.847		9.486	.000
	1. Lack of Time due to Heavy Workload	-.016	.028	-.036	-.558	.577
	2. Lack of Proximity to Colleagues' Working Areas	.003	.010	.017	.270	.787
	3. Lack of Support from Others	-.033	.014	-.152	-2.312	.022*
	4. Structural Inhibitor	-.064	.031	-.114	-2.066	.040*
	5. Lack of Meaningful Rewards	-.050	.020	-.164	-2.523	.012*
	6. Lack of Fund	-.035	.015	-.157	-2.408	.017*
	7. Lack of Access to Updated Learning Materials	.017	.012	.088	1.400	.163
	8. Lack of Access to Computer	-.003	.008	-.022	-.383	.702
	9. Limited Influence on Firm's Operation	-.022	.011	-.144	-2.052	.041*
	10. Poor Working Policy	.001	.014	.004	.058	.954
	11. Lack of Tolerance to Mistakes	-.025	.012	-.138	-2.076	.039*

Note: Dependent Variable = Frequency of Engagement in Meeting, *Significant at $p \leq 0.05$, Adjusted R Square = .272, F = 9.741 (Sig.)

Table 6.17 indicates that the Adjusted R Square value for Regression Model 4 was .272. This means that the regression model accounted for 27.2% of the variability in frequency of engagement in meeting.

As can be seen in Table 6.17, six out of eleven work environment inhibitors were found to be negatively and significantly influenced the frequency of engagement in meeting. The inhibitors were lack of support from others (*H3d*) (p = .022, t = -2.31), structural inhibitor (*H4d*) (p = .040, t = -2.07), lack of meaningful rewards (*H5d*) (p = .012, t = -2.52), lack of fund (*H6d*) (p = .017, t = -2.41), limited influence on firm's operation (*H9d*) (p = .041, t = -2.05) and lack of tolerance to mistakes (*H11d*) (p = .039, t = -2.08). Thus, *H3d*, *H4d*, *H5d*, *H6d*, *H9d* and *H11d* were supported.

Furthermore, lack of time due to heavy workload (*H1d*) (p = .577, t = -0.56), lack of proximity to colleagues' working areas (*H2d*) (p = .787, t = 0.27), lack of access to updated learning materials (*H7d*) (p = .163, t = 1.40), lack of access to computer (*H8d*) (p = .702, t = -0.38) and poor working policy (*H10d*) (p = .954, t = 0.06) did not make any significant influence on the frequency of engagement in meeting of this research. In short, *H1d*, *H2d*, *H7d*, *H8d* and *H10d* were not supported.

Table 6.17 also indicates that, of the six significant work environment inhibitors, the first three most influential inhibitors on the frequency of engagement in meeting were lack of meaningful rewards (β = -.164), lack of fund (β = -.157) and lack of support from others (β = -.152). Following the above inhibitors were limited influence on firm's operation (β = -.144), lack of tolerance to mistakes (β = -.138) and structural inhibitor (β = -.114).

6.7.5 Regression Model 5: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Briefing Session

Table 6.18 summarizes the results of the analysis for Regression Model 5. The SPSS output is provided in Appendix 6.11.

Table 6.18 shows that the Adjusted R Square value was .290. This means that the research model explains 29.0% towards the variance in frequency of engagement in briefing session.

As illustrated in Table 6.18, amongst the eleven work environment inhibitors, six inhibitors were found to be negatively and significantly influenced the frequency of engagement in briefing session. The inhibitors were lack of time due to heavy workload (*H1e*) (p = .041, t = -2.06), lack of support from others (*H3e*) (p = .021, t = -2.32), structural inhibitor (*H4e*) (p = .018, t = -2.38), lack of meaningful rewards (*H5e*) (p = .041, t = -2.06), lack of fund (*H6e*) (p = .036, t = -2.11) and limited influence on firm's operation (*H9e*) (p = .018, t = -2.37). This means that *H1e*, *H3e*, *H4e*, *H5e*, *H6e* and *H9e* were supported.

Table 6.18
Results of Regression Model 5: The Influence of Work Environment Inhibitors on the Frequency of Engagement in Briefing Session (N=258)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significant Level
		B	Std. Error	Beta		
5	(Constant)	8.461	.757		11.177	.000
	1. Lack of Time due to Heavy Workload	-.052	.025	-.130	-2.057	.041*
	2. Lack of Proximity to Colleagues' Working Areas	.012	.009	.080	1.332	.184
	3. Lack of Support from Others	-.030	.013	-.151	-2.318	.021*
	4. Structural Inhibitor	-.066	.028	-.129	-2.380	.018*
	5. Lack of Meaningful Rewards	-.036	.018	-.132	-2.059	.041*
	6. Lack of Fund	-.028	.013	-.136	-2.112	.036*
	7. Lack of Access to Updated Learning Materials	.000	.011	.001	.018	.985
	8. Lack of Access to Computer	-.007	.008	-.055	-.982	.327
	9. Limited Influence on Firm's Operation	-.023	.010	-.164	-2.374	.018*
	10. Poor Working Policy	-.021	.013	-.107	-1.678	.095
	11. Lack of Tolerance to Mistakes	.000	.011	.003	.039	.969

Note: Dependent Variable = Frequency of Engagement in Briefing Session, *Significant at $p \leq 0.05$, Adjusted R Square = .290, F = 10.558 (Sig.)

The above results indicated that lack of proximity to colleagues' working areas (*H2e*) (p = .184, t = 1.33), lack of access to updated learning materials (*H7e*) (p = .985, t = 0.02), lack of access to computer (*H8e*) (p = .327, t = -0.98), poor working

policy (*H10e*) (p = .095, t = -1.68) and lack of tolerance to mistakes (*H11e*) (p = .969, t = 0.04) were not the significant inhibitors that influenced the frequency of engagement in briefing session of this research. Thus, *H2e*, *H7e*, *H8e*, *H10e* and *H11e* were rejected.

Table 6.18 also illustrates that of the six significant work environment inhibitors, limited influence on firm's operation (β = -.164) had the most influence on frequency of engagement in briefing session. Lack of support from others (β = -.151) and lack of fund (β = -.136) had the second and third most influence on the frequency of engagement in briefing session. This was followed by lack of meaningful rewards (β = -.132), lack of time due to heavy workload (β = -.130) and structural inhibitor (β = -.129).

To recapitulate, five regressions were conducted to test 55 research hypotheses (eleven hypotheses were tested for each regression model). Of the 55 hypotheses tested, 29 were found to be negatively (Regression Coefficient (β)) and significantly ($p \leq 0.05$) influenced the frequency of engagement in various informal learning activities of this study. Thus, it can be reasonably concluded that the majority of research hypotheses were supported. Table 6.19 presents the summary of the research findings from the hypotheses testing.

Table 6.19
Summary of Hypotheses Testing (N=258)

	Hypothesis	Predicted β Sign	Finding
H1a	*Lack of time due to heavy workload will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Not Supported
H1b	*Lack of time due to heavy workload will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Supported
H1c	*Lack of time due to heavy workload will have a negative influence on frequency of engagement in group discussion.*	Negative	Supported
H1d	*Lack of time due to heavy workload will have a negative influence on frequency of engagement in meeting.*	Negative	Not Supported
H1e	*Lack of time due to heavy workload will have a negative influence on frequency of engagement in briefing session.*	Negative	Supported
H2a	*Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Not Supported
H2b	*Lack of proximity to colleagues' working areas will have a negative influence on frequency engagement in audio/video tapes usage.*	Negative	Not Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H2c	*Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in group discussion.*	Negative	Not Supported
H2d	*Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in meeting.*	Negative	Not Supported
H2e	*Lack of proximity to colleagues' working areas will have a negative influence on frequency of engagement in briefing session.*	Negative	Not Supported
H3a	*Lack of support from others will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Supported
H3b	*Lack of support from others will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Not Supported
H3c	*Lack of support from others will have a negative influence on frequency of engagement in group discussion.*	Negative	Supported
H3d	*Lack of support from others will have a negative influence on frequency of engagement in meeting.*	Negative	Supported
H3e	*Lack of support from others will have a negative influence on frequency of engagement in briefing session.*	Negative	Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H4a	*Structural inhibitor will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Supported
H4b	*Structural inhibitor will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Supported
H4c	*Structural inhibitor will have a negative influence on frequency of engagement in group discussion.*	Negative	Supported
H4d	*Structural inhibitor will have a negative influence on frequency of engagement in meeting.*	Negative	Supported
H4e	*Structural inhibitor will have a negative influence on frequency of engagement in briefing session.*	Negative	Supported
H5a	*Lack of meaningful rewards will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Supported
H5b	*Lack of meaningful rewards will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Not Supported
H5c	*Lack of meaningful rewards will have a negative influence on frequency of engagement in group discussion.*	Negative	Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H5d	*Lack of meaningful rewards will have a negative influence on frequency of engagement in meeting.*	Negative	Supported
H5e	*Lack of meaningful rewards will have a negative influence on frequency of engagement in briefing session.*	Negative	Supported
H6a	*Lack of fund will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Supported
H6b	*Lack of fund will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Supported
H6c	*Lack of fund will have a negative influence on frequency of engagement in group discussion.*	Negative	Not Supported
H6d	*Lack of fund will have a negative influence on frequency of engagement in meeting.*	Negative	Supported
H6e	*Lack of fund will have a negative influence on frequency of engagement in briefing session.*	Negative	Supported
H7a	*Lack of access to updated learning materials will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Not Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H7b	*Lack of access to updated learning materials will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Not Supported
H7c	*Lack of access to updated learning materials will have a negative influence on frequency of engagement in group discussion.*	Negative	Not Supported
H7d	*Lack of access to updated learning materials will have a negative influence on frequency of engagement in meeting.*	Negative	Not Supported
H7e	*Lack of access to updated learning materials will have a negative influence on frequency of engagement in briefing session.*	Negative	Not Supported
H8a	*Lack of access to computer will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Not Supported
H8b	*Lack of access to computer will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Not Supported
H8c	*Lack of access to computer will have a negative influence on frequency of engagement in group discussion.*	Negative	Not Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H8d	*Lack of access to computer will have a negative influence on frequency of engagement in meeting.*	Negative	Not Supported
H8e	*Lack of access to computer will have a negative influence on frequency of engagement in briefing session.*	Negative	Not Supported
H9a	*Limited influence on firm's operation will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Supported
H9b	*Limited influence on firm's operation will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Supported
H9c	*Limited influence on firm's operation will have a negative influence on frequency of engagement in group discussion.*	Negative	Supported
H9d	*Limited influence on firm's operation will have a negative influence on frequency of engagement in meeting.*	Negative	Supported
H9e	*Limited influence on firm's operation will have a negative influence on frequency of engagement in briefing session.*	Negative	Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H10a	*Poor working policy will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Not Supported
H10b	*Poor working policy will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Not Supported
H10c	*Poor working policy will have a negative influence on frequency of engagement in group discussion.*	Negative	Not Supported
H10d	*Poor working policy will have a negative influence on frequency of engagement in meeting.*	Negative	Not Supported
H10e	*Poor working policy will have a negative influence on frequency of engagement in briefing session.*	Negative	Not Supported
H11a	*Lack of tolerance to mistakes will have a negative influence on frequency of engagement in reading job related materials.*	Negative	Supported
H11b	*Lack of tolerance to mistakes will have a negative influence on frequency of engagement in audio/video tapes usage.*	Negative	Supported
H11c	*Lack of tolerance to mistakes will have a negative influence on frequency of engagement in group discussion.*	Negative	Supported

Table 6.19
(Continued)

	Hypothesis	Predicted β Sign	Finding
H11d	*Lack of tolerance to mistakes will have a negative influence on frequency of engagement in meeting.*	Negative	Supported
H11e	*Lack of tolerance to mistakes will have a negative influence on frequency of engagement in briefing session.*	Negative	Not Supported

In addition, the analysis of the textual responses to the open-ended question in Section M of the questionainnaire found that no additional environment inhibitor to informal learning activities was reported by the accountants. The implications of the research findings on the theoretical and practical are offered in Chapter 7.

6.8 Summary

This chapter presents the results of data analyses. It highlights the data examination, factor analyses and internal consistency of the measures, the profile of respondents, descriptive statistics and standard multiple regression results. The next chapter will present discussion and conclusion of this study.

CHAPTER SEVEN

DISCUSSION AND CONCLUSION

7.1 Introduction

This chapter discusses the findings of this study based on the research questions as posited in Chapter 1. The discussions also include theoretical and practical implications, limitations and suggestions for future research. Finally, conclusion of the study and chapter summary are provided.

7.2 Recapitulation of the Study's Findings

The purpose of this study was to examine the influence of work environment inhibitors on the frequency of engagement in various informal learning activities. Data were gathered from chartered accountants in public accounting firms across Malaysia are current member of the MIA.

660 questionnaires were distributed and 269 (40.8%) were returned. However, due to missing data (nine cases) and outliers (two cases), only 258 (39.1%) were usable and then analyzed. In addition, the results of chi-square tests and independent sample *t*-tests indicated there was no response bias between early and late response groups in terms of demographic profiles and study variables. Tests on multivariate

assumptions, namely, normality, linearity, homoscedasticity and multicollinearity were also deemed met in this study.

PCA with Varimax rotation factor analyses was utilized to examine the factorial validity of the measures. The results of factor analyses for work environment inhibitors indicated the existence of eleven significant factors, therefore, consistent with the proposed research conceptual framework. The factors were lack of time due to heavy workload, lack of proximity to colleagues' working areas, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, lack of access to updated learning materials, lack of access to computer, limited influence on firm's operation, poor working policy and lack of tolerance to mistakes. However, one item for lack of time due to heavy workload, one item for lack of meaningful rewards and two items for structural inhibitor were eliminated because of their communalities were below the acceptable level (below 0.50). Therefore, only 55 out of 59 work environment inhibitors items that represented the eleven inhibitors were retained for further analyses.

Meanwhile, the results of factor analysis for frequency of engagement in various informal learning activities suggested a single factor solution. Initially, six items were used to measure this variable, however, one of the items (correspondence courses) was excluded for further analyses due to low communality (below 0.50). Therefore, the final number of item for this variable was five. Since correspondence courses was deleted from this study, the influence of all inhibitors on the frequency

of engagement in this informal learning activity cannot be tested. Therefore, no analysis was performed to to test hypotheses *H1f, H2f, H3f, H4f, H5f, H6f, H7f, H8f, H9f, H10f* and *H11f*.

After conducting the factor analyses, the internal consistency of the measures was examined by computing the Cronbach's alpha values. The results of reliability analyses indicated that the Cronbach's alpha values for all study variables were above the minimum acceptable level (0.60 and above).

The findings showed that meeting was the most frequently engaged informal learning activitiy amongst the accountants. This was followed by reading job related materials, briefing session and group discussion. Meanwhile, audio/video tapes usage was the least frequently engaged informal learning activity.

The findings also indicated that 29 out of 55 hypotheses were supported. Results from five standard multiple regression analyses indicated that, lack of time due to heavy was negatively and significantly influenced the frequency of engagement in audio/video tapes usage (*H1b*), group discussion (*H1c*) and briefing session (*H1e*) but not in reading job related materials (*H1a*) and meeting (*H1d*). Therefore, hypotheses *H1b*, *H1c* and *H1e* were supported while *H1a* and *H1d* were rejected.

This study found that the frequency of engagement in reading job related materials (*H3a*), group discussion (*H3c*), meeting (*H3d*) and briefing session (*H3e*) was negatively and significantly influenced by lack of support from others. However, this inhibitor did not influence the frequency of engagement in audio/video tapes usage (*H3b*). In short, hypotheses *H3a*, *H3c*, *H3d* and *H3e* were supported while *H3b* was not.

Meanwhile, hypotheses *H4a*, *H4b*, *H4c*, *H4d* and *H4e* were supported. This is because the findings indicated that structural inhibitor was negatively and significantly influenced the frequency of engagement in all five informal learning activities studied, namely, reading job related materials, group discussion, meeting, briefing session and audio/video tapes usage.

The regression analyses also showed that lack of meaningful rewards was negatively and significantly influenced the frequency of engagement in reading job related materials (*H5a*), group discussion (*H5c*), meeting (*H5d*) and briefing session (*H5e*) but not in audio/video tapes usage (*H5b*). In short, hypotheses *H5a*, *H5c*, *H5d* and *H5e* were supported while *H5b* was not.

The study also found that lack of fund was negatively and significantly influenced the frequency of engagement in job related materials (*H6a*), audio/video tapes usage (*H6b*), meeting (*H6d*) and briefing session (*H6e*). However, the influence of this inhibitor on the frequency of group discussion (*H6c*) was not

significant. Thus, only hypothesis *H6c* was rejected while hypotheses *H6a*, *H6b*, *H6d* and *H6e* were supported.

The five regression models indicated that limited influence on firm's operation was found to be negatively and significantly influenced the frequency of engagement in reading job related materials (*H9a*), audio/video tapes usage (*H9b*), group discussion (*H9c*), meeting (*H9d*) and briefing session (*H9e*). Therefore, hypotheses *H9a, H9b, H9c*, *H9d* and *H9e* were supported.

Meanwhile, the findings indicated that the influence of lack of tolerance to mistakes on the frequency of engagement in job related materials (*H11a*), audio/video tapes usage (*H11b*), group discussion (*H11c*) and meeting (*H11d*) was negative and significant. However, this inhibitor did not influence the frequency of engagement in briefing session (*H11e*). In other words, hypotheses *H11a*, *H11b*, *H11c* and *H11d* were supported while *H11e* was not.

Results of the five regression analyses also showed that lack of proximity to colleagues' working areas, lack of access to updated learning materials, lack of access to computer and poor working policy did not negatively and significantly influence the frequency of engagement in all five learning activities studied. Therefore, hypotheses *H2a, H2b, H2c, H2d, H2e* (hypotheses related to lack of proximity to colleagues' working areas), *H7a*, *H7b*, *H7c*, *H7d*, *H7e* (hypotheses related to lack of access to updated learning materials), *H8a*, *H8b*, *H8c*, *H8d*, *H8e*

*(*hypotheses related to lack of access to computer), *H10a*, *H10b*, *H10c*, *H10d* and *H10e* (hypotheses related to poor working policy) were not supported in this study.

Then, results of the five regression models were analyzed to identify the most influential inhibitor to the frequency of engagement in all five informal learning activities studied. Regression Model 1 indicated that lack of support from others was the strongest inhibitor that influenced the frequency of engagement in reading job related materials. Lack of time due to heavy workload was the most influential inhibitor to the frequency of engagement in audio/video tapes usage (Regression Model 2) and group discussion (Regression Model 3). As shown in Regression Model 4, the frequency of meeting was mostly discouraged by lack of meaningful rewards. Meanwhile, the accountants reported that limited influence on firm's operation was the major inhibitor to the frequency of engagement in briefing session as indicated in Regression Model 5.

7.3 Discussion

The discussions in this section will focus on the research questions posited in this study. Specifically, the questions were: (1) What is the frequency of engagement in various informal learning activities amongst accountants in public accounting firms?, (2) Do work environment inhibitors influence the frequency of engagement in various informal learning activities amongst accountants in public accounting firms?, (3) What is the most influential work environment inhibitor on the frequency of

engagement in various informal learning activities amongst accountants in public accounting firms?

7.3.1 The Frequency of Engagement in Various Informal Workplace Learning Activities

The first research question deals with the frequency of engagement in various informal learning activities amongst the accountants. This study found that the accountants make use of a variety of informal learning activities as stated in the By-Laws to develop and maintain knowledge and skills in the current and future work roles (MIA, 2007). The results also indicated that meeting was the most frequently engaged informal activity at the workplace. The second, third and fourth most frequently engaged activities were reading job related materials, briefing session and group discussion respectively. Meanwhile, the accountants reported that they utilize audio/video tapes least frequently when compared to other four informal activities. In short, it could be reasonably concluded that the accountants are more favor to interactive informal learning that is meeting than independent activity such as audio/video tapes usage at the workplace.

The result of this research provides additional empirical support to prior informal learning literature. For instance, Lancester *et al*. (2013) reported that meeting is one of the frequently used interaction approaches between staff members to discuss knowledge and skills applicable to the current and future work practices.

The finding is also consistent with Lohman (2005, 2006). Lohman (2005, 2006) found that teachers and human resource development professionals rely to a greater degree on interactive (such as talk and share materials and resources with others) rather than independent informal learning activities (like observe others, trial and error and scan professional magazines and journal) at the workplace.

7.3.2 The Influence of Work Environment Inhibitors on the Frequency of Engagement in Various Informal Workplace Learning Activities

The second research question deals with the influence of work environment inhibitors on the frequency of engagement in various informal learning activities. The following subsections discuss this research question in detail.

7.3.2.1 The Influence of Lack of Time due to Heavy Workload on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of time due to heavy workload will have a negative influence on the frequency of engagement in reading job related materials (*H1a*), audio/video tapes usage (*H1b*), group discussion (*H1c*), meeting (*H1d*) and briefing session (*H1e*). This study found that lack of time due to heavy workload was negatively and significantly influenced the frequency of engagement in audio/video tapes usage, group discussion and briefing session. Meanwhile, the influence of this inhibitor on the frequency of reading job related materials and meeting was not

significant. The result implies that the accountants perceive this factor inhibits the frequency of engagement in audio/video tapes usage, group discussion and briefing session but not in reading job related materials and meeting. In short, this inhibitor impedes three of the five informal learning activities amongst the accountants.

This finding is consistent with previous studies which found that limited time due to heavy workload inhibited various informal learning activities amongst professionals (Bryson *et al*., 2006; Gieskes *et al*., 2002; Hicks *et al*., 2007; Lohman, 2000, 2005, 2006, 2009; Tannenbaum, 1997; White *et al*., 2000). The result of this study is also in tandem with Lohman (2006, 2009) argument that the extent to which this factor inhibits informal learning depends on the type of learning activity in which professionals wish to engage.

7.3.2.2 The Influence of Lack of Proximity to Colleagues' Working Areas on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of proximity to colleagues' working areas will have a negative influence on the frequency of engagement in reading job related materials (*H2a*), audio/video tapes usage (*H2b*), group discussion (*H2c*), meeting (*H2d*) and briefing session (*H2e*). This study found that lack of proximity to colleagues' working areas did not negatively and significantly influence the frequency of engagement in all five learning activities. The result indicates that this

factor was not perceived by the accountants as the inhibitor to the frequency of engagement in the informal learning activities studied.

This finding is in congruence with Hicks *et al*. (2007) who found that Canadian accountants did not experience this inhibitor at the workplace. The possible explanation could be the accountants in this study are located near to each other according to their technical or professional area, therefore, this inhibitor was least evidence amongst them This argument is consistent with Doornbos *et al*. (2004) and Lohman (2000, 2006). However, this finding is inconsistent with past empirical researches such as Lohman (2000, 2005, 2006, 2009), Lohman and Woolf (2001), and White *et al*. (2000) since they found that this factor constrained various informal learning activities amongst professionals.

7.3.2.3 The Influence of Lack of Support from Others on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of support from others will have a negative influence on the frequency of engagement in reading job related materials (*H3a*), audio/video tapes usage (*H3b*), group discussion (*H3c*), meeting (*H3d*) and briefing session (*H3e*). This study found that lack of support from others was negatively and significantly influenced the frequency of engagement in reading job related materials, group discussion, meeting and briefing session. However, the influence of this inhibitor on the frequency of audio/video tapes usage was not significant. The result

implies that the accountants perceive this factor constrains the frequency of engagement in reading job related materials, group discussion, meeting and briefing session but not in audio/video tapes usage. In other words, this factor disrupts four out of five informal learning activities amongst the accountants.

This finding concurs with previous studies such as Ellinger and Cseh (2007), Ellstrom *et al*. (2008), Hicks *et al*.'s (2007), Lohman (2005, 2009), McCracken (2005), Munro *et al*. (2000), Sambrook and Stewart (2000), Tannenbaum (1997) and White *et al*. (2000) which reported that this inhibitor had a negative influence on various informal learning activities amongst professionals. The result of this study also supported Lohman (2006, 2009) contention that the extent to which this factor impedes informal learning based on the type of learning activity in which professionals would like to engage.

7.3.2.4 The Influence of Structural Inhibitor on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that structural inhibitor will have a negative influence on the frequency of engagement in reading job related materials (*H4a*), audio/video tapes usage (*H4b*), group discussion (*H4c*), meeting (*H4d*) and briefing session (*H4e*). This study found that structural inhibitor was negatively and significantly influenced the frequency of engagement in all five informal learning activities. The result implies that the accountants perceive this factor hinders the frequency of engagement

in the learning activities. This is the first research that provides empirical evidence on the importance of this inhibitor in influencing the accountants' frequency of engagement in various informal learning activities.

The finding of this study supports previous researches on the negative influence of this inhibitor on various informal learning activities amongst professionals (Ellinger, 2004; Ellinger & Cseh, 2007; Gieskes *et al*., 2002; Jurasaite-Harbison, 2009).

7.3.2.5 The Influence of Lack of Meaningful Rewards on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of meaningful rewards will have a negative influence on the frequency of engagement in reading job related materials (*H5a*), audio/video tapes usage (*H5b*), group discussion (*H5c*), meeting (*H5d*) and briefing session (*H5e*). This study found that lack of meaningful rewards was negatively and significantly influenced the frequency of engagement in reading job related materials, group discussion, meeting and briefing session. However, the influence of this inhibitor on the frequency of audio/video tapes usage was not significant. The result implies that the accountants' informal learning activities, namely, reading job related materials, group discussion, meeting and briefing session would be less likely to take place if the firms fail to provide adequate rewards. In short, this factor interrupts four out of five informal learning activities being studied.

This finding is consistent with previous studies such as Ashton (2004), Bryson *et al*. (2006), Lohman (2000), Munro *et al*. (2000), and Sambrook and Stewart (2000) which found that this factor inhibited various informal learning activities amongst professionals.

The result of this study also consistent with Lohman (2006, 2009) suggestion that the extent to which one factor inhibits informal learning depends on the type of learning activity that used by professional to develop and maintain knowledge and skills. However, this finding is inconsistent with Hicks *et al*. (2007) who reported that this inhibitor was least evidence amongst Canadian accountants. Hicks *et al*. (2007) found that the accountants did not experience this inhibitor at the workplace since their informal learning was sufficiently rewarded.

7.3.2.6 The Influence of Lack of Fund on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of fund will have a negative influence on the frequency of engagement in reading job related materials (*H6a*), audio/video tapes usage (*H6b*), group discussion (*H6c*), meeting (*H6d*) and briefing session (*H6e*). This study found that lack of fund was negatively and significantly influenced the frequency of engagement in job related materials, audio/video tapes usage, meeting and briefing session. However, the influence of this inhibitor on the frequency of group discussion was not significant. The result implies that the accountants perceive

this inhibitor disrupts the frequency of engagement in job related materials, audio/video tapes usage, meeting and briefing session but not in group discussion. In other words, four out of five informal learning activities of the accountants were negatively influenced by this inhibitor.

This finding is parallel with prior studies such as Bryson *et al*. (2006), Ellinger, (2004), Jurasaite-Harbison (2009), Lohman (2005, 2006), Sambrook and Stewart (2000), and Munro *et al*. (2000) which discovered that this inhibitor restricted professionals from various informal learning activities. The result of this study also in congruence with Lohman (2006, 2009) contention that the extent to which this factor constraints informal learning depends on the type of learning activity that professionals normally used at the workplace. However, the result is inconsistent with Hicks *et al*. (2007) who indicated that this factor was not perceived by Canadian accountants as the inhibitor to informal learning activities. In this sense, they found that the accountants have adequate fund to support informal learning activities at the workplace (Hicks *et al*., 2007).

7.3.2.7 The Influence of Lack of Access to Updated Learning Materials on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of access to updated learning materials will have a negative influence on the frequency of engagement in reading job related

materials (*H7a*), audio/video tapes usage (*H7b*), group discussion (*H7c*), meeting (*H7d*) and briefing session (*H7e*). This study found that lack of access to updated learning materials did not negatively and significantly influence the frequency of engagement in all five informal learning activities. The result illustrates that this factor was not perceived by the accountants as the inhibitor to the frequency of engagement in various informal learning activities being studied.

The result of this study supported Hicks *et al*. (2007) who found that this inhibitor was least evidence amongst Canadian accountants. The probable reason could be the accountants in this study do not have problem to access updated learning materials in the firms to support their informal learning activities; therefore, did not cause their informal learning activities less likely to occur. This argument is consistent with Brookfield (1993), Eraut (2004) and Lohman (2000). Nevertheless, this finding is inconsistent with previous studies such as Sambrook and Stewart (2000) since they found that professionals have problem to access the learning materials to support informal learning activities at the workplace.

7.3.2.8 The Influence of Lack of Access to Computer on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of access to computer will have a negative influence on the frequency of engagement in reading job related materials (*H8a*), audio/video tapes usage (*H8b*), group discussion (*H8c*), meeting (*H8d*) and briefing

session (*H8e*). This study found that lack of access to computer did not negatively and significantly influence the frequency of engagement in all five informal learning activities. The result indicates that this factor was not perceived by the accountants as the inhibitor to the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion, meeting as well as briefing session.

The result of this study supported Hicks *et al*. (2007) who reported that this factor was not the inhibitor to informal learning activities amongst Canadian accountants. The probable reason could be the accountants in this study are provided with adequate access to computer by their firms to support the learning activities (Hicks *et al*., 2007; Vera-Munoz *et al*., 2006). Therefore, this inhibitor did not negatively influence their frequency of engagement in the learning activities. However, this finding is inconsistent with Lohman (2000, 2009) as they found that this inhibitor restricts teachers from various informal learning activities.

7.3.2.9 The Influence of Limited Influence on Firm's Operation on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that limited influence on firm's operation will have a negative influence on the frequency of engagement in reading job related materials (*H9a*), audio/video tapes usage (*H9b*), group discussion (*H9c*), meeting (*H9d*) and briefing session (*H9e*). This study found that limited influence on firm's operation

was negatively and significantly influenced the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion, meeting as well as briefing session. The result implies that the accountants perceive this factor as the inhibitor that constraints the frequency of engagement in all five informal learning activities.

This finding is parallel with previous studies such as Gieskes *et al*. (2002), Jurasaite-Harbison (2009), Lohman (2000), and Lohman and Woolf (2001) who found that this inhibitor impeded professionals' various informal learning activities.

7.3.2.10 The Influence of Poor Working Policy on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that poor working policy will have a negative influence on the frequency of engagement in reading job related materials (*H10a*), audio/video tapes usage (*H10b*), group discussion (*H10c*), meeting (*H10d*) and briefing session (*H10e*). This study found that poor working policy was not negatively and significanly influenced the frequency engagement in all five informal learning activities. The result indicates that this factor was not perceived by the accountants as the important inhibitor to the frequency of engagement in the informal learning activities. Since there is no previous study has been conducted to examine poor working policy amongst the accountants, this is the first research that provides

empirical evidence on the insignificant influence of this factor on their informal learning activities.

This finding is inconsistent with prior researchers such as Ashton (2004), Bryson *et al*. (2006) and Munro *et al*. (2000). The probable explanation could be the accountants in this study have exposure to various work assignments and experiences through informal learning activities in order to cater their continuous career development needs. Therefore, this inhibitor was considered least important to them (Hoeksema, Van De Vliert, & Williams, 1997; McCauley, Rudermen, Ohlott, & Morrow, 1994; Nicholson, 1984; Ohlott, Ruderman, & McCauley; 1994; Watkins & Cervero, 2000).

7.3.2.11 The Influence of Lack of Tolerance to Mistakes on the Frequency of Engagement in Various Informal Workplace Learning Activities

Five hypotheses posit that lack of tolerance to mistakes will have a negative influence on the frequency of engagement in reading job related materials (*H11a*), audio/video tapes usage (*H11b*), group discussion (*H11c*), meeting (*H11d*) and briefing session (*H11e*). This study found that lack of tolerance to mistakes was negatively and significantly influenced the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion and meeting. However, the influence of this inhibitor on the frequency of briefing session was not significant. The result implies that the accountants' informal learning activities, namely, reading

job related materials, audio/video tapes usage, group discussion and meeting would be less likely to take place because of this inhibitor. This is the first research that examines lack of tolerance to mistake in accounting profession context. Therefore, this research provides empirical evidence on the importance of this factor in influencing the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion and meeting amongst the accountants.

This finding supported Cheetham and Chivers (2001), and Tannenbaum (1997) contention that professional' informal learning activities were less likely to occur due to mistakes are less tolerated during applying new knowledge and skills. Thus, the current research contention that this inhibitor would inhibit various accountants' informal learning activities is also supported.

To recapitulate, despite the above discussions showed that most of the research findings are consistent with previous research work, there are some findings that are not consistent with them. Thus, it could be reasonably concluded that applying findings from prior literature into this research seemed to yield different results also. The nature of informal learning which is context specific may help to explain the differences. As Marsick and Watkins (1990) pointed out, informal learning is experience-based, when employees learn informally at the workplace they are highly influenced by the context, that is, the particular environment in which something happens.

7.3.3 The Most Influential Work Environment Inhibitor on the Frequency of Engagement in Various Informal Workplace Learning Activities

The third research question deals with identifying the most influential work environment inhibitor on the frequency of engagement in various informal learning activities. This study found that lack of support from others was the strongest inhibitor that influenced the frequency of engagement in reading job related materials amongst the accountants (Regression Model 1). This means that reading job related materials would be least likely to take place when an accountant receives less support from other colleagues.

The accountants also reported that the frequency of engagement in audio/video tapes usage (Regression Model 2) and group discussion (Regression Model 3) was mostly disrupted by lack of time due to heavy workload. The results indicated that the accountants' audio/video tapes usage and group discussion would occur least frequently when they experience this inhibitor at the workplace. Lack of meaningful rewards was the strongest inhibitor that influences the frequency of meeting (Regression Model 4). In other words, meeting is mostly discouraged when the accountants receive few meaningful rewards.

Meanwhile, the accountants reported that limited influence on firm's operation was the prominent inhibitor to the frequency of engagement in briefing

session (Regression Model 5). This finding showed that lack of capacity to influence firms' operation results in less briefing session activity.

To recapitulate, the above findings indicated that the most influential work environment inhibitor on the frequency of engagement in various informal learning also related to the type of learning activity that is used by the accountants to learn informally at the workplace. These findings are consistent with Lohman (2006, 2009). Lohman (2006) found that lack of time due to heavy workload and lack of proximity to colleagues' working areas were the most influential inhibitors that impede the frequency of engagement in observing others amongst teachers. In addition, IT professionals reported that lack of time due to heavy workload was the strongest inhibitor to the frequency of engagement in collaborates with others (Lohman, 2009). Meanwhile, lack of proximity to colleagues' working areas was the prominent inhibitor that constrained observing others amongst IT professionals (Lohman, 2009).

7.4 Implications of the Study

The results of this research provide several theoretical and practical implications. Both implications are discussed in the following subsections.

7.4.1 Theoretical Implications

The findings of the research have several important theoretical implications. Subsections 7.4.1.1 till 7.4.1.5 discuss the implications in detail.

7.4.1.1 Develop and Validate a New Conceptual Framework

The theoretical relationships posited in the newly developed research framework were empirically supported. Specifically, this is the first study that validated the linkage between work environment inhibitors and the frequency of engagement in various informal learning activities amongst the accountants. In other words, this study adds further knowledge on the importance of work environment inhibitors as the factors that influence the frequency of engagement in various informal learning activities amongst accountants.

7.4.1.2 Integrate Orientations of Adult Learning Theory

This study also provides empirical support for the behaviorist (Pavlov, 1927; Skinner, 1938; Watson, 1930), social cognitive (Bandura, 1977, 1986) and constructivist orientations (Lave & Wenger, 1991) of adult learning theory. As discussed earlier, these three orientations postulated that an individual's immediate work environment influences informal learning activities (Bandura, 1977, 1986; Lave & Wenger, 1991; Pavlov, 1927; Skinner, 1938; Watson, 1930). Since the statistical

analyses indicated that lack of time due to heavy workload, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, limited influence on firm's operation and lack of tolerance to mistakes were negatively and significantly influenced the frequency of engagement in various (at least three out of five activities) informal learning activities, the research findings are consistent with these orientations.

7.4.1.3 Develop and Validate a Survey Instrument

This study also contributes towards theory as it develops and validates a survey instrument for all study variables. The instrument was used to examine the influence of work environment inhibitors on the frequency of engagement in various informal learning activities from the perspective of Malaysian accountants. Tengku Ariffin (2010) pointed out that these efforts are considered to be a major contribution to informal learning practice in Malaysian context.

7.4.1.4 Examine New Work Environment Inhibitors

Another important theoretical contribution of this study is that it includes three new work environment inhibitors, namely, structural inhibitor, poor working policy and lack of tolerance to mistakes to the informal learning conceptual framework. As discussed earlier, these inhibitors are not yet examined from the perspective of accountants in public accounting firms (Hicks *et al*., 2007). Based on

the statistical results, two out of three new inhibitors were found (structural inhibitor and lack of tolerance to mistakes) to be negatively and significantly influenced the frequency of engagement in various informal learning activities. Specifically, this study found that structural inhibitor had a negative and significant influence on the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion, meeting and briefing session activities. Meanwhile, frequency of engagement in reading job related materials, audio/video tapes usage, group discussion and meeting was negatively and significantly influenced by lack of tolerance to mistakes. Thus, this is the first study that provides empirical evidence on the importance of these two inhibitors in influencing accountants' various informal learning activities.

7.4.1.5 Provide More Conclusive Empirical Evidence

Unlike most of previous work environment inhibitors to informal learning activities studies which were descriptive in nature (Ellinger 2004; Ellstrom *et al*., 2008; Hicks *et al*., 2007), the use of standard multiple regression analysis in this study provides improved empirical evidence in terms of statistical conclusion validity and generalization of the influence of the inhibitors on the frequency of engagement in various informal learning activities amongst professionals in general and amongst the accountants in particular (Hicks *et al*., 2007; Skule, 2004, Straub *et al*., 2004).

In addition, to the researcher's knowledge, this is the first local study that examines the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst accountants in public accounting firms using inferential statistics that is standard multiple regression. From the results of this study, one can understand more about the statistically significant and insignificant inhibitors amongst the accountants. Additionally, this research also gave evidence on the most influential factors to the informal learning activities. In other words, this study provides clear evidence on which inhibitors are most prominent for the accountants' informal learning activities within the Malaysian context.

7.4.2 Practical Implications

The findings from this study give rise to the following important implications for facilitating informal learning activities amongst accountants in public accounting firms. These implications are related to 29 of the 55 hypotheses which were negatively and significantly influenced the frequency of engagement in various informal learning activities. Subsections 7.4.2.1 till 7.4.2.8 will discuss the implications in detail.

7.4.2.1 Create a More Conducive Work Environment

The statistical results obtained in this research indicated that lack of time due to heavy workload, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, limited influence on firm's operation and lack of tolerance to mistakes were negatively and significantly influenced the frequency of engagement in various (at least three of the five activities) informal learning activities amongst the accountants. Thus, the findings suggest that public accounting firms need to create a more conducive work environment for informal learning activities. In doing so, the firms need to develop appropiate strategies to address the significant informal learning inhibitors. Such strategies are essential to reduce the inhibitors and facilitate an accountant's informal learning activities (Hicks *et al*., 2007).

Watkins and Marsick (1993) pointed out that the creation of an informal learning environment goes far beyond the design learning itself. It involves the design of work, technology, reward systems, structures and policies (Watkins & Marsick, 1993). This highlights the need to remove obstacles, punishments and arrange positive consequences to informal learning activities since it is critical to organizational growth and survival (Bell, 1977). In other words, it is important to create a conducive work environment that does not inhibit the accountants' informal learning activities. This suggestion is supported by many other informal learning scholars (Lohman, 2000, 2005, 2006, 2009; Lohman & Woolf, 2001). Lohman (2000) also argued that such effort is parallel with a comment made by Benjamin Disraeli, a

19th-century prime minister of England. According to him:"…man is not the creature of circumstances, but, circumstances are the creatures of men. Therefore, work environments, like circumstances, are created by people and as such can be redesigned to minimize if not eliminate inhibitors to informal learning" (as cited in Lohman, 2000).

To recapitulate, if public accounting firms want to create a conducive work environment for informal learning activities, they should take appropriate remedial actions to reduce the work environment inhibitors that are perceived by the accountants as negative and significant in influencing their informal learning activities. For instance, the firms can develop appropriate strategy to reduce problem lack of time due to heavy workload in order to build a more free time for the accountants' informal learning activities at the workplace.

7.4.2.2 Build a Greater Amount of Free Time

Results from this study showed that lack of time due to heavy workload had a negative and significant influence on the frequency of engagement in audio/video tapes usage, group discussion and briefing session. The results also indicated that this inhibitor was the most influential factor to the frequency of engagement in audio/video tapes usage and group discussion. Thus, a greater amount of free time must be provided to the accountants to facilitate informal learning activities. This

suggestion is consistent with other scholars such as Coetzer (2007), Fuller and Unwin (2004a, 2004b), Hicks *et al*. (2007) and Lohman (2000, 2006, 2005, 2009).

As discussed earlier, many researchers had observed that this time constraint was due to heavy workload (Ellinger & Cseh, 2007; Ellstrom *et al*., 2008; Sambrook & Stewart, 2000; Van Woerkom *et al*., 2002). Hence, it is suggested that the allocation and structure of workload of the accountants need to be reviewed (Hicks *et al*., 2007). For instance, Hoekstra *et al*. (2009) opined that the collaboration with other colleagues is a good means to reduce workload, which is through proper segregation of duties. This type of collaboration also enables professionals to learn from others (Cheetham & Chivers, 2001).

However, Lohman (2000, 2005, 2006, 2009), and Lohman and Woolf (2001) argued that simply increasing free time was not sufficient to facilitate informal learning activities. This is because if professionals are always given leeway and no deadline for task accomplishment, they will take additional time for granted (Gieskes *et al*., 2002). To avoid such situation, this study recommends that both public accounting firms and accounting profession bodies offer time management courses to guide the accountants to utilize the free time for informal learning activities.

Thus, a greater amount of free time needs to be provided to accountants through task collaboration amongst colleagues. In addition, the skills to manage free time are also essential. It is suggested that this strategy can be adopted to reduce the

problem of lack of time due to heavy workload and in turn can facilitate an accountant's informal learning activities.

7.4.2.3 Mentor Staff Members

The findings of this research suggested that lack of support from others had a negative and significant influence on the frequency of engagement in reading job related materials, group discussion, meeting and briefing. The findings also suggested that lack of support from others was the strongest inhibitor that influences the frequency of engagement in reading job related materials. Therefore, knowledgeable accountants, regardless of their position or rank, should be prepared to discharge their new roles as mentors since they can initiate informal learning cycle of others. For instance, Gold and Smith (2003) opined that through on-going talks and activity, knowledgeable employees can convince their colleagues about the benefit of informal learning. This suggestion is also supported by Collin (2009), Hicks *et al*. (2007), McCracken (2005), Lancester *et al*. (2013), and Rushmer, Lough, and Davies (2004). However, Ashton (2004), and Sambrook and Stewart (2000) argued that knowledgeable employees experienced lack of knowledge and skills on how to support other staff members informal learning activities. Thus, it is suggested that there is a need to train knowledgeable accountants on the importance of supporting other staff members in the learning activities.

Several scholars recommended that, to train knowledgeable employees about the importance of supporting others' informal learning activities and to enable them to discharge the new roles effectively, the exposure to training and teaching methods is vital (Ashton, 2004; Bryson *et al*., 2006; Coetzer, 2007; Ellinger, 2004; Vera & Crossan, 2004). These include management skills, team learning (for instance, cooperative learning), critical reflectivity and creativity skills, interpersonal skills, communication skills, coaching and mentoring skills, and leadership approaches (McCracken, 2005; Macneil, 2001; Sadler-Smith *et al*., 2000). In this sense, the firms can organize training programs to impart the above knowledge and skills on the accountants.

In short, public accounting firms should train knowledgeable accountants on their new roles as mentors in order to support other colleagues' informal learning activities. It is recommended that this approach should be adopted to reduce the problem of lack of support from others and in turn can facilitate an accountant's informal learning activities.

7.4.2.4 Encourage Cross-Department Knowledge Sharing

The negative and significant influence of structural inhibitor on the frequency of engagement in all five informal learning activities should be recognized by public accounting firms. Therefore, it is imperative for the firms to encourage cross-department knowledge sharing to address this issue (Gundry, Kickul, & Prather 1994;

Vera-Munoz, *et al*., 2006). For instance, the firms can organize knowledge sharing activities between audit and tax departments to enhance understanding about current issues that affect their work. Cross-department knowledge sharing can facilitate informal learning activities amongst the accountants since it enables them to know each other, aware of how their unit and jobs relate to each other and deal with complex and ambiguous work problems. This suggestion is consistent with other scholars such as Arroyo and Pozzebon (2010), Bell (1977), Dobbs (2000), Gnyawali and Stewart (2003), Gundry *et al*. (1994) and Hodgkinson (2000). For instance, Bell (1977) found that a large research and development company encourages staff members from different departments to discuss work related issues in a breakfast gathering where coffee and donuts were served. Therefore, public accounting firms can apply the same practice to facilitate informal learning activities amongst the accountants.

In sum, since structural inhibitor exists in the accountants' work environment, cross-department knowledge sharing should be encouraged by the firms to reduce this problem. Such sharing can be used as a platform to encourage group discussion, improve communication, handle specific problems or projects and enhance coordination of organizational activities amongst the accountants. It is suggested that this strategy can facilitate an accountant's informal learning activities.

7.4.2.5 Revise Reward System

The statistical results obtained in this study showed that lack of meaningful rewards and lack of support from others had a negative and significant influence on the frequency of engagement in reading job related materials, group discussion, meeting and briefing session. In addition to this, lack of meaningful rewards and lack of support from others were the strongest inhibitors that influence the frequency of engagement in meeting and reading job related materials respectively. Therefore, the firms' reward system must be continuously revised so that meaningful benefits can be created to promote informal learning activities amongst the accountants. This suggestion is consistent with Lohman (2000), Lohman and Woolf (2001) and Rosenblum and Keller (1994). This research offers the following two sub-strategies when the firms revising their reward system for informal learning. The first strategy is related to lack of meaningful rewards and the second one is related to lack of support from others.

First, the firms' reward system for informal learning should consider both short term and long term rewards. Ashton (2004) highlighted the importance of these two types of informal learning reward. Short-term rewards include recognition in the form of "thank you" or "congratulation" (Ashton, 2004). As suggested by Doornbos *et al*. (2004), Straka (2000), and Van Woerkom *et al*. (2002), employees feel socially integrated if their informal learning initiative is acknowledged by other colleagues. Meanwhile, the long-term rewards are such as promotion and salary increment. In

other words, the firms' work environment that considers both short term and long term rewards can promote informal learning activities amongst the accountants.

Second, the firms can provide informal learning rewards to encourage knowledgeable accountants to learn collaboratively (Watkins & Cervero, 2000). As suggested by Rosenblum and Keller (1994), the firms' reward system should include an explicit rating for the contribution to an informal learning culture. In other words, reward system should clearly spell out incentives to knowledgeable accountants that guide others. For instance, Dore and Sako (1989) and Koike (2002) found that knowledgeable employees in the Japanese corporations do not hesitate to support other colleagues' informal learning since their efforts are rewarded. In short, the above sub-strategies highlight the importance of rewarding the accountants for a continuous knowledge and skills acquisition as well as their behaviors that support such culture at the workplace.

Consistent with the above discussion, public accounting firms' reward system should be revised. It is suggested that the revision can be adopted to reduce two work environment inhibitors, namely, lack of meaningful rewards and lack of support from others. Such adoption in turn can facilitate an accountant's informal learning activities.

7.4.2.6 Establish a Special Fund

The research findings illustrate that lack of fund had a negative and significant influence on the frequency of engagement in job related materials, audio/video tapes usage, meeting and briefing session. Hence, public accounting firms need to establish a special fund to support the accountants' informal learning activities. This suggestion is consistent with Muhammad and Idris (2005). Public accounting firms can establish a fund for purchasing instructional resources like books, professional journals and magazines and paying meal allowance of discussion and meeting activities to create a conducive environment for the accountants informal learning activities. This suggestion is similar to Bell (1977) and Watkins and Cervero (2000).

The fund can also be used to pay professional membership fees that are subscribed by the accountants. By joining professional bodies, the accountants would able to obtain new ideas applicable to be adopted in the firms and in turn stimulate informal learning activities (Bell, 1977; Rusaw, 1995). This is because professional bodies consist of people that have similar interest and expertise whereby sharing success, failures and concerns can be undertaken actively through activities such as mentoring and networking (Bell, 1977; Poell, Van Der Kroght, & Warmerdam 1999; Rusaw, 1995).

In short, public accounting firms should establish a special fund to support the accountants' informal learning activities. This research suggests that the strategy can

be adopted to reduce the problem lack of fund and in turn can facilitate an accountant's informal learning activities.

7.4.2.7 Foster Benevolent Anarchism Organizational Culture

The results of the study suggested that limited influence on firm's operation had a negative and significant influence on the frequency of engagement in all five informal learning activities studied. The results also suggested that this factor was the most prominent inhibitor to the frequency of engagement in briefing session. Thus, benevolent anarchism organizational culture should be fostered in public accounting firms.

Benevolent anarchism is the organizational culture that encourages everyone to question 'what they were doing' and 'how they were doing it' in the hope of finding better working methods (Gundry *et al*., 1994). Public accounting firms can learn from the Body Shop and Motorola experience in implementing this strategy. According to Gundry *et al*. (1994), the Body Shop employees allowed its employees to ask themselves and one another on how to improve the overall company operation and performance. They are also encouraged to contact Department of Damned Good Ideas to share their ideas. Annita Roddick, the managing director and founder of The Body Shop used a "playground" image to describe her company culture (Gundry *et al*., 1994). In relation to this, work teams at the Motorola have also been granted a certain amount of freedom to modify work processes when they believe that they

have found a better way of doing things (Stamps, 1998). Gundry *et al*. (1994) argued that from their experience, the employees never abuse the working freedom because they like to work in such organizational culture.

In addition, it is suggested that this strategy requires an environment that is friendly toward openness to new ideas and willingness to change especially at the public accounting firms management side. This is because problem solving and giving ideas are every staff responsibility (Fenwick, 2004; Gieskes *et al*., 2002; Nash, 2001; Tannenbaum, 1997). Several scholars suggested that open relationship with all staff members and increased their participations in organizational affairs lead to rich informal learning opportunities (Ashton, 2004; Clarke, 2005; Coetzer, 2007; Dobbs, 2000; Ellinger & Cseh, 2007; Jurasaite-Harbison, 2009; Leslie *et al*., 1998; Livingstone, 2001b; Sambrook & Stewart, 2000). In short, informal learning activities can be facilitated if every accountant has wide scope for action and has the opportunity to participate in problem solving through providing ideas for change.

Consistent with the above discussion, public accounting firms should foster the benevolent anarchism organizational culture to encourage sharing of new ideas amongst the accountants for improving overall works performance. It is suggested that this strategy can be applied to reduce the problem of limited influence on firm's operation and in turn can facilitate an accountant's informal learning activities.

7.4.2.8 Change Perspective about Mistakes

The research findings indicated that lack of tolerance to mistakes had a negative and significant influence on the frequency of engagement in reading job related materials, audio/video tapes usage, group discussion and meeting. Therefore, there is a need to change perspective about mistakes in public accounting firms.

Recent literature in informal learning has stressed that translating mistakes into valuable learning experiences is the source of competitive advantage for the organizations (Harteis, Bauer, & Gruber, 2008). This is because contemporary work is often so complex that mistakes cannot be avoided and should be seen as part of daily work (McGill *et al*., 1992; Muhammad & Idris, 2005). There are several benefits of learning from mistakes to the accountants. These include prevent repeating mistakes in similar situations, correct false assumptions, pursue continuous improvements and stimulate explorations and new discoveries (Cheetham & Chivers, 2001; Harties, *et al*., 2008; Suarez, 1994).

Several scholars also argued that an organization that allows mistakes can encourage informal learning through a means of reflections, feedbacks, observations and discussions (Anonymous, 1989; Harteis *et al*., 2008; Suarez, 1994; Tjosvold, Yu, & Hui, 2004). Nevertheless, Harteis *et al*. (2008) stressed that learning from mistakes should not be taken for granted. Therefore, the accountants' mistakes have to be supported, guided or mediated. These include communicate about mistakes, share

mistake knowledge, help in mistake situations, and quickly detect and handle mistakes (Harteis *et al*., 2008; Suarez, 1994; Van Dyck, Frese, Baer, & Sonnentag, 2005).

Consistent with the above discussion, public accounting firms should change their perspective about mistakes. In this case, mistakes should be seen as opportunities for informal learning such as reflections, discussions, observations and feedbacks. The change perspective is critical to reduce the accountants' fear of making mistakes. It is suggested that this strategy can be adopted to reduce the problem of lack of tolerance to mistakes and in turn can facilitate an accountant's informal learning activities.

7.5 Limitations and Suggestions for Future Research

Several limitations of the study were identified. Subsections 7.5.1 till 7.5.5 discuss the limitations and suggestions for future research in detail.

7.5.1 Context of the Research

This study revealed the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst accountants in public accounting firms. Therefore, the first limitation is that this research is restricted to a certain context. It would be useful if those inhibitors are compared with cross context data. For instance, future research can compare the inhibitors between

accountants in public accounting firms and accountants in other contexts such as business, public sector and education. Such comparative research is necessary to discover what are the differences or the similarities between the accountants in terms of the inhibitors.

7.5.2 Validation of the Research Conceptual Framework

Since this research conceptual framework is new, there is a need to further validate it. Therefore, applying the framework in different organizational contexts or professions is an important task for future research. Ellinger (2004), Ellinger and Cseh (2007), Lohman (2000, 2005, 2006, 2009) and Wofford *et al*. (2013) suggested that more studies could be done on informal learning activities by focusing on different organizational contexts and professions especially to those experiencing high levels of job intensification. Public sector employees (Colley, 2012; Ellstrom *et al*., 2008), medical doctors (Ma, 2012; Sherman, 2009), lawyers (Gottschalk & Karlsen, 2009), government owned corporation employees (Lancester *et al*., 2013), aviation instructors (Wofford *et al*., 2013) and financial planners (Palmer, Goetz, & Chatterjee, 2009) are amongst professionals for whom this defining aspect of work especially applies.

7.5.3 Cross-Sectional Research

Data in this study was gathered just once to answer the research questions. It means that this study was a cross-sectional one (Sekaran, 2003). Thus, a longitudinal study is highly recommended in the future. In addition, a longitudinal study would also help to further validate the findings obtained from cross-sectional surveys since human views and behaviors are likely to change over time (Sekaran, 2003).

7.5.4 Percentage of Variance Explained

The five multiple regression analyses results indicated that the eleven inhibitors of this study explained 27.50% (Regression Model 1 for reading job related materials), 22.90% (Regression Model 2 for audio/video tapes usage), 26.8% (Regression Model 3 for group discussion), 27.20% (Regression Model 4 for meeting) and 29% (Regression Model 5 for briefing session) of variances in the data. This means that the remaining percentage of each regression model is still required to be explained by future research with the improved conceptual framework. Thus, future research can include other additional work environment inhibitors that influence the frequency of engagement in various informal learning activities.

7.5.5 Self-Administered Survey

Findings of this study are subject to limitations that occur from employing self-administered survey such as close-ended questions in nature (Sekaran, 2003). Thus, further research can be conducted by combining of qualitative methods (for instance, interview) and quantitative methods (for example, survey). Di Pofi (2002) argued that social science researchers have begun to recognize the value of integrative by methods combining qualitative and quantitative data. In this sense, more than one method can be used to improve the validation process of research data for examining informal learning activities at the workplace (Onwuegbuzie, Johnson, & Collins, 2009).

7.6 Conclusion

The objective of this study was to examine the influence of work environment inhibitors on the frequency of engagement in various informal learning activities amongst chartered accountants in public accounting firms across Malaysia.

From the findings, the proposed conceptual framework was substantially validated. The findings showed that the accountants rely more on meeting rather than reading job related materials, briefing session, group discussion and audio/video tapes usage to develop and maintain their knowledge and skills at the workplace.

The findings also indicated that 29 out of 55 hypotheses were supported. Based on the five regression models performed, this research found that lack of time due to heavy workload, lack of support from others, structural inhibitor, lack of meaningful rewards, lack of fund, limited influence on firm's operation and lack of tolerance to mistakes were negatively and significantly influenced the frequency of engagement in various (at least three of the five activities) informal learning activities amongst the accountants. Meanwhile, lack of proximity to colleagues' working areas, lack of access to updated learning materials, lack of access to computer and poor working policy were the insignifant inhibitors to the frequency of engagement in all five informal learning activities being studied.

The research findings also indicated that lack of support from others was the most influential inhibitor on the frequency of engagement in reading job related materials. The frequency of engagement in audio/video tapes usage and group discussion was mostly constrained by lack of time due to heavy workload. Lack of meaningful rewards was the strongest inhibitor to the frequency of engagement in meeting. In addition, it was found that limited influence on firm's operation was the major inhibitor to the frequency of engagement in briefing session amongst the accountants.

Based on the above findings, several theoretical and practical implications were discussed. In addition, the limitations and suggestions for future study were also highlighted. Last but not least, it is hoped that the findings would develop a

greater understanding of this issue to academia and accounting practitioners. It is also hoped that the results would provide useful information for accounting profession to take appropiate actions to overcome the identified inhibitors in order to facilitate informal learning activities amongst the accountants.

7.7 Summary

This chapter summarizes the research findings, and the theoretical and practical implications. Furthermore, limitations and suggestions for future research, and conclusion are also offered.

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