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The Importance of Training In Supply Chain Management on Personnel Differentiation and Business Performance

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An effective training has been increasingly recognized as a critical factor in enhancing the skills and knowledge of employee or personnel in the organization. This paper presents the findings of an empirical research which examines the relationship between training in supply chain management (SCM), personnel differentiation and business performance of Malaysian manufacturing companies. The study measures perception of senior management regarding the incorporation of training in SCM and the level of personnel differentiation and business performance measurements in their companies. The associations between training in SCM, personnel differentiation and business performance dimensions are analyzed through methods such as Pearson's correlations and Smart partial least squares (Smart PLS) utilizing 126 respondents' data. Specifically, both personnel differentiation and business performance have high correlations with training in SCM, namely 'Employee training in production skills', 'On the job production employee training' and 'Management training in supply chain effectiveness' and 'Employee training in supply chain technologies'. The smart PLS result also reveals that training in SCM exhibits significant impact on both personnel differentiation (directly) and business performance (indirectly mediated by personnel differentiation).

JEL Codes: M11 and M12

1. Introduction

Nowadays, manufacturing companies are facing more intense competition due to globalization, changes in technology, political and economic environments (Evans et al. 2002) and therefore prompting their management to train and retrain their employees as one of the ways to prepare them to adjust to the increased challenges and the growth of knowledge in the business world. This growth has not only been brought about by improvements in technology nor a combination of factors of production but increased efforts towards development of organizational human resources. Therefore, in every organization, the responsibility of enhancing the knowledge, skills and expertise of the employees should be a major agenda and training seems as one of the major steps that most organizations adopted. The accomplishment and success of any company very much depend on its employee contribution and performance. However, there are limited insights into the relationships between training in SCM and performances, and most previous studies fail to discuss adequately on the conceptual framework, methodological issues and the magnitude of the strength of linkages related to training in SCM and performances. This study seeks to establish a link between training, personnel differentiation and business performance by

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emphasizing on the conceptual framework and methodology in a different context using slightly advanced statistical analysis.

Moreover, even though there are several empirical studies conducted towards gaining an understanding of training. However, the impact of training in SCM on business performance mediated by personnel differentiation has not been fully addressed in most empirical studies especially in Malaysia. To address this issue, this paper investigates the relationships between training in SCM and business performance and the mediating effect of personnel differentiation in the context of Malaysian manufacturing industry using Pearson's correlations and the SMART PLS.

Supply chain management (SCM) is a very crucial element in any manufacturing companies since it can create strategic coordination of the business functions, processes and transactions within the supply chain of an organization. SCM seeks to enhance performance by closely integrating and coordinating the internal functions within a company and effectively linking them with the external operations of suppliers and customers; and thus training is considered as one of the most important factors in enhancing integration and performance in the supply chain (Mentzer et al. 2000, Agus 2011). Training has the distinct role in the achievement of an organizational goal by incorporating the interests of the organization and the workforce (Stone 2002). Training is perceived as the most important factor in the business world because training increases the efficiency and effectiveness of both employees as well as the organization. Since employees are very crucial resources, it is important to optimize the contribution of employees to the company overall aims and goals as a means of sustaining effective performance Hence, top management should realize the importance of investing in training and development for the sake of improving employee knowledge, skills and expertise to achieve the objectives of the organization (Afshan et al. 2012).

Training is important to enhance the capabilities, knowledge and the value of employees in order for the manufacturing company to achieve personnel differentiation. It is evidenced that employees who have undergone on-the-job experience also exhibit an increase in both the skills and competencies (Fakhar Ul Afaq & Anwar Khan 2008). Training also has positive associations with organizational and business performance (Ubeda-García et al. 2013). The business performance can be derived from personnel differentiation since the human resource capital plays an important role in the business growth and financial performance. Since the purpose of this paper is to enhance managerial understanding of training in SCM, personnel differentiation and business performance, the main objectives of this paper are:

(1) To empirically investigate relationships between training in SCM, personnel differentiation and business performance indicators.
(2) To investigate whether personnel differentiation mediates the linkage between training in SCM and business performance
(3) To empirically assess the contributions or magnitudes of each training variable.

This empirical paper aims at studying the effect of training in SCM on personnel differentiation and business performance and to provide suggestions as to how Malaysian manufacturing companies can improve its employee and business performance through effective training programs. The research approach adopts for the study conforms to a quantitative and a cross-sectional research methodology. First, this paper proceeds with an introduction, the objectives of the study and the test conducted to obtain the reliable measures of the variables; Secondly, it continues with a brief literature review; Thirdly, it describes the conceptual framework consisting of the conceptual model and hypotheses related to training in SCM, personnel

differentiation and business performance on the basis of the review of the current evidence of these relationships. Fourthly, it discusses the methodology adopted. Fifth, it highlights the results of Pearson's correlations and Smart PLS. Finally, the results are then discussed and implications highlighted.

2. Literature Review

Training is the most important part of the HRM function in a world that is moving fast towards a knowledge-based economy. Human resources are the most valuable assets in every organization, besides machines, materials and capital since absolutely nothing gets done without the execution of tasks by employees. Training has been the main factor for influencing the employees' skills, abilities and attitude. Employees can only support each other when they have the skills, by increasing the momentum of their tasks and contributing to overall team performance. To embed these attributes, there is an immense need to continuously educate and train employees on how to improve their individual as well as group performance (Asfan et al. 2012, Stone 2002).

Training enhances knowledge and information about a certain field and also the efficiency and performance of employees. However, knowledge workers can easily accomplish their tasks successfully with a high autonomy level. Different level of training is required for the management level and lower levels. Extensive training and high motivation are required for those with low qualification to enable them to work with other highly qualified employees (Becci 2006, Al Damoe et al. 2012). In addition, Akhtar et al. (2011) discover that training has a positive association with motivation and job engagement involving personnel working in organizations. Farooq and Khan (2011) conclude that the role of training is to improve the quality of task and process that brings improvement in the performance of employees and ultimately companies. To develop the desired level of knowledge, skills and abilities of the employees to perform well on the job, requires effective training programs that may also affect employee motivation and commitment (Allen & Meyer 1990). Likewise, to ensure continuous progress in their employees work and performance, a manufacturing company should incorporate training that can enhance the employees' abilities and competencies which are required in the company (Jie & Roger 2006). Keeping in mind the customer needs and the ever changing market, manufacturing companies should sharpen the skills and expertise of their employees through proper training process (Hollenbeck et al. 2004).

Training is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules, or changing of attitudes and behaviors to enhance the employees' skills and value. Training is a continuous process by which employee actually gets the knowledge and later able to perform well in the organization. Training is really a systematic development of the knowledge, skills and behavior required by employees to do adequately on the confirmed task or job. It can take place in numerous ways, on the job or off the job; in the organization or outside organization. On the job training is actually done when an employee gets the training while performing his or her assigned task. Off job training is a type of training when employees of the organization are being called for training session to learn a task (Kathiravan et al. 2006, Tai 2004).

Training is important and an imperative tool for the organization to revamp the performance of all the personnel for organizational growth and success. An employee will become more efficient and productive if he is well trained. Manufacturing companies can develop and enhance the quality of the current employees by providing comprehensive training and development. Training is essential in acquiring skills and information needed to perform the

assigned tasks and also to motivate and inspire workers. The general benefits received from employee training are: increased job satisfaction and morale, increased motivation, increased efficiencies in processes, resulting in financial gain, increased capacity to adopt new technologies and methods, increased innovation in strategies and products; and reduced employee turnover (Kathiravan et al. 2006, Tai 2004).

Training in manufacturing companies and SCM goes hand in hand. Since manufacturing companies are facing new challenges and more intense competition locally and globally, trainings provided to employees in the supply chains, have to be quite advanced and up-to-date with the latest technology and information. Technological advances have changed the requirements of traits and competencies of performing the tasks in the supply chains. Now, more effective and enhanced training techniques are very critical in dealing with the changes arising from the rapid advancement in technology and innovation (Tai 2004). Hence, manufacturing companies require training that is well-planned and systematic which can lead to an enhanced level of skill, knowledge and competency that are necessary to perform work effectively (Betcherman 1992) in the supply chain. In this study, the limitations or problems of the past studies are addressed due to the fact that studies on training in SCM of manufacturing companies are limited. Most studies on training focus mainly on HRM or services sectors. There are also very limited studies on the strategic influence of training on personnel differentiation and ultimately business performance. The importance of training in SCM is highlighted in this study since training may improve employees' knowledge regarding most advanced technology by attaining robust competencies and production skills in order to handle the functions and basics of newly introduced highly technical equipments in the manufacturing companies. Employees that are not fully trained regarding new and technical techniques may not be able to operate machines effectively and conforming to the job specification required (Robert et al. 1998) and these situations can be detrimental to the overall production and SCM processes.

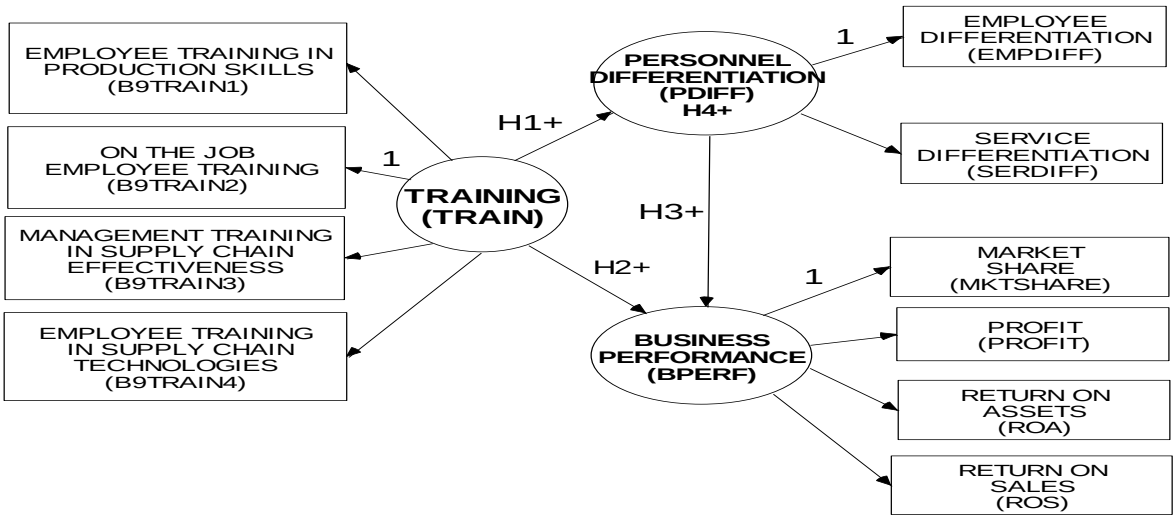
3. The Conceptual Framework and Hypotheses

This section explores the conceptual model which highlights the linkages between the constructs and well as variables within the context of the Malaysian manufacturing industry. In addition, hypotheses of the study are also discussed.

3.1 The Conceptual Model

The proposed conceptual model, as depicted in Figure 1, is based on three main constructs which are investigated in this study, namely: (i) Training in SCM (TRAIN); (ii) Personnel differentiation (PDIFF); and (iii) Business performance (BPERF). The hypothesized model in this study demonstrates that training in SCM is important in enhancing performances and it is the duty of managers to utilize and make the best use of them. The framework consists of four manifest variables of training in SCM, two variables of personnel differentiation and four indicators of business performance. Previous studies fail to investigate these linkages in their models. Eventhough, several of the previous studies try to investigate the impact of training on performance, most of them have overlooked the strategic effect of training in increasing the differentiated knowledge and values of the employees, and the ultimate contribution of training towards overall business and financial performance of manufacturing companies.Therefore, this study tries to address this issue or gap by proposing a conceptual model that incorporates training in SCM, personnel differentiation and business performance; as well as measuring the magnitude of these linkages using Smart PLS.

Figure 1: The conceptual model linking training, personnel differentiation and business performance.



3.2 The Explanation of the Constructs and Variables

(1) Training in SCM.

The employees of a manufacturing company are like intellectual property, and on the basis of this property they can gain the competitive advantage against the other companies. So, the more the employees are trained and retrained, the more they can provide competitive advantage (through personnel differentiation) to the company (Houger 2006**).** Hence, training is an effective tool for integrating employees' abilities, knowledge and skills to the desired target of the company to achieve the overall objectives and goals. The measures of training in SCM in this paper are as follows:

i. Employee training in production skills.
ii. On the job employee training.
iii. Management training in supply chain effectiveness
iv. Employee training in supply chain technologies

(2) Personnel differentiation

Personnel differentiation construct in this study is operationalized by employee differentiation and service differentiation. Personnel differentiation creates competitive advantage for the companies that, once established, can take on the characteristics of a durable asset. Since personnel differentiation is based upon company-specific skills and creates a durable asset, it is more difficult to imitate. Hence, personnel differentiation can form the basis of a sustainable competitive advantage against the competitors. Other scholars also agree that the simultaneous pursuit of employee differentiation and service differentiation will be necessary for a firm to establish and maintain a sustained competitive advantage (Hill 1988, Kotler 1994).

i. Employee differentiation (EMPDIFF): One of the keys to gaining personnel differentiation is the ability to tap into the productive energy of a firm's workforce (Marshall 1998). A company's workforce, represents the intellectual capital, the brainpower and the creative energy of the company - that is the company's competitive differentiation. So it is the

responsibility of the organization to enhance the intellectual capabilities and competencies of their employees. Without employees' substantial competencies, knowledge and needed skills as well as full commitment, a firm's productive engine growth will become disrupted and maybe they risk sub optimizing their competitive potential (Read & De Fillipi 1990). Hofer and Schendel (1978) suggest a direct relationship between distinctive personnel differentiation and competitive differentiation through the ability of the firm to use competencies of their personnel to create major competitive personnel differentiation.

ii. Service differentiation (SERDIFF): Some firms are able to service niche customers with a premium price since they have achieved and secured service differentiation. The fundamental element in service differentiation is to know what customers want and what meets that expectation, which needs to be delivered by a competent personnel. This must be assessed in conjunction with what the customers receive (Haskett 1986). Firms need to identify possible service differentiation by starting with employees and also their customers. If consumers see the service as differentiated served by a very skilled and knowledgeable personnel, they would be willing to pay a premium price for it (Brooks 1996), hence establishing service differentiation.

(3) Business performance

Business performance is operaionalized by items, namely 'Market share,' Profits, 'Return on assets' and 'Return on sales'.

i. Market share (MKTSH): Market share refers to a share of the total sales of all products within the product category in which the product competes. Market share is determined by dividing a product's sales volume by the total category sales volume (Investopedia 2016).
ii. Profits (PROFIT): The positive gain from an investment or business operation after subtracting for all expenses. Gross profit, as defined by "Investor Words," is "sales minus all costs directly related to those sales" including "manufacturing expenses, raw materials, labor, selling, marketing and other expenses ". Net profit is "the bottom line, calculated by subtracting a company's total expenses from total revenue, thus showing what the company has earned in a given period of time (Investorsword 2016).
iii. Return on assets (ROA): A measure of a company's profitability, equal to a fiscal year's earnings divided by its total assets, expressed as a percentage (Investorsword 2016).
iv. Return on sales (ROS): A measure of a company's profitability, equal to a fiscal year's pre-tax income divided by total sales (Investorsword 2016).

3.3 The Hypotheses

(i) The influence of training in SCM on personnel differentiation (H1).

In investigating the influence of training in SCM on personnel differentiation and business performance, the Smart PLS is utilized to evaluate and analyze the magnitude and direction of the linkages between these constructs. Firstly, the study attempts to investigate the main research hypothesis regarding the association between training in SCM and personnel differentiation. The study proposes that training in SCM has a positive influence on personnel differentiation. Improved capabilities, knowledge and skills of the talented workforce proved to be a major source of competitive advantage (specifically personnel differentiation) in a global market (McKinsey 2006). Strategically, training is determined as the process of enabling

employees to complete the task with greater efficiency, thus it is considered to be a vital element of enhancing the human resource performance (Lawler 1993, Delaney & Huselid 1996). The goal of training in SCM is specified as adding skills and value for employees in the supply chain. The value added should first be reflected in personnel differentiation such as in the form of employee differentiation and service differentiation. In this competitive world, training is the key strategy to achieve the organizational objectives since training enhances employees' capabilities and differentiation, and organizational effectiveness. In another word, employee with attractive, differentiated skill and competency is highly demanded in this competitive world for improving and sustaining organizational performance. Niazi (2011) indicates that trained employee can face the current and future challenges of the organization and can help in achieving the personnel differentiation for the company. According to Leonard-Barton (1992), a company that prioritized knowledge as a source of gaining a competitive edge against competitors, should ensure constant learning and training. Pfeffer (1994) highlights that well-trained workforce is more capable of achieving performance targets and gaining competitive advantage in the market. Based on the theoretical justification and supporting empirical evidences, the first hypothesis proposes that training in SCM has a positive relationship with personnel differentiation.

H_1**:** Training in SCM has a positive influence on personnel differentiation.

(ii) The influence of training in SCM on business performance (H2).

It is agreed by a number of authors that training is crucial, especially when there is an existing or anticipated shortfall in overall performance (Jie & Roger 2006, David 2006). Several researchers suggest that training enhances the employees' skills and competency, as well as the organizational performance (Jie & Roger 2006, David 2006). According to Al Damoe et al. (2012), a highly skillful and knowledgeable employee is very essential to the improvement of the organization's performance. Training also enables employees to actively participate in providing supportive suggestions and conveying it to top management for the continuous improvement of the employees and the organization. Training increases the productivity of employee, improves the services of the employee and brings the positive outcomes to the organization. According to Barzegar and Shahroz (2011), the most important outcomes of training are improving the quality and quantity of organization's output, employees and organization performance, increasing in the organization's profitability, safeguarding the organization stability, minimizing the risk, decreasing the organization cost and expenses; and improving the management of the organization. However, training must be aligned with the mission and performance goals of the organization. Singh and Madhumita (2012) believe that training is an important way to improve the employees' productivity, which ultimately affects the organizational performance and effectiveness. Particularly, the training develops skills, competency, and ability and ultimately improves employee performance and business performance. Hence, the second hypothesis suggests that training in SCM has a positive impact on business performance.

H_2**:** 'Training in SCM' has a positive influence business performance.

(iii) The influence of personnel differentiation on business performance (H3).

The third research hypothesis suggests that improving personnel differentiation would have a positive effect on business performance. The justification for the hypothesis is based on the argument that personnel differentiation as a result of training in SCM is closely linked to enhanced business performance (Jie & Roger 2005, David 2006). Thang and Drik (2008)

suggest a positive relationship between training and performance since skilled and differentiated personnel (in comparison with competitors) will definitely give the organization a competitive edge in achieving and securing premium price from niched and quality demanded customers, increases sales and ultimately improving business performance. Training meets the needs of both the organization and the employee in order to build and retain a workforce of skilled and efficient employees. According to Rowden and Conine (2005), employees differentiated by skills and knowledge are believed to be able to satisfy the customers' needs better. Training improves the interpersonal skills and knowledge of employees, which ultimately creates competitive personnel differentiation and enhances sales and ultimately the business performance (Tsai et al. 2007). Thus, the third hypothesis proposes:

H_3 **:** Personnel differentiation has a positive influence on business performance

(iv) The mediating effect of personnel differentiation in the linkage between training in SCM and business performance (H4).

Finally, this study also attempts to test (the fourth hypothesis) whether there is a mediating role of personnel differentiation in the linkage between training and business performance. Al Damoe et al. (2012) claim that organizational performance is measured through financial measures like sales, profit, and market share; and non-financial factor measures are efficiency, service quality, productivity, employee satisfaction and commitment; and these factors can increase through training. Olaniyan and Lucas (2008) believe that training enhances the employees' capacity to contribute towards the optimal performance of the organization. Strategically, manufacturing companies that invest in inculcating important skills and improving the employee performance would be able to elevate the level of motivation and commitment among employees. This is because when employees recognize their organizations interest in them through offering training programs, they in turn would apply their best efforts to achieve organizational goals, and show high performance on the job (Purcell et al. 2003). Guest (1997) suggests that training and development programs positively affect the quality of the workers' knowledge, skills and capabilities and thus results in higher employee performance on the job. This relationship ultimately contributes to supreme business performance. Therefore, the fourth hypothesis suggests that:

H_4 **:** Personnel differentiation mediates the linkage between training in SCM and business performance.

Lastly, in investigating the contribution of 'training in SCM' on performances, it is also pertinent to determine the loadings of each training variable, namely 'Employee training in production skills', 'On the job production employee training' and 'Management training in supply chain effectiveness' and 'Employee training in supply chain technologies'. Therefore, four more additional hypotheses are proposed: H_{1A}, H_{1B}, H_{1C} and H_{1D}.

4. The Methodology

4.1 Research Design and Sample

The study adopted a quantitative and a cross-sectional research methodology. Face to face interviews with senior SCM or HRM managers were carried out to ensure the information accuracy, validating the outcome of the analysis and developing an understanding of the practical aspects of training in SCM. Sample companies were chosen from manufacturing

companies in Malaysia (the sampling frame was derived from the Federation of Malaysian Manufacturers Directory-FMM 2014). One hundred and twenty-six responses were received and analyzed. The sample size was considered ample for Malaysian context due to the difficulties in collecting data and confidentiality issues; and the data were regarded sufficient for conducting Smart PLS analysis. The instrument used in this study was a structured survey questionnaire, which was designed to assess the manufacturing companies in term of the described dimensions. The primary purpose of the research was to measure the managers' or perception of training in SCM and to gain insight into the benefits of implementing training in the supply chain system. To enable respondents to indicate their answers, seven–point interval scales were used in the questionnaire. Similarly, the mediating and dependent variables, namely personnel differentiation and business performance also used a seven-point interval scale, representing a range of agreement with the statements, whether over the past three years these measurements were high relative to competitors after implementing training in SCM.

A. Reliability and Validity

Table 1: Model reliability and validity (Smart PLS)

Training & Performance Constructs	Cronbach's Alpha	Average variance Extracted (AVE)	Composite Reliability (CR)	Std. Loadings (Range)	R Square
Training (TRAIN)	0.937	0.841	0.955	0.892-0.947	-
Personnel Differentiation (PDIFF)	0.912	0.919	0.958	0.958-0.959	0.476
Business Performance (BPERF)	0.909	0.786	0.936	0.803-0.928	0.929

Table 2: The correlations between latent constructs and square root of the average variance extracted (Diagonal)

Latent constructs	1	2	3
Training (TRAIN)	**0.917**		
Personnel Differentiation (PDIFF)	0.695**	**0.979**	
Business Performance (BPERF)	0.746**	0.761**	**0.967**

Notes: *p ≤ 0.05; **p ≤ 0.01 (all *t*-tests are two-tailed)

Validity and reliability tests were used to select and assess the final items of the independent constructs that were used for statistical testing. Data for the study were mostly generated using multi-scaled responses and therefore statistically justifiable to conduct the reliability test (Frohlich & Westbrook 2001, Agus 2010). The internal consistency of each factor was examined using Cronbach alphas. The result indicated that the Cronbach's alpha coefficients for the three main constructs exceeded the threshold point of 0.70 suggested by Nunnally (1978). Alpha coefficients for training, personnel differentiation and business performance ranged between 0.909 and 0.937 after the alpha maximization process were carried out (Table 1), indicating internal consistency. As the result, ten items for the three constructs were retained for further analyses.

In addition, face-content validity was also addressed in the study. Content validity represents the sufficiency with which a specific domain of content (construct) is sampled (Nunnally 1978, Ahire et al. 1996). The critical constructs and variables in the study had content validity because an extensive review of the literature was conducted in selecting the measurement items and the critical constructs; and all the items and factors had been evaluated and validated by professionals in the area of SCM. In addition, the draft questionnaire was pre-tested with academics to check its content/face validity and terminology and modified accordingly (Agus 2011). The convergent and discriminant validities were also determined. The Smart PLS result indicated that all of the variable loadings were above 0.70 and the respective squared multiple correlations were satisfactorily high (see Figure 2). The findings also suggested that the loadings were substantial and that high amount of measured variables' variability were explained by the latent constructs. The values of the square root of the average variance extracted were also higher than the correlations between constructs, hence the validity issue was addressed in the study (factor loadings >0.700, t-values > 2.00, AVE > 0.800, composite reliability>0.900) (Hair et al. 2005, Agus 2010).

5. The Research Findings

5.1 The Correlations

Table 3: Pearson's correlation among variables and collinearity statistics

Training in SCM	1	2	3	4	Collinearity Statistics	
					Tolerance	VIF
Employee Training in Production Skills (B9TRAIN1)	1	.847**	.775**	.660**	.264	3.795
On The Job Production Employee Training (B9TRAIN2)	.847**	1	.834**	.754**	.197	5.084
Management Training in Supply Chain Effectiveness (B9TRAIN3)	.775**	.834**	1	.856**	.173	5.779
Employees Training in Supply Chain Technologies (B9TRAIN4)	.660**	.754**	.856**	1	.258	3.873

Notes: *p ≤ 0.05; **p ≤ 0.01 (all *t*-tests are two-tailed)

As a preliminary analysis, Pearson's correlation analysis was conducted to establish associations between 'training in SCM', personnel differentiation and business performance. Table 3 highlights correlations among training in SCM and multicollinearity statistics. The result indicated that the training variables had significant correlations with one another and also with performance measures. In addition, the findings suggested that the training variables complemented each other and needed to be implemented in a holistic manner. Furthermore, the collinearity test did not indicate any multicollinerity problem (Agus 2000).

Table 4: Pearson's correlations between training and personnel differentiation

Training in SCM	Employee Differentiation (EMPDIFF)	Service Differentiation (SERDIFF)
Employee Training in Production Skills (B9TRAIN1)	.589**	.605**
On The Job (Production) Employee Training (B9TRAIN2)	.601**	.560**
Management Training in Supply Chain Effectiveness (B9TRAIN3)	.642**	.608**
Employee Training in Supply Chain Technologies (B9TRAIN4)	.647**	.596**

Notes: *p ≤ 0.05; **p ≤ 0.01 (all *t*-tests are one-tailed)

Table 5: Pearson's correlations between training and business performance

Training in SCM	Market Share (MKTSHARE)	Profit (PROFIT)	Return on Assets (ROA)	Return on Sales (ROS)
Employee Training in Production Skills (B9TRAIN1)	.224*	.360**	.343**	.339**
On The Job (Production) Employee Training (B9TRAIN2)	.252**	.376**	.390**	.386**
Management Training in Supply Chain Effectiveness (B9TRAIN3)	.279**	.400**	.451**	.443**
Employee Training in Supply Chain Technologies (B9TRAIN4)	.291**	.447**	.505**	.460**

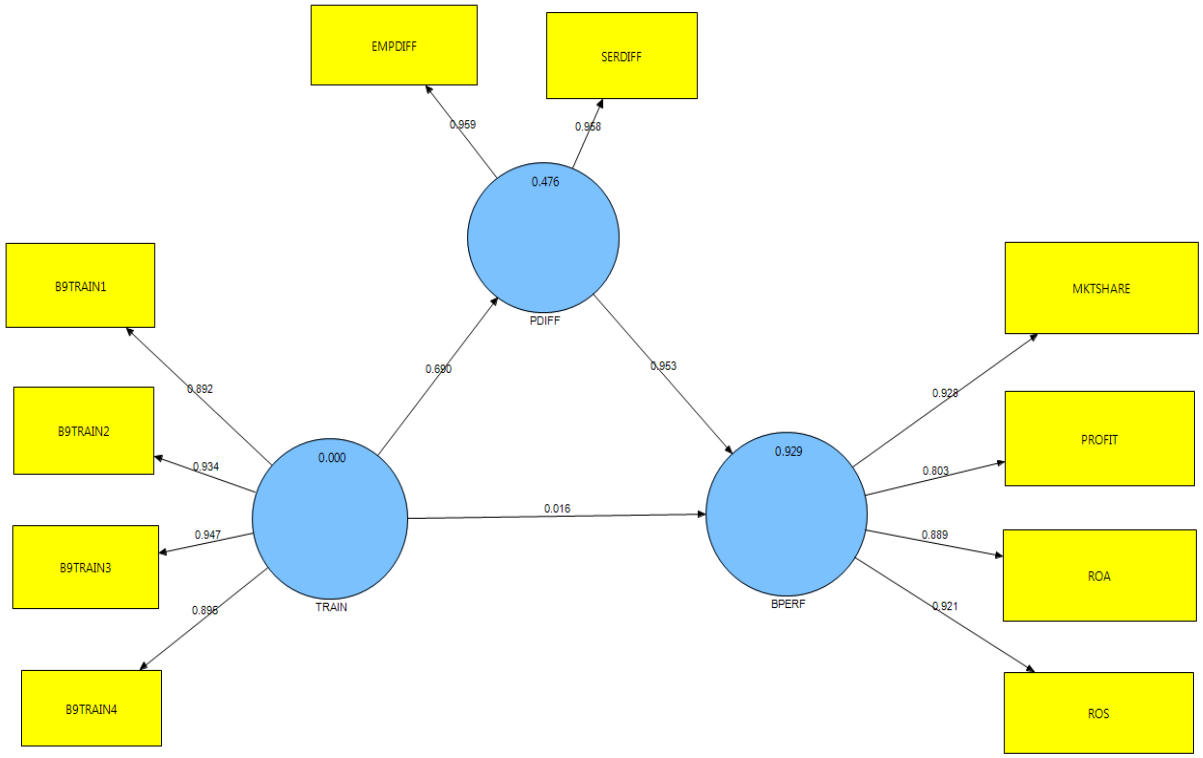
Notes: *p ≤ 0.05; **p ≤ 0.01 (all *t*-tests are one-tailed)

5.2 The Results of the Smart PLS

The Smart PLS was employed to investigate simultaneous linkages that allow a researcher to determine the relative strength of the relationships between variables. The linkages between training in SCM, personnel differentiation and business performance were depicted in the conceptual model. Observing the overall results in Table 6 and Figure 2, the finding demonstrated that among training variables, 'Employee training in production skills' had the highest mean (5.397), followed by 'On the job employee training' (5.357), 'Management training in supply chain effectiveness' (5.143) and lastly 'Employee training in supply chain technologies' (4.960). The result indicated that manufacturing companies in Malaysia emphasized more on 'Employee training in production skills' and 'On the job employee training'. However, companies also need to enhance 'Management training in supply chain effectiveness' and 'Employee training in supply chain technologies' since these variables demonstrated high contributing loadings in the final Smart PLS result. The findings suggested that the adoption of training in SCM should be enhanced to keep abreast with global manufacturing practices and business. As for personnel differentiation dimensions, 'service differentiation' (5.175) demonstrated the highest mean, followed by 'employee differentiation' (5.095). On the other hand, among business performance indicators, 'profitability' (5.262) exhibited the highest mean followed by 'ROS' (5.092), 'ROA' (5.079) and 'market share' (4.897).

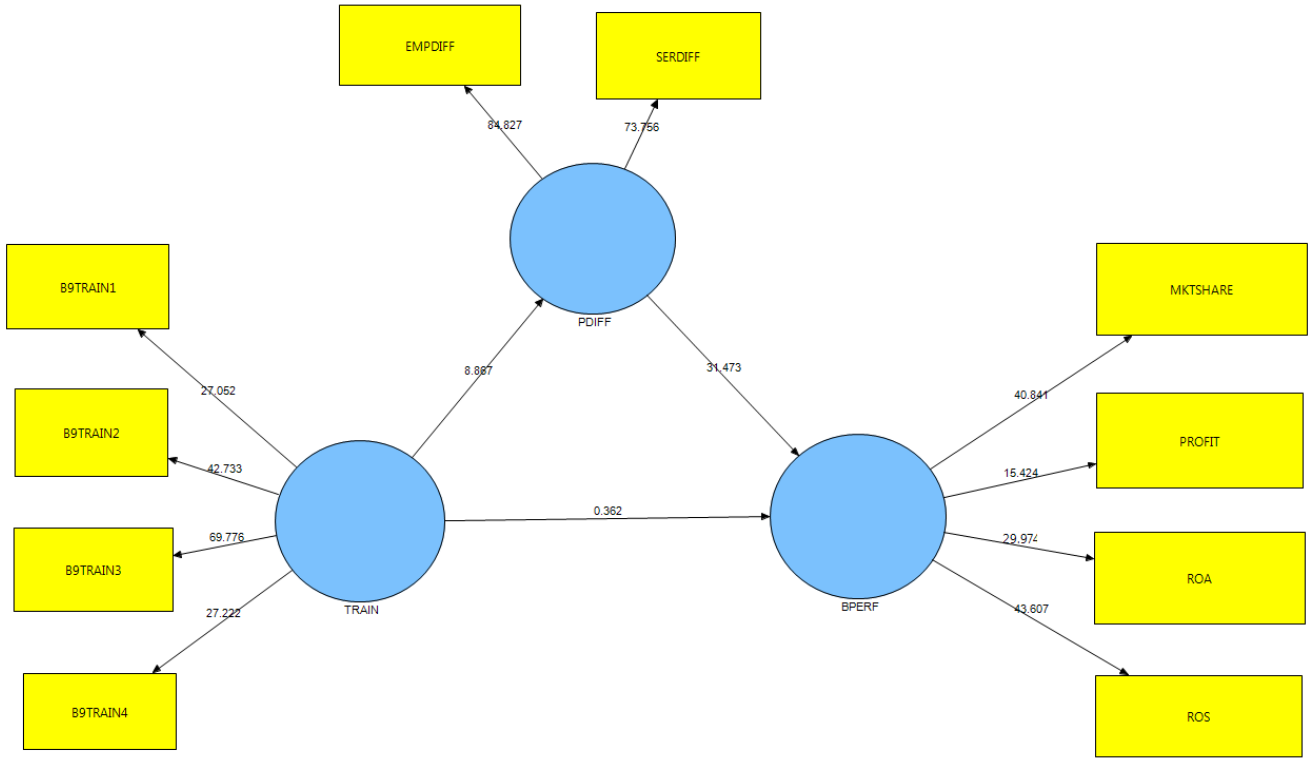
In addition, the findings (as exhibited in Figure 2, Figure 3 and Table 6 of the Smart PLS results) indicated that the linkage from training to personnel differentiation was relatively high with a loading of 0.690 and a significant bootstrapping t-value of 8.887. Thus, Hypothesis 1 was fully supported. The Smart PLS algorithm model also showed that the direct impact of personnel differentiation on business performance was significant with a high loading of 0.953 and a significant bootstrapping t-value of 31.473. Therefore, we had enough evidence to accept Hypothesis 3. The results also illustrated that training had a positive (loading = 0.16) but non-significant effect (t-value = 0.362) on business performance. Hence, the result did not support Hypothesis 2 regarding direct linkage between training and business performance.

Figure 2: The Smart PLS (algorithm) model showing the relationships between training, personnel differentiation and business performance



Further, to identify the extent to which personnel differentiation mediated the linkage between training and business performance, an additional direct model that linked training and business performance was estimated without the inclusion of the mediator (personnel differentiation). In this model, the direct linkage between training in SCM and business performance was found to be insignificant. On the other hand, the results of the mediated PLS model (as illustrated in Figure 2, Figure 3 and Table 6) demonstrated that training had a significant impact on business performance with the inclusion of personnel differentiation as the mediator. Hence, we can establish that personnel differentiation fully mediated the relationship between training in SCM and business performance. To further validate the relationship, the Sobel test (Sobel 1982) was conducted to directly examine the significance of the mediation effect of personnel differentiation. The Sobel test lends additional support for the mediated relationship hypothesized through a change in the significance of the direct effect. The result of the Sobel test (Sobel t-statistic was 8.735 with a significant probability of 0.001) provided a significant support for the full mediating role of personnel differentiation in the relationship between training and business performance. Therefore, Hypothesis 4 was supported.

Figure 3: The Smart PLS (bootstrapping) model showing the relationships between training, personnel differentiation and business performance



The magnitude and importance of the training variables were also investigated (as seen in Figure 2 and Table 6). 'Management training in supply chain effectiveness' (loading = 0.947) had the highest contributing influence on the overall training implementation. This was followed by 'On the job production employee training' (structural loading = 0.934), 'Employee training in supply chain technologies' (loading = 0.898) and lastly 'Employee training in production skills' (loading = 0.892). All of these indicators had significant probability values (t-values $\geq$ 1.96), giving statistical evidences that the influences of these variables toward overall training in SCM were significant and positive (H_{1A}, H_{1B}, H_{1C} and H_{1D} were supported). The findings also highlighted that 'training in SCM' had a high influence on personnel differentiation determinants specifically 'employee differentiation', (loading = 0.959) and 'service differentiation' (loading = 0.958). The Smart PLS result also demonstrated that 'training in SCM' had significant influences towards business performance indicators, namely 'market share' (loading = 0.928), 'ROS' (loading = 0.921), 'ROA' (loading = 0.889), and 'profitability' (loading = 0.803). Therefore, empirically, it was suggested that a manufacturing company could enhance its personnel differentiation and business performance by integrating and implementing effective training in SCM.

Table 6: The structural and measurement results of the Smart PLS

Constructs and indicators	Loadings	Mean	Std Error	t-statistic (bootstrapping)
Training in SCM (TRAIN)				
Employee Training in Production Skills (B9TRAIN1)	0.892	5.3968	0.034	27.052*
On The Job Production Employee Training (B9TRAIN2)	0.934	5.3571	0.022	42.733*
Management Training in Supply Chain Effectiveness (B9TRAIN3)	0.947	5.1429	0.014	69.776*
Employee Training in Supply Chain Technologies (B9TRAIN4)	0.898	4.9603	0.032	27.222*
Personnel Differentiation: (PDIFF)				
Employee Differentiation (EMPDIFF)	0.959	5.095	0.01	84.827*
Service Differentiation (SERDIFF)	0.958	5.174	0.01	73.756*
Business Performance: (BPERF)				
Market Share (MKTSHARE)	0.928	4.896	0.0229	40.841*
Profit (PROFIT)	0.803	5.261	0.0498	15.424*
Return on Assets (ROA)	0.889	5.079	0.0293	29.974*
Return on Sales (ROS)	0.921	5.095	0.0203	43.607*
Exogenous/endogenous Path				
TRAIN $\rightarrow$ PDIFF [H_1 is supported]	0.680	-	0.0757	8.867*
TRAIN $\rightarrow$ BPERF [H_2 is not supported]	0.016	-	0.0451	0.362(ns)
PDIFF $\rightarrow$ BPERF [H_3 is supported]	0.953	-	0.0315	31.473*
TRAIN$\rightarrow$PDIFF$\rightarrow$BPERF [$H4$ is supported – full mediation]	Indirect effect (.680x.953) = 0.648 Total Effect (.016 + .648) = 0.664			8.735*

(*Significant t-statistics > 1.96 at 95 % level of confidence)(ns = not significant)

6. Conclusions and Implications

The results support most previous studies or findings. According to Bartlett (2001), the organizations that are able to create effective training programs will be able to achieve greater performance outcomes. Training increases the skills and knowledge of the employees and can develop the competitive edge for the company. Therefore, investing in training programs would help the organization to gain the competitive edge when personnel competencies are achieved (Pfeffer 1994). Muzaffar et al. (2012) firmly argue that training is vital in ensuring high performance of workers and organization.

Training perceived by the employees to be effective and valued by employees, will likely have a positive impact on job and company performances (Nadeem 2007). However, employees are likely to place greater value on training programs that are highly respected by colleagues, supervisors, and managers. Training practices used by organizations may have an effect, direct or indirect on both employees' motivation and organizational commitment (Allen & Meyer 1990). The business performance of the firm is closely linked with personnel differentiation and that can be improved by giving them value added trainings (Bartlett 2001). Personnel differentiation is more evidence if the employees are well trained (Allen & Meyer 1990).

Donovan et al. (2001) discover that employees are more active and quick in responding and accepting changes, built their inner confidence and develop understandings and support to their peers, after they participated in different type of training programs. A comprehensive training program helps in deliberating on the knowledge, skills and attitudes necessary to

achieve organizational goals and also to create competitive advantage (Peteraf 1993). According to Pitfield (1982), training inculcate skills and knowledge to do the required job efficiently and subsequently reducing spoilt work, misuse of machines and lessening physical risks. Training has a direct relationship with the performance of the employees and training is a formal and systematic modification of behavior through learning (Garavan 1997). Although training can be costly, but an effective training can save money resulted from the elimination of wastage (Ginsberg 1997). Training can be considered as an investment by the company that not only potentially improves competitive personnel differentiation but also enhances business performance.

This paper is relevant to practitioners and managers because the findings may reveal important aspects in the implementation of training in SCM. The paper would be of particular interest to practicing HRM managers or SCM managers in the manufacturing companies as it suggests what factors should be emphasized as well as highlights the magnitude and direction of SCM training; in order to enhance strategic and business performances of the Malaysian manufacturing companies. The result indicates that manufacturing companies should emphasize greater attention to the “Management training in the supply chain effectiveness”, “On the job production employee training”, “Employee training in supply chain technologies” and “Employee training in production skills” as well as a greater degree of management support for effective and value added training in SCM. The result of the study suggests that training in SCM can help manufacturing companies improve their personnel differentiation (both employee differentiation and service differentiation) and in the long run, it is safe to state that training in SCM can ultimately enhance business performance (after personnel differentiation has been established).

Several fundamental and statistical cautions have been undertaken in conducting this study. However, there are several limitations that should be mentioned. This study adopts a quantitative and a cross sectional research methodology and the results may be influenced by the systematic bias. The research setting, the manufacturing companies in Malaysia and as well as the sample size, may limit the generalizability of the findings. This study focuses the analysis on the mediating role of personnel differentiation, but several other variables may act as mediator and deserve further research. However, regardless of the limitations stated, there is no doubt that this study provides a new insight for future studies. Future studies may also conduct longitudinal studies and take further opportunities in delving more deeply into the relationships between training, personnel differentiation and business performance.

References

Afshan, S, Sobia, I, Kamran, A & Nasir, M 2012, ‘Impact of training on employee performance: a study of telecommunication sector in Pakistan’, *Interdisciplinary Journal of Contemporary Research in Business,* vol.4, no. 6, pp. 646

Agus, A 2000, ‘Reducing the effects of multicollinearity through principle component analysis: a study on TQM practices’, *Malaysian Management Review,* vol. 35, no.1, pp. 43-50.

Agus, A 2011, ‘Supply chain management, supply chain flexibility and product quality’, *Journal of Global Strategic Management*, vol. 5, no.1, pp.134-145.

Ahire, SL,Golhar, DY & Waller, MA 1996, ‘Development and validation of QM implementation constructs’, *Decision Sciences,* vol. 27, no.1, pp.23-55.

Akhtar, MF, Ali, K, Sadaqat, S & Hafeez, S 2011, ‘Extent of training in banks and its Impact on employee motivation and involvement in job’, *Interdisciplinary Journal of Contemporary Research in Business*, vol. 2, no.12, pp.793-806.

Al Damoe, AMF, Yazam, M, & Ahmed, BK 2012, 'The mediating effect of employee retention on the relationship between HRM practices and organizational performance', *International Journal of Human Resource Studies,* vol. 2, no.1, pp.2162-3058

Allen, NJ & Meyer, JP 1990, 'The measurement and antecedents of affective, continuance, and normative commitment to the organization', *Journal of Occupational Psychology,* vol. 63, no.1, pp.1-18.

Bartlett, K 2001, 'The relationship between training and organizational commitment: a study in the health care field', *Human Resource Development Quarterly,* vol. 12, no. 4, pp. 335-352.

Barzegar, N & Shahroz, F 2011, 'A study on the impact of on the job training courses on the staff performance (a case study)', *Social and Behavioral Sciences*, vol. 29, no.1, pp.1942-1949.

Becci, N 2006, 'Training an age-diverse workforce*', Industrial and Commercial Training*, vol. 38, no. 2, pp.93-97

Betcherman, G 1992, 'Are Canadian firms underinvesting in training?', *Canadian Business Economic*s, vol.1, no.1, pp. 25-33.

Brooks, MR 1996, 'International competitiveness: assessing and exploring competitive advantage by ocean container carriers', *Logistics and Transportation Review*, vol.29, no.3, pp 275-293.

Chen, TY, Chang PL & Yeh, CW 2004, 'A study of career needs, career development programs, job satisfaction and the turnover intensity of R&D personnel', *Career Development International,* vol. 9, no.4, pp. 424-437.

Delaney, JT & Huselid, MA 1996, 'The impact of human resource management practices on perceptions of organizational performance', *Academy of Management Journal,* vol.39, no.4, pp. 949-969.

Donovan, P, Hannigan, K & Crowe, D 2001, 'The learning transfer system approach to estimating the benefits of training: empirical evidence', *Journal of European Industrial Training*, vol.25, no.1, pp pp**.** 2-4.

Evans, P, Pucik, V, & Barsoux, J 2002, The global challenge: frameworks for international human resource management, McGraw-Hill/Irwin, New York.

Fakhar Ul Afaq & Anwar Khan 2008, 'Case of Pearl Continental hotels in Pakistan: relationship of training with employees' performance in hoteling industry', *International Review of Business Research Papers,* vol. 7, no. 3, pp. 149-158

Farooq, M & Khan, MA 2011, 'Impact of training and feedback on employee performance', *Far East Journal of Psychology and Business*, vol. 5, no.3, pp. 23-33.

Frohlich, MT, & Westbrook, R, 2001, 'Arcs of integration: an international study of supply chain strategies', *Journal of Operations Management*, vol.19, no.1, pp.185-200.

Garavan, TN 1997, 'Training, development, education and learning: different or the same?', *Journal of European Industrial Training,* vol. 21, no.2. pp. 39-50

Ginsberg, L1997, 'Training for the long haul', *Computer Shopper,* vol: 17, no.1, pp. 4-5.

Garver, MS & Mentzer, JT 1999, 'Logistic research methods: employing structural equation modeling to test for construct validity', *Journal of Business Logistics*, vol. 20, no.1, pp. 33-57

Guest, D 1997, 'Human resource management and performance: a review and research agenda', *International Journal of Human Resource Management*, vol. 8 no. 3, pp. 263-76.

Haskett, JL1986, *Managing in the service economy*, Harvard Business School Press, Boston.

Hair, JF, Anderson, RE, Tatham, RL & Black, WC, 1998, *Multivariate data analysis,* Prentice-Hall, Englewood Cliffs, NJ.

Hill, CW 1988, 'Differentiation versus low cost or differentiation and low cost: a contingency framework', *Academy of Management Review,* vol. 13, no, 3, pp. 401-412.

Hofer, CW & Schendel, D 1978, *Strategy formulation: analytical concept*, West Publishing Company, St. Paul, MN.

Hollenbeck, J, DeRue, D, & Guzzo, R 2004, 'Bridging the gap between I/O research and HR practice: improving team composition, team training, and team task design', *Human Resource Management,* vol. 43, no, 4, pp. 353-366.

Houger, VP, 2006, 'Trends of employee performance: collaborative efforts between manager and employees', *Journal of Performance Improvement*, vol.45, no.5, pp. 26-31.

Investopedia, 2016, 'Market share',<http://www.investopedia.com/terms/marketshare.asp > Accessed 23 February 2016.

Investorwords, 2016,'profit', < http://www.investorwords.com/3880/profit.html >, Accessed 23 February 2016.

Investorwords, 2016,'ROA', < http:// http://www.investorwords.com/4313/ROA.html >, Accessed 23 February 2016.

Investorwords, 2015,'ROS', < http://www.investorwords.com/5775/ROS.html >, Accessed 23 February 2016.

Jie, S & Roger, D 2006, 'Training and management development in Chinese multinational enterprises', *Employee Relations*, vol. 28, no. 4, pp. 342-362.

Kathiravan, N, Devadasas, S R & Zakkeer, MM 2006, 'Quality oriented improvement training, industrial and data systems', *Emerald Group Publishers*, vol.106, no. 3, pp. 380-406.

Kotler, P 1994, *Marketing management analysis, planning, implementation and control*, eight edition. Prentice Hall, New Jersey.

Lawler, EE III 1993*, Organizing for the future: the new logic for managing complex organizations,* Jossey-Bass, San Francisco, CA.

Leonard-Barton 1992, 'Core capabilities and core rigidities: a paradox in managing new product development, *Strategic Management Journal*, vol. 13, no. special issue, pp. 111-125.

Lewis, M 1997, *Implementing the Lexical approach: putting theory into practice*, Language Teaching Publications, Hove, pp. 192-207.

Litwin, MS 1995, *How to measure survey reliability and validity*, Thousand Oaks, CA: Sage.

Marshall, E 1998, 'Intellectual capital provides the brain power for firm', *Triangle Business Journal*, vol. 13, no. 42, pp.19.

McKinsey Quarterly 2006, 'An executive take on the top business trends', A McKinsey Global Survey.

Mentzer, JT, Min, S & Zacharia, ZG 2000. 'The nature of inter-firm partnering in supply chain management,' *Journal of Retailing,* vol.76, no. 4, pp. 549-68.

Muzaffar, MU, Salamat, SH & Ali, MM 2012, 'Impact of trainings on employees outcome in IT sector Pakistan', *Global Journal of Management and Business Research*, vol. 12, no.6, pp. 20-26.

Nadeem, M, 2010, 'The role of training in determining the employee corporate behavior with respect to organizational productivity: developing and proposing a conceptual model', *International Journal of Business and Management*, vol. 5, no. 12, pp. 206-211

Niazi, SA 2011, 'Training and development strategy and its role in organizational performance', *Journal of Public Administration and Governance*, vol.1, no. 2, pp. 2161-7104.

Nunnally, J. 1967. *Psychometric theory*, Mc Graw Hill, New York.

Olaniyan, DA &Ojo, LB 2008, 'Staff training and development: a vital tool for organizational effectiveness', *European Journal of Scientific Research*, vol. 24, no.3, pp. 326-331.

Okanya, PS 2008, 'Reconciling organizational performance and employee satisfaction through training: the case of Soroti district local government', (Unpublished) MA. Thesis, Graduate School of Development Studies, Institute of Social Studies, The Hague, Netherlands pp. 66

Pfeffer, J1994, *Competitive advantage through people*, Harvard Business School Press, Boston, MA

Pfeffer, J 1998, The human equation: building profits by putting people first, Harvard Business School Press, Boston, MA.

Peteraf, MA 1993, 'The cornerstones of competitive advantage: a resource-based view', *Strategic Management Journal*, vol.14, no. 3, pp.179–192.

Pitfield, RC 1982, *Effective human resource development*, Jossey Bass Inc. P Publishers, California.

Purcell, J, Kinnie, N, Hutchinson, S, Rayton, B & Swart, J 2003, *Understanding the people and performance link: unlocking the black-box*, Research Report, CIPD, London.

Psomas, EL, Fotopoulos, CV, & Dimitrios, PK 2010, 'Critical factors for effective implementation of ISO 9001 in SME service companies', *Managing Service Quality,* vol. 20, no. 5, pp. 440-457.

Robert, T, Rosti Jr, Shipper, F 1998, 'A study of the impact of training in a management development program based on 360 feedback', *Journal of Managerial Psychology,* vol. 13, no.1-2, pp.77-89

Read, R & De Fillipi 1990, 'Causal ambiguity, barriers to imitation and sustainable competitive advantage', *Academy of Management Review*, vol.15, no. 1, pp. 88-102.

Rowden, RW & Conine, CTJ 2005, 'The impact of workplace learning and job satisfaction in small US commercial banks', *Journal of workplace Learning*, vol.17, no. 4, pp. 215-230.

Stone, R J 2002, *Human Resource Management*, 2nd Edition, John Wiley & Sons, Brisbane.

Sobel, M E 1982, 'Asymptotic confidence intervals for indirect effects in structural equation models', *Sociological Methodology*, vol.13, no.1, pp. 290–312

Singh, R & Mohanty, M 2012, 'Impact of training practices on employee productivity: a comparative study', *Interscience Management Review*, vol. 2, no. 2, pp.2231-1513

Tai, WT 2006, 'Effects of training framing, general self-efficacy and training motivation on trainees' training effectiveness', *Personnel Review*, *vol.35, no. 1, pp.51-65*.

Thang, NN & Buyens, D 2008, 'Training, organizational strategy and firm performance', *Business Review*, vol. 28, no. 1, pp. 176-183.

Tsai, P, Yen, C, Huang, L & Huang, I 2007, 'A study on motivating employee is learning commitment in the post-downsizing era: job satisfaction perspective', *Journal of World Business*, *vol.42, no. 2, pp.1570-169*.

Ubeda-García, M, Marco-Lajara, B, Sabater-Sempere, V, García-Lillo, F, 2013, 'Does training influence organisational performance? Analysis of the Spanish hotel sector', *Europen Journal of Training and Development,* vol.37, no. 4, pp.380-413.