

Empirical Study of Factors Affecting Training Transfer of Grassroots Employees in Petroleum Enterprises

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Abstract: From the economic perspective, training can be perceived as an enterprise's act of investing in employees, and the post-training transfer effect is the return acquired by the enterprise. Obviously, training transfer provides a new perspective for research of the training effect and training return on investment of the enterprise. From three aspects including personal characteristics, training design, and transfer atmosphere, this paper designs a questionnaire to investigate the factors that affect training transfer of grassroots employees in petroleum enterprises. The empirical analysis has shown that the main factors affecting training transfer of grassroots employees in petroleum enterprises are personal characteristics, organizational support and management support.

Keywords: Employee training, Influential factors, Petroleum enterprises, Training transfer.

1. INTRODUCTION

Research concerning training has gone through two phases. The first is concentrated on "whether training is meaningful", and the second is about "how to make training produce good results." The important research perspective of taking training transfer as a measure of training effectiveness is increasingly grasping scholars' attention.

Wexley K.R. and Latham GP [1] and John W. [2] define training transfer as the degree to which employees transfer and apply the knowledge and skills acquired during training to the job. Baldwin T.T. and Ford J.K. [3] further expanded this concept that training transfer should also include the retention and maintenance for employees to transfer and apply the knowledge and skills acquired during training over time to their job.

Factors that influence the effect of training transfer have been continuously explored and researched, and the focus of research has gradually been shifted from the factors of the training program itself to factors outside the training program. Combining the existing research, scholars believe that there are the following factors that impact training transfer:

(1) Personal characteristic. Baldwin T.T. and Ford J.K. believe that personal characteristics such as, ability and quality levels, transfer and transformation motivation and other personal characteristics play the most crucial role in training transfer and transformation. After further validation, Holladay C.L. and Quinones M.A [4] found that the feelings of self-efficacy would have an impact on the training transfer behavior of trainees. K.A. Smith-Jentsch *et al.* [5] advocated focusing on the personality traits

of trainees and thought that the emotions of employees that participated in training could indirectly impact the effectiveness of training transfer.

(2) Training climate. Training climate refers to an environmental and climate factor scattered in organizations. Such an organization environment can help employees to apply the knowledge and skills acquired during training on their jobs. It may play an active role in promotion or a negative role in obstruction. Rouiller, J.Z. and Goldstein, I.L. [6] proposed the two dimensional structure theory, and mainly put forward two cues of transfer climate, which they labeled situational and consequences cues. The situational clues entail trainees to provide working opportunities and create avenue for application of the learned knowledge and skills within the practical working environment. Specifically it includes four cues: goal cues, social cues, task cues, and self-control cues. J.B. Tracey & Scott I [7], other important scholars in studying the transfer of training climate, presented the classic three-dimensional model of the transfer of organizational training climate. Three dimensions respectively include leadership support, work support, and organizational support. Subsequently, more scholars [8, 9] extended the above two studies into community resources backup inside and outside of work.

(3) Training design factors. Baldwin and Ford extracted influential factors related to training design on the basis of previous research. Factors include training content design, basic principles of learning, sequencing of training activities, application transfer and transformation theory. In accordance with D.R. Laker [10] combined with the principle and theory of equivalence in psychology, training transfer can be divided into near transfer and far transfer. Both near transfer and far transfer require designing an appropriate set of contributing links during the training course to help generate the transfer of training.

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E.F. Holton [11] presented the training transfer model, in which three factors, namely the motivation to transfer, transfer climate and transfer design, are considered influencing the transfer behavior of employees, and individual performance is the core.

As a whole, although different scholars have not exactly the same views on factors impacting the transfer of training, they basically agree that trainee characteristics, training design, and training climate are the three factors influencing the transfer of training (Baldwin T.T. & Ford J.K., E.F. Holton, S. Yamnill & G.N. McLean [12]), and the present study is carried out based on this viewpoint.

2. DATA COLLECTION AND ANALYSIS

2.1. Questionnaire Design

The survey questionnaire is designed primarily based on the training transfer model by E.F. Holton and expanded from three dimensions: trainee characteristics, training design and training climate.

The content of the questionnaire is divided into two parts. The first part is about the basic information of the respondents and descriptive questions of their working units, such as age, educational background, post, and nature of business. The second part is set around the survey topic. This paper set up a total of 21 survey questions focusing on four dimensions: personal characteristics, training design, training climate, and post-training transfer behavior. The first part of the questionnaire employs the descriptive statistical method, while the second part uses the 5-point Likert scale items to poses statements to participants. The first draft of the questionnaire is revised and modified appropriately grounded upon comments of different experts and feedback from the participants after interviews, to ensure the understandability and low error of the final draft, as well as maximizing the real situation of the investigated samples.

2.2. Survey Implementation and Data Collection

Whether the survey is implemented successfully is related to the quality of data collection, and has an indirect impact on the results of the final analysis. This questionnaire survey is mainly conducted by two methods: field collection

and e-mail. To ensure the accuracy of the survey, this survey is focused on relevant personnel working in the petroleum enterprises (including different business departments), and all of these personnel have some understandings of the production and management work related to the petroleum enterprises. For mail surveys, matters needing attention are stated at the front of the questionnaire, while points for attention are explained in advance before conducting an on-site survey. The survey is anonymous to ensure that the responses can truly reflect the meaning of the participants.

2.3. Reliability and Validity

(1) Reliability Test

The testing results of personal characteristics, training design, transfer climate, post-training transfer are shown in Table 1.

As can be seen from Table 1, the Cronbach’s α coefficients for eight categories of factors are all greater than 0.70, so the internal consistency reliability of samples have been tested, and the questionnaire is reliable.

(2) Validity Test

The role of validity is to reveal the relationship between the structure variable and its measurement indicators. In this paper, the KMO test and Bartlett’s test of Sphericity are adopted to analyze the distribution of data and independence of eight categories of factors. As per the typical empirical standards, when KMO value is greater than 0.7, and the P-value of Bartlett’s test of Sphericity is less than 0.05, the questionnaire is considered to have construct validity.

The SPSS19.0 software is utilized to analyze the eight categories, with a total of 21 factors. A conclusion is drawn that the value of the KMO measure is 0.795, clearly higher than 0.7, and because the p-value of Bartlett’s test is less than 0.01 (Table 2), it clearly supports factor analysis.

3. EMPIRICAL ANALYSIS

3.1. Descriptive Statistical Analysis

From the statistics of all the scores in the questionnaire, it can be found that transfer behavior has a score of 2.36. Obviously, this far falls below the best score 5, so training transfer

Table 1. Results of reliability test.

Category		Number of Items	α Value	Reference Value
Personal characteristics		5	0.781	$\alpha \geq 0.7$
Training design	Teacher ability	6	0.901	
	Training content			
Transfer climate	Management Support	7	0.923	
	Work support			
	Organizational support			
Post-training transfer		3	0.871	

rarely occurs among the respondents after receiving training. Table 3 gives detailed score values for the survey factors.

Table 2. KMO value and Bartlett's Test of sphericity.

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.798
Bartlett's Test of Sphericity Approx. Chi-Square	859.894
df	124
Sig.	0.000

Table 3. Descriptive statistics of influential factors.

Category		Mean	Std. Deviation
Personal characteristics		3.62	1.126
Training Design	Teacher ability	4.15	1.188
	Training content	3.76	1.021
Training climate	Management Support	3.75	0.871
	Work support	2.87	0.978
	Organizational support	2.31	0.922

As can be seen from Table 3, for the scores of each index, only teacher ability surpasses 4, and the other indicators are less than 4, indicating that the training teachers are valued by trainees. Also, scores of work support and organizational support are lower than 3, indicating that these two factors have little impact on the training transfer of employees. At the same time, the scores of three factors, which are personal characteristics, training content and management support, are all between 3 and 4, indicating that these three factors have general influences on the training transfer of employees. Table 3 shows that, overall, employees themselves have general enthusiasm about training transfer, and also leaders do not attach much importance to training.

Table 4. Regression analysis results.

Independent Variables	Regression Coefficients	t	Sig.	Adjusted R Square	F	Sig.
Personal characteristics	0.637	12.137	0.000	0.579	36.215	0.000
Teacher ability	0.178	2.061	0.010	0.168	5.565	0.010
Training content	0.267	5.128	0.000	0.271	13.249	0.000
Management support	0.413	7.133	0.000	0.538	29.976	0.000
Work support	0.223	4.573	0.000	0.397	12.013	0.000
Organizational support	0.389	8.035	0.000	0.572	31.267	0.000

3.2. Regression Analysis

To further discuss the influential degree of various factors in Table 3 on the training transfer of employees, this paper uses the regression analysis method to explore the relationship between each factor and training transfer. The regression model is constructed with factors as independent variables and training transfer as dependent variables. The regression analysis results are shown in Table 4.

As can be seen from Table 4, personal characteristics, teacher ability, training content, management support, work support, organizational support and other factors are positively correlated with training transfer, and pass the test at the 0.01 level of significance. From the regression coefficients, the correlation coefficient of personal characteristics and training transfer is greater than 0.5, indicating that the personal characteristics of the investigated employees in the petroleum companies have an important impact on training transfer, which is consistent with common sense. At the same time, the correlation coefficients of management support and organizational support and training transfer are about 0.4, indicating that management support and organizational support are important factors influencing transfer climate, but its value is less than 0.5, signifying that strengthening organizational support and management support can further enhance training transfer. And because the correlation coefficients of training content and teacher ability and training transfer are all low, the main factors currently affecting training transfer of employees in the petroleum enterprises are not training content and teacher ability. This is probably because the surveyed employees have received relatively shallow and basic theoretical training. This also implies that training transfer of employees cannot be enhanced in the future by upgrading teacher ability and improving training content.

4 RESULTS AND DISCUSSIONS

4.1. Training Transfer Affected by a Variety of Factors

Personal characteristics, training design and transfer climate are factors affecting training transfer. The results in Table 4 reveal a direct positive correlation of personal characteristics, training design, and transfer climate with transfer climate. This demonstrates that the training transfer of employees in the petroleum enterprises is subjected to a number of factors.

4.2. Different Influential Degree on Training Transfer Due to Different Factors

It can be found from Table 4 that different factors have different correlation coefficients, so they exert different influences on post-training transfer. Wherein, the influential degrees of personal characteristics, organizational support and management support rank top. This suggests that if employees have strong subjective motivation to receive training and strong confidence to master training knowledge, then the post-training transfer effect will be improved. Similarly, organizational support and management support will also help to enhance the effect of training transfer of employees, and as the corresponding regression coefficients of organizational support and management support are less than 0.5, it means that petroleum companies can still improve the post-training transfer effect by strengthening organizational support as well as management support.

CONCLUSIONS AND SUGGESTIONS

The research findings show that the effect of training transfer of petroleum corporation employees is poor and the training of employees should be further strengthened. Combined with the empirical analysis results, this paper puts forward suggestions to improve the training of employees working in petroleum corporations from three perspectives, personal characteristics, organizational support and management support.

- (1) Strengthen employees' participation in training and enhance self-awareness in training

The empirical results reveal that trainee characteristics are the most important factor affecting the post-training transfer effect, which requires petroleum companies to further enhance employee awareness of training. On the one hand, strengthen career planning of new employees; provide particular guidance to employees on career development according to their expertise and personal qualities; allow employees to participate in the design of their career development and training programs at different development stages in order to motivate employees to participate in training, and let the training content better suit employee personal qualities and expertise and their personality traits. On the other hand, strengthen performance management; include employee training performance into performance appraisal; make intervention by means of physical and mental incentives; promote employees to apply the knowledge and skills training acquired during training on their job; improve the effect of training transfer. For example, link evaluation results with wages rating, comparing and appraising and job promotion, give a relatively high weight, and make employees actively use training knowledge driven by the profit-seeking psychology.

- (2) Strengthen support for training at the management and enterprise system levels

The empirical results reveal that management support and organizational support are crucial factors affecting the training transfer of employees in petroleum enterprises, and that employee training transfer can be further enhanced by improving management support and organizational support. Corporate management's attitude towards employee's train-

ing can affect the individual attitude of trainees. If leaders pay attention to training, then employees would correspondingly be more enthusiastic about engaging in training, and there will be an enhanced training transfer effect. To do this, petroleum companies can strengthen management's awareness of training from two aspects. On the one hand, part of corporate managers should change the notion that training is a waste of money and further strengthen awareness of training. Senior managers should emphasize the need for training in a variety of occasions, and sufficiently commit to applying training knowledge in the workplace. They should be concerned about not only the enthusiasm of employees to attend training, but also their gains from training. By establishing models, they can prompt employees to actively use the training knowledge to upgrade themselves and thus enhance the effect training transfer. On the other hand, strengthen the significant role of training in petroleum business development at the system design level. For example, there should be appropriate systems to regulate the introduction of training teachers, training design, training locations and methods, and the human resources department or a specialized training management department should be responsible for the implementation. Meanwhile, these departments should actively deal with business units where employees work, and avoid training to become a mere formality by combining with trainee characteristics and business development needs. The effect of training transfer should be timely evaluated. Further, communicate the evaluation results with business units where employees work and accordingly develop appropriate incentive schemes, so as to motivate employees to actively participate in training and enhance job performance through training, and enhance the effect of training transfer.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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