

Analysis of Correlation Among Productivity Approach of White Collar Employees

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ABSTRACT

This empirical study presents a correlation among productivity approach of various managerial level white collar employees. The study was conducted in a large scale manufacturing industry belonging to automobile sector of India. For the purpose of this study, the 130 white collar employees working in various departments were classified into 3 groups. The departmental heads and senior managers were classified as group-1, managers were classified as group-2, and officers were classified as group-3. A sample of size 30% equivalent to 39 white collar employees was drawn from the population using stratified random sampling technique. The cell frequency in each stratum was kept uniform to 13 Ss. A 43 item standardized scale was administered upon the selected sample to obtain the response the score of which on each item varied from -2 to +2. The data collected were statistically treated using mean, standard deviation, and Karl Pearson's correlation coefficient. The well constructed null hypotheses were tested for significance using 'Z' test. The results showed that all the three groups yielded a high value of correlation coefficient. The groups also significantly differed with one another in respect of productivity approach.

Keywords: Correlation coefficient, motivation, partial productivity, standard deviation, white collar personnel.

1. Introduction

Productivity of industrial workers is determined by a myriad of factors, both technical and human. The human factor consists of both blue collar as well as white collar personnel. While there are established tools and techniques available in literature to quantify and measure the blue collar productivity, the white collar productivity is still considered to be a very difficult task to quantify and measure. Even the white collar job or the nature of the job is still a debatable issue. Certainly, the role of both of these human cadres is not only interdependent but controls the technical factor of the organizational productivity. All these factors have tendency to act and react upon each other and revolve around the 'bull's eye' each one of them having its own relative importance and depending upon the nature of the organization and the distinctive needs and aspirations of the individual employees. Our modern managers are so much engrossed with the minutest details of the automation and mechanization of their industrial systems that they sometimes find it difficult to maintain a judicious balance between their technical and human inputs. As the experience shows, human inputs have been more neglected by them than the technical inputs of the production. The managers may generate a more rationalized balance amongst these counteracting forces of input resources if they have a comprehensive understanding that influence employee's morale and their motivation.

Factors contributing to human performance

Human resources of a production system are highly sensitive and delicate. Due to differences in their social and psychological background in which they survive, human beings are unable to adjust themselves fully to their jobs. Psychologists have made in-depth studies to identify the factors which motivate the workers and have tried to isolate the psychological reasons that break the barring of apathy towards the work environment which are detrimental to a positive improvement in workers' performance and productivity. Admitting this fact that the productivity of a system largely depends on the personality and attitudinal variables, the question arises how to measure the impact of these variables on the individual's performance. These variables are so abstract in nature that unless they are properly quantified, no empirical study may produce any fruitful results. The task involved is complex because of the multiplicity of such variables and the unexpected nature of their counteracting tendencies.

In general, productivity depends upon two major variables – employees' job performance and resource utilized. The resources are raw materials and technologies. Obviously, improvement in technology – plant and equipment plus knowledge concerning the process – can make a significant difference in the productivity of the system. Similarly changes in the raw materials to be processed may also affect efficiency. The relative importance of technology in productivity depends upon the particular situation. In automated system, the human element is not very important. However, in most organizations the performance of employee is relatively more important than equipment and raw materials. Even in automated operations, productivity in strategic and coordinative subsystems largely depends upon human performance.

Productivity Dilemma and Partial Productivity

Productivity is an essential part of our urge for self improvement and the achievement of excellence which must be the part of any dynamic society. We must get more out of every acre under the plough. Out of every spindle and machine, out of every

technologist, blue collar & white collar personnel, out of every rupee spent. Decision making must be expedited, and there should be greater delegation of financial and administrative powers, simplifications of procedures and improvement in work environment. Better maintenance of plant and equipment for increased capacity utilization. Partial productivity is the ratio of output to one Group of input. In the envisaged project only partial productivity would be measured i.e. the productivity of white collar personnel in different departments of industrial setups.

2. Review of Literature

The compensation decision by the employer has twin effect. On one hand it influences the cost, competitive price and the capability of the employer to attract and retain employees in the labor market and on the other hand compensation influences the employee attitude and behavior towards the employer. Compensation can be in form of cash or non-cash. Most of the employers prefer to pay their employees in form of cash 70% and only 30% paid in form of non-cash and deferred cash benefit. Health care has been described as the fast growing benefit that costs firms and it is difficult to control whilst providing quality coverage poses a challenge to the human resource department [1].

According to review presented in [2] research can be classified according to its relevance to white collar work at individual, team, and organizational levels. It identified gaps in our understanding of white collar work and suggested promising research directions.

White collar workers are the people who are working in an office or in a professional environment and traditionally, they were wearing "white collars. The term "white collar" is credited to Upton Sinclair, an American writer, in relation to modern clerical, administrative and management workers during the 1930s, though references to "easy work and a white collar" appear as early as 1911. A blue collar worker is a member of the working class who performs manual labor. Blue collar work may involve skilled or unskilled, manufacturing, mining, construction, mechanical, maintenance, technical installation and many other types of physical work. Often something is physically being built or maintained, in contrast, the white collar worker who typically performs work in an office environment and may involve sitting at a computer or desk. Blue collar work is often paid hourly wage labor, although some professionals may be paid by the project or salaried. There is a wide range of pay scales for such work depending upon field of specialty and experience [3].

It is evidential from earlier studies that motivation plays a vital role in organizational productivity equation. Motivation refers to "the reasons which are underlying behavior". Motivation has been defined as "the attribute that moves us to do or not to do something" [4]. At the beginning of the 21st century, the framework of contemporary work motivation research integrates all the theories addressing the needs, personality, values, cognition, affect, the environment, and behavior. In the pertaining literature, motivation has been variously defined. Using Hind's criteria for concept clarity, Moody and Pesut proposed the following successful definition for motivation: "motivation is a values-based, psycho biologically stimulus driven inner urge that activates and guides human behavior in response to self, other, and environment, supporting intrinsic satisfaction and leading to the intentional fulfillment of basic human drives, perceived needs, and desired goals" [5]. Intrinsic motivation is motivation that is animated by personal enjoyment, interest, or pleasure. Researchers often contrast intrinsic motivation with extrinsic motivation, which is motivation governed by reinforcement contingencies. Traditionally, educators consider intrinsic motivation to be more desirable and to result in better learning outcomes than extrinsic motivation [4].

The question about employee motivation has played a central role in management practice and theory since 20th century. People have certain needs and their goal is to satisfy those needs. Work motivation concentrated mainly on the importance of creating a job environment that would facilitate self-motivation and devising motivational strategies that would directly increase or decrease productivity. Work motivation is an extremely relevant factor which influences the quality and content of work-related outcomes [6].

Work motivation has been characterized by dimensions such as secured and interesting job, ability to perform the job, recognition from superiors and colleagues, adequate pay, and feedback on performance [7]. What declared in Vroom, Porter, Lawler and Locke's studies as work motivation factors, is only a small portion of other researches to find out the effect of other pre-assumed factors on motivation of employees.

A study presented in [8], related to relationship between motivation and satisfaction, revealed that the motivation has strong impact on job satisfaction. Studies presented in [9], [10] concluded that employee turnover has been an important issue in several different areas. High turnover ratio in the organizations causes high cost of recruiting and training new employees, decrease of organizational performance, lack of organizational employee continuity and organizational stability Therefore, turnover is an undesirable event in the organizations, because long-term productivity is affected not only by hiring the best qualified personnel, but keeping them in the organization for long periods of time" [11].

Study presented in [12] concluded that connection between job motivation, job satisfaction, and work performance were not constant and do not follow linear relationship. Correlation analysis of blue collar employees was studied in [13]. The study revealed that a significant relation was not found between the organizational commitment and the job performance of the blue collar workers. It was determined that 1 unit of increase in organizational burnout level caused 0.446 unit of decrease in job performance.

There are six important facets of job satisfaction and these are- Salaries, Promotion opportunities, Supervision, Nature of work and Colleagues. The objective of this study presented in [14] was to identify the factors that affect the job satisfaction of employees and to analyze the impact of compensation, organizational policy, working condition, job stress and promotion opportunities on job satisfaction of employees. The findings of the study suggested that working condition, organizational policy and strategies, promotion, job stress and compensation package are key factors of job satisfaction.

3. Research Methodology

When Managers use research, they apply the method of science to the art of management. All business undertakings operate in the word of uncertainty. There is no unique method which can entirely eliminate uncertainty. But research methodology more than any other procedure can minimize the uncertainty. In empirical researches, when it is not possible to explore the entire population, a representative sample is drawn from the population or the universe and diagnosed. For this purpose a sampling design is required which is a suitable scheme for obtaining a sample from a given population. It also indicates the size of the sample to be used keeping the cost and precision in view.

Sampling Design

A sample is a part of a group or aggregate, selected with a view to obtain information about the whole group also known as 'universe' or 'population'. The universe is composed of a number of units. The total number of units in the universe and are known as the universe size and the sample size respectively. The technique of sampling has been successfully used in traditional problems as well as management problems. As compared to census or complete enumeration, sampling is less expensive, less time consuming and more accurate.

The present study has been carried out using a stratified random sample technique. When the universe is heterogeneous, we divide the units into several groups each known as a stratum. The strata are so selected that each stratum is as homogeneous as possible while the compositions of two different strata are as heterogeneous as possible. The sampling units are selected from each stratum using simple random sampling.

Universe

One hundred and thirty white collar employees (130) working in a flagship automobile sector company at MIDC, Nagpur, constituted the universe of the present study. From this universe the individual units have been selected using stratified random sampling technique so as to ensure the final sample is representative. If the sample is representative then the outcome of the study is said to be much reliable.

Sample

30% of the universe was taken as sampling size, i.e. 39 employees (Ss). The entire population was divided into 3 strata according to the designation held by Ss. The first stratum consisted of departmental heads and senior managers, the second stratum consisted of managers, and the third stratum consisted of officers rank personnel working in various departments of the organization. From each stratum the individual units were selected using simple random technique without replacement. The standardized scale was administered to 45 subjects (Ss) so that even after discarding a couple of in-ordered responses the final sample size should not be less than 39 Ss. With this, the cell frequency in each stratum was kept uniform and there were 13 Ss in each stratum which was a good size. Thus the stratified random sampling technique was used for the purpose of this study.

Statistical tools employed

Looking into the requirements of the present study the basic statistical tools mean, standard deviation, and co-relation coefficient have been used. Finally for testing the significance of the hypotheses, Z test was applied.

Data collection

For the purpose of data collection for this study, a 43 items standardized scale consisting of various facets of white collar productivity was used. The split half reliability of the scale was 0.89. Throughout this study the three strata formed shall be known as group-I, group-II, and group-III respectively. The responses on the structured questionnaire were collected and analyzed using appropriate techniques have been presented.

4. Tabulation and analysis of data

The data collected from respondents on standardized scale is presented in tables 4.1 to 4.3.

Table - 4.1

Responses of Group-I (Sr. Managers and Departmental Heads) Employees

| Resp.→ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Total |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| Q. No. ↓ | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 17 |
| 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 24 |
| 3 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 19 |
| 4 | 2 | 1 | 2 | -1 | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 18 |
| 5 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 17 |
| 6 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 17 |
| 7 | 2 | 2 | 1 | -1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 16 |
| 8 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 19 |
| 9 | 1 | 1 | 1 | -1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 16 |
| 10 | 1 | 1 | 1 | -1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 15 |
| 11 | 1 | 2 | -1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 15 |
| 12 | 1 | 0 | 1 | 1 | 1 | -2 | -1 | -1 | -1 | 1 | 1 | -1 | 1 | 1 |
| 13 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 19 |
| 14 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 14 |
| 15 | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 19 |
| 16 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 20 |
| 17 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | -1 | 12 |
| 18 | -1 | 1 | 1 | 1 | -1 | 2 | -1 | -1 | 1 | 1 | 1 | 1 | 1 | 6 |
| 19 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 16 |
| 20 | 1 | -2 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -10 |
| 21 | 1 | 1 | 1 | -1 | 1 | 1 | 2 | 1 | -1 | 1 | 1 | 1 | 1 | 10 |
| 22 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 17 |
| 23 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 25 |
| 24 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 20 |
| 25 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 17 |
| 26 | 1 | 1 | 2 | -1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 16 |
| 27 | 1 | 1 | 1 | -1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 15 |
| 28 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 15 |
| 29 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 15 |
| 30 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 19 |
| 31 | 1 | 1 | 1 | -1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 14 |
| 32 | 1 | 1 | 1 | -1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 16 |
| 33 | 1 | 1 | 1 | -1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 14 |
| 34 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 18 |
| 35 | 1 | -1 | -1 | -2 | 1 | 1 | 2 | 1 | 1 | 2 | -1 | 1 | 2 | 7 |
| 36 | -1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | -1 | 6 |
| 37 | -1 | 1 | -1 | -1 | 1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -5 |
| 38 | 1 | 1 | 1 | 1 | -1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 13 |
| 39 | 1 | 1 | 1 | -1 | 1 | 2 | -1 | 1 | 1 | 2 | 1 | 1 | 1 | 11 |
| 40 | -2 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | -1 | -12 |
| 41 | -1 | 1 | -1 | 1 | -1 | 1 | -1 | -1 | 1 | 1 | 1 | -1 | 1 | 1 |
| 42 | 1 | -1 | -1 | -2 | 1 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | 1 | 5 |
| 43 | -1 | 1 | 2 | -1 | 1 | -1 | 1 | 1 | 1 | 1 | -1 | 1 | -1 | 4 |

| | | | | | | | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Total | 3 | 4 | 3 | 7 | 3 | 5 | 4 | 4 | 3 | 6 | 5 | 3 | 4 | 551 |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|

Table - 4.2
Responses of Group-II (Managers) Employees

| Resp.→ Q. No. ↓ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Total |
|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 19 |
| 2 | 1 | 1 | 1 | -1 | 2 | -1 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 14 |
| 3 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 2 | 13 |
| 4 | 2 | -1 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 19 |
| 5 | -1 | -1 | 1 | 1 | 2 | -1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 10 |
| 6 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 15 |
| 7 | 1 | -1 | -1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | -1 | 1 | 11 |
| 8 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | 2 | -1 | 1 | 1 | 2 | 1 | 12 |
| 9 | 1 | -1 | 1 | 1 | 2 | -1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 13 |
| 10 | 1 | -1 | 1 | -1 | 2 | -1 | 1 | 1 | 1 | 2 | 1 | -1 | 1 | 7 |
| 11 | 1 | 1 | 1 | 2 | 2 | -1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 14 |
| 12 | 1 | -1 | -1 | 1 | 2 | 1 | -1 | 1 | -1 | -1 | 1 | -1 | 1 | 2 |
| 13 | 1 | -1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | -1 | 2 | 15 |
| 14 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 14 |
| 15 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 18 |
| 16 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 19 |
| 17 | -1 | 1 | 1 | 1 | 2 | -1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 13 |
| 18 | -1 | 1 | 1 | -1 | -2 | -2 | 1 | -1 | -1 | 1 | 2 | 1 | 1 | 0 |
| 19 | 1 | 1 | 1 | 1 | 2 | -1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 14 |
| 20 | -1 | -1 | 1 | -1 | -2 | -1 | -1 | -2 | -2 | 1 | -2 | -2 | 1 | -12 |
| 21 | -2 | -1 | -1 | 1 | 2 | -1 | 1 | 1 | 1 | 1 | 1 | -2 | 2 | 3 |
| 22 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 17 |
| 23 | 1 | 2 | 1 | -1 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 18 |
| 24 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 15 |
| 25 | 1 | -1 | 1 | 1 | 2 | -1 | 2 | 1 | 1 | 1 | 2 | -1 | 2 | 11 |
| 26 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 19 |
| 27 | 1 | -1 | 1 | 1 | 2 | -1 | 2 | 1 | 2 | 2 | 2 | -1 | 1 | 12 |
| 28 | 1 | 1 | -1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | -1 | 2 | 15 |
| 29 | 1 | 2 | -2 | 1 | 2 | -1 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 14 |
| 30 | 1 | 2 | 1 | 1 | 2 | -1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 17 |
| 31 | 1 | 2 | 1 | 1 | 2 | -1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 15 |
| 32 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 18 |
| 33 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 18 |
| 34 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 17 |
| 35 | 1 | 1 | 2 | -1 | 2 | -1 | 1 | 1 | -1 | 2 | 1 | 1 | 1 | 10 |
| 36 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 17 |
| 37 | -1 | -1 | -1 | 1 | -2 | 1 | -1 | 1 | -2 | -2 | 1 | -1 | 1 | -6 |
| 38 | 1 | 1 | -1 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 14 |
| 39 | -1 | -1 | -1 | -1 | -2 | -1 | 1 | 1 | -1 | -1 | 1 | -1 | 1 | -6 |
| 40 | -1 | -2 | -1 | -1 | -2 | -1 | -2 | 1 | -1 | -1 | 1 | -2 | -1 | -13 |
| 41 | -1 | -1 | 2 | 0 | -2 | -1 | 1 | 1 | 1 | -1 | -2 | -1 | 1 | -3 |
| 42 | 1 | 1 | -1 | 0 | 2 | 1 | -1 | 2 | -1 | -1 | -1 | 1 | 1 | 4 |
| 43 | 1 | 1 | -1 | 0 | 2 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | -1 | 7 |

| | | | | | | | | | | | | | | |
|-------|---|---|---|---|---|----|---|---|---|---|---|---|---|-----|
| Total | 2 | 1 | 2 | 2 | 6 | -1 | 5 | 5 | 2 | 4 | 5 | 2 | 5 | 463 |
|-------|---|---|---|---|---|----|---|---|---|---|---|---|---|-----|

Table - 4.3
Responses of Group-III (Managers) Employees

| Resp.→ Q. No. ↓ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Total |
|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 16 |
| 2 | 1 | -1 | 2 | -1 | 1 | 1 | -1 | 1 | 1 | 2 | 1 | 1 | 1 | 9 |
| 3 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 14 |
| 4 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 18 |
| 5 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 12 |
| 6 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 12 |
| 7 | 1 | 1 | 1 | 1 | -1 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| 8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 15 |
| 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 15 |
| 10 | 1 | -1 | -1 | -1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 5 |
| 11 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 17 |
| 12 | 1 | 1 | 1 | -1 | -1 | -1 | -1 | 1 | 1 | 1 | 1 | -2 | 1 | 2 |
| 13 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| 14 | 1 | 1 | 1 | 1 | 2 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| 15 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 12 |
| 16 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 16 |
| 17 | 1 | 1 | -1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| 18 | -1 | -1 | -1 | -1 | 1 | 1 | -1 | 1 | -1 | 1 | -1 | 2 | 1 | 0 |
| 19 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 14 |
| 20 | -2 | -1 | -2 | -1 | -1 | -2 | -1 | -2 | -1 | -1 | -1 | 1 | -1 | -15 |
| 21 | 2 | 1 | 1 | 1 | 1 | -1 | 1 | -2 | 1 | 2 | 1 | 1 | 1 | 10 |
| 22 | 1 | 1 | 1 | -1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 2 | 10 |
| 23 | 1 | -1 | 1 | 1 | -1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 11 |
| 24 | 1 | 1 | 1 | 1 | -1 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 10 |
| 25 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 9 |
| 26 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 12 |
| 27 | 1 | 1 | 2 | 1 | -1 | -1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 8 |
| 28 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 10 |
| 29 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 2 | 10 |
| 30 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 11 |
| 31 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 2 | 12 |
| 32 | 2 | 1 | 1 | 1 | -1 | -1 | -1 | -1 | 1 | 1 | 1 | 1 | 1 | 6 |
| 33 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 |
| 34 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 |
| 35 | 1 | -1 | -1 | -1 | 1 | 1 | -1 | 1 | -2 | 1 | -2 | 1 | 2 | 0 |
| 36 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | -1 | 1 | -1 | 1 | 1 | 7 |
| 37 | -1 | 1 | -1 | 1 | 2 | 1 | 1 | 1 | 1 | -1 | 1 | -1 | 1 | 6 |
| 38 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -2 | 2 | -2 | 1 | 1 | 9 |
| 39 | -2 | -1 | 2 | 1 | 2 | 1 | 1 | -1 | 2 | 1 | 2 | -1 | 2 | 9 |
| 40 | -1 | -1 | 1 | -1 | 1 | -1 | -1 | -1 | 2 | 1 | 2 | -1 | -1 | -1 |
| 41 | -1 | 0 | 1 | -1 | -1 | 1 | -1 | -1 | -2 | 1 | -2 | 1 | -1 | -6 |
| 42 | 1 | 0 | -1 | 1 | 1 | 1 | 1 | 1 | -2 | -1 | -2 | 1 | 1 | 2 |
| 43 | 1 | 0 | 1 | 1 | 2 | -1 | 1 | 2 | -2 | 1 | -2 | 1 | 1 | 6 |

| | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|------------|
| Total | 3 | 2 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 4 | 2 | 3 | 5 | 383 |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|------------|

The mean, standard deviation and group wise responses from Ss have been tabulated in table 4.4.

Table - 4.4
Mean and Standard Deviation of Group Wise Responses

| RESPONDENT NO. | GROUP-I EMPLOYEES | GROUP-II EMPLOYEES | GROUP-III EMPLOYEE S |
|------------------------------------|-------------------|--------------------|----------------------|
| 1 | 39 | 25 | 31 |
| 2 | 43 | 19 | 25 |
| 3 | 38 | 23 | 35 |
| 4 | 7 | 25 | 25 |
| 5 | 39 | 62 | 28 |
| 6 | 56 | -1 | 14 |
| 7 | 46 | 51 | 23 |
| 8 | 44 | 55 | 23 |
| 9 | 37 | 27 | 23 |
| 10 | 67 | 47 | 44 |
| 11 | 50 | 53 | 24 |
| 12 | 37 | 22 | 35 |
| 13 | 48 | 55 | 53 |
| TOTAL | 551 | 463 | 383 |
| Mean (\bar{X}) | 42.385 | 35.615 | 29.462 |
| Standard Deviation | 13.690 | 19.099 | 10.268 |

The Intergroup Correlation Matrix corresponding to all the three groups of white collar employees is presented in table 4.5.

Table - 4.5
Intergroup Correlation (r) Matrix

| GROUP - I & GROUP - II | GROUP - I & GROUP - III | GROUP - II & GROUP - III |
|------------------------|-------------------------|--------------------------|
| 0.847 | 0.778 | 0.757 |

Hypotheses Testing Using ‘Z’ Test

1. Null Hypothesis H_0 : Productivity approach of Group- I and Group- II White Collar Employees do not differ significantly.

Table - 4.6

Hypothesis Testing

| STATISTICAL TOOL | CALCULATED VALUES |
|---|-------------------|
| Mean of Group- I - \bar{X}_1 | 42.385 |
| Mean of Group- II - \bar{X}_2 | 35.615 |
| Sample Size of Group I & Group II | 13 |
| S.D. (σ) of Group - I | 13.69 |
| S.D. (σ) of Group - II | 19.099 |
| Calculated Z Value | 1.038 |
| Table Value of Z at 5% level of significance | 0.8944 |
| As $Z_{calculated} > Z_{critical}$, we reject the null hypothesis H_0 | |

2. Null Hypothesis H_0 : Productivity approach of Group- I and Group- III White Collar Employees do not differ significantly.

Table - 4.7

Hypothesis Testing

| STATISTICAL TOOL | CALCULATED VALUES |
|------------------|-------------------|
|------------------|-------------------|

| | |
|---|--------|
| Mean of Group- I - \bar{X}_1 | 42.385 |
| Mean of Group- III - \bar{X}_3 | 29.462 |
| Sample Size of Group I & Group II | 13 |
| S.D. (σ) of Group - I | 13.69 |
| S.D. (σ) of Group - II | 10.268 |
| Calculated Z Value | 2.723 |
| Table Value of Z at 5% level of significance | 0.8944 |
| As $Z_{\text{calculated}} > Z_{\text{critical}}$, we reject the null hypothesis H_0 | |

3. Null Hypothesis H_0 : Productivity approach of Group- I and Group- III White Collar Employees do not differ significantly.

Table - 4.8

Hypothesis Testing

| STATISTICAL TOOL | CALCULATED VALUES |
|---|-------------------|
| Mean of Group- II - \bar{X}_2 | 35.615 |
| Mean of Group- III - \bar{X}_3 | 29.462 |
| Sample Size of Group I & Group II | 13 |
| S.D. (σ) of Group - I | 19.099 |
| S.D. (σ) of Group - II | 10.268 |
| Calculated Z Value | 1.023 |
| Table Value of Z at 5% level of significance | 0.8944 |
| As $Z_{\text{calculated}} > Z_{\text{critical}}$, we reject the null hypothesis H_0 | |

5. Conclusions

Coefficient of correlation between responses of group-I and group-II employees (0.848) is not only positive but significantly very high also. It means that movement of their responses is in the same direction and high/low value of one response is associated highly positively with high/low response of the other. Similarly, coefficient of correlation between responses of group-I and group-III employees (0.778) is also not only positive but significantly very high. It means that their responses are highly and positively associated with each other. Coefficient of correlation between responses of group-II and group-III employees (0.57) is also positive but significant. Similar inferences can be applied to these two groups as well. However, all the three groups of white collar employees working in various departments on different levels of organizational hierarchy differ highly significantly with one another with regards to productivity approach.

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