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The Role of Training Design Factors in Influencing Training Effectiveness among Public Service Employees

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Abstract

The objective of this research is to establish the relationship between training design factors and training effectiveness in the context of the public service in Malaysia. This study investigates the effect of training design factors which consist of training content, training methods and trainer competency, on training effectiveness in training programs attended by public service employees at one of public training center in Malaysia. 215 public service employees from the managerial and professional group who attended management and leadership training participated in this study through a self-administrated survey. The results from SEM-PLS analysis indicated that training design factors, namely training design, training method and trainer competency significantly influenced the effectiveness of training. Trainer competency made the highest contribution towards training effectiveness followed by training method and training content. Thus, training providers need to emphasize these factors in developing and implementing training effectively. The findings from the study are useful for training centers, government departments and agencies to plan training programs that are related to the job situation, variety of methods applied, and delivery by competent trainers to enhance the effectiveness of training.

Keywords: Training Design, Training Effectiveness, Public Service Employees, Sem-PIS

Introduction

Human capital development is a critical factor for generating and sustaining economic growth. A highly skilled workforce is essential to support the transition of all sectors of the economy towards knowledge-intensive activities, generating labour productivity and attracting investments to Malaysia. Labour market efficiency and inclusiveness will ensure the matching of labour supply and demand, and will allow Malaysians to participate in and benefit from economic growth. Investment in training also plays an important role in improving social mobility and well-being.

The training given to employees could give huge benefits to an organization. According to Saks & Haccoun (2007), training can facilitate the organisation strategy, increase productivity and improve employee recruitment and retention. Besides increasing a worker's productivity, training also increases the inherent organizational image, and forming organizational culture behaviour and creating a learning organization (Ibrahim, 2006). The companies that invest more in training have higher revenues, profits and productivity growth than firms that invest less in training (Betcherman, Leckie and McMullen (1997). In addition, research on training and organizational effectiveness has concluded that training improves organizational productivity, quality and customer service (Tharenou, 2000). Moreover, the assessment of the effectiveness of training is crucial to ensure the investment made on training contributes to the enhancement of knowledge, skills and attitudes of employees to perform duties efficiently.

Therefore, this study attempts to investigate the effect of training design factors on the effectiveness of training in the public service sector. The concern about training design factors may lead to the more effective planning of training intervention in order to ensure effectiveness to the participants and organizations.

Literature Review

The previous literature (e.g. Baldwin & Ford, 1988; Holton, 1996, 2005; Tracey, Tannenbaum and Kavanagh, 1995; Alvares, Salas, & Garofano, 2004) has identified three main determinants of training transfer namely individual factors (trainee characteristics), training design (enabling factors) and work environment (transfer climate).

Burke and Hutchins (2007) suggested training transfer is composed of three factors: learner characteristics, intervention design and delivery, and work environment influencers. From the comparison of these scholars, there are three primary dimensions affecting employees' transfer of learned knowledge and skills leading to training effectiveness: individual characteristics, training design, and work environment. The following sections explore the training design factors in order to highlight its roles and importance to the effectiveness of training.

Training Design

Training design is defined as the degree to which training has been designed and delivered to give trainees the ability to transfer learning to the job (Holton, Bates, & Ruona, 2000). The training design involves planning and determining the appropriate activities to be carried out, the selection of appropriate methods and determining the sources for the purpose of achieving certain objectives of

the training program. It can only be done when there is a clear objective which is expectation of what trainees should master in their training session and what requirements are to be achieved by the participants at the end of the training programme. According to the training literature, several training design factors that influence transfer of training exist (Alvarez et al., 2004). Such design factors include instructional techniques and learning principles, self-management and relapse prevention strategies (e.g. Tziner, Fisher, Senior & Weisberg, 2007) and goal setting (e.g. Gist, Bavetta, and Stevens, 1990). Hence, when designing their own training programs, organizations should consider such factors in order for them enhance the transfer of training (Velada, Caetano, Michel, Lyons, & Kavanagh, 2007). Below is a discussion of some of these factors.

Training Contents

Training contents refer to “the result of deciding on what should be included in the training program for learning to take place” (George & Singh, 2000 p.149). Making a decision to determine the training content is crucial to ensure the training content matches the training needs and objectives. The training content usually refers to what is to be taught, at which level and in what amounts. According to Nadler (1983), training content is developed based on job requirements, skills and knowledge that will be applied to the job. Trainees are most likely to learn when the training content is linked to their current job experience and task and gives meaning to them (Junaidah, 2006). The concepts, terms and examples used in training program should be presented clearly in order to enhance the meaningfulness of the training content.

Holton, Bates, and Ruona (2000) pointed out that when the training content is similar to the actual work, the effectiveness of training rises. Velada et. al (2007) supported that training transfer may be at a maximum when trainees learn the training content, when the content is similar to the work they do, and when the trainees have enough time to practice their new skills. Furthermore, Liebermann and Hoffmann (2008) believe that the similarity of training content to the actual job creates a positive attitude toward the training activities. Bhatti and Kaur (2010) proposed that content validity influences trainees’ reactions and performance self-efficacy.

Training Methods

Training methods refer to the way in which learning or planned activities in training plans are delivered to target groups (Norhasni, 2014). They consist of the techniques and materials used by trainers to prepare and implement the training, and transfer knowledge to the workplace (Ervin and Hogan, 2013) to achieve the required learning goals (Ervin and Hogan, 2013; Pineda, 2010). Training methods also contribute to the success of the training programme. They also provide an efficient design to facilitate effective delivery of training material in order to achieve training objectives (Muhammad Zahid, Muhammad Waqas, Shahab Alam, & Muhammad Majid Khan, 2011).

The choice of one or more training methods for specific training or training programmes must take into account the following: the goals of the training program, availability of resources, organizational culture, time and money, trainee’s characteristics and preferences and the motivation on methods among participants (Bostrom, Olfman and Sein, 1988; DeSimone, Hornsby, Dowling, & Hall, 2003; Gwebu & Wang, 2007). Wexley and Latham (2002) highlighted the need to consider skills and task characteristics in determining the most effective training method.

Champbell (1988) found that learning and retention are best achieved through the use of training methods that promote productive responses from trainees. Productive responses are those in which the trainees actively use the training content rather than passively watch, listen, or imitate the trainer. In addition, it is also believed that training methods that encourage active participation during training also enhance learning (Thoms & Klein, 1994).

Trainer Competency

The trainers can play some roles in effective training plans. According to Noe (2005), trainers can typically hold many jobs, such as instructional designer, technical trainer or needs analyst. The trainer's role is to help people change their behaviour through the learning process (Maimunah, 2001). According to Bohlander & Snell (2004), the trainers' teaching skills and personal characteristics play a very important role in making a training program successful.

Trainers also encourage and motivate the trainees towards learning (Forsyth, Jolliffe & Stevens, 1995) and further formulate performance standards for trainees during training to enhance the effectiveness of the training program (Power, 1992). Mamaqi, Miguel and Olave (2011) categorize trainers' competencies into basic (pedagogical) and specific (skills, abilities, aptitude/attitude and attributes). However, Ghosh, Satyawadi, Joshi, Ranjan & Singh (2012) attempted to determine the predictors of training effectiveness with special reference to the characteristics of trainers. Out of seven variables tested, they found only trainer's comfort level with the subject matter and trainer's rapport with trainees were significant predictors of trainee satisfaction.

A recent study by Chukwu (2016) found seven major trainer attributes that were recognized by trainees in post-training evaluations confirm that the training was effective. The attributes are (1) facilitator disposition, (2) real life examples, (3) group work, (4) interaction, (5) participant involvement, (6) stories/illustrations and (7) demonstrations. These trainers' attributes combine with environmental factors to trigger trainee characteristics leading to behaviour change and performance improvement.

Training Effectiveness

Training effectiveness refers to the extent to which training programs are considered to have achieved certain training outcomes. Training effectiveness in the extensive perspective can be conceptualized as the extent to which training inputs such as training design, trainee characteristics and work environment satisfied the participants, whether the training objectives are achieved, if the training contents are transferred to the workplace and benefit the trainees and organization. All these determinants can be evaluated using the combination of trainee reaction, learning performance, behavioural changes and organizational performance. In this study, the effectiveness of training is assessed by trainee reaction, the first level in Kirkpatrick's (1996) model of evaluation.

According to Noe (2010), reaction refers to trainees' perceptions of the training program, including the facilities, trainers, and content. Usually, trainees are asked if they are satisfied with the training and if they have learned from the training programme. From an analysis of reaction, trainers can evaluate how well participants accepted a training program and can obtain comments and suggestions to improve future training programmes. This is useful for identifying what trainees thought was successful or what inhibited learning. In addition, reactions enlighten learners' training

experience (Sitzmann, Brown, Casper, Ely, & Zimmerman, 2008) and are a basis for organizations to evaluate their training programmes (Sugrue & Rivera, 2005).

Moreover, Bersin (2008) argued that positive reaction towards training can be a powerful tool to predict training effectiveness. This is consistent with Ghosh, Joshi, Satyawadi, Mukherjee and Ranjan (2011), who carried out research on reaction evaluation solely as a measurement for training effectiveness and found that reaction can explain the effect of training on performance improvement and is useful in determining the training program improvements. Reaction is the most commonly used method for training evaluation (Ruona, Leimbach, Holton & Bates, 2002), but researchers lack empirical evidence to support the role of reaction in influencing other training outcomes (Alliger & Janak, 1989; Dixon, 1990; Warr & Bunce, 1995).

Level 1 (reaction) of Kirkpatrick's model of evaluation, was selected in this study to fill the gap between theory and practice in training evaluation. Academically, today's training evaluation focuses on a more holistic evaluation where evaluation is not only measured at level 1 but also measures learning outcomes, behaviours and organizational results. However, Human Resource (HR) scholars and practitioners practically ignore each other, as research considers more advanced tools that most companies do not use (Giangreco, Carugati, Sebastiano & Della Bella, 2010). Therefore, HR practitioners need better information on training and trainees' characteristics, which can lead to higher level of satisfaction with training (Warr & Bunce, 1995; Tziner et.al, 2007; Giangreco et. al, 2010).

Training design represented by three basic elements of training (i.e training content, training method and trainer competency) is conceptualized to be significant to trainee satisfaction with a training programme. If training content is related to the job, trainees will be satisfied to attend training without feeling bored with training content that is totally irrelevant to their work. Training methods that fit the participant's requirements can also encourage them to follow the training session well and at the same time increase their level of satisfaction. Skilled and knowledgeable trainers with good communication skills when conducting training are definitely favoured by the participants who make the training effective. Hence, the following hypotheses were investigated.

H1: Training content has a significant influence on training effectiveness

H2: Training method has a significant influence on training effectiveness

H3: Trainer competency has a significant influence on training effectiveness

Conceptual Framework

The general purpose of this research is to establish the effects of training content, training method, and trainer competency on the effectiveness of training. Specifically, this study aims to establish the effect of these independent factors on the reaction of trainees among public service employees. The conceptual framework of the study is illustrated in Figure 1.

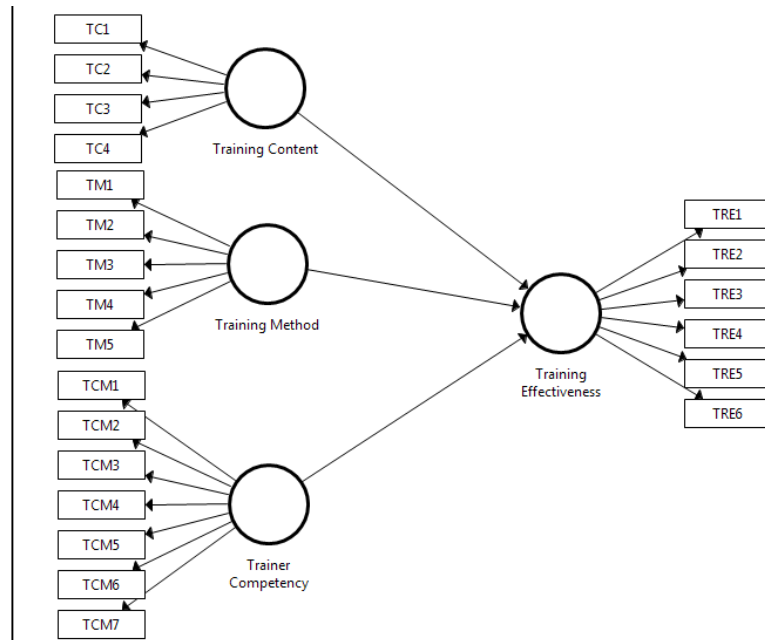


Figure 1. Conceptual Framework

Methodology

This study adopts a quantitative approach. The targeted participants for this study were public service employees attending a training programme at one of the public service training centres in Malaysia. This training programme targeted managerial and professional group officers (grade 48 and above) from various government departments who attended courses related to strategic management, problem solving, and leadership of the organization. A total of 215 questionnaires were distributed to the participants and 205 were returned representing a 95% response rate.

The questionnaire is comprised of two sections. Section A collects demographic information on individual employees such as age, gender, education level, current designation and length of working experience. Section B was developed to measure the variables of training design and training effectiveness. It comprised 22 closed-ended questions which utilized a five-point Likert scale. This scale ranged from 1 (strongly disagree) to 5 (strongly agree). A majority of the items in the questionnaire were connected to training content, training methods, and trainer competency, and training effectiveness which were adapted from Baharim (2008), Saks and Haccoun (2007), and Noe (2010).

As for the data analysis, Structural Equation Modelling with Partial Least Square (i.e. PLS-SEM) analysis was used since the primary objective of this research is to explore the influence of the selected independent variables toward targeted dependent variables (Astrachan, Patel, & Wanzenried, 2014; Hair, Hult, Ringle, & Sarstedt, 2017; Ong & Puteh, 2017). As for accessing the significant influence of the variables, 5000 replications of samples (i.e. bootstrapping) were used as suggested by Hair et al. (2017) and Henseler and Chin (2010).

Results and Discussion

Respondent Profile

Table 1 shows a summary of the respondents who participated in this study. The descriptive analysis indicated that the majority of respondents were male (52.5%). In this study, all participants were in the professional and management group. The respondents were mainly Bachelor's degree holders (49.3%) and Master's degree holders (46.3%). In addition, the majority of respondents had more than 20 years (31.7%) working experience.

Table 1. Respondent's Profile

Profile	Frequency	Percentage
Gender		
Male	107	52.2
Female	98	47.8
Education level		
Certificate	1	0.5
Diploma	2	1.0
Bachelor's degree	101	49.3
Master's degree	95	46.3
Doctor of Philosophy (PhD)	6	2.9
Years of Working		
Less than 5 years	20	9.8
5-10 years	48	23.4
11-15 years	42	20.5
16-20 years	30	14.6
More than 20 years	65	31.7

Measurement Model Analysis

Table 2 shows the summary results of the convergent validity assessment for the measurement model based on the theoretical framework. All indicators that were used to measure targetted constructs met the minimum requirement of the loading value above .70 (Hair et al., 2017; Ong and Puteh, 2017). Besides that, the assessment of Average Variance Explain (i.e. AVE) for each construct was above .50 (Hair et al., 2017), as well as both reliability tests (i.e. Composite Reliability and Cronbach's Alpha) for each targetted construct being above .70 (Hair et al., 2017). Hence, the measurement model meets the validity criteria from the perspective of the unidimensionality concept.

Table 2. Convergent Validity for Measurement Model

Indicator	Loading	AVE	γ	α
Training Content				
TC1 The training contents are related to the needs of my duties	.824**			
TC2 The training contents are important to the needs of my duties	.873**	.860	.905	.705
TC3 The training contents are matched to the need of my duties	.833**			
TC4 The training contents significantly improve my knowledge	.826**			
Training Method				
TM1 The training has been delivered systematically	.830**			
TM2 The training has been delivered effectively	.762**			
TM3 The training has been delivered in a straightforward approach	.843**	.892	.915	.607
TM4 The training has been delivered by using examples that correspond with my duties	.785**			
TM5 The training has been delivered by various types of teaching and learning methods	.773**			
Trainer Competency				
TCM1 The trainer planned the session well	.732**			
TCM2 The trainer used work and applied examples	.710**			
TCM3 The trainer provided opportunities for questions	.820**			
TCM4 The trainer presented materials clearly	.826**	.858	.898	.639
TCM5 The trainer varied the learning activities	.818**			
TCM6 The trainer demonstrated a desire for trainees to learn	.770**			
TCM7 The trainer seemed qualified to conduct the training	.771**			
Training Effectiveness				
TRE1 I performed satisfactorily on the training	.749**			
TRE2 I was able to meet the objectives of training	.737**			
TRE3 I learned as much as I could from this training	.731**			
TRE4 I have benefited from this training	.786**	.851	.889	.572
TRE5 The training significantly added to my store of knowledge	.791**			
TRE6 I am committed to utilizing the knowledge which I have learned during training	.744**			

Note: AVE = Average Variance Explained; γ = Composite Reliability; α = Cronbach's Alpha; *p <.05.

As for discriminant validity, Table 3 shows the result of HTMT analysis for accessing the discriminant validity of the model. The analysis confirms that each latent variable was totally discriminate to each other since each ratio value reported in Table 3 was below .90 (Henseler, Ringle, & Sarstedt, 2015). Hence, the indicators that were used to measure the targeted constructs were totally used for the respective constructs.

Table 3. HTMT Discriminant Analysis for Measurement Model

	TC	TM	TCM	TRE
TC	-			
TM	.624	-		
TCM	.710	.707	-	
TRE	.759	.796	.713	-

Note: TC = Training Content; TM = Training Method; TCM = Trainer Competency; TRE = Training Effectiveness.

Structural Model Analysis

The structural model analysis indicated that the three independent variables were able to give around 72.6% variance explaining Training Effectiveness. In terms of effect size and predictive relevance analysis, Table 4 indicates that the three variables yield relatively small effects (Hair et al., 2017) on the targetted dependent variable, except for Trainer Competency, where this variable yields a substantial effect on Training Effectiveness.

Table 4 also indicated significantly positive correlations between Training Content ($\beta = 0.215$, $t = 5.395$, 95% BCa CI = (0.128, 0.289)), and training effectiveness, which supported H1. Training Method ($\beta = 0.233$, $t = 5.466$, 95% BCa CI = (0.152, 0.322)) found significantly positive correlations with training effectiveness which supported H2. Trainer Competency ($\beta = 0.533$, $t = 12.824$, 95% BCa CI = (0.445, 0.603)) shows a simultaneously positive significant influence on Training Effectiveness which supported H3. Figure 2 and Figure 3 show the analysis of PLS-SEM according to the theoretical framework.

Table 4. Structural Model Assessment

Path	β	t-statistic	95% BCa Bootstrap	f^2	q^2	Remark
TC→ TRE	0.215	5.395**	(0.128, 0.289)	.098	.053	Small
TM→ TRE	0.233	5.466**	(0.152, 0.322)	.101	.059	Small
TCM→ TRE	0.533	12.824**	(0.445, 0.603)	.593	.432	Substantial

Note: TC = Training Content; TM = Training Method; TCM = Trainer Competency; TRE = Training Effectiveness; β = Standardized Beta Coefficient; f^2 = Effect Size; q^2 = Predictive Relevance; ^aThe bootstrap samples was 5000 samples; ** $p < .01$.

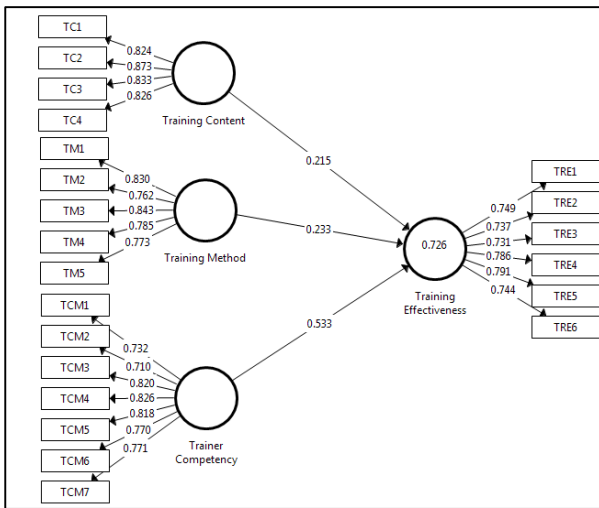


Figure 2. Loading Assessment

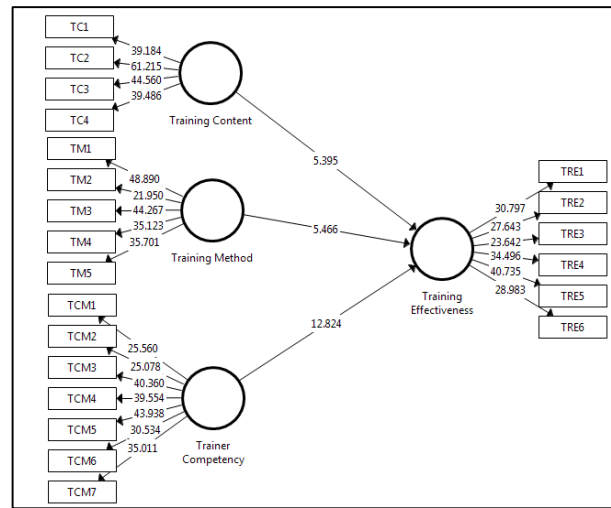


Figure 3. Bootstrapping Assessment

Based on these findings, it can be concluded that if the average levels of Training Content, Training Method, as well as Trainer Competency were good, then this will create a significant increase in the Training Effectiveness level. This finding was consistent with prior studies (e.g. Liebermann and Hoffman, 2008; Bhatti and Kaur, 2010; Iqbal, Maharvi, Malik, & Khan, 2011; Bhatti, Ali, Mohd Isa, & Battour, 2014; Norlina, Munirah & Anas, 2014) who indicated that when the training content simulates actual work, the training participants gain higher satisfaction towards the training programme. Similarly, Iqbal et al. (2011) and Abdullah (2012) revealed that the training method, including training materials, positively influences a trainee’s reaction, which subsequently promotes learning and enhances training effectiveness. These findings were inconsistent with Abdullah (2012), Kartini and Kamaruzaman (2010), Iqbal et al., (2011) and Norlina et al. (2014), who found that trainer competency is the primary contributor to training effectiveness. On a similar note, Ghosh et al., (2012) also propounded the significance of familiarity of trainers with the subject matter and the connection between trainers and training participants in achieving positive reactions towards the training.

Besides that, the analysis also indicated that among these three independent variables, Trainer Competency has the greatest influence on Training Effectiveness, since it produces the highest value of the path coefficient, followed by Training Method and Training Content. The training provider and organizations critically consider the quality of trainers particularly in terms of communication skills, content knowledge, pedagogical knowledge, questioning skills, and competence to address questions by training participants to enhance training effectiveness. Besides, the training content and the methodologies used need to be aligned with the adult learning requirements and environment.

Limitation of the study

This study was conducted within the context of Malaysian public service employees and therefore the results may vary from training programmes in other sectors such as manufacturing, banking and education. Adding to that, this study exclusively focused on public service employees of

the professional and management category who had completed training on strategic thinking and decision making, strategic planning and leadership, and organizational management. These training courses offer relevant training content for those who are often involved with decision-making and problem-solving tasks at the workplace. Therefore, the findings on training effectiveness in this study may not be useful for other training programme since this study solely emphasized leadership and management training. Notably, there are diverse public training centres conducting training for the public service employees in Malaysia with respect to the nature and scope of their jobs. The variables in this study are also limited to the training design factors only, namely training content, training methods and trainer competency. In addition, training effectiveness was measured in terms of reaction (Level 1) instead of other three levels of Kirkpatrick's (1996) model of evaluation namely learning (Level 2), behaviour (Level 3) and results (Level 4).

Recommendations for Future Research

Based on the findings of this study, it is recommended that future research should explore other factors that can influence training effectiveness such as trainees' characteristics and work environment. These two factors are crucial in order to ensure the effectiveness of training among public service employees, which leads to better performance for the people. Besides, the evaluation should also focus on transfer of training and organizational performance and achievements after the employees completed the training in both the short-term and the long-term. With that, Level 3 (behaviour) and Level 4 (results) in the evaluation model of Kirkpatrick are incorporated to assess the training outcomes and benefits for the organization.

Future research should critically assess how the training affects the organizational performance in the long-term and it is recommended to training providers (public training centres) to cooperate with the management leaders in public organizations to obtain pertinent data for training evaluation, especially in examining the relationship between training and organizational success based on actual case studies. Furthermore, future research should move towards a longitudinal design by collecting data at several points in time in order to evaluate the changes of participant's behaviour after three months, six months and one year of attending training. Besides questionnaire surveys, qualitative methods such as interviews and observations should be used to provide more accurate and in-depth insights on training effectiveness.

Conclusion

The study has empirically supported the influence of training design factors on training effectiveness. The training participants exhibit positive reaction that leads to positive transfer of learning at the workplace when the training content is related to the job and fulfils their needs. Appropriate methods used in delivering the training need to consider the adult learning styles who prefer learning approaches that are interesting, easy-to-understand, and practical-oriented to help them to master the knowledge and skills effectively so that they can transfer the learning to their workplace. Besides that, it is preferable to have professional trainers with excellent grasp of the training content to deliver the training content effectively. Training providers and organizations should ensure that the training design development will focus on the setting of learning objectives to meet the needs of the training participants for their satisfaction. Therefore, the training content should meet the needs of

trainees by using appropriate methodology and the content of training delivered by qualified trainers with high competency so that the training programmes can be implemented effectively and improves the KSA of training participants. This study has contributed to the body of knowledge in training effectiveness issues and supports the previous literature on training effectiveness which highlights the importance of training design factors as determinants of training effectiveness together with trainee characteristics and work environment.

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