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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

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## ROLE OF COMPETENCE DEVELOPMENT FOR ENHANCEMENT OF TECHNICAL SKILL WITH SPECIFIC REFERENCE TO BHILAI STEEL PLANT

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**DURG**

### ABSTRACT

*We are in for another new beginning as we have moved in the Golden Jubilee year of Steel Authority of India Limited (SAIL). Today, in India, viewed as emerging economic power in the world, we have the conditions conducive for achieving economic prosperity provided we put in the desired effort. Bhilai Steel Plant, the flagship unit of SAIL, is operating above the rated capacity since many years. The key to the competitive advantage of any organization is the function of competent work force. As the workers are the backbone of any industry, the skills development of workers must be the prime concern for every organization. Welding skill is a core competency required in an integrated steel plant like Bhilai Steel Plant. The workers of Bhilai Steel Plant undergo the welding skill development training on regular basis. The object of this study is to find out if after taking the welding skill development training in the past, the workers have attained the skill competency in welding jobs and to find out the training need on the basis of skill gap.*

### KEYWORDS

Economic power, Competent work force, Welding skill, Core competency, Integrated steel plant.

### INTRODUCTION

The human resource development (HRD) profession has contributed significantly to major initiatives that have transformed organizations and brought about a fundamental rethinking of the importance of learning and continuous development in the workplace. HRD has worked to create work environments that generate value for external stakeholders while providing meaningful work for those who perform it. The HRD profession has been on the forefront of the effort to infuse working with learning. Although widespread recognition that learning is central to organizational well-being has emerged only in the past two decades, HRD has been a major contributing force in this area. We have advanced the understanding that new ideas, innovation, and resourcefulness—all products of learning and employee development—are inseparable from organizational success and sustainability. The HRD profession can take some measure of satisfaction that organizations and the workforce are generally better off today because of our efforts.

Bhilai Steel Plant, known as flagship unit of Steel Authority of India limited (SAIL), was conceived by the Founding Fathers of our Nation in the 2<sup>nd</sup> Five Year Plan as one of the first steps of independent India's drive towards industrialization and self-reliance. It envisaged the setting-up of one million tonne steel plant in a sleepy pastoral village of Bhilai on the Durg district of Chhattisgarh. On the 4<sup>th</sup> February 1959, the first President of India, Dr Rajendra Prasad, dedicated Bhilai to the nation. Since then, Bhilai has never looked back, steadily growing and modernizing itself. Production capacity was expanded in two phases – first to 2.5 MT which was completed in 1967 and then to 4 MT which was completed in 1988. To retain market leadership, Bhilai Steel Plant has already taken decisive steps towards implementation of Modernization and Expansion Schemes targeted at achieving 7.5 MT hot metal and 7.0 MT crude steel production capacity.

The human side of this enterprise is second to none in the country and is nurtured and groomed to respond to every situation and to welcome newer and tougher challenges. Human Resources Development department's endeavour to align human potential and motives with the organizational business goals is paying rich dividends. Bhilai Steel Plant is synonymous with a sustainable culture of excellence where the leadership and the enablers have uniform focus on all aspects of a collective enthusiasm for excellence in, quality of life and product, customer care, Profitability and Highest standards in individual, group and organizational performance.

The HRD department with its vision of being recognized as a valuable business partner is engaged in continuous enhancement of employees' knowledge, skills and attitudes not only for addressing the current needs but also for successfully meeting the challenges of expansion and modernization that are on the anvil. Several plant wide interventions have been introduced and are ongoing and some are forthcoming based on our constant vigil on the emerging and forecast scenario. These initiatives result from the business and other contemporary imperatives and are aimed at ensuring comprehensive excellence in everything that we do. There are immense opportunities for us to play a proactive role in the achievement of these goals at both the macro as well as the micro levels. Focus on Competence Development Programmes, which are potentially of desired value, are crucial for the sustenance and growth of the organization. This requires competency of an individual for superior performance in a job or situation. Competency is an underlying characteristic of an individual that is casually related to criterion-referenced effective and / or superior performance in a job or situation. Underlying characteristic means the competency is a fairly deep and enduring part of a person's personality and can predict behaviour in a wide variety of situations and job tasks. Casually related, it means that a competency causes or predicts behaviour and performance. Criterion-referenced means that the competency actually predicts who does something well or poorly, as measured on a specific criterion or standard. These competency characteristics, traditionally, comprise Knowledge, Skill and Attitude.

Skill is a type of underlying competency characteristics. Skill is the ability to perform a certain physical or mental task satisfactorily. Skills relevant to industrial activity can be imparted both by the formal education and training system and by in-firm training and experience. The need for skills varies by activity and technology. The skills requirements are more diverse and the range of necessary special skills wider for large scale and technologically complex industries like an integrated steel plant. The operations of the technology at world level of efficiencies require range of workers' supervisory, maintenance, quality control and adoptive skill. It is important to note that at high level of technology, the qualification and experience required are very specific and therefore difficult to substitute for one another. Thus, the pattern of skill creation has to match, at least in broad terms, the evolving pattern of individual activity.

At Bhilai Steel Plant, Technical skill development and enhancement of workforce is done through in-house training at HRD Centre. Different forms of technical training which include, Unit Training on specific equipment/Operational units by the experts of that unit, Enhancement of Engineering Skills on basic technical trades, PLC, Hydraulics, Pneumatics and multi-skill training programmes, are carried out through the regular training modules.

## SCOPE OF THE STUDY

In this research paper, the study of the enhancement of welding skills of the employees who are involve in welding activities in Bhilai Steel Plant, has been undertaken. Welding is one of the critical technical skills which is a joining process of two metals. This is a specialised maintenance activity which directly affects the production in an integrated steel plant.

The present study of this research paper has been undertaken by the author while carrying out research work on "A Study of the Employee Competence Development Programmes in Bhilai Steel Plant."

## OBJECTIVES

The main objectives of this paper are:

1. To find out the technical skill competence level of workforce in the organizations.
2. To compare the technical skill levels in the organizations where welding is the major job.
3. To identify the skill gap for which training programmes should be developed.

## RESEARCH METHODOLOGY

Bhilai Steel Plant is the largest integrated steel plant in India. Iron ore and coal, which constitute the major inputs, pass through different processing units to produce finished steel products like rails and heavy structural's, wide and heavy steel plates, light structural's, angles, rounds and wire rods. The major maintenance jobs of these production units are carried out by Central Maintenance Organization. The maintenance of machines and equipments of the plant require welding skills as core competency. Welding is a major and important activity for construction and repairs in the plant.

In this study, the sample have been collected from the departments of Bhilai Steel Plant where welding job is a critical and major activity for smooth running of the production units. The sample consists of 69 welders who are the regular workers. The 5 welding skills namely Welding / gas cutting in various positions, Profile Gas Cutting, Control of Distortion, Welding Fault / Inspection and Surface and Edge Preparation are assigned the abbreviations as SK 1, SK 2, SK 3, SK 4 and SK 5 respectively. The four skill grade scores have been denoted by 1, 2, 3 and 4 corresponding to behavioural attributes of *Learning Stage*, *Need Supervision*, *Competent* and *Expert* respectively.

The data has been analyzed with the help of descriptive statistical techniques of tabulation, histograms, and bar charts. The statistical methods like mean and Chi Square Test have been applied for analyzing the variables.

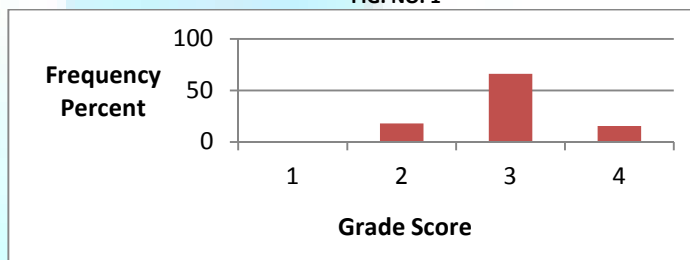
## RESULT AND DISCUSSION

**Frequency of the Skill Levels (Skill Grade Scores) With Respect Identified 5 Skills:** The study indicates the frequency of the skill levels (skill grade scores) with respect to all the 5 skills viz. SK1, SK2, SK3, SK4 and SK5 of the 69 technicians deputed for welding jobs. The skill grade score and corresponding frequency of the grade score is presented in Table no.1 and in the adjacent graph.

TABLE NO. 1

Gr. Score	Freq. of grade score	freq. Percent
1	3	0.8
2	62	18
3	228	66
4	52	15.2

FIG. NO. 1



The above data in table no.1 indicates varying frequency of occurrence of skill grade scores corresponding to four skill levels. The largest frequency of skill grade score is 228 corresponding to grade score 3 and the lowest is 3 corresponding to grade score 1. It means most of the workers are competent for the jobs with respect to most of the welding skills. There are a few welding skills where the competency level is of learning stage.

**Mean of Grade Scores (Skill Levels) of all the Sample Population:** Table No. 2 shows the mean of grade scores (skill levels) of all the sample population of technicians for each of the 5 welding skills. Four out of the five skills have mean grade score of 3 and the lowest is 2.8 corresponding to SK 3. Therefore, most of the welding technicians are having competent level of grade. This means that they are competent for carrying out the required welding jobs at the site but they lack expertise to teach and train others. Moreover, there exists skill gap corresponding to SK3 (Control of Distortion) for competent level.

TABLE NO. 2

Skills	Mean of Gr. Score
SK 1	3
SK 2	3
SK 3	2.8
SK 4	3
SK 5	3

## THE NOS. OF EMPLOYEES FALLING UNDER EACH OF THE FOUR SKILL LEVELS

TABLE NO. 3

Gr. Mean Score	No. of employees	Employee Percent
0 to 1	0	0
1.1 to 2	4	6
2.1 to 3	44	64
3.1 to 4	21	30

FIG. NO. 3

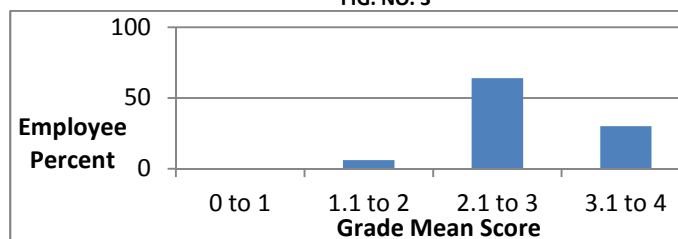




Table No. 3 and the adjacent graph show the skill competence level of the welders under study. Highest number of 44 welders fall under the grade mean score between 2.1 to 3 which is corresponding to the *competent* skill level. Similarly, no welder is between 0 to 1 grade mean score which means that none of the welder is at the *learning stage*. There are only 4 employees who fall in the skill competence level of 1.1 to 2 which corresponds to skill level of *Need Supervision*. Second highest number of 21 welders is in the *expert* category corresponding to grade mean score between 3.1 and 4. Therefore, 30% sample population has the potential to be competent as well as they can also supervise others.

## CONCLUSION

The above result shows that there are no welders at *learning stage*. It indicates that welders have received the basic skill level during their training. Thirty percent of the welding technicians are in the *expert* category who can execute the welding job independently and at the same time guide and supervise the fellow technician to carry out the welding job. Only three percent of the welders *need supervision* while doing the welding job. Majority of the welding technicians are *competent* to perform the required jobs. The competency level of most of the welding skills is in the *competent* level category. The result shows that focused training is required to develop *competent* category of the work force into *expert* category in most of the skills. A basic training module should be designed to enhance the skill levels of the welding technicians to develop them into *competent* level from the *need supervision* level.

Skill gap Identified for the technicians who need supervision requires building competency through a process of designing a programme in which the focus should be hands on training with respect to identified skills. However, the programme should be evolved in collaboration with the shop floor line managers. Structured training programme for emphasizing practical as well as theoretical aspects need to be designed to upgrade the skill of competent level to expert level. However, when competence development programmes, as above, are applied to human resource systems such as training and succession planning, the results can be profound. Establishing a competence development human resource system has the potential to promote continuous learning and create an infrastructure for moving the organization forward. In BSP, we have found that launching an effort such as this requires a great deal of research and planning to determine how the concept of competencies can be introduced, implemented, and leveraged in order to make an organizational impact.

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