Training-related Factors Play an Important Role in Transfer of Learning

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Abstract. *The main objective of this study was to determine the effect of training-related factors on transfer of learning. The study employed a one-group pretest-posttest design using a sample of 205 participants who had earlier attended the oil palm fresh fruit bunches grading training program. Using questionnaires, three sets of data (before training, immediately after training and ten months after training) were obtained in Malaysia. The study revealed that there is a convincing relationship between training-related factors and transfer of learning. The main reasons the training-related factors influenced transfer of learning were attributable to principles of meaningfulness and feedback cues. As a result, it can be deduced that training-related factors variables explain 58.5% of the variance that is reflected in the transfer of learning. The overall findings revealed that the training-related factors did play a significant role in transfer of learning.*

Keywords: Transfer of Learning, Training-related Factors

Training as a human resource development intervention has played a significant role in improving organizational performance (Jacob & Washington, 2003). The purpose of training is to create job performance outcomes, as well as to enhance employee's knowledge and skills (Lewis, 1996). Although business organizations are able to generate, develop, and maintain employee competitiveness through training, as well as recruiting and placement, training has been utilized as a major means for sustaining current employee development and ultimately for improving organizational performance. Thus, companies have increased training expenditures to sustain their employees' competitiveness. In particular, fast-growing companies have dedicated substantial amounts of time to the professional development of their employees (Gerbman, 2000; Tannenbaum, 2002). Senge (1990) stated that, in the long run, the only sustainable source of competitive advantage is an organization's ability to learn faster than its competition. This suggests that the practice of training by corporate bodies calls for a reconceptualized way to prepare individuals for this important role, where an employee's worth to the organization is through work behavior and ultimately performance.

The success factors that support competitiveness and performance for organizations lie in the results-oriented planned training for employees, where transfer of learning is made possible at the workplace. Transfer of training has been identified as the generalization of the skills required during training into the workplace (Holton & Baldwin, 2003). Training is useful if it can be translated into performance (Kozlowski & Salas, 1997; Holton 1996). Positive transfer of training, representing the degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job, is more than a function of original learning (Baldwin & Ford, 1988). However, research has suggested that very little of what is learned in training programs is actually transferred to the job to meet organizational objectives (Broad & Newstrom, 1992). This suggests that transfer of training first requires trainees to learn new job-related competencies (Velada & Caetano, 2007). By learning, we are referring to a relatively permanent change in knowledge, skills and behaviors of trainees (Weiss, 1990). After learning and retaining the training context, trainees should transfer the knowledge and/or skills acquired to the work context with the intention of improving job

performance over time (Colquitt et al., 2000). However, it has been estimated that only about 10 per cent of all training experiences are transferred from the training environment to the job (Baldwin & Ford, 1988). While this is a lower-bound estimate, Wexley and Lathan (2002) suggest that though approximately 40 per cent of content is transferred immediately following training, the amount transferred falls to 25 per cent after 6 months and 15 per cent after 1 year. This suggests that as time passes, trainees may be unable or less motivated to retain and use the information gained in the training program. Furthermore, this indicates that much of the time and money invested in training is never fully realized, because only a small percentage of the training effectively results in permanent transferability to the workplace.

Literature Review

Theory for Training-related Factors

Training-related factors emphasizing instructional design have been described as one of the most important influences on training transfer (Brinkerhoff & Gill, 1992). In terms of training transfer, training-related factors include purposeful elements that are part of the training program to enhance the possibility of transfer. One cause of failure to transfer training, according to Holton (1996), is that training-related factors rarely provide for transfer to take place. That is, cognitive learning may occur, but program participants may not have the opportunity to practice the training in a job context or may not be taught how to apply their knowledge on the job. So, the training itself can have a direct influence on transfer of training. Thus, it is important to understand the theories that provide information about the conditions necessary to achieve positive transfer.

The identical elements theory suggests that transfer of learning occurs when the training material is identical to that which the trainee performs in an actual job context (Kim & Lee, 2001). Thus, transfer of learning is maximized according to the extent to which the tasks, tools, equipment and environment in the training setting are similar to those in the workplace. This theory is used in the development of many training programs, especially those involved with learning specific procedures or learning how to use equipment (Noe, 2002), where the trainees are taught in the training context all the pertinent dimensions of their job.

Originally, the theory was proposed by Thorndike and Woodworth (1901), where they hypothesized that transfer is maximized by the extent that there are identical stimulus and response elements in the training and transfer settings. They suggested that transfer from one task to another would only occur when both tasks shared identical elements. Further, they proposed that the greater the number of shared elements, the greater the amount of transfer. Elements in this theoretical context are the shared features of the stimulus environment of the two tasks, where there is a clear and known relationship between the stimulus elements of the original and the transfer task. Therefore, two tasks that have similar or share some set of stimulus features are possible factors for transfer of learning. The critical step in the transferring process involves the recognition that one task or problem situation shares a set of stimulus features with another. Should the recognition process fail to occur, then the transfer of a previously learned response cannot take place.

Transfer of Training

Transfer of training is the degree to which trainees apply knowledge, skills, abilities and attitudes learned in training to their job (Holton et al., 1997). Transfer of training has been defined as the generalization of the skills acquired during the training phase to the work environment and the maintenance of these acquired skills over time (Baldwin & Ford, 1988). Positive transfer of training, representing the degree to which trainees effectively apply the knowledge, skills and ability gained in a training context to the job, is more than a function of original learning (Baldwin & Ford, 1988). However, research has suggested that very little of what is learned in the training program is actually transferred to the job to meet the organizational objectives (Broad & Newstrom, 1992; Cruz, 1997; Georgenson, 1982; Sevilla & Wells, 1998; Tyler 2000). Therefore,

the effectiveness of the transfer of training plays a major role in determining the utility of training and development programs in the organizations.

Ripple and Drinkwater (1982) defined transfer of training as "…the influence of what has been previously learned on subsequent learning or application" (p. 1948). Baldwin and Ford (1988) expanded the definition of transfer to address the organizational context. "The conditions of transfer include both the (1) generalization of material learned in training to the job context and (2) maintenance of the learned material over a period of time on the job" (Baldwin & Ford, 1988: 64). Simplistic transfer of exact behaviors learned in the classroom to almost identical conditions on the job (commonly called near transfer), while necessary, was not sufficient anymore. Trainees must now be able to generalize principles to adapt to the rapidly changing and novel contexts (far transfer). This principle becomes more important in its application as one moves up the organizational ladder, where jobs become less mechanical and require non-routine, higher order systems thinking. Baldwin and Ford (1988) appear to have made the first broad attempt to define the variables affecting transfer and encapsulate these into a model termed "A model of the Transfer Process" (p. 65). This theoretical framework is composed of three main areas: training inputs, training outputs, and conditions of transfer. Under the training inputs, they identify trainee characteristics (ability, personality, and motivation), training design (principles of learning, sequencing, and training content), and work environment (support and opportunity to use learned skills). Training outputs are comprised of learning and retention. Finally, the conditions of transfer are specified as generalization and maintenance (on the job). Each area that influences another is indicated by a vector, of which there are six in total. This model provides a rational basis for the work of other researchers to test the strength of linkages between variables.

Transfer of training is conceptualized as the extent to which knowledge, skills and attitudes (KSA) are acquired in a training program and are applied, generalized, and maintained over some time in the job environment (Baldwin & Ford, 1988). There has been a plethora of research and thinking in the transfer of training area (Ford & Weissbein, 1997). This emerging body of knowledge suggests a number of important propositions and conclusions. For example, (a) the organizational learning environment can be reliably measured and varies in meaningful ways across organizations (Tannenbaum et al., 1991); (b) the context matters (Quinones, 1995) that define motivations, expectations, and attitudes for transfer; (c) the transfer "climate" can have a powerful impact on the extent to which newly acquired KSAs are used on the job (Tracey et al., 1995, Thayer & Teachout, 1995); (d) trainees need an opportunity to perform (Ford et al., 1992; Quinones et al., 1995); (e) delays between training and actual use on the job create significant skill decay (Arthur et al., 2003); (f) situational cues and consequences predict the extent to which transfer occurs (Rouiller & Goldstein, 1993); (g) social, peer, subordinate, and supervisor support all play a central role in transfer (Facteau et al., 1995, Tracey et al., 1995); (h) training can generalize from one context to another (Tesluk et al., 1995); (i) intervention strategies can be designed to improve the probability of transfer (Brinkerhoff & Montesino, 1995; Kraiger et al., 1993); (j) team leaders can shape the degree of transfer through informal reinforcement (or punishment) of transfer activities (Smith-Jentsch et al., 2001); and (k) training transfer needs to be conceptualized as a multidimensional construct it differs depending on the type of training and closeness of supervision on the job (Yelon & Ford, 1999).

As noted by Ford and Weissbein (1997), much progress has been made in this area. There are more studies using complex tasks with diverse samples that actually measure transfer over time. However, much more is needed. Specifically, we need more studies that actually manipulate the transfer climate (Smith-Jentsch et al., 2001). However, the measurement problems remain. Most studies still use surveys as the preferred method for measuring transfer, whereas other methods need to be developed and used. Finally, we need to assume that learning outcomes at the individual level will emerge to influence higher level outcomes. Vertical transfer of training is the next frontier. This vertical transfer may be a leverage point for strengthening the links between learning outcomes and organizational effectiveness (Kozlowski et. al., 2000).

Relationships between Training-related Factors and Transfer of Learning

Training related factors are defined as levels of support the trainee receives from training when acquiring and using new skills, knowledge and behaviors. The training related factors are over-learning, fidelity, stimulus variability, principles-meaningfulness, feedback cues, relapse prevention, and goal setting. To ensure transfer of learning takes place the design of the course content must meet the requirements of the participants who will be attending the program. This can be done through needs analysis or conducting interviews with some of the participants identified to attend the program and representatives from the organization. This is to ensure that the program benefits both the participants and the organization. Data gathered can form the basis to formulate training objectives and draw up the content. The next step is to make sure that the instruction or teaching methodology adopted is effective in delivering the objectives. For skill transfer to happen the practice component must be available to expose the participants to the right ways of doing things and help them identify incorrect practices that must be avoided to reach mastery level. Another important factor to consider is the similarity between training context and transfer context. To ensure transfer of learning takes place, similarity between the two contexts should be incorporated at the design stage. Further, it must be enhanced during the practice sessions to facilitate recall.

Relevance of the course has been seen as an especially important area of training design (Gagne, 1962; Goldstein, 1986). If the course is not relevant, then trainees are unlikely to use the skills when they return to work, irrespective of a favorable work environment or high self-efficacy on the trainees' part will occur. Axtell et al. (1997) conducted a longitudinal study to examine factors affecting initial and sustained transfer of interpersonal skills training to the workplace. Transfer was measured by trainees and their managers after a period of one month and one year. The number of responses was not encouraging. At the beginning of the study, it was 75, one month later it came down to 62 and only 45 questionnaires could be collected after one year. The result suggested that trainees' perception of the relevance and usefulness of the course and their motivation to transfer skills were the key variables in determining the level of transfer of learning. In other words, if new skills are to be transferred to the workplace, trainees must first need to feel that the training is relevant to their jobs and must also be committed to using what they have learned.

Rodriques and Gregory (2005) carried out a qualitative study on 23 student workers in Eastern Michigan University's dining services on their perceptions of training design and transfer of learning. They found that the participants repeatedly mentioned that training design factors and work environment factors were important for transfer of learning to take place. Among their findings with regard to transfer design and content were: 1) dining service student workers reported that they paid more attention when training's content was transferable to their actual job setting; 2) they believed that training events should be fun to improve the attention and trainees' group cohesion; 3) they believed that the information shared during the training and the trainer should be pertinent and proximal to their experience and work setting; 4) they also believed that there must be a time to practice what has been learned to master the new skills; and 5) they acknowledged that skills built up must be from simpler to more complex. Therefore, this study strengthens the fact that the training content should be directly related to the job tasks, transfer design must emphasize specificity in the application of the learning content to the job, and instructional method employed during training should encourage over-learning of the content through the use of practice, group discussions and critique sessions for greater transfer of learning.

According to Machin and Fogarty (2004), the design that provides the trainees and their opportunities to be developed has a positive relationship with learning transfer. Besides that, Smith et al., (1996) emphasized that learning discoveries and training transformation have positive relationships. On the other hand, Smith et al. (1996) and Elangovan and Karakowsky (1999) stated that the effectiveness of learning transformation has a positive relationship with the degree of the real training and job contexts. Thayer and Teachout (1995), Wexley and Baldwin (1986) and Gist et al., (1990), through their research, found out that putting the objectives clearly has a positive relationship

with the learning transformation. Machin (2002) said that recognizing the potential barriers in training transformation has a positive relationship with the training transformation itself. Baldwin and Ford (1988) and Clement (1978) found that the lack in providing training and work patterns has a positive relationship with the training transformation. According to the findings of Thayer and Teachout (1995), Tziner et al. (1991), Haccoun (1998) and Choi and Jacob (2006), the two-way prevention and positive reaction are important in the shapes and effectiveness of learning transformation. Even in the Thayer and Teachout (1995) and Haccoun (1998) studies they found the relapse prevention and transfer of learning have a positive relationship with each other. In Clark et al. (1993) it was found that the perceived usefulness of training in facilitating the attainment of jobs goal and transfer of learning have a positive relationship, also in Noe and Schmitt (1987). As for goal setting and transfer of learning there was a positive relationship in Dweck and Legget (1988), Locke and Latham (1990), Baldwin and Ford (1988), Murtada and Haccoun (1996) and Cohen (1990) studies. Kontoghiorghes (2002) also highlighted the positive relationship between task cues and transfer of learning. Transfer of training and many different relevant training stimuli are employed. Even the use of a variety of examples was found to have a positive relationship in Choi and Jacobs's (2006) and Schmidt and Bjork's (1992) studies.

Research Question

The main purpose of this study was to determine the effects of training-related factors on the transfer of learning. The specific objectives were based on two research questions:

1. What are the relationships between the training-related factors and transfer of learning?
2. What are the main features in training-related factors influencing transfer of learning?

Methodology

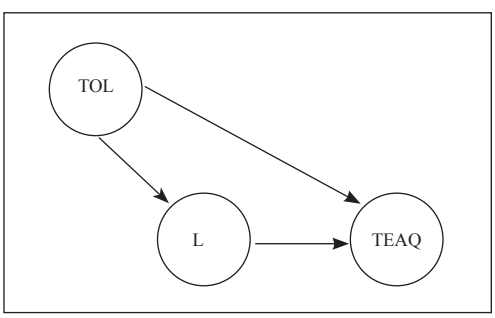
The study employed a one-group pretest-posttest design using a sample of 205 participants who had earlier attended the oil palm fresh fruit bunches grading training program. Using questionnaires, three sets of data (before training, immediately after training and ten months after training) were obtained in Malaysia. SPSS version 18.0 was used to analyze the data.

Instrument

Training-related factors were assessed using TEAQ (Thayer & Teachout, 1995), *Learning and Transfer of Learning* was adapted from Malaysian Palm Oil Board (MPOB) Oil Palm Fruit Grading Manual, MPOB (2003). The reliabilities for all variables measured are shown in Table 1.

Research Model

The research model which emphasized the factors that affect implementation and a transfer research model was developed, based on the Model of Training Transfer by Thayer and Teachout (1995), as shown in Figure 1.



Note: TEAQ = Training-related factors; L = Learning; TOL = Transfer of Learning

Figure 1: Research Framework

Findings

Table 1 shows the descriptive statistics and the reliabilities for learning and training-related variables measured in the research model, while Table 2 shows the correlation matrix between learning and training-related variables measured and transfer of learning; all variables were significant.

Table 1: Descriptive Statistics and Reliabilities for All Variables (n = 205)

Variables	Number of Items	Alpha	M	SD
Learning / Transfer of learning	28			
Before training		0.959	7.250	1.666
Immediately after training		0.934	8.868	1.015
Ten months after training		0.939	9.186	0.824
Overlearning	4	0.773	8.400	1.599
Fidelity	5	0.819	8.267	1.581
Stimulus variability	3	0.668	8.161	1.705
Principles meaningfulness	5	0.868	8.884	1.316
Feedback cues	10	0.894	8.694	1.338
Relapse prevention	7	0.806	7.334	1.849
Goal setting	7	0.826	8.304	1.478

Table 2: Correlation Matrix for All Variables

Variable	1	2	3	4	5	6	7	8
1. TOL	1.00							
2. L	0.657**	1.00						
3. OL	0.445**	0.274**	1.00					
4. F	0.489**	0.356**	0.586**	1.00				
5. SV	0.451**	0.241**	0.503**	0.673**	1.00			
6. PM	0.547**	0.394**	0.644**	0.597**	0.538**	1.00		
7. FC	0.579**	0.337**	0.720**	0.740**	0.702**	0.825**	1.00	
8. RP	0.297**	0.187**	0.430**	0.386**	0.549**	0.384**	0.631**	1.00
9. GS	0.492**	0.351**	0.713**	0.642**	0.715**	0.713**	0.316**	0.631**

** Correlation is significant at the 0.01 level (two-tailed)
* Correlation is significant at the 0.05 level (two-tailed)

Note: TOL = Transfer of learning; L = Learning; OL = Over learning; F = Fidelity; SV = Stimulus variability, PM = Principles meaningfulness; FC = Feedback cues; RP = Relapse prevention; and GS = Goal setting

Determination on Transfer of Learning

To what extent the trainees transfer the knowledge and skills learned in the MPOB oil palm fresh fruit bunches grading training program to their job behavior, ten months after the training program? To examine the successful transfer of learning, a measure of the degree to which the skills learned in training are actually transferred to the job is required (Baldwin & Ford, 1988). Transfer of learning in this study refers to the effective and continuing application of newly acquired business writing skills from the MPOB oil palm fresh fruit bunches grading training program on trainees' job. It was calculated by

taking the difference between ten months after training composite score and immediately after training composite score.

Determination of Levels of Variables Measured in Training Related Factors and Transfer of Learning

To what extent the level of training-related factors, level of learning and level of transfer of learning were determined in the study? The data derived were all transformed into continuous data by computing the total scores of all items and the composite score, and then computing the mean scores of all the items. This was to enable the researcher to use a higher level of analysis. The range categories were developed using the scale scores. In this respect, the lowest and highest possible scores were determined by summing the number of items under each variable on a ten-point Likert scale. The minimum score was subtracted from the maximum score and divided by the number of categories; that is three categories. The resulting figure formed the range values between the three categories of low, moderate and high. The method was applied to determine the level of training-related factors, learning and transfer of learning.

Table 3: Levels of Variables Measured in Transfer of Learning

Variables	High		Moderate		Low	
	%	Freq.	%	Freq.	%	Freq.
Learning / Transfer of learning						
Before training	55.6	114	40.0	82	4.4	9
Immediately after training	92.7	190	7.3	15	0	0
Ten months after training	96.1	197	3.9	8	0	0
Overlearning	81.5	167	17.6	36	1.0	2
Fidelity	80.5	165	16.6	34	2.9	6
Stimulus variability	73.7	151	22.9	47	3.4	7
Principles meaningfulness	89.3	183	10.2	21	0.5	1
Feedback cues	84.4	173	15.6	32	0	0
Relapse prevention	61.0	125	33.7	69	5.4	11
Goal setting	82.4	169	16.6	34	1.0	2

The levels of variables measured are presented in Table 3. The overall results on the level of variables measured in training related factors, learning and transfer of learning show that the level of variables measured in each construct is high.

Summary of Levels of Variables Measured in Training-related Factors and Transfer of Learning

The overall results on level of training-related factors, learning and transfer of learning indicate that all levels for each variable are high.

Table 4: Model Summary of Multiple Regression Analysis for Training-related Factors, Transfer of Learning (Model 2)

Model	R	R2	Adjusted R2	Std. Error of the estimate
1	0.765(a)	0.585	0.579	31.998

(a) Predictors: (Constant), Training-related Factors, Learning

Table 5: Multiple Regression Analysis Examining the Relationships for Training-related Factors, Transfer of Learning (Model 2)

	Unstandardized Coefficients		Standardized Coefficients		
Model 1	B	Std. Error	Beta	T	p-value
Constant	197.693	19.513		10.131	0.001
Learning	0.329	0.034	0.480	9.612	0.001
Training-related factors	1.096	0.372	0.202	2.947	0.004

Significant at the p <.05 level

From Tables 4 and 5, the prediction equation of transfer of learning could be suggested as:

$$\hat{Y} = b_o + b_1 (X_1) + b_2 (X_2) + e$$

Where:
- $\hat{Y}$ = Transfer of Learning
- X_1 = Learning
- X_2 = Training-related Factors
- b_o = Constant / Intercept
- b_{1-2} = Regression Estimates /coefficient values
- e = error

Based on the coefficients table given in Table 5, the data were analyzed using the enter method, where the estimated equation of the Multiple Linear Regression Model is:

$$\hat{Y} = 197.693 + 0.329 (X_1) + 1.096 (X_2) + e$$

The result of the regression analysis from Table 5 shows that learning and training-related factors together explain the figure of 58.5% of the variance in transfer of learning. The result of this analysis suggests that, for one unit increase in learning, transfer of learning will increase by 0.329 units; and for one unit increase in training-related factors, there will be an increase of 1.096 units in transfer of learning. With model 2, the adjusted R square is 58.5%. Therefore, it can be deduced that learning and training related factors variables explain the figure of 58.5% of the variance in transfer of learning.

Table 6 presents the results of the ANOVA to test the slope of the final model. The result of the ANOVA analysis shows that the F-statistic (F = 94.616, p < .05) is significant, which means that there is a significant linear relationship between learning, training-related factors and transfer of learning.

Table 6: ANOVA: Learning, Training-related Factors and Transfer of Learning (Model 2)

Model	Sum of Squares	df	Mean Square	F	p-value
Regression	272751.93	3	90917.311	94.616	0.001a
Residual	193142.49	201	960.908		
Total	465894.42	204			

a Predictors: (Constant), Learning, Training-related Factors
b Dependent Variable: TOL
Significant at the p < .05 level

Normality, linearity and equal variance assumptions of the Regression Model were met. Results are shown in Figures 2 and 3. In the Normal Probability Plot, almost all points lie in a reasonably

straight diagonal line from bottom left to top right. This suggests that there is no major deviation from normality.

In Figure 2, the graph shows the residuals are normally distributed, since a majority of the standardized residuals falls approximately along the straight line, indicating that they are from a linear population. It also indicates that the errors are normally distributed and it meets the assumption that errors or residuals are normally distributed, as shown in Figure 3.

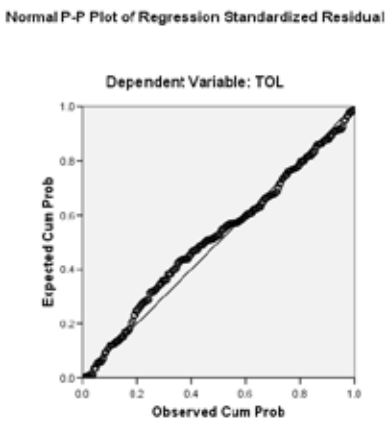


Figure 2: Normal P-P Plot for Transfer of Learning Curve for Transfer of

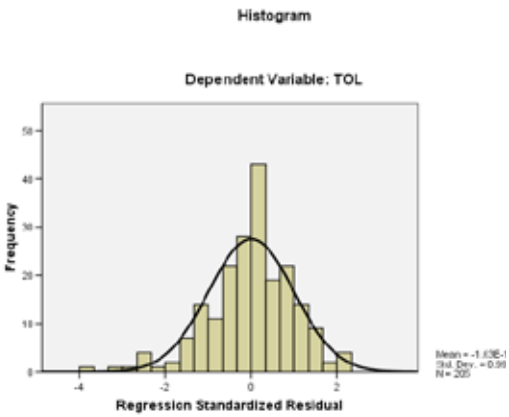


Figure 3: Standard Normal Learning

Discussion and Implications

Several meaningful findings and insights may be drawn from the study's findings. Regarding the differences in mean score between before training, immediately after training and ten months after training, the study reveals the trainees significantly increased in perceived learning between immediately after training and before training and perceived application of transfer of learning. The trainees experienced a significant increase between their perceived learning immediately after training and perceived application at ten months after training. While these findings replicate similar patterns in previous studies assessing the changes in perceived learning and learning transfer after a certain period of time (Lim, 2000), one unique finding here is that the same pattern of increased learning is verified from actual assessment of learning using a grading practices test set (pretest-posttest).

With respect to differences in perceived learning, transfer of learning, and changes in the dependent variables based on training-related factors and transfer of learning (grading practices), learning is identified as an influential variable for perceived learning transfer, and his or her immediate training needs to use the training content on the job appear to be a strong variable affecting perceived and actual learning and perceived learning transfer, respectively. This supports previous findings regarding the correlations between the utility of a training program and the training effectiveness toward training transfer (Alliger et al., 1997; Baldwin & Ford, 1988; Warr & Bunce, 1995). In addition, this study verifies the finding from a different perspective in immediacy of time. The study's quantitative findings seem to agree with the supporting theory when the trainees experienced a certain degree of need to transfer learning to their jobs and tasks if training content and job functions are related. When the time factor is involved (immediate needs to use the training content), the study indicates that the trainees are motivated, not only to transfer their learning, but also to learn better when they expect to use immediately what they have learned in training. In examining the cross-relationship and influence among the variables in training-related factors, several mixed interpretations could be drawn to explain the proposed research framework of the training transfer construct.

Firstly, the study reveals significant correlations between training-related factors and the trainees' perceived learning applicability immediately after the training. The learning and learning application were not significantly related to the training-related factors in the research model. In complete agreement with these findings regarding the differences in perceived learning and learning application, the study's findings seem to suggest that there are certain distinct variables in training-related factors (overlearning, fidelity, stimulus variability, principles meaningfulness, feedback cues, relapse prevention, and goal setting), that are closely correlated with the trainees' perceived learning and learning transfer; collectively or independently. Parallel to the findings from Tracey et al.'s study (2001) indicating a causal relationship between the trainees' self-efficacy and their utility reaction for training transfer, this study also revealed the relationships connecting trainees' immediate needs for training before the training, trainees' satisfaction with the training during or immediately after the training, and transferable environment after the training through positive organizational climate. Other studies have also provided supporting evidence regarding this causal relationship between the transfer constructs (Alliger et al., 1997; Baldwin & Ford, 1988; Clark et al., 1993; Lim, 2000; Warr & Bunce, 1995). From these findings, the researcher suggests that assessing the trainees' satisfaction with the training program immediately after the training may be a valid way to examine the utility of the training program for learning and learning transfer. More research regarding this finding is warranted.

Nevertheless, the transfer of learning achieved in this study is slightly lower than reported in transfer research done by Baldwin and Ford (1988), Ford and Weissbein (1997) and Holton, Bates and Ruona (2000), which recorded about 10% to 30%. However, it was much lower than that reported by Fitzgerald (2002) where the range of responses varied from 10% to 80%. The findings, therefore, revealed that there is positive and significant transfer of learning of 3.60% that occurs after training. The study indicates that the trainees are motivated to transfer their skills after ten months of training. The lower percentage of transfer of learning that occurs in these findings compared to the previous research findings might be due to demographic profile of the participants. The focus of the study should be emphasized to the graders only. However, in the demographic profile the level of designation of the respondents were from various levels (managers, engineers, assistant managers, supervisors, technicians, graders, and clerks). The percentage of graders was only 42.90 per cent. Perhaps the level of learning and transfer of learning would be better if the focus group of respondents was confined solely to the graders, with 100 per cent respondents from that particular group. However, future research examining the graders in this variable is warranted.

The current study attempted to identify the relationship between a composite of trainees' perceptions of the training-related factors in training-related factors (including over learning, fidelity, stimulus variability, principles-meaningfulness, relapse prevention, and goal setting) and several endogenous variables, including the trainees' learning during training, and the level of trainees' transfer intentions. While there has traditionally been a focus on training activities and settings that are most beneficial in promoting transfer success, there have not been any models specified that simultaneously incorporated the range of pre-training and post-training variables that are included in this study. The model attempted to specify the network of variables that explain variance in two main outcomes of training: learning, and transfer implementation intentions.

From previous research studies, several training-related factors variables were found to influence the transfer of training, such as identical elements between the learning and job setting, stimulus variability in instruction, teaching of general principles (Baldwin & Ford, 1988), and over-learning (Hagman & Rose, 1983). Firstly, the training content was said to be mostly identical with the trainees' job requirements. Secondly, use of various instructional methods, such as examples and demonstration, practice session, and project completion, seemed to promote better learning during the training. Thirdly, overlearning seemed to promote the retention of trainees' learning after the training. Many trainees seemed to clearly remember and apply the learning principles to the design of courses, which were emphasized several times by one instructor, 10 months after the training. Some trainees mentioned that even though they already knew the learning principles, they were inclined to focus on the use of grading practices without considering whether those practices support the learning or not. The training gave them an opportunity to revisit the basic learning principles and apply them to

the design of the training program. The transfer variables, such as motivation and goal-setting, might be drawn, not only from personal characteristics, but also individual experiences that affect learning and training transfer as the training-related factors. However, the findings of this research study show contradictory evidence as opposed to these research studies. This is due to the fact that not all learning from any training program can be expected to be transferred or applied to jobs and tasks for the trainees. To assure the maximum transfer of a training program, several considerations must be made prior to and during the training program. Firstly, to ensure good training-related factors that would accommodate the training needs, thorough training needs assessment at the individual participant level seems crucial in order to ensure the success of training transfer as well as the quality of training. The training needs of the participants' level may vary from individual to individual. The more training satisfies the individual participant level training needs, the better the chances of the training transfer outcome. Secondly, the use of diverse instructional methods is considered an important strategy for training-related factors that leads to successful training transfer. By providing learning experiences in different ways, the trainees can master the training content conceptually and experientially. A diverse learning stimulus also helps retention of the learning to a greater degree. Thirdly, in the case of delivering training program to the trainees, the instructor's sensitivity to the trainees' differences that the trainees may experience during the instruction is an important factor for successful training. The course coordinator also plays a critical role in guiding the trainees' learning and application of the learning back to the jobs and tasks. Several research implications surfaced from this study. Firstly, it appears that trainees' personality variables influenced the learning and training transfer, but these were not explored in this study. To include the variables of trainees' characteristics in future research designs will certainly enhance the depth of future studies. Secondly, this study was focused on the transfer of training in different settings emphasizing the graders only. Comparing the differences found in the transfer of training settings is an interesting topic in need of study.

Limitations and Conclusion

The researcher recognizes that improvement in grading performance as a result of attending a training program, such as a two-and-a-half days session, is not always simple and easy to quantify, as behavior is not likely to change much over such a short time. Trainees who participated in the MPOB oil palm fresh fruit bunches grading training program were from support staff to executive level; they were in their mid-twenties to fifties. As adult learners, they carried their own set of beliefs about themselves. They created their own sense of understanding and interpretation while attending the training program. These conditions, besides others, could have affected participation rate or behavioral change independent of the effects of any other specific training activity or treatment. It is assumed that the trainees' prior ability to grade oil palm fresh fruit bunches was generally low and that each person had a similar need to learn and similar potential to gain. Transfer of learning scales used in this study was based on objective responses to questions about their ability to grade oil palm fresh fruit bunches (pre-practices and post-practices), a climate transfer questionnaire and a transfer enhancing activities questionnaire. It is hoped that future studies, time and resources permitting, will employ both objective and subjective measures of transfer of learning so that comparison can be made between them.

Since the respondents selected for this study were those in the oil palm industry, the findings of this study could only be confined to the oil palm industry in Malaysia. The generalization of the findings to other industries would only be applicable insofar as they have characteristics similar to the oil palm industry. The responses of the training participants in this study were based on self-perceptions.

This research explored the transfer of learning among oil palm industry trainees who attended the MPOB oil palm fresh fruit bunches grading training program. It is assumed that the selected trainees have expressed objectively their views and opinions while filling in the questionnaire on their grading performance before, immediately after and ten months after the MPOB oil palm fresh fruit bunches grading training program, using learning and learner motivation questionnaire.

In summary, the results of this study suggest that the expectancy theory can be better utilized in the training transfer literature if it is applied at two different, but nested levels: the training context level and the individual and/or organizational performance level. At the first level, or the training context level, one is concerned with the degree to which the trainee believes that: a) his/her effort will result in actual learning; b) learning can indeed be transferred back to the job, given the realities of the training transfer climate; and c) application of new skills and knowledge is directly linked to intrinsic and extrinsic rewards. At the second level, or the employee/organizational performance level, one is concerned with the degree to which the employee believes that: a) application of new skills and knowledge can indeed lead to enhanced individual and/or organizational performance, given the realities of the work environment and organizational culture; and b) enhanced individual and/or organizational performance can lead to desired and valued outcomes.

References

Alliger, G. M., Tannenbaum, S. I., Bennett, W., Traver, H., & Shotland, A. (1997). A meta- analysis of the relations among training criteria. *Personnel Psychology, 50*, 341-358.

Arthur, W., Bennett, W., Edens, P.S., and Bell, S. T. (2003). Effectiveness of training in organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology,* 88(2), 234-245.

Axtell, C. M., Maitlis, S., & Yearta, S. K. (1997). Predicting immediate and longer-term transfer of training. *Personnel Review,* 26(3), 201-213.

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology, 41*, 63-105

Brinkerhoff, R. O., & Gill, J. S. (1992). Managing the total quality of training. *Human Resource Development Quarterly*, 3 (2), 121-131.

Brinkerhoff, R. O., & Montesino, M. V. (1995). Partnerships for training transfer: Lessons from a corporate study. *Human Resource Development Quarterly,* 6, 263-273.

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

Choi, W., & Jacobs, R. L., (2006). A Review of the Literature on Team Diversity, Career Commitment and Transfer of Training.

Clark, S. C., Dobbins, H. G., & Ladd, T. R., (1993). Exploratory field study of training motivation. *Group and Organization Management, 18(3)*, 292-307

Clement, R. W. (1978). An empirical test of hierarchy theory of training evaluation. *Dissertation Abstracts International, 39* (10), 6214A. (UMI No. 7907317)

Cohen, A. D. (1990). *Language Learning: Insights for learners, teachers, and researchers*. Rowley, MA: Newbury House.

Colquitt, J. A., LePine, J. A., Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology,* 85(5), 678-707.

Cruz, B. J. (1997). Measuring the transfer of training. *Performance Improvement Quarterly, 10*(2), 83-97.

Dweck. C. S., & Legget, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychology Review,* 95, 256-273.

Elangovan, A. R., & Karakowsky, L., (1999). The role of trainee and environmental factors of training: An exploratory framework. *Leadership & Organization Development Journal*, *20(5*), 268-276. *evidence*. Melbourne: Monash University , Faculty of Business and Economics.

Facteau, J. D., Dobbins, G. H., Russell, J. E., Ladd, R. T., & Kudisch, J. D. (1995). The influence of general perceptions of the training environment on pre-training motivation and perceived training transfer. *Journal of Management,* 21(1), 1-25.

Fitzgerald, C. G. (2002). *Transfer of training and transfer climate: the relationship to the use of transfer maintenance strategies in an autonomous job context*. Unpublished Doctoral Dissertation, University of Connecticut.

Ford, J. K., & Weissman, D. A. (1997). Transfer of training: An update review and analysis. *Performance Improvement Quarterly, 10(2)*, 22-41.

Ford, J. K., Quinones, M. A., Sego, D. J., & Sorra, J. S. (1992). Factors affecting the opportunity to perform trained task on the job. *Personnel Psychology, 45*, 511-527.

Gagné, R. M. (1962). Military training and principles of learning. American Psychologist, 69 (4), 355–365.

Georgenson, D. L. (1982). The problem of transfer calls for partnership. *Training and Development Journal, 36*, 75-78.

Gerbman, R. V. (2000). Corporate universities 101- The increasing use of corporate universities. *HR Magazine.*

Gist, M. E., Bavetta, A. G., & Stevens, C. K. (1990). Transfer training method: Its influence on skill generalization, skill repetition, and performance level. *Personnel Psychology, 43,* 501-523.

Goldstein, I. L. (1986). *Training in Organizations: Needs assessment, design, and evaluation.* Monterey, CA: Brooks/Cole.

Haccoun, R. R., & Saks, A. M. (1998). Training in the 21st century: Some lessons from the last one. *Canadian Psychology,* 39 (1-2), 33-51.

Holton III, E. F. (1996). The flawed four level evaluation model. *Human Resource Development Quarterly*, 7, 5-21.

Holton, E. F., & Baldwin, T. T. (2003). 'Making transfer happen: An action perspective on learning transfer system' in Holton, E. F. III, & Baldwin T.T. (eds), *Improving Learning in Organizations*, San Francisco, CA: Jossey Bass.

Holton, E. F., Bates, R. A., Seyler, D. L., and Carvalho, M. B. (1997). Toward construct validation of a transfer climate instrument. *Human Resource Development Quarterly*, 8(2), 95-113.

Holton, E. F., Bates, R., & Ruona, W. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly,* 11(4), 333-365.

Jacobs, R. L. & Washington, C. (2003). Employee development and organizational performance: A review of literature and directions for future research. *Human Resource Development International*, 6, 343-354.

Kim, J. H., & Lee, C. (2001). Implications of near and far transfer of learning on structured on-the-job training. In R. Jacobs (Ed.), *Planned Training on the Job,* Thousand Oaks, CA: Sage.

Kontoghiorghes, C. (2002). Predicting motivation to learn and motivation to transfer learning back to the job in a service organization: A new systematic model for training effectiveness. *Performance Improvement Quarterly*, 15, 114-129.

Kozlowski, K., Draiger, Salas, E., & Teachout, M. S. (Eds.). (2000). *Improving Training Effectiveness in Work Organizations.* (pp. 247-287). Hillsdale, NJ: Lawrence Erlbaum Associates.

Kozlowski, S. W., & Salas, E., (1997). An organizational system approach for the implementation and transfer of training. In J. K. Ford, S. W. J. Kozlowski, K. Kraiger, E. Salas, & M. Teachout (Eds.). *Improving Training Effectiveness in Work Organizations* (pp. 247-287). Hillsdale, NJ: Lawrence Erlbaum Associates

Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology, 78*(2), 311-328.

Lewis, T. (1996). A model for thinking about the evaluation of training. *Performance Improvement Quarterly*, 9(1), 3-22.

Lim, D. H. (2000). Training design factors influencing transfer of training to the workplace within an international context. *Journal of Vocational Education and Training,* Vol. 52 (2), pp 243-258.

Lim. D. H., and Johnson, S. D. (2002). Trainee perceptions of factors that influence learning transfer. *International Journal of Training and Development,* 6(1), 36-48.

Locke, E. A., & Latham, G. P., (1990*). A Theory of Goal Setting and Task Performance*. Englewood Cliffs, NJ: Prentice Hall

Machin, M. A. (2002). Planning, managing and optimizing transfer of training. In K. Kraiger (Ed.), *Creating, Implementing and Managing Effective Training and Development*, pp. 263-301. San Francisco, CA: Jossey-Bass

Machin, M. A., and Fogarty, G. J. (2004). Assessing the antecedents of transfer intentions in a training context. *International Journal of Training and Development,* 8(3), 222-236.

Malaysian Palm Oil Board (MPOB). (2003). *Oil Palm Fruit Grading Manual.* Bangi, Selangor: Malaysian Palm Oil Board.

Murtada, N., & Haccoun, R. R. (1996). Self monitoring and goal setting as determinants of transfer of training in real settings. *Canadian Journal of Behavioral Science, 28(2),* 92-101

Noe, R. A. (2002). *Employee Training and Development*. New York: McGraw Hill.

Noe, R. A., and Schmitt, N. (1987). The influence of trainee attitudes on training effectiveness: Test of a model. *Personnel Psychology,* 39, 497-523.

O'Connor, E. J., Pooyan, A., and Weekley, J., Peters, L. H., and Frank, B., and Erebkrantz, B. (1984). Situational constraint effects on performance, affective reactions, and turnover: A field replication and extension. *Journal of Applied Psychology,* 69(4), 663-672.

Quinones, M. A. (1995). Pre-training context effects: Training assignment as feedback. *Journal of Applied Psychology,* 80(2): 226-238.

Quinones, M. A., Ford, J. K., Sego, D. J., & Smith, E. M. (1995). The effects of individual and transfer environment characteristics on the opportunity to perform trained tasks. *Training Research Journal*, 1, 29-48

Ripple, R. E. and Drinkwater, D. J. (1982). In *Encyclopedia of Educational Research.* New York: Free Press, pp.19–48.

Rodriquez, C. M., & Gregory, S. (2005). Qualitative study of transfer training of student employees in a service industry. *Journal of Hospitality and Tourism Research*, 29(1), 42-66.

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

Schmidt, R. A. & Bjork, R. A., (1992). New conceptualizations of practice: Common principles in three paradigms suggest new concept for training. *Psychological Science, 3,* 207-217

Senge, P. M. (1990). The *Fifth Discipline: The art & practice of the learning organization.* New York: Doubleday/Currency.

Sevilla, C., & Wells, T. (1998). Contracting to ensure training transfer. *Training and Development, 52*(6) 10-12.

Smith-Jentsch, K. A., Jentsch, F. G., Payre, S. C., Salas, E. (1996). Can pretraining experiences explain individual differences in learning? *Journal of Applied Psychology*. 81(1), 110-116.

Smith-Jentsch, K. I. A., Salas, E., & Brannick, M. T. (2001). To transfer or not to transfer? Investing the combined efforts of trainees characteristics, team leader support, and team climate. *Journal of Applied Psychology,* 86, 270-292.

Tannenbaum, S. I. (2002). A strategic view of organizational training and learning. In K. Kraiger (Ed.), *Creating, Implementing, and Managing Effective Training and Development: State-of-the-art lessons for practice*. San Francisco, CA: Jossey-Bass.

Tannenbaum, S. I., Mathieu, J. E., and Salas, E., and Cannon-Bowers, J. A. (1991). Meeting trainees' expectations: The influence of training fulfillment on the development of commitment, self-Efficacy and motivation. *Journal of Applied Psychology,* 76(6), 759-769.

Tesluk, P. E., Farr, J. L., Mathieu, J. E., & Vance, R. J. (1995). Generalization of employee involvement training to the job setting: Individual and situational effects. *Personnel Psychology*, 48, 607-632.

Thayer, P. W. & Teachout, M. S. (1995). A climate for transfer model, AL/HR-TP-1995-0035

Thorndike, E. L., & Woodworth, R. S. (1901). The influence of improvement in one mental function upon the efficiency of other functions. *Psychological Review, 8*, 247-261

Tracey, J. B., Tannenbaum, S. L., & Kavanagh, M. J. (1995). Applying trained skills on the job: The Importance of the work environment. *Journal of Applied Psychology*, 80(2), 239-252.

Tyler, K. (2000). Hold on to what you've learned. *HR Magazine, 45*(5), 94-102.

Tziner, A., Haccoun, R. R., & Kadish, A. (1991). Personal and situational characteristics influencing the effectiveness of transfer of training improvement strategies. *Journal of Occupational Psychology, 64,* 197-177

Velda, R., Caetano, A., Michel, J. W., Lyons, B. D., Kavanagh, M. J. (2007). The effects of training design, individual characteristics and work environment on transfer of training. *International Journal of Training and Development,* 11(4), 282-294.

Warr, P., & Bunce, D. (1995). Trainee characteristics and the outcomes of open learning. *Personnel Psychology, 48*, 347-375.

Weiss, H. M. (1990). Learning theory and industrial and organizational psychology. In M. Dunnette & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology.* 2nd ed., Vol. 2, pp. 171–221. Palo Alto, CA: Consulting Psychologists Press.

Wexley, K. N. & Baldwin, T. T. (1986). Post-training strategies for facilitating positive transfer: An empirical exploration. *Academy of Management Journal, 29*, 503-520

Yelon, S.L. and Ford, J.K. (1999) Pursuing a multidimensional view of transfer. *Performance Improvement Quarterly*, 12, 58–67.