Evaluation of Vocational Training Program from the Trainees' Perspective: An Empirical Study

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Abstract

Vocational education and training (VET) is directed towards the teaching of skills and knowledge which are useful in occupations and include programs such as technical, business and commercial studies. Vocational training focuses on practical skills learned unlike academic education and is usually provided at the senior school level. VET plays an important role in the nation's education initiative. To ensure quality vocational education, training teachers to build teaching resources is crucial. This paper presents the results of an empirical study undertaken to find out the effectiveness of a VET program from the trainee's perspective. The effectiveness of the program was evaluated by using the Kirkpatrick's Model. The sample consisted of 100 teachers belonging to leading CBSE schools of Indore. Chi-square tests revealed that gender and designation have an insignificant association with the efficacy gap. Paired sample t test concluded that the trainees experience does not exceed their expectations. Further, factor analysis was conducted to group the variables into factors which fairly matched with the four levels of Kirkpatrick's Model with a few exceptions. Regression analysis revealed that the factors extracted contribute insignificantly to training effectiveness. Implications of these findings are discussed in the paper.

Keywords:

Vocational education and training, Training Effectiveness

Introduction

The changing economic, social and ecological circumstances have created the need for individuals who are flexible, adaptive to change, continuous learners, creative and contribute new ideas productively. Business and industry expect students to be proficient in literary, numerical, communication, technological and general employability skills to be prepared for the workplace. This changing skill requirement is supported by the research of Levy and Murnane (2004) who argue that there are five categories of tasks performed by the employees today as expert thinking, complex communication, routine cognitive tasks, routine manual tasks and non-routine manual tasks. These trends have been reflected in the educational policy where a number of vocational courses have been introduced by the Central Board of Secondary Education (CBSE) as Information Technology, Retail Management, Automobile, Security, Front desk management etc. in the senior classes to increase the competency among the students. Enhancement of teacher's competencies is instrumental to student learning and educational achievement to ensure quality vocational education. The current study attempts to find out

the effectiveness of a Vocational education and training (VET) program from the trainee's perspective since genuine feedback about the training program can be received from them.

Theoretical Framework and Literature Reviewed

Training is a systematic process designed to develop the knowledge, skills and positive behavioural attitudes (KSA) in the trainees and increase their competence. Generally training focuses on what needs to be known. Moodie (2002) mentioned vocational education and training as the development and application of knowledge and skills for middle-level occupations needed by society from time to time. In addition to academic education, VET is the acquisition of practical skills, attitudes and practical problem-solving skills to prepare the students for the labour market. To summarize, vocational education and training are indispensable instruments for improving labour mobility, adaptability and productivity, thus contributing to enhancing firms' competitiveness and redressing labour market imbalances (Cailods;1994). A well organized education system and a more educated labour force can act to attract globalize financial capital (O'Connor and Lunati; 1999). Pomuti (2000) found training to have a significant effect on teacher productivity. The author estimated that a five percent increase in training was associated with a four percent increase in productivity which led to a 1.6 percent increases in wages. Mat, et al., (2011) found that training is effective in increase in the knowledge, skills and attitudes aspect of the students themselves after an industrial training program.

Schalock (2001) defined training effectiveness as the determination of the extent to which a program has met its stated performance goals and objectives while training evaluation is the systematic collection of descriptive and judgmental information necessary to make effective training decisions related to the selection, adoption, value and modification of various instructional activities (Werner and DeSimone, 2006). It is a process of assessing the results or outcomes of training (King et al., 2001). Training evaluation shows the benefits of training with regards to learning and job performance and is well-planned in order to determine the effectiveness of the training program. Kirkpatrick and Kirkpatrick (2006) suggested three key benefits of evaluating training programs: (i) to justify the existence and budget of the training department by showing how it contributes to the organization's objectives and goals; (ii) to decide whether to continue or discontinue training programs; and (iii) to obtain information on how to improve future training programs.

Training Evaluation Criteria

Kirkpatrick's (1998) four level evaluation model is widely used for evaluating the effectiveness of training. This model comprises of four levels of evaluation namely: Level 1-Reaction, Level 2-Learning, Level 3-Behavior, and Level 4-Results. Reaction measures how the trainees feel about the program, learning measures the amount of learning that took place, behavior is the extent of behavior change after the trainee's returned to their jobs and finally results are the tangible benefits of the training program as productivity, profits for the organization.

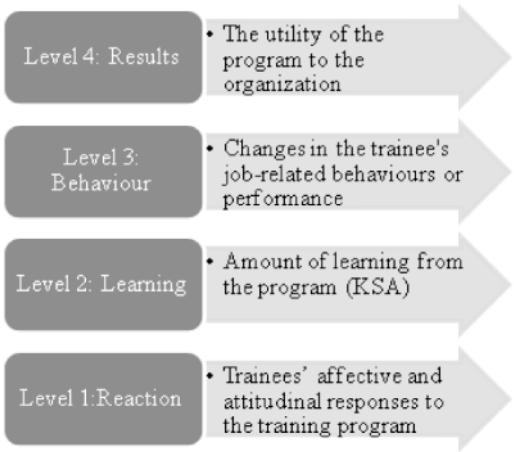

Figure 1: Kirkpatrick's Training Evaluation Model

According to the model each level is essential and has an impact on the next level. Within the framework of Kirkpatrick's model, the choice of evaluation criteria which is the dependent measure used to operationalize the effectiveness of training was mainly determined by the objectives of the present study supported by previous literature. Reaction measures are the most widely used evaluation criteria. In the American Society of Training and Development State-of-the-Industry Report, 78 percent of the benchmarking organizations surveyed reported using reaction measures, compared with 32 percent, 9 percent, and 7 percent for learning, behavioral, and results, respectively (Van Buren and Erskine, 2002).

Factors Affecting Training

Ensuring that learning is transferred and utilised in the workplace remains of critical importance for the practitioners (Burke and

Hutchins, 2008). Studies suggest that no more than 15 percent of learning transfers to the job (Cromwell and Kolb, 2004). Therefore, an understanding of the factors affecting transfer of learning to the workplace is necessary if the effectiveness of training program is to be increased. Demographic variables such as gender, degree held, and experience were related to training impact in some studies (Devins, Johnson and Sutherland, 2004). Chou (2001) found that gender and learning style and cognitive style will interact and affect the training methods on the role of training effectiveness. Study also found that gender training methods may also directly regulate the relationship between performance and training. Elizabeth (2002) found that some women show a unique "train track" (training track), they will continue to follow the trainer and receive continued.

Trainees with a high degree of education level tend to be more motivated learners and accomplish more (Chiaburu and Marinova, 2005). Based on their research focusing trainee attitudes towards training, Hicks and Klimoski (1987) suggest that certain pre-training conditions are relevant to the training outcomes. From trainee's perspective, understanding the objectives of the training, its relevance to individual and organizational needs and expectations for application can greatly improve learner motivation (Montesino, 2002). Baldwin and Magjuka (1991) have supported this view with their empirical studies for which the data was collected from 193 trainees in an engineering group. Sutherland (2009) found variation on training impact level based on the length of work experience.

Peer support enhances learning transfer through the feedback, encouragement, problem-solving assistance, supplemental information, and coaching provided to trainees (Facteau et al., 1995; Hatala and Fleming, 2007). Bates et al., (2000) found that peer support was a significant predictor of training transfer which is supported by Hawley and Barnard (2005) who conducted a study on HRD professionals in the nuclear power industry and found that peer support influence positive transfer as an important work environment factor and that a lack of manager support may negatively impact transfer. Blume et al., (2010) examined the relationships between work environment and transfer of training and found positive relationship. On the other hand, Clarke (2002) noted that lack of opportunity to use the skills and knowledge back on the job is the highest impediment to successful training.

Good training requires that design of the training is consistent with what is required to do in the transfer setting. The training program must be relevant to the job (Kontoghiorghes, 2002). Gauld and Miller (2004) propose that qualified trainer should possess two essential characteristics, which are reliability and effectiveness. The trainer himself must be reliable to build trustful relationship with trainees and he has to be effective in conducting the program and in delivering the information.

Objectives of the Study

The present research focuses on the following objectives:

- To find out the effect of demographic variables (as gender, designation) influencing the effectiveness of the training program from the teacher's perspective.
- To find out the difference between the expectations and the actual training experience from the training program from the teacher's perspective.
- To find out the variables (and grouping them into factors) influencing the effectiveness of the training program defined as per the Kirkpatrick's Model of Training Evaluation.
- To find out the impact of the factors extracted on the effectiveness of the training program.

Hypotheses of the Study

Keeping in view the objectives, the following hypotheses were formulated to achieve each of the objectives:

H_{01}: Efficacy gap and gender are independent.

$H_{02:}$ Efficacy gap and designation are independent.

$H_{03:}$ There is no significant difference between the trainee's expectations and their actual experience.

$H_{04:}$ There will be no significant impact of the extracted factors on the effectiveness of the training program.

Research Methodology

The Study

The present study is an experimental investigation designed mainly to find out effectiveness of a VET program from the trainee's perspective.

The Sample

Teachers belonging to different CBSE schools of Indore were provided with questionnaires. Convenient judgment sampling technique was used. A sample of 100 respondents was taken into consideration after screening out the inapplicable responses. In the final sample there were 4 males and 96 females. The designation of the teachers was 17 Heads of Departments (HOD), 55 Post Graduate Teachers (PGT) and 28 Trained Graduate Teachers (TGT) (***As shown in Table No.1***). CBSE schools were chosen as they have introduced vocational courses in the curriculum and the training of teachers is mandatory. Relevant training materials and various training methods were used in the training program which was offered by a single facilitator/trainer. The duration was appropriate so as to compare the pre and post training results effectively.

Tools for Data Collection

Self-constructed questionnaires were administered to the respondents to know their attitude (expectations and experiences) towards the training program. The questionnaires consisted of 13 items using 5 point Likert's scale for each item ranging from “strongly disagree” to “strongly agree”. The first 12 items were categorized according to the Kirpatrick's Model into four levels as mentioned earlier. The 13^{th} item was the overall efficacy. Expectations of the trainees were collected one week prior to attending the training program and experience two weeks after the training program. The Cronbach Alpha Reliability Coefficient was calculated separately for pre and post- training questionnaires and is 0.857 and 0.909 respectively which is on the higher side indicating the reliability of the instrument.

Tools for Data Analysis

Chi- Square Test of Independence, Paired Sample t-Test, Factor Analysis and Multiple Regression tests were applied to test the various hypotheses. Statistical Package for Social Sciences (SPSS version 18.0) was used to analyze and interpret the data.

Results and Discussion

1. $\chi 2 = 54.891; p = 0.727$

H_{01} stands accepted.

Efficacy gap and gender are independent ***(As shown in Table No. 2).***

2. $\chi 2 = 114.522; p = 0.064$

H_{02} stands accepted.

Efficacy gap and designation are independent ***(As shown in Table No. 2).***

The above results indicate that demographic variables (as gender, designation) of the trainees do not influence their perspectives on its effectiveness. The results are justified by the empirical research which has not reached a consensus on the effect of demographic variables such as gender, designation, age on the effectiveness of training (Chen et al., 2006).

3. $t = 4.793; p = 0.00;$ ***X***

4. = 60.58 (Expectations); = 56.81 (Experience)

H_{03} stands rejected.

The results indicate that the trainees experience does not exceed their expectations ***(As shown in Table No. 3).*** The mean score of trainee's expectations is greater than their experience. The finding is supported by studies related to evaluating training effectiveness which opine that it is important for each training program to receive positive feedback from the participants with regards to satisfaction (Ehrhardt, et al.; Ji, et al., and Jones, et al., 2011). As the trainee's reactions were not positive, the study identified the factors influencing the effectiveness of the training program defined as per the Kirkpatrick's Model of Training Evaluation.

Factor Analysis

To get a clear picture from the trainee's perspective on the effectiveness of the training program, factor analysis was applied on the gap analysis which was based on the differences in the scores of the trainee's pre-training expectations and post-training experience for each item. The items were divided into the already mentioned categories defined as per the Kirkpatrick's Model. Principal Component Analysis was employed for extracting factors followed by Varimax rotation ***(As shown in Table No. 4 and 5).*** Summary of the factors extracted has been presented in ***Table No. 6.***

The grouping of variables according to the Kirkpatrick's Model is mentioned in ***Table No. 7.***

In the present study the trainer's competencies have emerged as a significant factor in the effectiveness of the training program. Robotham (1995) found that trainers must have awareness and understanding of individual's style to achieve desired outcomes of training. The study shows the role of trainer's awareness in making flourish a training program. Further, Driskell (2011) concluded that type of training implemented, training content and trainee expertise also affect the training outcomes. Tracey et al., (1995) found that motivation, attitude, and basic ability affect a training programme's potential success. Tsai and Tai (2003) discussed that employees had more training motivation when they were appointed to attend training program by management than when they made their choice freely. The training program under study was mandatory for the teachers and it can be concluded that teachers were motivated to join the training program.

The results also reveal that training program influences the probability of positive outcomes for both the participants and the organization. This was consistent with previous studies which found that training has positive outcome in firm performance (Martin, 2010). Also, Santos (2003) suggested that for most individuals, training increased confidence and self-efficacy, it improved competencies and skills and people recognized that they had been invested in.

4. $r = 0.709; R^2 = 0.502; p = 0.107 (p > 0.05)$

H_{04} stands accepted.

The regression equation is as follows:

$Y = \alpha + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_4 F_4$

Y= Overall Efficacy Gap (Post-training Score for 13th item – Pre-training Score for 13th item)

α = constant; $\beta_1, \beta_2, \beta_3, \beta_4$ = regression coefficient; F1 = Improvised Reaction; F_2 = Improvised Learning; F3= Improvised Behaviour; F_4 = Improvised Results.

The model is not statistically significant as $p > 0.05$ ***(As shown in Table No. 7 and 8).***

It can be concluded that the factors extracted are insignificant in explaining the effectiveness of the training program. This is in line with the study by Mooi (2010) on teacher education and effectiveness which indicated that the participants' perception of the effectiveness of teacher training program is very much dependent on research-based practices. Rama and Vaishnavi (2012) also suggested that to increase or maximize the effectiveness of training program, an organization needs to use ongoing assessments to establish learning outcomes and link those outcomes to a performance plan. Conversely the result is inconsistent with these studies. Previous studies (Mayfield, 2011) suggested that training effectiveness is a good predictor of employee training. This association suggests that when employees have been trained in a training program, the training effectiveness is likely to be followed by job behavior (Pelham, 2009). One possible explanation could be lack of organizational support after training, training environment, the duration of the training program or importantly less number of students opting for the vocational courses.

Implications

The major objective of the paper was to evaluate the effectiveness of the training program from the trainee's perspective which was found to be insignificant. The study revealed many factors that contribute to training effectiveness as supportive organizational environment, trainer's competencies, design, content of the

program, opportunity to implement the learning's on the job, attitude, motivation of the participants etc. It emerges that teachers should be motivated by the superiors to learn new abilities and skills and be supported to practice those skills at the workplace. Trainees' attitude decides that what would be learning ratio from training program. To inspire the teachers they could be rewarded for bringing significant improvements in the workplace.

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Annexure

Table: 1. Respondents Characteristics (N=100)

Respondents' Characteristics	Sub-Profile	Number
Gender	Male	4
	Female	96
Designation	HOD	17
	PGT	55
	TGT	28

Table: 2. Results of Chi Square Analysis

Chi-Square Tests

		Value	df	Asymp. Sig. (2-sided)
Gender * Efficacy Gap	Pearson Chi-Square	54.891[a]	62	.727
	Likelihood Ratio	31.561	62	1.000
	N of Valid Cases	100		
Designation * Efficacy Gap	Pearson Chi-Square	114.522[a]	93	.064
	Likelihood Ratio	90.753	93	.547
	N of Valid Cases	100		

Table: 3. Results of Paired Sample t-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Expectations	60.58	100	7.278	.728
	Experience	56.81	100	8.655	.865

Paired Samples Test

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Expectations-Experience	3.770	7.866	.787	2.209	5.331	4.793	99	.000

Table: 4: Component Matrix

Component Matrix[a]

	Component			
	1	2	3	4
Relevance Gap	.716	-.084	.093	.156
Audio-Visual Aids Gap	.680	-.203	-.103	.166
Core Knowledge Gap**(T)**	.677	-.183	-.206	-.166
Preparation Gap**(T)**	.650	-.234	-.128	-.239
Productivity Gap	.603	-.406	.413	.043
Attitudinal Change Gap	.585	.225	-.009	-.359
Orgn. Sessions Gap**(T)**	.536	-.188	-.437	.028
Style& Delivery Gap**(T)**	.533	-.221	-.295	.050
Coverage Gap	.488	.023	.268	-.430
Importance Gap	.334	.613	-.222	.181
Facilities Gap	.330	.576	.254	-.008
Targeted Learning Gap	.445	.462	-.291	.018
Improvement Gap	.399	.408	-.066	.310
Applicability Gap	.411	.230	.610	-.193
Returns Gap	.403	-.157	.345	.708

Extraction Method: Principal Component Analysis.
a. 4 components extracted.

Table: 5 Results of Varimax Rotation

Rotated Component Matrix[a]

	Component			
	1	2	3	4
Core Knowledge Gap **(T)**	.706	.092	.232	.036
Orgn. Sessions Gap **(T)**	.695	.147	-.097	.027
Preparation Gap**(T)**	.677	-.001	.304	.021
Style& Delivery Gap **(T)**	.632	.089	-.021	.121
Audio-Visual Aids Gap	.623	.140	.112	.348
Relevance Gap	.503	.204	.286	.420
Importance Gap	.082	.750	.014	-.006
Targeted Learning Gap	.283	.633	.083	-.094
Improvement Gap	.122	.593	.037	.240
Facilities Gap	-.121	.547	.428	.090
Applicability Gap	-.073	.141	.743	.231
Coverage Gap	.274	.012	.647	-.045
Attitudinal Change Gap	.392	.307	.503	-.143
Returns Gap	.104	.116	-.014	.885
Productivity Gap	.406	-.223	.453	.531

Table: 6. Summary of Factors Extracted After Analysis

Items in Factor 1-Improvised Reaction	**Items in Factor 2-Improvised Learning**	**Items in Factor 3-Improvised Behaviour**	**Items in Factor 4-Improvised Results**
Facilitator/Trainer	Importance(New Pedagogies)	Applicability	Returns
• Core Knowledge	Targeted Learning	Coverage	Productivity
• Organization of Sessions	Improvement	Attitudinal Change	
• Preparation	Facilities		
• Style & Delivery			
Audio-Visual Aids			
Relevance			

Table: 7. Classification of Variables into Factors as per Kirkpatrick's Model

Items in Factor 1-Reaction	**Items in Factor 2-Learning**	**Items in Factor 3-Behaviour**	**Items in Factor 4-Results**
Relevance	Importance(New Pedagogies)	Applicability	Returns
Trainer	Coverage	Attitudinal Change	Productivity
• Core Knowledge	Targeted Learning		Improvement
• Organization of Sessions			
• Preparation			
• Style & Delivery			
Audio-Visual Aids			
Facilities			

Table: 8. Results For Regression Analysis: Model Fit

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
dimension0 1	.709[a]	.502	.303	.815	2.524	.107[a]

a. Predictors: (Constant), Factor4 Improvised Outcome , Factor1 Improvised Reaction , Factor3 Improvised Behaviour, Factor2 Improvised Learning
b. Dependent Variable: Overall Efficacy Gap

Table: 9. Regression Coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.891	1.607		3.044	.012
Factor1 Improvised Reaction	-4.335	1.720	-1.262	-2.520	.030
Factor2 Improvised Learning	-2.505	1.930	-.703	-1.298	.223
Factor3 Improvised Behaviour	-2.877	1.611	-.769	-1.787	.104
Factor4 Improvised Outcome	-2.180	1.383	-.614	-1.576	.146

a. Dependent Variable: Overall Efficacy Gap