Impact of Supervisory Support on Training Transfer: An Empirical Study

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Transfer of training facilitates a knowledge-driven organizational culture that provides competitive advantage to the firm. A self-report survey was conducted on employees of an Indian public manufacturing organization. Data was collected from 156 respondents to test the mediating role of supervisory support using structural equation modelling (SEM) (AMOS 24). The major findings are: (1) Supervisory support is a significant predictor of training transfer (2) The mediating mechanism of supervisory support between transfer design, training readiness and transfer of training is empirically established (3) Transfer design was not directly related to training transfer. The theoretical and practical implications of the study are discussed.

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Introduction

Training programs are required for strategic management of human resource and development of competencies to sustain in a globalized economy (Park et al., 2018). Organizations achieve competitive and innovative advantage through employee training (Seiberling & Kauffeld, 2017). A highly adaptive and skilled human resource is essential for a knowledge-driven globalized economy (Kim et al., 2019).

The successful transfer of the knowledge acquired or skill imparted during a training program to the workplace justifies the organization's enormous investments, stated as "transfer of training" or TOT (Blume et al., 2010; Zumrah & Stephen, 2015). But at times, there is failure in this TOT and a gap is created (Renta-Davids et al., 2014). Due to the low rate of TOT, achieving the organizational objectives of enhanced employee performance, productivity, and innovation are not possible (Burke & Hutchins,

2007; Schindler & Burkholder, 2014). TOT occurs only when different transfer factors- individual, workplace, and training design- interact (Baldwin et al., 2017). Hence, the need to identify different factors facilitating training transfer is recommended.

Feedback and supervisory coaching are the most vital predictors of transfer of training.

Support at the workplace from management, supervisors, subordinates, and peers is the most important workplace factor that facilitates TOT (Chauhan et al., 2016; Islam & Ahmed, 2018). Supervisory support has been found as a consistent influential workplace environment variable among the aforementioned factors (Rodriguez & Gregory, 2005; Dirani, 2012). Limited information related to the provision of supervisory support at workplace is available in literature (Govaerts et al., 2017). A meta-analysis of 32 studies suggested that feedback and supervisory coaching are the most vital predictors of transfer of training (Reinhold et al., 2018). TOT also improves with the meditational influence of social support system (Stanhope et al., 2013). In fact, supervisory support, training design, and individual factors facilitate TOT (Velada & Caetano, 2007). A study by Park et al. (2018) presented the need for further empirical study to observe the impact of supervisory support on TOT. Existing studies suggest that individual characteristics play a central role in TOT (Klink et al., 2001; Ross, 2017). However, no significant empirical evidence supporting

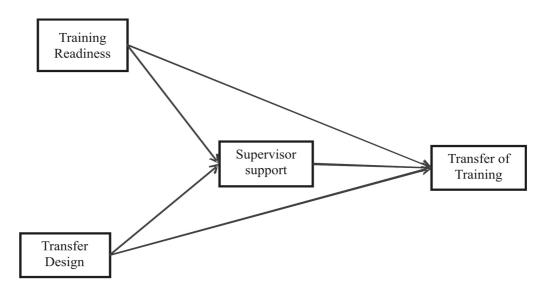
this is available (Bhatti & Kaur, 2010). Moreover, studies related to training design and method in the context of TOT are scant (Bhatti et al., 2013; Chauhan et al., 2017).

There are limited empirical studies on TOT with reference to Indian organizations. For addressing these gaps acknowledged in the literature review and for critical appreciation of the interplay of factors relating to training readiness (individual factor), transfer design (training factor), and supervisory support (workplace environment factor), we developed a model (fig. 1) and empirically tested it. Findings of this study would add to academic literature available on TOT by empirically analyzing the impact of training readiness, transfer design and supervisory support on TOT. Establishment of supervisory support as a mediator also adds value to training transfer literature.

Theory & Hypotheses

The organizational support theory posited that employees respond positively to support and are motivated to improve their performance and achieve organizational objectives (Kurtessis et al., 2015). Our theoretical model is based on the most cited Baldwin and Ford (1988) model that specifies trainees' characteristics, training design, and workplace environment as the input factors for TOT. Organizational support theory (Eisenberge et al., 2001) implies that interpersonal support at workplace augments performance and improves training transfer. Hence, we proposed that supervisory support may be a mediator in the TOT. The theoretical model examined the mediation effect of supervisory support on training readiness, transfer design, and TOT and was empirically tested through SEM (AMOS 24).

Fig. 1 Conceptual Model



Training Transfer: Training transfer occurs when trainees consistently apply the learned behavior, attitudes, and knowledge to their work (Govaerts et al., 2017). TOT is the most important determinant of success of any training program (Velada & Caetano, 2007). It is a sequential process in which trainees learn, retain, and transfer new competencies to their real work situation (Govaerts et al., 2018) and commences when trainees return to workplace after the training and directly/indirectly utilize the learning on their job.

Training Readiness & Training Transfer: Training readiness defines the extent to which trainees are ready to attend the training (Kim et al., 2019). It

Training readiness is positively associated with TOT.

prepares the trainees emotionally and psychologically to participate in the training. A positive perception of trainees (training readiness) improves TOT (Bhatti & Kaur, 2010), whereas a negative perception related to the absence of ideal conditions at workplace functions as an obstacle (Al-Swidi & Al Yahya, 2017). Hence, we can conclude that training readiness is positively associated with TOT (Kulik et al., 2007). The perception of trainees about the benefits of transferring skills, knowledge, and attitude toward work directly affects their transfer intentions (Blume et al., 2019). Thus, consider the following hypothesis:

H1: Training readiness is positively related to TOT

Training Readiness & Supervisory Support: When supervisor sets training goals and discusses training content with trainees it increases trainees' training and learning readiness (Brinkerhoff & Montesino, 1995). Also, supervisor instructions concerning training improve level of learning and TOT (Bates et al., 2007). A study by Payne et al. (2010) found that trainees who are training ready are more confident in retaining knowledge and motivated to utilize that knowledge in their workplace. Training readiness declines with decreasing support from their supervisors (Al-Swidi & Al Yahya, 2017). Training readiness impacts training transfer indirectly through mediation of transfer motivation. Learner readiness along with supervisory support provides motivation to transfer competencies to work context (Kirwan & Birchall, 2006). Thus, we hypothesize the following:

H2: Training readiness is positively related with supervisory support

Transfer Design & Training Transfer: Transfer design comprises instructions, delivery, and application of training that links learning with performance (Muduli & Raval, 2018) and assesses the applicability of training program, indicating that transfer design and TOT are positively associated (Velada et al., 2007). Transfer design that emphasizes the acquisition of both theoretical and practical skills enhances TOT (Nikandrou et al., 2009). Transfer design is a training program technique that enables training

ees to utilize their learning (Holton et al., 2005) and has a positive impact on training transfer (Holton, 1996). A recent study on an Indian insurance company found a negative relationship between transfer design and TOT (Muduli & Raval, 2018). Since the sample of our study did not belong to the insurance sector, we propose the following hypothesis:

H3: Transfer design is positively related with TOT

Transfer Design & Supervisory Support: Transfer design shares a positive relation with supervisory support along with other workplace factors (Alvelos et al., 2015). Transfer design is an amalgamation of training contents and requirements for a job (Velada et al., 2007) and represents the blueprint that sets goals and strategies for learning. The support at workplace ensures efficient and effective performance because of supervisors' encouragement to utilize the learning at work (Lau & Mclean, 2013). Despite the possibility of an insufficient transfer design, supervisory support enhances learning and utilization of skills at work (Chauhan et al., 2017). Thus, we hypothesize that:

Supervisory support enhances learning and utilization of skills at work.

H4:Transfer design is positively related with supervisory support

Supervisory Support & Training Transfer: According to Nijman et al. (2006), supervisory support is defined as

supervisors' positive behavior that helps trainees to utilize their attitudes and competencies developed during the training in their work. It includes feedback, opportunity to procure new skills, and encouragement to utilize the competencies acquired in job performance. Support from immediate supervisors motivates trainees to organize and use the learned skills to job context. Lack of supervisory support hinders the impact of the training course (Ghosh et al., 2015). Employees perceive supervisory support as "care provided to them" and reciprocate through positive attitude toward the organization with improved work performance (Freitas et al., 2017). Elangovan and Karakosky (1999) suggested a positive association among supervisory support, employee attitudes, and behaviors. Organizational support theory (Kurtessis et al., 2015) recommended a positive association of social support with trainee's knowledge-sharing behavior. Thus, the following is hypothesized:

H5: Supervisory support is positively related with TOT

Mediating Role of Supervisory Support: Supervisory support is important in TOT (Lancaster et al., 2013). Al-Swidi and Al Yahya (2017) suggested that training transfer fails in case of unavailability of supervisory support in the form of assistance and encouragement. A supportive supervisor is vital for the effective transfer of new knowledge, attitudes, and skills (Dermol & Cater, 2013). A supervisor influences trainees by imparting training needs and enhances their learning motivation and readiness (Kim et al.,

2019). Transfer of a new behavior and knowledge is possible only with supervisory support (Alvelos et al., 2015), which bridges the gap between behavior and trainee's intention to transfer (Blume et al., 2019). Support received from the supervisor shapes employees' perception and makes them ready for training, learning content, and TOT to job (Towler et al., 2014). Supervisory support is indirectly associated with training readiness (Park et al., 2018). Thus, we propose the following hypotheses:

H6a: Supervisory support mediates between training readiness and TOT

H6b: Supervisory support mediates between transfer design and TOT

Design

A survey was conducted on employees of a public manufacturing organization in Eastern India. The average duration of training programs attended by the employees was one week, and covered a variety of job-related subjects, such as strategic management training, leadership skills training, financial analysis, and stress management. We informed the participants about the purpose of the survey, assuring them about the anonymity and confidentiality of their responses. Data was collected during training hours, and used a cross-sectional research design. Among the 250 participants who were invited to complete the survey, 171 responded (62.4 per cent response rate). Additionally, 15 responses that had incomplete information were not used, and, finally 156 completely filled in responses were used for further analysis.

Sample

The participants for this study comprise managers (N = 156) who had attended the last training program not before six months. The decision for data collection after a 6-months timeframe is based on extant literature (Gegenfurtner, 2013) which suggests that this duration is sufficient to measure TOT (Govaerts et al., 2017). This period provides trainees with adequate time and opportunity to apply the acquired training to the work context (Podsakoff et al., 2003). The final sample of 156 respondents comprised 96 per cent males and 4 per cent females. The age group of 60 per cent respondents was above 40 years and of the remaining respondents was between 30 and 40 years. All had participated in the same training program conducted by the organization's training centers. Participants self-rated their training readiness, transfer design, supervisory support, and perception of TOT.

Measures

Data for the study was collected using existing scales that had acceptable psychometric properties to measure employees' perception at a post-training period. The responses were collected during training hours. A five-point Likert scale was used to collect responses from participants, ranging from 5 = strongly agree to 1 = strongly disagree. Hair et al. (2015) suggested the values of reliability coefficient (Cronbach's $\alpha > 0.7$), composite reliability (CR > 0.7), and average variance extracted (AVE > 0.5) to establish scale reliability and validity.

Transfer of Training (TOT): Three items were adopted for TOT from Diamantidis and Chatzoglou (2014). The sample items read, "I often apply the training content in order to improve my job performance". In this study, the coefficient α was 0.71.

Training Readiness (TR): The training readiness measure was adopted from Holton (2005). We used three items to measure training readiness, namely "Before the training I had a good understanding of how it would fit my job-related development". The value for coefficient α was 0.77 for this study.

Supervisory Support (SS): We adopted five items from Chauhan et al. (2016) to measure supervisory support, and the sample item is "My supervisor encourages me to apply knowledge to work". The value of coefficient α for this study was 0.85.

Transfer Design (TD): We used three items from Diamantidis and Chatzoglou (2014) to measure transfer design. Sample item include "During the training process the activities and the exercises the trainer used helped me understand how to apply learning on the job." The value obtained for the coefficient α was 0.81.

Data Analysis & Statistical Technique

In this study, SEM was implemented using AMOS 24 to analyze the data. SEM explains the relationship among many variables and is an extremely efficient

tool for testing models with mediating/moderating variables measured with the help of multiple indicators (Hair et al., 2015). SEM was considered suitable for the analysis of our model, as it contains both latent and mediating variables.

Descriptive Statistics & Correlations

Table 1 presents means, standard deviations, and correlations. The values of reliabilities are shown across the diagonal for all the factors.

Table 1 Descriptive Statistics & Correlations for The Four Factors

		Mean	SD	1	2	3	4
1	Training Readiness	4.44	0.48	(0.77)			
2	Transfer Design	3.91	0.56	0.21	(0.81)		
3	Supervisor Support	3.70	0.63	0.17	0.33	(0.85)	
4	Training Transfer	4.17	0.32	0.37	0.19	0.35	(0.71)

Note: n=156. Reliability coefficients are along the diagonal in parentheses for the scales.

Exploratory Factor Analysis

We obtained a clear pattern matrix with the four factors namely, training readiness, supervisory support, TOT, and transfer design. The values of coefficient α of the four factors were more than the 0.7 threshold, as suggested by Hair et al. (2015).

Common Method Bias

Harman's single-factor test was conducted for assessing common method bias (CMB), as responses from only one source i.e., trainees, were collected (Podsakoff et al., 2003). The result of the analysis indicated that the first factor does not account for the majority of our measure's covariance. Therefore, no significant role of CMB was observed in the present study.

Reliability & Construct Validity

The values of Cronbach's alpha and composite reliability (CR) were exam-

ined. The values for coefficient α ranged from 0.71 to 0.85. Moreover, CR values of latent variables ranged from 0.71 to 0.84, which were higher than the minimum requirement for the constructs' good internal consistency (Hair et al., 2015). Both convergent and discriminant validity were investigated for validity analysis. The values of all elements' standardized factor loadings ranged from 0.60 to 0.88, which exceeded the recommended value of 0.6 (Hair et al., 2015), indicating that all elements were statistically significant. The values of AVE ranged from 0.51 to 0.59. As indicated in Table 2, all variables had good convergent validity.

Confirmatory Factor Analysis

The findings of the confirmatory factor analysis of the proposed model are presented in Table 3. Model 1i.e., the four-factor (training readiness, supervisor support, TOT, and transfer design) model showed good fit with the data χ^2 = 162.66, CFI = 0.95, TLI = 0.94, IFI = 0.95, RMSEA = 0.05, and SRMR = 0.06.

Three alternative models were also against this four-factor baseline model. Fit indices as shown in Table 3 supported

our proposed model with four factors, confirming the constructs distinctiveness.

Table 2 Factor Loading, Cronbach's Alpha, Composite Reliability (CR) & Average Variance Extracted (AVE) for The Four Factors

Construct	Factor loadings	Cronbach's Alpha	CR	AVE
Training Readiness				
TR1	0.82	0.77	0.78	0.54
TR2	0.88			
TR3	0.79			
Transfer Design				
TD1	0.83	0.81	0.81	0.59
TD2	0.86			
TD3	0.84			
Supervisory Support				
SS1	0.82	0.85	0.84	0.51
SS2	0.75			
SS3	0.72			
SS4	0.81			
SS5	0.77			
Transfer of Training				
TT1	0.60	0.71	0.71	0.52
TT2	0.85			
TT3			0.78	

Table 3 Measurement Models Comparison

Model	Factors	χ2	df	Δχ2	CFI	TLI	RMSEA	С
Baseline	Four factors	162.66	121		0.95	0.94	0.05	0.03-0.06
Alternative								
Model 1	Three factors combined	183.79	121	21.13	0.93	0.91	0.06	0.04-0.07
Model 2	Two factors combined	198.54	122	14.75	0.91	0.89	0.06	0.05-0.07
Model 3	All factors combined	218.89	123	20.35	0.89	0.86	0.07	0.05-0.08

Note: n = 156. TR, training readiness; SS, supervisor support; TD, transfer design, TOT, transfer of training; CFI, comparative fit index; TLI, Tucker-Lewis fit index, RMSEA, root-mean-square error of approximation; 90% CI, 90% RMSEA confidence interval. All χ^2 and $\Delta\chi^2$ values are p<0.001. The differences of each of the alternate models with hypothesized model are delta values.

SEM & Hypothesis Testing

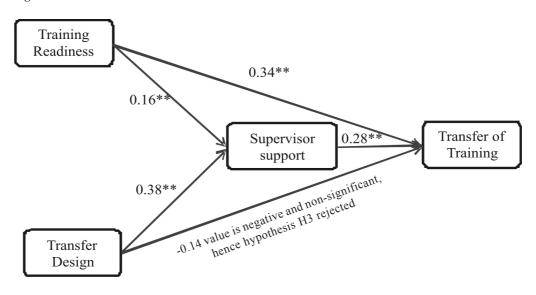
Chin et al. (2008) stated that the model fit can be evaluated based on chisquare goodness of fit indices; however, for considerations of model adequacy, it could be assumed as a reliable guide (Hu & Bentler, 1999). The fit indices using SEM (AMOS 24) demonstrated goodness of model fit with the data $\chi^2 = 140.04$, CFI = 0.96, TLI = 0.95, IFI = 0.96, RMSEA = 0.05 (0.02–0.06), and SRMR

= 0.07. The standardized path coefficients are presented in fig. 2. The result indicates significant link from training readiness to TOT (β = 0.34, p < 0.05), training readiness to supervisory support (β = 0.16, p < 0.05), transfer design and TOT (β = "0.14, p > 0.1), transfer design and supervisory support (β = 0.38, p < 0.05), and supervisory support and TOT (β = 0.28, p < 0.05). Therefore, this result implies that although hypotheses 1, Δ 2, 4, and 5 are supported, hypothesis 3 is

not supported, as the value of β is negative and p > 0.1.

The result indicates significant link from training readiness to TOT, training readiness to supervisory support, transfer design and TOT, transfer design and supervisory support, and supervisory support and TOT.

Fig. 2 Structural Model



Note: ** indicates that their values are statistically significant at 5 percent level.

Mediation Analysis

We performed the mediation analysis using Process Model 4 (Hayes, 2018) and observed the indirect effect of training readiness (IE = 0.03; 95% CI: 0.02, 0.09; ES = 0.18) and transfer design (IE = 0.06; 95% CI: 0.01, 0.12; ES = 0.10) on TOT through supervisory support.

The results confirmed that supervisor support mediates between transfer design and TOT and between training readiness and TOT, thus supporting hypotheses 6a and 6b.

The mediation analysis using Hayes bootstrapping approach (Hayes, 2018) showed (IE= 0.03; 95% CI: 0.00, 0.09;

ES = 0.18) 95 per cent bootstrap confidence interval. The standardized indirect effect was 0.03 ranging from 0.02 to 0.09 supporting hypothesis H6a. Therefore, positive and significant indirect effect between training readiness and TOT through supervisory support was found. H6b states that supervisory support mediates between transfer design and TOT. The result of mediation analysis indicates (IE = 0.06; 95% CI: 0.01, 0.12; ES = 0.10)a 95 per cent bootstrap confidence interval. The standardized indirect effect was 0.06 and ranged from 0.01 to 0.12, thus supporting hypothesis H6b. Hence, positive and significant indirect effect between transfer design and TOT through supervisory support was noted. Hence, supervisory support mediates between training readiness and training transfer and also between transfer design and TOT.

Discussion

Supervisory support as a mediator among transfer design, training readiness, and TOT has been empirically established in this study. These findings support literature on training transfer that suggests that supervisory support positively impacts TOT. Our finding accords with the literature suggesting that trainees in rapidly developing countries, such as India and China, have a collectivist society and reciprocate positively to social support and enhancement in TOT (Tian et al., 2016). This study contributes to theory as well as practice by supporting the central role of a supervisor in making TOT effective. Empirical studies examining the mediating role of supervisory support in TOT are scarce, as evident in the review of literature. Since empirical studies on TOT are scarce, future studies should attempt to contextualize these variables. The transfer design was trainer oriented in this study and found insignificant and negatively associated with TOT. However, learner oriented approaches may have a positive influence on TOT which can be further explored in future research.

Theoretical Implications

This study confirms the effect of training readiness and transfer design on TOT through supervisory support. Proposing supervisory support as a mediator contributes toward an enhanced understanding of supervisors' role in the process of TOT. Transfer design was observed to be indirectly associated with training transfer through supervisory support. This corresponds to the theory of identical elements that states that when the responses in training and workplace are different to identical stimuli, there will be a negative transfer (Yamnill & McLean, 2001). In the transfer design of this study training program was dissimilar to the actual work situation; this could explain why our results suggested a lack of direct association of transfer design with training transfer. Hence, to enhance the positive influence of transfer design, practical approaches and training contents similar to an actual work would be imperative for learning and for its application in the work.

Suggesting supervisory support as a mediating variable highlighted the impact

of trainees' characteristics (training readiness) and transfer design on training transfer. This study offers empirical evidence that supervisory support enriches employees' performance by fostering TOT.

Practical Implications

Data was collected from a public manufacturing company; this can be replicated in other industries to develop effective training programs. HRD practitioners need to focus on this aspect of supervisory support to ensure maximum training transfer. Training readiness has a significant impact on supervisory support and subsequent transfers; hence, HRD practitioners should consider individual characteristics and provide support and assistance when designing training programs to enhance trainees' readiness for learning and consequently motivate them to utilize the learning on the job.

For the facilitation of training transfer, HRD practitioners are also required to select those employees who possess a high degree of training readiness.

For the facilitation of training transfer, HRD practitioners are also required to select those employees who possess a high degree of training readiness. The lack of evidence on the direct impact of transfer design on training transfer suggests that transfer design should be formulated on practical and similar-to-actual work situations of trainees. Post-training support and encouragement from

supervisors enhance training transfer even with weak transfer design. For the maximization of trainees' performance, formulation of relevant transfer design that matches with their needs and expectations is vital for training transfer.

Limitations & Future Research

Despite theoretical and practical implications, the study has certain limitations. The perception of trainees was measured at a single point in time, as it was a cross-sectional study. This is a common method used in training research (Chiaburu & Lindsay, 2008), but it also limits the explanatory power of findings (Gegenfurtner et al., 2009). Hence, future research employing longitudinal design could assess the causal relation among the study variables. Data was collected from 156 subjects only. Repetition of the study with a large sample size would help in generalizing the findings. Only self-report data was used in the study. Future studies collecting data from various sources of a training program, such as trainers, peers, managers, and supervisors using quantitative and qualitative data are recommended for obtaining a better understanding of the training transfer process. Future studies should encompass different industries, service organizations, and countries.

Conclusion

This study extends our knowledge on the relationship among training readiness, transfer design, supervisory support, and TOT in the context of a developing country, specifically in the Indian public manufacturing sector. This study has empirically established supervisory support as a mediator among training readiness, transfer design, and TOT. Trainees' perceptions about their supervisors' support positively influence them to utilize the learned competencies to workplace. Although the findings are limited to the Indian public manufacturing organizations, a similar study on other organization types can help obtain a positive return on investments done on employee training. Furthermore, the findings could be valuable for HRD practitioners in India and in other similar cultural contexts.

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