

INDUSTRIAL TRAINING OF TEACHERS- CASE STUDY OF PERFORMANCE EVALUATION

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1.0 INTRODUCTION:

Technological developments are taking place at a very fast rate in the world. India is also not averse to it. Indian industries are adopting new techniques & technology to compete with the time. The state has come when industries are far ahead of technical institutions in the country. To reduce this gap and to provide well-trained and need based technicians, the technical institutes have to gear up themselves to face the challenges ahead.

One of the serious criticisms of the Engineering institutes has been of their teachers, having little practical experience and too theoretical in approach. They are in most cases out of touch with practical realities of engineering in the field and are not aware of the present status of technology in industries. Hence to make the technicians' education more meaningful, the teachers should have exposure to industrial environment by undergoing industrial training visits at regular intervals. The teaching faculty of these institutes with specialised knowledge should also be encouraged to develop & maintain interaction with related industries to help them in solving their technical problems.

The aspects of industrial training of teachers has remained important in the minds of educational planners. Few industrial training schemes were introduced

time to time in the past. However, the earlier schemes of industrial training could not achieve the desired objectives. The success of any industrial programme depends on predefined objectives, proper planning, implementation and evaluation. The performance of teachers during industrial training is required to be assessed not only for certification but also to generate seriousness in the programme. A reliable and valid mechanism of evaluation develops faith in the teacher trainee regarding the programme and also helps him in achieving the objectives.

T. T. T. I. is involved in conducting long term industrial training programme since long. Recently it has developed a model of industrial training of teachers for M.P. in collaboration with Directorate of Technical Education, M.P. All efforts have been made to improve upon the shortcomings of earlier schemes. The following paragraphs describe the model and the process of evaluation used to evaluate teachers' performance.

2.0 Model of Industrial Training :

The industrial training model designed for M.P. Polytechnic teachers has essentially four components i.e.

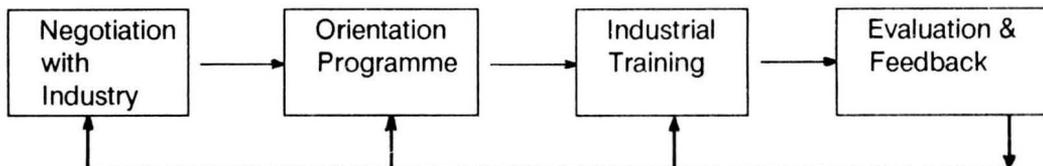
- a) Negotiation with industry
- b) Orientation Programme (one week) at T.T.T.I. Bhopal

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- c) Industrial Training (Thirteen Weeks) in different industries
- d) Report Writing , Evaluation and Feedback (Two Weeks) at T.T.T.I. Bhopal

The current model of industrial training is depicted below with the help of diagram.



The feedback received at the end from teacher, examiners, industry personnel further help to improve the total programme.

2.1 Negotiations with Industry:

The planning for industrial training is initiated at TTTI, three months before the commencement of orientation programme. It includes correspondence with different industries & organisations and is followed by personal visit of TTTI-Faculty and a group of six Training & Placement Officers of polytechnics. These TPO's have been trained and have developed negotiating skills to carryout placement work.

The negotiation with industry include, :

- a) Identification of placement with industry
- b) Identification of industry-guide
- c) Tentative plan of placement
- d) Procedure of guidance and assessment .

2.2 Orientation Programme:

The main objective of this programme is to induct teacher trainee for the, industrial training. During the programme teachers appreciate the importance of industrial training and the role it plays in improving their technical competencies. They are given the information about the industries and organisation where they will be placed. The tentative plan of placement based on the positions available in the particular industry is explained to them. During orientation, the teacher trainee interact with TTTI faculty & experts from industry. They also visit one local industry to get the experience of preparing a plan for training. The teacher trainee are also explained the methodology of evaluation during this period.

The orientation programme & various activities can be shown with help of following chart:

Input	Process	Output
Teacher trainee from polytechnics	* Input cum discussion sessions	Motivated teachers for industrial training.
Need of teachers, polytechnics	* Interaction with industry personnel	Final placements

Placement, facilities & resources available	* Visit to industry	Tentative plan of individual teacher
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TTTI faculty, TP's & industry experts	* Study of literature	Clarity about evaluation
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Literature about industry

2.3 Industrial Training:

The teachers are deputed to two or three industry/sites for thirteen weeks to give them exposure to industrial environment & practices. During this period, the teacher trainee interact with industry personnel, observe processes, gets "hands on" experience and go through industrial literature.

They gather information about technician's job profile and collect relevant information about curriculum revision in future. The teacher trainees take projects of industry & also solve their technical problem.

The process of industrial training can be shown as follows :

Input	Process	Output
Objective of training	* Final planning of training programme with industry persons & TPO's.	Trained teachers with improved, knowledge, skills, & attitude.
Motivated & properly oriented teachers	* Briefing about industry	Capable teachers to undertake Industrial projects
Tentative plan	* Observation * Hands on Experience * Study & collection of literature * Project/Problem solving * Interaction with workers, technicians, managers	Daily diary & rough draft of training report ; Industry based resource material.

2.4 Report Writing, Evaluation & feedback programme :

During the first week of this phase, the first draft of the training report, prepared earlier at industry by the teacher trainee is

edited by the tutors guide. Finally four typed bound copies of report are submitted.

The second week is devoted for seminar presentation, viva-voce examination and preparation of action plan for one year to

implementation and evaluation have been specifically taken care of in this model to make it different & result oriented.

3.0 Evaluation of Industrial Training :

The first step in designing any system of evaluation is to clearly state the objectives. The purpose of evaluation of industrial training is not limited to award grades or for certification. It should provide information regarding the extent to which objectives have been achieved. The creditability of system of evaluation is increased if the results received are **valid** and **reliable**.

3.1 Reliability in Evaluation:

Reliability is the extent of consistency with which an evaluation procedure measures, what it is measuring. It refers to the repeatability.

In this model following points have been taken into consideration:

3.1.1 The evaluation to each of the component is entrusted to a team consisting of :

- a) Principal of a polytechnic
- b) Professor of one Engg. College
- c) DTE Official
- d) Export from industry
- e) One T.T.T.I. faculty

The objective of constituting such committee is to give the participants a chance of sharing their experience with the people from different organisations & at the same time bringing objectivity to the evaluation.

3.1.2 Criteria of evaluation for each of the component is declared before hand i.e. at the time of orientation.

3.2 VALIDITY IN EVALUATION.

Validity is the extent to which an evaluation procedure is measuring what it intends to measure. It refers to the relevance of the test to objectives.

In the evaluation of each component in this model maintains that,

3.2.1 It is relevant to the pre-defined objectives.

3.2.2 The teacher trainee are put to questions related to industrial training only.

3.3 Components of Evaluation :

In order to maintain validity and reliability, the evaluation is not restricted to one component only. The teacher-trainee are assessed on the basis of the following four components :

- a) Daily-Dairy, Industry & Institute Supervisor Report
- b) Training Report
- c) Seminar Presentation
- d) Via-Voce Examination.

The evaluation of different components provides teacher-trainee fair chances to express what they actually learned. The objective of evaluation is to encourage trainee to reveal their positive learning.

The criteria, weightage & methodology of evaluation of each of the above component is described below :

3.3.1 Daily Dairy, Industry & Institute Supervisors Report:

The format for daily diary is given to teacher trainee. They are explained the importance of noting down the relevant

daily experiences. The criteria of evaluation of their performance is based on :

- attendance
- conduct / discipline
- progress
- motivation
- cooperation

It is assessed by the industry supervisor based on a four point scale ranging from Excellent to Poor.

In addition, the TPO also visit trainee & assess their performance & send separate report. They also help trainees in solving their day to day problems. The daily diary & supervisors report are given 10% weightage each in total evaluation.

3.2 Training Report :

The participants are given a format to prepare training report, based on their actual experiences. It is emphasised that they narrate to what they do at industry & not to what is being done there. The points in the format include.

- Introduction to Industry/Organisation
- Learning activities undertaken
- Industry based learning material
- Technical job description
- Suggestions for curriculum modifications.

The training report being the authentic proof of experiences and an academic exercise is given 40% weightage in evaluation. The training report is evaluated on the basis of following criteria,

- Presentation of matter
- Extent of coverage of stated objectives

- Conformance of matter presented with the stipulated objectives of programme
- Variety, relevance & adequacy of learning experience chosen for self development
- Collection of novel ideas, information, problems, cases, handouts etc. relevant to the curriculum.

3.3 Seminar Presentation :

The teachers prepare a seminar paper highlighting their learning experiences and present the same before the group of fellow teachers & evaluation committees. It is evaluated on the basis of following criteria :

- Adequacy of planning for presentation
- Quality of paper
- Effectiveness of presentation
- Handling of audience questions
- Depth of practical knowledge

The seminar presentation is given 20% weightage in evaluation.

3.3.4 Viva-Voce Examination :

The teacher trainee face a viva-voce examination before a evaluation committee. They are evaluated as per the following criteria :

Relevance & purposefulness of acquired learning experiences

Ability to integrate the acquired experiences to class room situation

Plans to use acquired experience to improve instructional process

Usefulness of learning experiences/materials to develop instructional resources.

batch out of twenty four (24), twenty three (23) have successfully completed the training. One trainee has to complete training.

3.4 Statistical Data

3.4.1 Number of teachers

So far, two batches of teachers, have undergone industrial training. In the first

In the second batch, twenty five (25) teacher trainee have successfully completed the training. The break up, as per discipline of two batches, is as follows :

Discipline	Ist batch	II nd batch	Total
Mechanical	10	10	
Civil	08	08	
Electrical	05	--	
Mettalurgy	01	--	
Commercial Practice	--	01	
	24	25	49

3.4.2 Number of places of Industry/Organisation:

In the first batch the teachers have been sent to 18 industry/organisations. These include large, medium and small scale industries. The industries are Government, Authonomous and Private industry and spreads from Bhopal, Dewas, Indore, Jabalpur, Bhilai to Korba.

Grade	% of Marks
A	80% & above
B	65% - 80%
C	50% & above
D	Below 50%

The teachers who secure C grade or above are declared successful. Though individual teachers have not been declared grades, the following table shows the grades of two batches.

3.4.3 Grades:

The teacher trainees are awarded grades on the basis of the total marks secured in the four components listed in 3.3. above. The grades have following meaning.

Grade	Ist batch	II nd batch
A	11	15
B	10	7
C	2	3

4.0 Feedback & Impact :

To obtain feedback is a regular feature of the training programmes at TTTI. The feedback gives indication about the strong points as well as of the weak points where further efforts are required to be made. The written feedback is received from the participants on the various aspects of industrial training programme. Limiting the discussion to the evaluation, the salient features of feedback received are as follows :

- The formation of evaluation teams & the procedure of evaluation is excellent
- There is no need of viva-voce after the seminar
- It is essential for seriousness in training
- Report writing is an interesting experience.
- The feedback received from the examiners reveals:-
- Majority of teachers have seriously undertaken the industrial training
- The industrial training has improved the knowledge of teachers on practical aspects.
- Industrial training has developed confidence in teachers.

5.0 Conclusion :

This paper highlights the need of industrial training for polytechnic teachers, who are required to be oriented for fast changing world of work and emerging technologies. The case-study of evaluation depicts that success of scheme is ensured if the system of evaluation is properly planned & executed. This calls for corresponding changes in the earlier industrial training models, better linkages between industry and institute and putting to use the development in the field of educational technology.

REFERENCES :

1. Jain P.C., Tiwari N.P. "Industrial Orientation Of Technical Teachers", Conference on Industry-institution-interaction, BIT Durg, 1991.
2. Jain P.C. , & Saxena S.K. "Analysis of Feedback Batch-I" TTTI, April, 91.
3. Jain P.C., Saxena S.K. "Analysis of Feedback Batch -II", TTTI Bhopal, August, 91.
4. Jain P.C., Shrivastava K.K, Saxena S.K. "Assessment Scheme of Industrial Training", TTI Bhopal, Nov., 90.
5. Patki S.D. "Evaluation Techniques", TTTI Bhopal, June, 88.
6. TTTI Bhopal "Industrial Training of Teachers - Course Material", Oct.-Nov., 90.