

The Impact of Learner Characteristics on Transfer of Training

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Abstract

The learner characteristics during pre-training stage was analyzed and twelve enterprises, which practiced on-the-job training and received government grant-in-aid in 2010, were selected in this study. There are totally 181 valid samples. This study adopts Holton's Learning Transfer System Inventory (LTSI) to analyze learner characteristics during the pre-training stage. The characteristics include Learner Readiness (LR), Motivation to Transfer (MT), Personal Capacity to Transfer (PCT), and Performance Self Efficacy (PSE). The results show the characteristics of trainees have positive effects on Transfer Effort-Performance Expectations (TE-PE). Among the four factors, LR and MT have the most significant effects. This study can serve as requisites for training practitioners to enhance learner characteristics prior to training. Respondents of this study are learners who have participated in training programs organized by enterprises of various scales. This study suggests enhancing some of the learner characteristics during the pre-training stage to improve transfer of training and training effectiveness in post-training stage by means of regression analysis and factor analysis to examine the characteristics.

Keywords

Learner Characteristic; Learner Readiness; Learning Transfer System Inventory

Introduction

In light of the uncertainty and instability in the external environment, businesses can no longer ignore the impacts of environment changes on business operation. Improving employees' abilities and maintaining company competitiveness in a changing environment is the key to an organization's success. Research has shown that unless acquired new skills can be applied on the job, organizing on-the-job training is futile. In the work environment nowadays, employees must keep improving their knowledge and skills to complete their work accordingly. Given competitions both inside and outside of an organization, learning has become a commonly acknowledged goal among employees. Therefore,

organization leaders must look for more effective training strategies to maximize organization performance and benefits. It was previously estimated that only 10% of training was applied on the job, which was indeed less favourable. Wexley and Latham stated that 40% of the trainees apply training on the job immediately after the training, 25% retain the application six months later, but only 15% apply training on the job a year later. If an organization wants to increase the return on investment rate of the training, it must understand factors affecting the transfer of training and take responding measures. Many researchers and training practitioners have confirmed that desire or motivation to learn can influence the extent to which employees apply the training on the job.

Proper investment in resources, outstanding organization, training programs and materials and professionalism are all key factors for the transfer of training. Learners usually possess characteristics which may affect the transfer of training. These characteristics have been identified by different researchers at different times. Whether or not they are relevant to the transfer of training is worth discussing. This study aims to explore the difference among these characteristics and find out whether enhancing these characteristics in pre-training stage will have positive influence on the transfer of training. There is a lot of literature probing into key factors for the transfer of training. From the learner-centred prospective, personal capacity for transfer and motivation to transfer are paid with much attention. According to the empirical research of Lim & Johnson, it is proven that having a learning goal and motivation in pre-training stage as well as professional level are critical factors to the transfer of training.

The transfer of training has many definitions. Baldwin and Ford believed the transfer of training refers to "learners' ability to effectively apply acquired

knowledge, skills, and attitudes on the job and maintain the application over a given period of time". Learners must learn skills relevant to their work to facilitate the combination of the transfer of training and learners' characteristics. Wexley & Latham defined the transfer of training as the extent to which trainees apply acquired knowledge, skills, and attitudes on the job. Broad and Newstrom believed the transfer of training means learners can use knowledge and skills learnt at work or outside of work on the job. Verma, et al. defined the transfer of training as employees' utilization of knowledge, skills, and attitudes for better work performance. Combining the above-mentioned definitions, this study identifies the transfer of training as "the ability of an aware and motivated learner to set a goal, acquire new knowledge and skills during training, actively and effectively apply the knowledge and skills on the job, and achieve the goal and retain the training effectiveness".

Many factors, including learners characteristics, training design, and work environment, can affect the transfer of training. Figure 1 shows the connection between the influence factors and learning retention proposed by Baldwin and Ford. Ever since Baldwin and Ford divided the transfer of training into three tiers, many researchers have been discussing intensively about factors in these three tiers. Holton proposed HRD Evaluation Research and Measurement Model to discuss the influence of learners' motivation on the transfer of training and performance in pre-training and post-training stages and during the training. He also used the model to explore whether learners have learning motivation before the training, whether they are motivated to transfer after the training, whether their expectation on the transfer of training will translate into return of investment of training, and whether an organization creates an environment favourable for the transfer of training. Holton particularly emphasized the importance of trainees' motivation in pre-training and post-training stages and during the training.

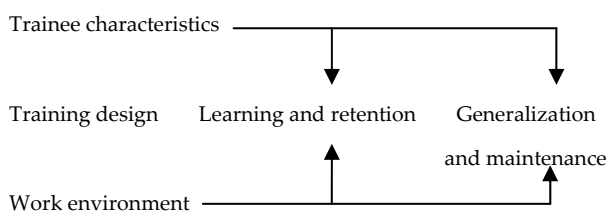


FIG. FACTORS AFFECTING TRANSFER OF TRAINING

Framework of Study

There have been many studies using theories in psychology to prove that personal ability and motivation will affect training effectiveness and results. Burke & Hutchins collected 170 theses about the transfer of training and compiled a list of learner characteristics which will affect the transfer of training. The characteristics, including learners' cognitive ability, self-efficacy, pre-training motivation, career/job variable, and personality, generate positive influences on the transfer of training. On the other hand, anxiety will bring about negative impact on the transfer of training. Other factors such as organizational commitment, although categorized as one of learner characteristics, is regarded by this study as factors in work environment.

It is no doubt that learners' motivation and abilities are determinants for learning effectiveness. Many studies on learner characteristics pay close attention to the influence of trainees' motivation on the transfer of training. Motivation refers to learners' willingness to apply the training on the job. Kirwan & Birchall compiled a list of learner characteristics based on numerous literature, including trainees' self-efficacy, expectation, organizational commitment, and job involvements. Other factors such as the extent of self-control and goal-orientation are proven by previous literature as having influence on the transfer of training. Some forms of cognitive abilities can also affect the transfer of training.

Holton, Bates & Ruona developed the Learning Transfer System Inventory (LTSI) which covers 16 influence factors of the transfer of training, such as motivation, environment, personal capacity, performance self-efficacy, and learner readiness. Training results cover three aspects, which are learning, personal performance, and organizational outcome. Table 1 shows the 16 constructs of LTSI.

Most training programs mainly focus on training design and experience accumulation in post-training stage. Nevertheless, it is shown that "learners' characteristics" and "pre-training stage" are critical factors for the transfer of training. The transfer-ready learner is to improve the transfer of learning effectiveness, while emphasizing the learners "motivation to improve work through learning" and "learning agility" is to study the migration of two very important antecedents. Baharim & Gramberg believed the share of knowledge plays a critical role in the transfer of training. Sharing acquired knowledge,

TABLE 1 THE LEARNING TRANSFER SYSTEM INVENTORY: CONSTRUCTS & DEFINITION

NO	Constructs	Definition
1	Learner Readiness	Extent to which trainees are prepared to enter and participate in training.
2	Motivation to Transfer	Trainees' desire to use the knowledge and skills mastered in the training program on the job.
3	Peer Support	Extent to which peers reinforce and support use of learning to the job
4	Supervisor Support	Extent to which supervisors/managers support and reinforce use of training on the job.
5	Personal Outcomes-Positive	Degree to which applying training on the job leads to outcomes that is positive for the trainees.
6	Personal Outcomes-Negative	Extent to which individuals believe that not applying skills and knowledge learned in training will lead to negative personal outcomes.
7	Supervisor Sanctions	Extent to which individuals perceive negative responses from supervisors/managers when applying skills learned in training.
8	Content Validity	Extent to which trainees judge training content to accurately reflect job requirements
9	Transfer Design	Degree to which (1) training has been designed and delivered to give trainees the ability to transfer learning to the job (2) training instructions match job requirements.
10	Personal Capacity to Transfer	Extent to which individuals have the time, energy and mental space in their work lives to make changes required to transfer learning to the job.
11	Opportunity To Use	Extent to which trainees are provided with or obtain resources and tasks on the job enabling them to use training on the job.
12	Performance Self Efficacy	Trainee's general belief that they are able to change their performance when they want to.
13	Transfer Effort-Performance Expectations	Expectation that effort devoted to transferring learning will lead to changes in job performance
14	Performance-Expectations-Outcomes	Expectation that changes in job performance will lead to valued outcomes
15	Expectations Feedback	Formal and informal indicators from an organization about an individual's job performance
16	Openness to Change	Extent to which prevailing group norms are perceived by trainees' to resist or discourage the use of skills and knowledge acquired in training.

skills, and attitudes on the job are learners' intention and actual behaviour. According to the theories of planned behaviour, trainees apply training on the job by ways of share what they have learnt during the training. Table 2 shows the matrix of the 16 influence factors of the LTSL, training components, and the three stages of training.

TABLE 2 THE MATRIX OF LTSL, TRAINING STAGES & TRAINING COMPONENTS

NO	Constructs	Training stages			Training components		
		Pre-training	Training	Pro-training	Trainee characteristics	Training design	Work environment
1	Learner Readiness	V			V		
2	Motivation to Transfer	V	V	V	V		
3	Peer Support			V			V
4	Supervisor Support			V			V
5	Personal Outcomes-Positive			V			V
6	Personal Outcomes-Negative			V			V
7	Supervisor Sanctions			V			V
8	Content Validity		V			V	
9	Transfer Design	V	V	V		V	V
10	Personal Capacity to Transfer	V			V		
11	Opportunity To Use			V			V
12	Performance Self Efficacy	V			V		
13	Transfer Effort-Performance Expectations			V	V		
14	Performance-Expectations			V	V		
15	Feedback			V		V	V
16	Openness to Change	V	V	V			V

Four factors were selected in this study from Table 2, which are LR, MT, PCT, and PSE, to discuss their relationships with TE-PE and find out which of these four factors has significant correlation. Figure 2 illustrates the research structure.

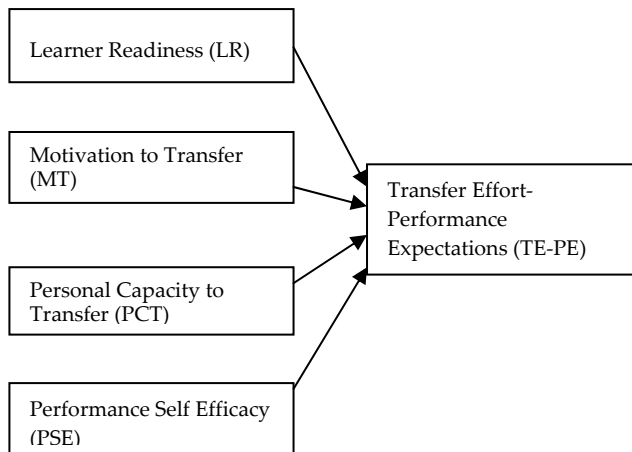


FIG. 2 AFFECTING MODEL OF TE-PE

There are many factors affecting training effectiveness. The purpose of this study was to distinguish between pre-training phase factors from the various factors affecting the identification of these factors on the trainee to go through training before, which is able to pay attention to these factors, and to ensure that affect the size, provide training practitioners to obtain the attention of the trainee.

Methods

This study discusses whether or not possessing the four characteristics of LR, MT, PCT, and PSE can facilitate TE-PE. This study applies regression analysis to examine the degree of correlation of the four factors with the transfer of training. Then, factors analysis was employed to figure out the extent of influence of the four factors on each other to ensure which characteristics should be enhanced in pre-training stage to improve TE-PE.

Participants

The respondents to this study are employees who have experiences as trainees. Twelve enterprises were selected in this study which practiced on-the-job training and received government grant-in-aid in 2010. The enterprises range from small to large-scale enterprises, and the number of employees ranges from 28 to 650. Five of the enterprises are small-scale enterprises with less than 100 employees, another five have 101 to 250 employees, and two of them have more than 251 employees. A total of 220

questionnaires were distributed with 194 being returned. 13 of the returned questionnaires came back not answered or partially answered. There were 181 valid questionnaires.

Measures

The design of the questionnaire covers independent variables in the pre-training stage, which are LR, MT, PCT, and PSE. The questionnaire is developed based on Holton's LTSI. The dependent variable has three questions. Some of the contents are slightly adjusted for respondents to answer easily. The dependent variable is TE-PE and is also derived from Holton's LTSI. It contains three questions. The answers are evaluated with Likert 5-point scale.

Of the four trainee characteristics in pre-training stage derived from Holton's LTSI, the correlation of PSE is $\alpha = .76$, the correlation of MT is $\alpha = .83$, the correlation of LR is $\alpha = .73$, and the correlation of PCT is $\alpha = .68$. The correlation of TE-PE is $\alpha = .81$, showing a relatively high validity.

Results

Many studies have proven that training effectiveness is determined by learners' motivation and ability. It is difficult to predict influence factors of the transfer of training from learner characteristics. Instead, the focus should be on how learner characteristics can be applied, and how they can be cultivated or enhanced in pre-training stage. This study aims to raise training practitioners' awareness of the differences in learners' characteristics and their impact on training effectiveness. Four factors were selected in this study from Holton's 16 factors affecting the transfer of training to examine their connection with TE-PE. The respondents were required to fill out a questionnaire. Table 3 shows the means and standard deviations.

TABLE 3 TRAINEE CHARACTERISTICS ANALYSIS IN PRE-TRAINING STAGES(N=181)

Trainee characteristics in pre-training stage	M	SD
LR	3.85	2.24
MT	4.25	0.52
PCT	3.99	3.03
PSE	3.89	0.52
TE-PE	3.98	0.54

According to the analysis of learner characteristics in pre-training stage, the means (M) of the four factors are all higher than 3.00, indicating that trainees highly

recognize the importance of the four factors for the transfer of training. Among the four factors, MT has the highest mean and lowest standard deviation, showing high degree of consistency among the respondents. If trainees possess the four characteristics in pre-training stage, they have a high degree of recognition for TE-PE. The mean of TE-PE is 3.98, and the standard deviation is 0.54, showing a high degree of recognition. This study applies multiple regression analysis to examine the extent of correlations of the four factors to TE-PE. Table 4 shows “TE-PE” to “LR” and “MT” has significant correlation, and “PCT” to “PSE” indicates no significant correlation.

TABLE 4 CORRELATIONS AMONG THE VARIABLES OF THIS STUDY

variables	TE-PE	LR	MT	PCT	PSE
TE-PE	1.000***				
LR	.420***	1.000***			
MT	.499***	.344***	1.000***		
PCT	.089	.138*	.042	1.000***	
PSE	.053	.088	.031	.019	1.000***

* $p < .05$, *** $p < .001$

To confirm which factor is the key determinant of TE-PE, exploratory factor analysis was utilized to understand whether or not there are principal components in the four factors. With principal component analysis, communalities was in use in this study before rotation to understand the extent of influence of the extraction factors on variables. Table 5 shows the communalities. After the factors are extracted, it shows that the influences of “LR” and “MT” on TE-PE are .657 and .554 respectively. The influences of the other two factors are lower than .5. After rotation, this study retrieves the total variance explained. Table 6 shows the explained variance of “LR” ranking the highest, which is 35.14%. It is followed by “MT”, which is 24.64%. “PSE” ranks the lowest, which is only 15.93%.

TABLE 5 COMMUNALITIES OF CONFIRM FACTOR ANALYSIS FOR TRAINEE’ CHARACTERISTICS

trainees’ characters	initial	extraction
LR	1.000	.657
MT	1.000	.554
PCT	1.000	.133
PSE	1.000	.062

Extraction method : Principal component analysis

TABLE 6 TOTAL VARIANCE EXPLAINED

Component	Initial Eigen values			Extraction Sum of Squared Loadings		
	total	% of variance	Cumulative %	total	% of variance	Cumulative %
LR	1.406	35.140	35.140	1.406	35.140	35.140
MT	.986	24.643	59.783			
PCT	.971	24.284	84.067			
PSE	.637	15.933	100.000			

Extraction method : principal component analysis

Discussion

Learner characteristics in pre-training stage are antecedents to the performance during the training and in post-training stage. Ignoring learner characteristics in pre-training stage will affect the application of training on the job during the training and in post-training stage. Among the 16 learner characteristics, four factors were selected in this study to prove that they have positive effects on the transfer of training. Therefore, training practitioners and managers should try to enhance LR, MT, PCT, and PSE prior to training.

This study shows that LR and MT have more significant correlation with the transfer of training than PCT and PSE. However, training practitioners usually pay more attention to the process of organizing training than to LR and MT, which are closely related to each other. LR refers to the extent to which trainees are prepared to handle their job and acquire new knowledge and skills. Trainees and managers should communicate prior to training to establish a common goal of training. Managers must grasp the difference in needs of trainees and fully comprehend the contents of training. The communication with trainees should follow a certain procedure and paradigm and must be carried out in pre-training stage. Such a communication is called “the communication mechanism for pre-training consensus”. Training practitioners should serve as consultants to help trainees to be better prepared for training. MT means trainees’ desire to participate and learn and expect to perform better on the job with the training. Trainees feel excited on applying the acquired knowledge and skills on the job. HRD and HRM reward hard-working performers. Managers’ efforts in setting learning goals with trainees and helping them to apply training on the job will facilitate greatly to the transfer of training. When proposing training programs, training practitioners must ensure that instructional goals are specific and clear learning goals are provided. Instructional goals stand for the

outcomes which training planners expect to achieve. If learning goals are consistent with the goals set by trainees themselves, they will help to increase trainees' willingness to transfer.

Training performance must have the transfer of training as an antecedent. A lot of previous studies have analyzed the transfer of training in post-training stage. On the evaluation model of training results, training practitioners have traced back from L4 to L1 in order to know what trainees need. While stressing on training effectiveness, training practitioners must also consider how to increase trainees' interest and willingness in participating in training. Training practitioners and managers must enhance trainees' LR and MT prior to training to ensure learning effectiveness and the transfer of training in post-training stage.

Conclusions

It is discovered in this study that the respondents have lower recognition to PSE and PCT. Training practitioners and managers mainly focus on the design of training, the stage of carrying out training, and the transfer in post-training stage; giving less consideration to improve trainees' interests and willingness to transfer. Therefore, this study proposes three conclusions. 1. Training practitioners and managers should shift their attention to pre-training stage, which means that trainees will get the higher performance before they setup well their preparation. 2. Training practitioners should set instructional and learning goals in the pre-training stage to help managers and learners understand the training specifically. This results as the same as Baldwin and Ford indicated the higher transfer of training effect the goal-orientation more. 3. Training practitioners and managers should communicate actively with trainees prior to training to help the setting of learning goals and inform trainees of rewards to their performance, so that LR and MT can be improved.

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