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Excellence though ordination of Technical & Behavioral competencies –An Empirical study of RINL, VSP

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ABSTRACT:- ***This study explores the strategic role of the competency of the frontline executives from Junior officers to Manager cadre of UTILITIES Department of RINL,VSP- a first shore based Public Sector integrated steel plant in India. The assessment evaluates the various aspects of employee's talent which has broadly divided into Technical competencies and Behavioral competencies. This competency development encourages the front line officers to improve competencies which can be used in diverse work situations rather than boxing up with the routine job. Development of the employees focuses on enhancing employee skills which help them to cope up with the needs and performance of the organization inching towards excellence.***
Cronbach's Alpha reliability test, descriptive stats, one way ANOVA and Regression tests are the statistical tools used in the research. The study has showed that customers are well satisfied with assured quality through competent people marching towards "VIZAG STEEL as PRIDE of STEEL".
Key words: - Utility, Skills, Knowledge, Attributes, Competency mapping, Sustenance.

1.INTRODUCTION:-

"Utility is the great Idol of the age, to which all powers must do service and all talents swear allegiance"…….Friedrich Schiller

One of the key success factors of high performing organizations is nothing but putting their people first and effective utilization of their talents. Today HR offices are challenged to develop effective and simple yet powerful solutions to the people side of business. In a knowledge based economy it is important for organizations to evaluate workforce talents and develop them on ongoing basis for sustainable performance to meet the global competition.

Research studies have specified that the performance of organization purely depends on the performance of the employees especially on performance of front line executives. So developing technical and functional competencies of human resource at all working levels is very much important to show edge over competitors in the market.

Competency mapping is a process of identification attributes required to successfully perform a particular job or role or a set of tasks at a give point of time. It consists of breaking the given job into consistent sub tasks and identifying the competences needed to perform the job successfully.

2. DEFINITIONS:

2.1 Acharya Chankya's Arthashastra is probably the first book on Competency Mapping explained competency mapping models as early as 3000 years ago. It is perhaps, the oldest management book which is still proving to be an excellent leader for management professionals and practitioners. The book contains competency mapping models, the thesis and theories of human aptitude, intelligence quotient and emotional quotient and covering everything about human behavior.

2.2 McClelland(1973) pioneered Competency movement during early days and he is the founder of modern competency movement. In his paper cited "Testing for competence rather than for intelligence". He has presented data to show that traditional achievement and intelligence scores may not be able to predict Job Success and it is only the exact competencies required to perform a given job effectively and measuring them using a variety of tests, one can be sure about his profile.

2.3 Hayes (1979) 'Competencies are generic knowledge motive, trait,social role or skill of a person linked to superior performance'.

2.4 Boyatzis (1982) 'A capacity that exists in a person that leads to behavior that meets the job demands within parameters of organizational environment, and that, in turn brings about desired results.

2.5 Gilbert (1996) 'Competence is the state of being competent refers to having the ability to consistently produce the results'.

2.6 Ansfield (1997) 'Underlying characteristics of a person that results in an effective superior performance'.
2.7 Unido (2002) A competency is a set of skills, related knowledge and attributes that allow an individual to successfully perform a task or an activity within a specific function or a job.
2.8 Rankin (2002) 'Competencies are definition of skills and behaviors that organization expects their staff to practice in work'

3. STATEMENT OF THE PROBLEM:-

An attempt is made by the Researcher who has been identified as a trained competency mapping assessor & Trainer to identify and map the competencies possessed by the front line officers in the range of Junior officers to Manager level employees of Utilities department of RINL, VSP.

Dynamic people build the dynamics of organization and the excellence will be achieved by the efficient and effective employees of the organization. The present study indicates the competencies possessed by the Managing level employees and to assess the gap needed by the employees for further improvement of the performance towards excellence of the organization.

4. OBJECTIVES OF THE STUDY:-

The study has been undertaken with the following objectives in mind
(1). To study the job roles and job description of the employees
(2). To study the Various competencies possessed by the employees as per their job description
(3). To study the level of leadership competences required for their future expected roles
(4). To study the gaps in actual and satiate for desired competences.

5. PROFILE OF UTILITIES DEPARTMENT

Utilities department deals with the generation and compression of industrial gases like oxygen, Nitrogen, Argon, Acetylene, Compressed air, Industrial grade dry air and chilled water for Air conditioning systems.The Utilities play a vital role in the steel manufacturing process by directly participating in the process and by playing a supportive role of reliable and safe operation of different steps of the manufacturing process.All Customers expect the uninterrupted delivery of utilities in all the sections round the clock and even during power failures for safe shutdown of various important units.

Towards the fulfillment of RINL – VSP goals, Utilities department has always accorded top priority for minimization of energy consumption, optimization of operating & process parameters and up-gradation with automation of plant equipment and machinery.

Table 1: Sections & Front line Executives profile of Utilities department

Sections	JO to E4
Air Separation Plant	13
Auxiliary units	12
Maintenance: Mechanical	13
Maintenance: Electrical	15
Technical cell	5
Total	58

Table 2: Air Separation Plant products-Applications

Air Separation Plant products-Applications		
Product	**Major Customer through**	**Major Applications**
Gaseous oxygen	Steel Melting Shop (SMS)	Converter Blowing
	Blast Furnace (BF)	Cold blast enrichment
Gaseous Nitrogen	Steel Melting Shop	Slag splashing
	Coke Ovens Department	Coke dry quenching
	Blast Furnace	BF top gear box cooling
Liquid Nitrogen, Liquid	Other agencies	Sales

Oxygen & Liquid Argon	Back up systems	For gaseous pipe line network as an emergency / back up support
Gaseous Argon	Steel Melting Shop	Argon rinsing
Oxygen, Nitrogen & Argon cylinders	Various shops (through stores)	Welding / Purging Purposes

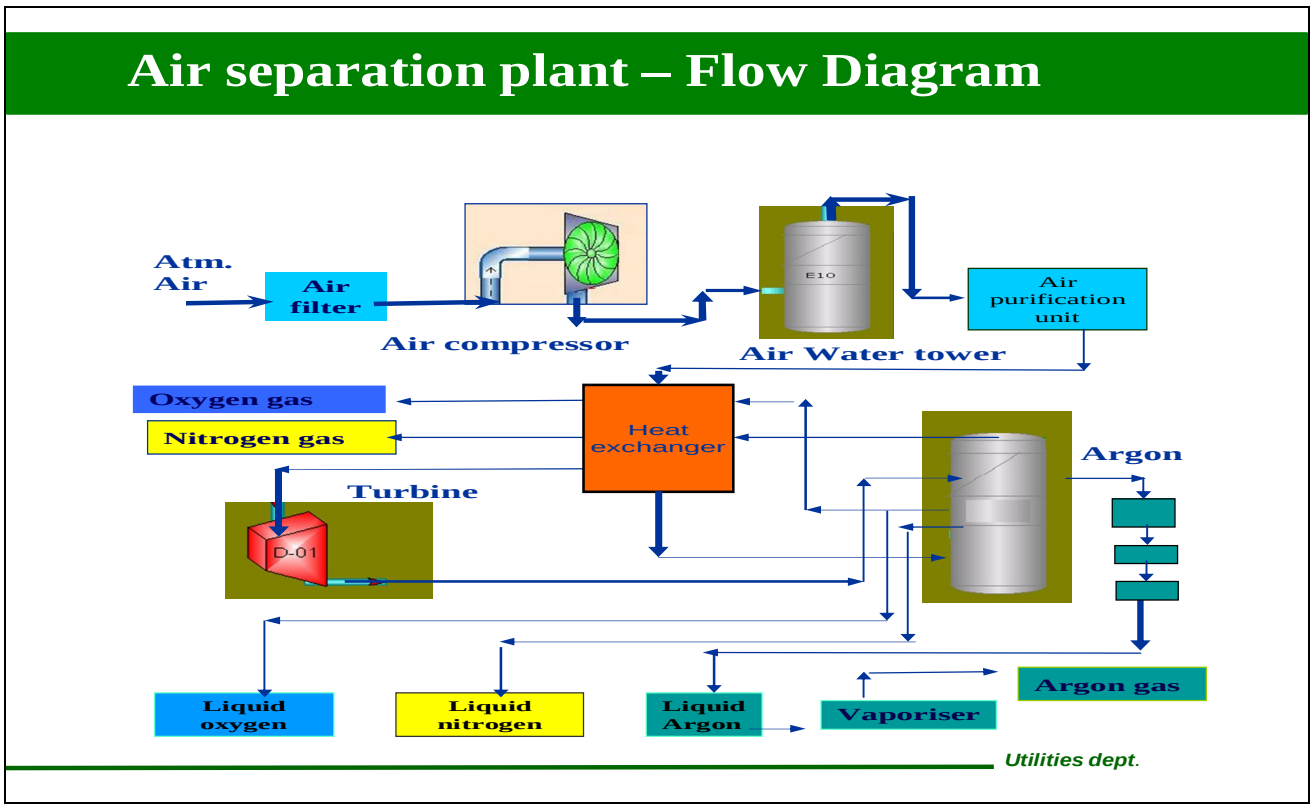

Figure 1: Flow diagram of Air separation plant

Table 3: Auxiliary unit's products-Applications

Auxiliary units products-Applications			
Units	**Product**	**Customer**	**Major Applications**
Compressor House-1&2		BF	Slag granulations
	Plant air	SMS	Pneumatic guppers of GCMs
		Sinter Plant	Lime unloading
		Coke Ovens	Winch operation & Gunniting
		Calcining Dept.	Bag Filters
		Rolling Mills	Pneumatic cylinders operation & Furnace controls.
	Dry air	SMS	Ferro alloys charging and water valves operation at Continuous Casting Machines

		Rolling Mills	Furnace controls
Chilled water plant-3 & 4	Chilled water	SMS & Mills	Air conditioning systems
		Information Technology & Quality Dept.	For cooling of IBM systems and for Air conditioning systems
Acetylene Plant	Acetylene gas	Continuous casting and Engg.Shops	Blooms cutting & other cutting works
	DA cylinders	Various shops	DA cylinders for cutting works

6. METHODOLOGY:-

The study adopts a descriptive research to identify the competencies possessed and development needs by the front line executives of utilities department of RINL, VSP. It includes surveying and fact finding for evolvement of the front line executives working in the department.

The research was not done before and Utilities department has accepted the proposal and nominated two coordinators from each and every section to identify the tasks, skills required, knowledge and attitude needed to perform the job effectively in this competency mapping exercise for their front line officers from Junior Officers to Manger level.

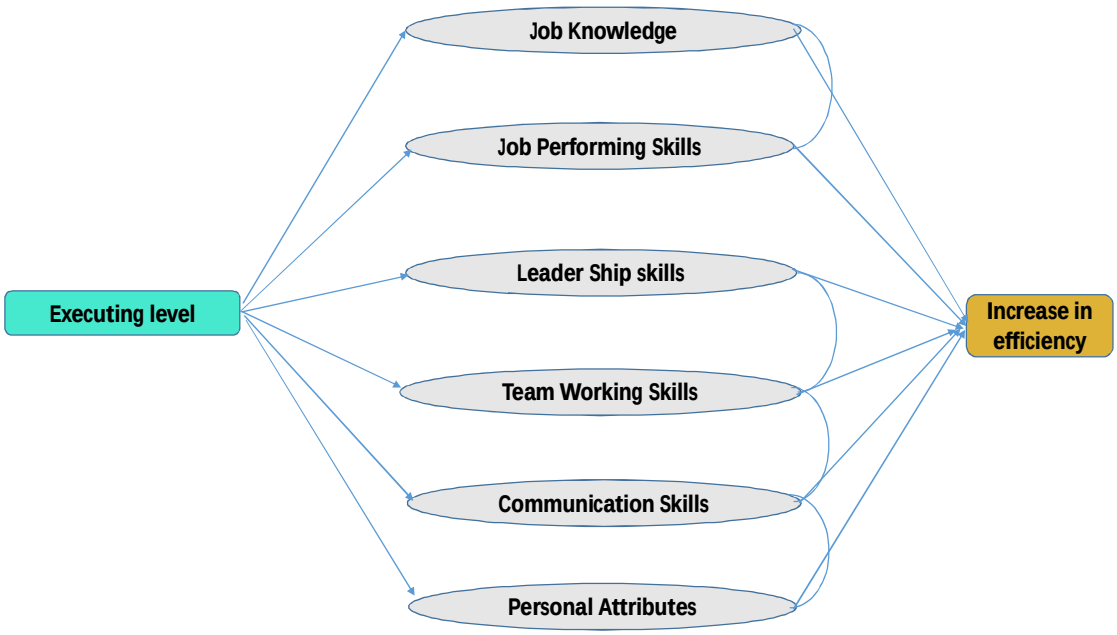

Figure 2: Competence development model of RINL

The check lists of competencies required for employees working in different sections of Utilities department are divided into

1. Technical Skills

   A. Job Knowledge
   B. Job performance &
2. Behavioral skills

   A. Leadership Skills

   B. Team Working skills

   C. Communication skills

   D. Personal Traits

All the required competencies are identified by brainstorming and were finalized in consultation with all the concerned section in charges, the nominated departmental coordinators along with training coordinators and finally approved by the Head of Department (HoD).

The statistical tools used for the study are Reliability test, Descriptive, One way ANOVA and Regression analysis tests.

7.ANALYSIS AND INTERPRATION:-

A). Technical Skills:

(i) Mean scores on the Job knowledge of the employees

- Pleasure in the Job knowledge puts perfection in the work…**Aristotle**

Table 4: Job knowledge details

	Job Knowledge	Mean	SD
1	Equipment Starting, Emergency along with monitoring parameters	3.8276	0.6731
2	Process, specifications and key responsibilities	3.931	0.6396
3	Interlocks corrective and preventive actions	3.739	0.6
4	Work permits, safety procedures and fire fighting parameters	3.5095	0.7084
5	ISO and 5S systems	3.7069	0.6161
6	Strategies for optimization of operating factors	3.5915	0.7086
	AVG:	3.7176	0.6576

- All the front line officers are showing very good ability in executing required technical knowledge to perform the job. It has shown that they are extremely strong in very important and crucial dimension namely controlling process within specifications and effectively performing with required responsibilities. Next, demonstrating good knowledge on equipment Starting, handling emergencies along with monitoring parameters.

(ii) Mean scores on Job performing skills of the employees (Technical)

- First create jobs, and then provide skills to people…..**Kumar Mangalam Birla**

Table 5: Job performance details

	Job Performance Skills	Mean	SD
1	Ability to start and handle emergency as per need along with end quality activities	3.7413	0.7372
2	Ability to identify abnormalities of Equipments (main Standby) and trouble shooting	3.9603	0.6563
3	Taking corrective and preventive actions and monitoring for effectiveness	3.6039	0.6311
4	Restoring systems from emergency to meet customer requirements	3.6048	0.6836
5	Safe working procedures and requirements with available emergencies	3.4818	0.5357
6	Train sub ordinates about process, equipment, parameters& emergency handling	3.6313	0.4615
	AVG:	3.6706	0.6176

- Mean scores of the employees depicting very good power in important skills in identifying abnormalities of equipments and its trouble shooting. Because of this skill, running time of equipment improves in turn gains in productivity. Next they are displaying very good ability in start and handle emergency as per need along with focusing end quality activities which are very significant for excellence.

B). Behavioral Skills

(i) **Mean scores of the employees on Leadership competencies:**

- 'Leader is one who knows the way, goes the way and shows the way"….**John C Maxwell**

Table 6: Leadership details

Leadership	**Mean**	**SD**
1.Take initiative and leading	3.7405	0.6888
2.Motivating others	3.5697	0.611
3.Developing others	3.4925	0.5641
4.Appraising	3.6357	0.5992
AVG:	3.6392	0.6338

- Leadership competencies of all the employees are showing almost equal in all and are far above the required level. Showing the best evaluation in taking initiative and leading front which is the best successful skill for a Leader. Demonstrating good power in all other important skills also leading towards sustenance.

(ii) **Mean scores of the employees Team working competencies:**

- "Coming together is a beginning. Keeping together is a progress. Working together is the success." ….***Henry Ford***

Table 7: Team working details

Team working	**Mean**	**St.Dev**
1 Achieve team objectives	3.858	0.6238
2 Coordination with other departments and sections	3.8073	0.6283
3 Integrating employees into teams & motivating for higher levels	3.4667	0.5331
		0.5951
AVG:	3.7107	

Team working skills of the employees are showing very good ratings in achieving team objectives and also excellent coordination with other departments and sections. It is very good for developing inter and intra departmental relations.

(iii) Mean scores of the employees in Communication skills:

- "The most important thing in Communication is hearing what isn't said"…**Peter Drucker**

Table 8: Communication details

Communication skills	**Mean**	**St.Dev**
1 Listening	4.0088	0.5207
2 Good Expression	3.8082	0.681
3 Open feed back	3.8738	0.5528
AVG:	3.8969	0.5848

- Mean scores of the employees in Communicational skills are the best out of all above distinction levels. Listening/Hearing is the apex skill out of all 3 important skills chosen in the communication.
-

(iv) Mean scores of the employees Personal qualities

- "We make a living by what we get, but we make a life by what we give"..**Winston Churchill**

Table 9: Personal qualities details

Personal Qualities	**Mean**	**St.Dev**
1 Dedication & focus on company objectives	3.976	0.5862
2 Reliability to complete tasks	3.8262	0.7446
3 Creativity and initiative	3.6056	0.7323
4 Positive attitude towards work & company policies	3.7213	0.5584
5 effective control and utilization of sub ordinates	3.6367	0.5635

AVG:	3.7532	0.637

- All the front line officers are showing excellence in personal qualities identified. They are very much dedicated and their main focus is on achieving the company objectives with reliability in completing tasks well with in time.

(C) Total Reliability and Mean Scores of all the Employees Competencies:

Table 10: Total analysis of all employees

Competencies	Items	Attributes	Cronbach's Alpha	Mean scores	SD
Job Knowledge	58	6	0.897	3.7176	0.6576
Job Performance Skills	58	6	0.771	3.6706	0.6176
Leadership	58	5	0.961	3.6392	0.6338
Team working	58	3	0.827	3.7107	0.5951
Communication skills	58	3	0.829	3.8969	0.5848
Personal Qualities	58	5	0.876	3.7532	0.637

- All the front line officers are showing very good expertness in all the competencies proposed. Out of all showing excellent proficiency in communication skills with 3.90 of mean scores and rest all are well above the goodness fit. All the above dimensions are proving that they are very much dedicated and their main focus is on achieving the company objectives with reliability in completing tasks well with in time.

(D). Analysis of variance (**ANOVA**) :

Analysis of variance (**ANOVA**) is a collection of statistical models and their associated procedures (such as "variation" among and between groups) used to analyze the differences among group means. ANOVA was developed by statistician and evolutionary biologist **Ronald Fisher.** Analysis of variance (ANOVA) is an extremely important method in exploratory and confirmatory data analysis.

(i): ANOVA between Job Knowledge and Job performing Skills among front line officers:

H0: There is no significant difference in applying Job Knowledge and Job performing Skills

H1: There is significant difference in applying Job Knowledge and Job performing Skills

Table 11: ANOVA analysis between Job knowledge and Job performing skills

Anova: Single Factor

Job Knowledge & Job Skills

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Job Knowledge	58	219	3.77586	0.2929
Job Skills	58	218.25	3.76293	0.2668

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.005	1	0.00485	0.0173	0.8955055	3.9243
Within Groups	31.9	114	0.27985			
Total	31.91	115				

Since the significance level of F is 0.0173 which is very much lesser than the critical value of F 3.9243 indicates congruence between Job knowledge and Job performing skills. So, there is no significant difference in applying Job Knowledge and Job performing skills among all the front line officers of Utilities Department.

(ii) **ANOVA between Technical Skills and Behavioral Skills among front line officers:**

H0: There is no significant difference in applying Technical Skills and Behavioral Skills
H1: There is significant difference in applying Technical Skills and Behavioral Skills

Table 12: ANOVA analysis between Technical and Behavioral competencies

Anova: Single Factor						
Technical & Behavioral Competencies						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Technical Skills	58	218.6946	3.770597	0.265301		
Behavioral Skills	58	219.8839	3.791102	0.237552		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.012193	1	0.012193	0.048496	0.826095	3.92433
Within Groups	28.66263	114	0.251427			
Total	28.67483	115				

As shown in the above table, the significance level of F is 0.0485 which is very much lesser than the critical value of F- 3.92433 and p value is 0.826 also concludes that there is a very good practical application between Technical skills and Behavioral skills. Hence, proving, **H0:** There is no significant difference in applying Job Knowledge and Job Skills among all the front line officers of Utilities Department.

(E). Regression analysis:

Regression analysis is a set of statistical processes for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables (or 'predictors').

(i) Overall Regression accuracy between Job Knowledge and Job Skills:

Table 13: Regression analysis between Job knowledge and Job performing skills

Regression Statistics	
Multiple R	0.878
R Square	0.771
Adjusted R Square	0.767
Standard Error	0.25
Observations	58

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	11.71754	11.71754	188.1235	1.5E-19
Residual	56	3.488039	0.062286		
Total	57	15.20558			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.6	0.232933	2.575186	0.012687	0.133225	1.066465	0.133225	1.066465
JK	0.838	0.061076	13.71581	1.5E-19	0.715362	0.960063	0.715362	0.960063

Regression equation: 0.60 +(0.838)*JK

(ii).Overall Regression accuracy between Technical and Behavioral competencies:

Table 14: Regression analysis between Technical and Behavioral competencies

Regression Statistics	
Multiple R	0.855266
R Square	0.731481
Adjusted R Square	0.726686
Standard Error	0.254807
Observations	58

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	9.904605	9.904605	152.5511	1.27E-17
Residual	56	3.635883	0.064926		
Total	57	13.54049			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.739541	0.249322	2.966211	0.004426	0.24009	1.238993	0.24009	1.238993
TC	0.809304	0.065525	12.35116	1.27E-17	0.678043	0.940566	0.678043	0.940566

Regression equation: 0.739 + (0.809)*TC

(iii) Summary of regression:

Table 15: Overall regression analysis

Sl.No	Regression Accuracy between	Multiple R	R square	p-value
i	**Job Knowledge& Job Skills**	0.878	0.771	1.5E-19
ii	**Technical & Behavioral Competencies**	0.855	0.731	1.27E-17

- **Multiple R:** This number is the absolute value of Pearson's coefficient of correlation. It indicates how best the correlation exists between two variables.

- **R square**: R Square is the most important number of the output of Regression accuracy and gives the overall goodness of fit measure. R square tells how well the regression line approximates the real data and this R square is in our case has resulted 0.77 (77%) between Job Knowledge and Job skills, where as 0.73 (73%) in between Technical & Behavioral Competencies. Ideally the considerable value of R square to check for validity is at least 0.6(60%) or 0.7(70%).

- **Individual regression coefficient accuracy (p-value):**

The p-values of each of these provide the likelihood showing that, they are real results and they did not occur by chance. The lower the p-value, the higher the likelihood that the coefficient of Y-intercept is valid. In the above two tests, regression coefficients are 1.5E-19 and 1.27E-17, in both the cases indicates that there is not even value of 1% chance that the result is occurred as a result of chance.

8.CONCLUSION:

"Nothing can have the value without being an object of Utility"…..KARL MARX

So it clearly resolves that all the powers and talents of front line officers of Utilities department of RINL, VSP are effectively ordaining for the benefit of the Organization. Job knowledge and Job performing skills are important for performing job effectively. Technical and Behavioral skills plays a very important role and competent employees are vital for the success in producing quality products by any organization. Therefore, for sustenance of any business to

flourish effectively, an appropriate frame work of work force and competent frontline officers plays a crucial function for sustenance in the business world.

It was made true with Rashtriya Ispat Nigham Limited (RINL,VSP), investing much effort on 'HUMAN POWER' their skills, training and development and every officer at different sections of Utilities department with different skill set for different roles and cadre at various sections are effectively implementing their technical and behavioral competencies for the development of the organization. Therefore, it is evident in the research paper that the human power of RINL, VSP creates 'Excellence though ordination of Technical & Behavioral competencies for the wealth of the organization and marching towards "VIZAG STEEL as PRIDE of STEEL".

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CONFLICT OF INTERESTS
The author declares that there is no conflict of interests regarding the publication of this manuscript.

ABBREVATIONS:
AVG Average
ANOVA Analysis of Variance
BF Blast Furnace
RINL Rashtriya Ispat Nigam Limited
SMS Steel Melting Shop
VSP Visakhapatnam Steel Plant

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