

**A STUDY OF CORRELATION BETWEEN COMPETENCY OF  
PRODUCTION MANAGERS AND ITS IMPACT ON  
PRODUCTIVITY OF SELECTED LARGE COMPANIES IN  
PUNE REGION DURING 2010- 2014**

**A THESIS SUBMITTED TO  
TILAK MAHARASHTRA VIDYAPEETH, PUNE  
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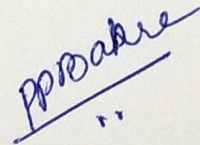
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I hereby declare that the thesis entitled “A study of correlation between Competency of Production Managers and its impact on Productivity of selected large companies in Pune region during 2010- 2014” completed and written by me has not previously formed as the basis for the award of any Degree or other similar title upon me of this or any other Vidyapeeth or examining body. I understand that if my Ph.D. thesis (or part of it) is found duplicate at any point of time my research degree will be withdrawn.

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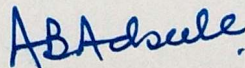
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This is to certify that the thesis entitled “A study of correlation between Competency of Production Managers and its impact on Productivity of selected large companies in Pune region during 2010- 2014” which is being submitted herewith for the award of the Degree of Vidyavachaspati (Ph.D.) in Management Science department of Tilak Maharashtra Vidyapeeth, Pune is the result of original research work completed by Mrs. Prajyakti Prasad Bakre under my supervision and guidance. To the best of my knowledge and belief the work incorporated in this thesis has not formed the basis for the award of any degree or similar title of this or any other University or examining body upon him.

Place: TMV, Pune.

Date: 30/11/2016

  
Prof. (Dr.) Anil Adsule  
Research Guide

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## **ABSTRACT**

The manufacturing industry is considered to be the backbone of Indian economy and having effective managers can have significantly contributed to the success of these companies. The industry is more demanding in terms of work and productivity which requires managers to have well-built competencies to lead the employees for better productivity to combat the competition locally and globally too.

The literature review has examined the past researches on competencies of managers and employee productivity. It has been found from the research that there is lack of evidence in Indian context regarding literature discussing the effectiveness of production manager's competencies with respect to employee productivity in large manufacturing companies.

The researcher has considered this as a gap and points out from local and global literature about how demographic can shape production managers competencies, also the researcher has found the gap on the practice of components of competencies of production managers of large manufacturing companies and finally the impact of these competencies on employee productivity of large manufacturing companies in Pune. This has led the researcher to do a quantitative investigation of the above mentioned aspect.

The purpose of this study was to contribute to the body of knowledge of managerial competencies, employee productivity and strategic linkages of both specifically at large manufacturing companies in Pune. The study has been designed to understand and evaluate the relation and impact of production manager's competencies and employee productivity in large manufacturing companies in Pune. It was also structured in a way to understand the effect of various demographics in shaping the competencies of these production managers. The researcher has used a questionnaire to assess the various competencies of these production managers. The researcher has used questionnaire to measure the employee productivity. To execute the designed study the researcher has conducted 300 surveys of production managers of large manufacturing companies in Pune. The responses for the various items has been recorded and tested for the accuracy of data entry, reliability. The various statistical tests has been performed to answer the

research questions involved into the study, the test performed were Friedman test, MANOVA test, spearman rank correlation, multiple regression and descriptive statistical tests for mean and standard deviations. The significant conclusions drawn from this study were that production manager's competencies do have relationship with the employee productivity. Also the production manager's competencies do impacts the employee productivity but not all competencies contribute to this so it's interesting to study the thesis to understand it more. Analysis has found the production manager has practicing following competencies: Creativity and Innovation, Continual Learning, Internal and External Awareness, Flexibility, Resilience, Strategic Thinking, Vision, Conflict Management, Cultural Awareness, Integrity Honesty, Team Building, Accountability, Customer service, Decisiveness, Problem Solving, Technical Credibility, Human Resources Management, Influencing, Interpersonal Skills, Oral Communications, Partnering, Political Savvy. Analysis has also indicated that production managers practicing these competencies such as Resilience, Vision, Problem Solving, Accountability, and Political Savvy were quite high. This study has also found that experience does impact the production managers competencies and it has been found that the young age production managers were quite competent when it comes to employee productivity. Analysis has found that the production manager's competencies don't get affected by their type of qualification. The research study has conducted multiple regressions to predict employee productivity from competencies and it has been observed that competencies were able to predict the productivity of the employees successfully. These competencies are: Customer Service, Problem Solving, Technical Credibility, Human Resource Management, Influencing, Interpersonal Skills, and Political Savvy. So overall conclusions of the study contribute that the in large manufacturing companies in Pune should practice these competencies and align their strategies around these competencies to know the companies in more detail in terms of understanding their vision and strategy, to lead and manage the employees more effectively, and communicating effectively with company stakeholders and their respective employee to increase their productivity in order to succeed the whole company.

The findings of the research study can contribute to manufacturing companies large in size, training and development managers, organizational development consultants and Academics on production manager's competencies, employee productivity and the strategic linkage of both in the context of large manufacturing company.

# **CHAPTER-1: INTRODUCTION**

## **BACKGROUND OF THE STUDY**

In the fast changing and increasingly competitive global market environment, every business organization needs effective managers.

It has been seen that production managers were more on the radar of research scholar in management domain in the early 1980s the reason may be the production managers have the potential which can contribute to organizations success. To execute the strategy formulated by organizations these production managers plays a pivotal role.

According to Booth & Farquah (2003) they have identified five challenges that production managers may face:

- Implementing and executing strategies to deliver the expected results
- Leading, motivating, inspiring employees to be more productive
- Managing, developing and retaining key employees
- Building partnerships with employees and influencing them
- Creating Vision and Culture for building high performance teams.

The success or failure of an organization is depends upon how effective manager they have. It is very difficult to retain such talent now days. Since managers display a set of competencies which organizations respect because directly or indirectly these competencies affect employees productivity and thereby organizations success. According to Hoffmann (1999) the sole purpose of defining competencies is to improve human performance at workplace and it has three important aspects i.e. realistic and measurable performance, the standard or quality of the outcome that the person produces, and the underlying characteristics of a person.

Organization gives due consideration to competencies because as per Miller the two important reasons organizations considers managers competencies are:

- The application of manager's competencies will help to increase the productivity of employees.
- Competencies of managers help individual and teams within the organization to raise their skill levels.

Keeping this in mind and the other relevant issues the present research study attempts to identify production manager's competencies, it will further try to understand the relationship between managerial competencies and employees productivity, and will study about various demographics about how they contribute to these managers competencies.

## **PROBLEM STATEMENT**

The specific research problem under evaluation in this study was that production managers have various competencies but the usage of inappropriate competency can make or break the employee's productivity. Managers who fail to understand their own competencies will suffer due to lack of there employees productivity.

The question is: how can managers understand about their competencies and incorporates the right mix of competencies to enhance employee's productivity? Such and other related questions engage the researcher as he embarks on this research study such as understanding age, gender, experience, and qualification importance and their effect on production manager's competencies.

Although researchers in past have done several researches pertaining to competencies of managers and employee productivity but till date there was a limited literature on how production managers of large companies exhibits there competencies and consequent to that how it can impact employee productivity, particularly in manufacturing industry of Pune.

In summary, the results of this study will contribute to the body of knowledge by large companies of Pune region in manufacturing sector in an attempt to develop managerial competencies of production mangers thereby improving their employee's productivity.

## **OBJECTIVES OF STUDY**

The main objective of this study is to investigate the relationship and impact of production manager's competencies on employee's productivity with reference to large manufacturing companies in Pune.

**The research aim to achieve the following objectives:**

1. To empirically investigate whether the components of competencies of managers found in literature have been practiced by production managers of large manufacturing companies in Pune.
2. To understand which demographics influences the competencies of production managers of large manufacturing companies in Pune.

3. To empirically examine the relationship between competencies of production managers and employee productivity of large manufacturing companies in Pune.
4. To empirically examine the impact of competencies of production managers on employee productivity of large manufacturing companies in Pune.

## **RESEARCH QUESTIONS**

Based on the research objectives stated above; this study aims to address following research questions:

1. Does experience influence competencies of production managers?
2. Does paper qualification influence competencies of production managers?
3. Whether there is the difference in the extent of competencies practiced by production managers.
4. Whether components of competencies of production managers and employee productivity are co-related?
5. Whether competencies of production managers impacts employee's productivity?

## **SCOPE OF RESEARCH**

This study has investigated large manufacturing companies in Pune. The manufacturing industry has been selected for this study as it represents a work intensive industry.

Furthermore, the manufacturing industry in particularly of Pune makes significant contribution to the state's economic growth and also it creates jobs for thousands.

The population for this study was production managers in large manufacturing companies in Pune region. The respondents were the production managers of these large companies who have complete awareness and knowledge about their own competencies and also about their employee's productivity.

## **SIGNIFICANCE OF THE STUDY**

The current study involved into examining whether competencies of production managers impact the employee productivity and whether demographics (i.e. experience, qualification) influence production manager's competencies. Managers mostly attempt to direct the employees in the hopes of completing the work order and increase the productivity output. However, for many production managers, successfully running the business unit has been a difficult task in particular

to manufacturing industry in Pune due to dealing with blue collar resource the rationale behind this is even more challenging in itself for them.

The results of the study might contribute to four perspectives: theoretical, empirical, practical and policy. From the theoretical perspective, this study increases the understanding of various competencies of production managers within the context of large manufacturing companies in Pune, in contribution to employee productivity.

Empirically this study is considered to be an attempt to understand how various competencies practiced by production managers of large manufacturing companies in Pune. This study further explores whether competencies of production managers impacts the employee productivity. The quantitative research is carried out which has allowed the researcher to use the strength of different test and methods. Furthermore, the outcome of the study provides results which can be generalized and also more details can be captured about the subject being studied.

From a practical perspective, the results of this study might offer new insights to large manufacturing companies in Pune. The results will help them to become more aware and knowledgeable about the various competencies practiced by production managers so they can devise their strategy towards developing the required managerial competencies and can build a competitive advantage to outperform competitors. However this study also suggests that not all competencies practiced by production managers are impacting the employee's productivity. Therefore it give an opportunity to production managers of large manufacturing companies in Pune to evaluate their respective competencies and align it to improve their respective employees productivity and thereby adding value to self, workforce and company at large.

From policy perspective, the results of study provides foundation principle of competencies of production managers in light of employees productivity and can help HR or Training Managers to develop an action plan for the development of various competencies of these production managers.

## **CHAPTER-2: LITERATURE REVIEW**

This chapter highlights the definition of competencies, discuss competencies in the large companies and explain short background to competencies also the literature review will focus on productivity of large companies. Furthermore the review of literature is divided into sections structured suited to each research questions.

### ***INTRODUCTION***

The main objective of this chapter is to define the concept of competencies and productivity. The literature was found to be most relevant which focuses on which competencies managers perceive as important for good organizational productivity.

It has been observed from past studies that the most important competencies a manager should have are revolves around to solve the tasks issues at their disposal satisfactorily.

### **Definition of Competency**

Early in the 1970s, David McClelland (1973), a professor of Harvard University, proposed the idea of competency as a term used to challenge traditional criteria of assessment which had emphasized intelligence evaluation in the higher education system. His theme provided a conceptual framework that led to many subsequent studies in other fields such as teacher education, vocational education, business management, and human resource management (Spencer & Spencer, 1993). To better understand international trade competencies, this section began by defining and grouping competency, followed by introducing the competency models, then discussing competency in Taiwan and the paradigm shift on competency.

A competency was defined in the literature from various perspectives. The American Heritage Dictionary of English language (2000) provided a general description as “the state or quality of being properly or well qualified”. Numerous scholars have attempted to pin down a definition for competency. Quinn, Faerman, Thompson, and McGrath (1990) indicated that competencies were associated with knowledge and skills for implementing certain assignments or projects effectively. To be effective in a particular competency, one must be able to accomplish the desired results of a job with specific qualifications and personal attributes. Burgoyne (1993) employed a functional perspective to define a competency as how the goals of organizations were best achieved by improving members’ performance.

Human resource specialists viewed a set of competencies as a tool to serve as a common language throughout the entire organization to consistently plan personnel, conduct performance reviews, and determine the training program (Kravetz, 2008). Boyatzis (1982) and Klemp (1980) agreed that a person would have effective and/or superior performance in a job if he or she exhibited underlying characteristics conducive to that particular job. Spencer and Spencer (1993) similarly defined competency as “an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation”. They elaborated on their definition, explaining that Underlying characteristics meant “the competency is a fairly deep and enduring part of a person’s personality causes or predicts behavior and performance” and criterion-referenced meant “the competency actually predicts who does something well or poorly, as measured on a specific criterion or standard”. Furthermore, Spencer and Spencer (1993) applied the idea of competency to develop the Job Competence Assessment Method (JCAM), which encouraged an organization to change its focus from using traditional job descriptions to establishing a competency model by analyzing the key characteristics of people with average to superior job performance. Cardy and Selvarajan (2006) concluded previous researchers’ thought as competencies was the characteristics which could significantly differ in high-qualified employees from others who showed inferior performance.

Hoffmann (1999) analyzed past literature and summarized three key points in defining a competency: (a) underlying qualification and attributes of a person, (b) observable behaviors, and (c) standard of individual performance outcomes. The most general and detailed definition was proposed by Parry. Parry’s definition has been accepted by numerous scholars (Lucia & Lepsinger, 1999):

A competency is a cluster of related knowledge, skills, and attitudes that affects a major part of one’s job (a role or responsibility), that correlates with performance on the job that can be measure against well-accepted standards, and that can be improved via training and development.

Compared to job descriptions that only list responsibilities or expected results of a job, competencies are viewed more broadly and included many factors that influenced job success but are not included in the job description. For example, optimism and pessimism are considered attitudinal terms and are not listed in job descriptions (Hayward, 2002). Similarly, personal traits are also different from competencies. People bring their underlying physical and mental traits into the workplace. These traits include qualities such as diligence, which is considered more inherent or learned early in life (Nahavandi, 2006) and not at work.

Likewise, there is a distinction between competencies and knowledge, skills, and abilities (KSAs). Knowledge refers to a body of information about the theoretical and practical understanding of a subject, acquired by a person through experience or education. Skills refer to the application of data or information with manual, verbal, or mental proficiency. Skills can be tested to measure quantity and quality of performance, usually within an established time limit. Examples of skills include typing and computation using decimals (Kravetz, 2008). Ability means the sufficiency of strength to accomplish something, especially the physical and mental quality to perform activities. Examples include planning and implementation. KSAs are fundamental aspects of competencies, but competencies are more behavior-based rather than skill-based. In brief, each competency requires several KSAs. While KSAs may underlie competencies just as personal traits may underlie competencies, the KSAs are not the exact competencies. That is to say, having the KSAs does not automatically mean that one has a certain competency (Kravetz, 2008): one may know how to do a certain task without being able to complete the task proficiently.

Wood and Payne (1998) proposed 12 items as basic criteria for competency-based recruitment and selection: communication, flexibility, achievement orientation, developing others, customer orientation, problem solving, teamwork, analytical thinking, leadership, relationship building, planning skills and organizational skills. In 2001, the European Union identified eight key competencies as the development of indicators which can be used to monitor and evaluate education and training progress across the European Union: (a) native language proficiency; (b) foreign language proficiency; (c) ability to apply basic math and science; (d) ability to learn by digital function; (e) abilities to learn skills such as time-management, problem-solving, information seeking and applying; (f) social commitment; (g) entrepreneurship such as creativity, planning, achievement motivation; and (h) ability to appreciate culture such as art, music and literature.

**Curtis and McKenzie (2002) have defined the eight employability skills as follows:**

- Communication skills that contribute to productive and harmonious relations between employees and customers
- Teamwork skills that contribute to productive working relationships and outcomes
- Problem solving skills that contribute to productive outcomes
- Initiative and enterprise skills that contribute to innovative outcomes
- Planning and organizing skills that contribute to long-term and short-term strategic planning
- Self-management skills that contribute to employee satisfaction and growth

- Learning skills that contribute to on-going improvement and expansion in employee and company operations and outcome
- Technology skills that contribute to effective execution of tasks

## **CATEGORIZATION OF COMPETENCY**

Guglielmino (1979) suggested that competencies could be categorized based on the characteristics of behaviors. Based on his analysis of previous research findings on top-level management skills, he summarized three managerial competency dimensions:

- Conceptual capacity, including decision making, creativity, and problem-solving
- Capacity to interact with people utilizing skills such as communication, leadership negotiation, analysis, self-growth
- Technical expertise such as time management and creation of business plans.

Siriwaiprapan (2000) proposed five common domains of employee competency development in his study of Thai human resource practitioners' perceptions of HR initiatives. His five common domains were as follows:

- Organizational competence: capacity to understand and internalize organization-specific knowledge, such as business types, organizational cultures, policies, procedures, goals and objectives, and etc...
- Social competence: "basic abilities for social interaction and communication", including skills in making connections, maintaining interpersonal relationships, and taking pleasure in the significance of peer relationships
- Cognitive competence: "the ability to learn and to perform analytical thinking, planning, and problem solving, which enable an individual to take responsibility for handling contingencies that may arise".
- Self-competence: "ability to adjust to change, readiness to learn, readiness to develop oneself, readiness and ability to initiate action, trust, endurance, receptiveness, broad-mindedness and self-discipline, self-esteem, individuality, and self-determination".
- Job competence: the knowledge, theory, methods, and skills to carry out employees' work assignments and to affect their sense of self-efficacy and self-confidence about a certain job.

In the business management field, Agut and Grau (2002) grouped management competency into two categories: technical and generic competencies. Technical competency related to KSAs, "which basically consist of having knowledge about a topic and knowing how to apply it to a job". The example they provided was information technology. On the other hand, generic

competency referred to individual characteristics “that involve coping with less routine, programmed; technique tasks that are also part of the job” (p. 33). They provided one example: initiative to implement a new plan.

### **The background to competencies**

Horton (2000) suggested that the competency movement has – just like most movements – no single origin. The concept of competence can be traced back to the medieval guilds. The industrial revolution gave rise to the study of work and jobs and the skills needed to do those jobs. With the appearance of scientific management and in the 1930s the human relations school of management thought, academic and practitioner interest became focused on both how to organize work and how to motivate workers. In the 1970s the need to improve economic competitiveness led to attention being turned towards competencies (Horton, 2000). Furthermore, in 1973 McClelland used the term “competency” to illustrate the major key factor to affect individual learning.

The concept of competency originated in the United States. It was followed by the separate development in the UK of the concept of competence (Armstrong, 2003). The US approach was made by McClelland in 1973. He advocated the use of criterion referenced assessment. Criterion referencing or validation is the process of analyzing the key aspects of behavior that differentiate between effective and less effective performance (Armstrong, 2003). Although the competency movement originated in the US and UK, it is now an international phenomenon and is practiced increasingly throughout the OECD countries and beyond (Horton, 2000).

Boyatzis is the one who famous the concept of competency in 1982 through his book “The Competent Manager”.

### **Important management tasks for managers today**

The world has changed and there are different competitive conditions provoked by new technology, globalization and capital markets which operate with much greater effectiveness than formerly. Therefore, the agenda is ever changing to managers as tasks must fit to the circumstances both the manager and the company find themselves in. In the following recent studies of important management tasks are presented.

It is obvious that HRM-related tasks are of greatest importance for managers in large organizations. The tasks which seem to be important are:

- Motivation of others
- Staff satisfaction

- Development of staff members

Furthermore, traditional management tasks such as:

- Planning
- Delegating
- Coordinating
- Goal and results monitoring

This tells that large company's managers use HRM to stand up to the challenges, since employees are a crucial factor in an ever changing environment.

In another study Egbu (1999) found that the six most important types of management skills and knowledge are:

- Leadership
- Communication
- Motivation of others
- Health and safety
- Decision making and
- Forecasting and planning.

It can be concluded in general to the above mentioned studies it is evident that the most important management tasks today are indicated to be more leadership oriented/focused. This shows how highly valued management behavior or leadership is among managers. Some tasks might change over time such as a shift from management to more leadership oriented way of managing. However this can also be influenced by the specific circumstances of the organization, e.g. the economic and/or competitive situation.

### **Main competencies a manager must have to solve tasks satisfactorily**

In recent year's internationalization, globalization and political development have had great importance for conditions and limitation for large companies. As a result the pressure has increased on managers. Furthermore, the difference between successful and unsuccessful managers has become more apparent. It has become increasingly common to connect inborn personal characters and real behavior with manager's personality and managerial results.

The ten most important personal factors and abilities, according to the managers were mentioned below:

- Credibility
- Responsibility
- Interpersonal skills
- Resolute
- Energy
- Independence
- Confidence in others
- Will
- High stress tolerance
- Self-confidence

These factors and abilities are obviously connected with the manager's behavioral competencies.

In conclusion behavioral competencies are important skills a manager must possess. Research in this area shows the importance of these skills. They are important not only for the manager but the entire organization. Managers who do not possess the attitudes will not be able to achieve sufficient motivation among employees leading to reduced satisfaction and productivity. Furthermore, the manager is at risk of losing staff members.

## **COMPETENCY MODELS**

Throughout the literature, various competency models were proposed according to the perspectives in different fields. Competency based training models have been implemented widely throughout many countries, including the United Kingdom, New Zealand, and Australia. Three related competency models were introduced in the following phases.

Iceberg Model: Spencer and Spencer (1993) proposed the "Iceberg Model" to divide underlying characteristics, which caused behaviors and performance in a job into five categories:

- Motives were consistent thoughts or desires that caused particular action. They impelled behaviours toward certain actions or goals and not toward others. Example: Achievement motivation.
- Traits referred to physical and mental characteristics related to the ways a person consistently responded in certain ways to situations and messages. Examples: "reaction time and emotional self-control".
- Self-concept referred to an individual's attitudes, values, and self-image, including self-identity and self-confidence.

- Knowledge referred to a body of information usually of a factual or procedural nature needed to understand a certain subject. Example: “A surgeon’s knowledge of nerves and muscles in the human body”.
- Skills referred to the ability to accomplish a certain mental task such as analytical thinking and conceptual thinking or a physical task such as “a dentist filling a tooth without damaging the nerve”.

According to the iceberg model, knowledge and skills were visible and appeared at the top of the iceberg, as shown in below. They were relatively easily developed and improved through education and job training. On the other hand, motives traits were more likely to be hidden since they comprised the innermost part of an individual’s personality. In Figure 1, motives and traits appeared at the base of the iceberg. Therefore, they were more difficult to develop and reform through school education and job training. Although the authors grouped self-concept into hidden competencies, they indicated that it could still be changed gradually to a certain degree through constant education, consultation, and training.

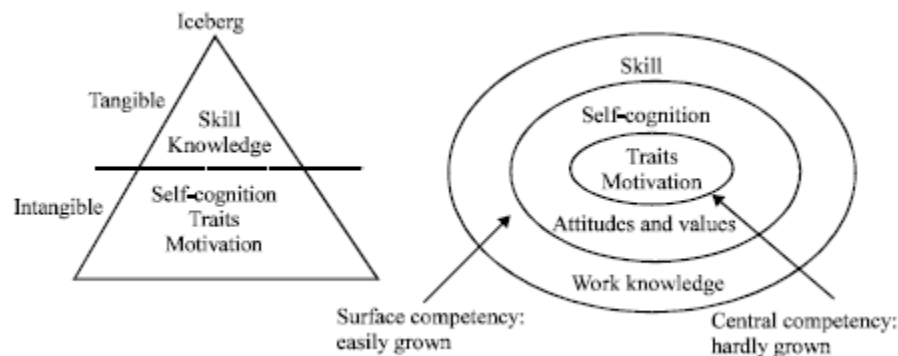


**Figure 1- Iceberg Model-Note: From “Competence at work: Models for superior performance” by L. Spencer, & M. Spencer, 1993)**

Hard and soft skills: Hard skills are primarily cognitive in nature, refer to the technical level of performance and usually include professional knowledge and task-oriented skills (Ashbaugh, 2003; Page, Wilson, & Kolb, 1993). Knowledge is the retention of information about a certain subject. Task-oriented skills are basic prerequisites for a job in which the individual physically interacted with technology during the production of material and tangible products. Hard skills require an intellectual thought process which factors in a person’s intelligence quotient (IQ) (Rainsbury, Hodges, Burchell& Lay, 2002). Components of hard skills include formula use, tool use, measuring, and fitness (Costin, 2002).

Soft skills are those skills associated with the behavior necessary for successful interpersonal interaction. Daniel Goleman popularized the emotional quotient (EQ), asserting that soft skills were mainly perceptual or attitudinal and reactionary (Caudron, 1999; Kemper, 1999). Lawrence

(2002) thought that soft skills were also needed to be considered as employability skills, including the usage of ingenuity, creativity, intuition, teamwork, self-management skills, problem solving, and communication skills. Based on Lawrence's statement, it was evident that soft skills were more related to Spencer and Spencer's hidden competency. Caudron (1999) and Ganzel (2001) noted that soft skills were more difficult to learn than hard skills. This concept was similar to that Spencer and Spencer (1993) put hidden competency at the base of the iceberg, indicating that they were more difficult to develop and reform through school education and job training.

Much literature emphasized the dichotomy between the hard skills and soft skills, but there was also a great deal of literature that made a case for the union or melding that occurred in the overlapping between hard skills and soft skills (Caudron, 1999; Mullen, 1997; Strebler, 1997). Figure 6 shows the dichotomy and overlapping between high-end soft skills and high-end hard skills. The items in the middle area are difficult to categorize as strictly hard or soft skills. Moreover, many studies proposed a complementary relationship between soft skills and hard skills in effective job performance (Lin, 2005). This explained why employers not only consider applicants' skills and knowledge but also pay attention to their soft skills such as personal qualities.

In comparison to the idea of the iceberg model, hard skills tend to refer to visible competencies, and soft skills are similar to hidden ones in the iceberg model. As there is an overlapping between hard and soft skills (see in Figure 2), it is difficult to precisely categorize and itemize visible and hidden competencies because of a lack of exact definitions in the literature. Most researchers agreed that knowledge and skills comprised visible competency (Brown, 1993; Byham & Moyer, 1996; Hager & Gonczi, 1996; Li, 2001; Parry, 1998; Raymond, 1999; Quinn et al., 1990; Spencer & Spencer, 1993). Brown (1993) also included creativity in a visible competency. In addition, behavior was perceived as a visible competency by Byham and Moyer (1996). Derouen and Kleiner (1994), Hong (1997), and Li (2001) all agreed that interpersonal relationships were a form of visible competency. On the other hand, perceptions of content about hidden competencies widely differed among scholars. Attitude could be the most common component (Brown 1993; Hager & Gonczi, 1996; Hong, 1997; Li, 2001; Parry, 1998; Raymond, 1999). Hong (1997), Parry (1998), and Raymond (1999) added value systems into the category of hidden competency. Both Spencer and Spencer (1993) as well as Derouen and Kleiner (1994) perceived conceptual thinking skills as a hidden competency. Motives were classified as a hidden competency by Spencer and Spencer (1993) as well as Byham and Moyer (1996).

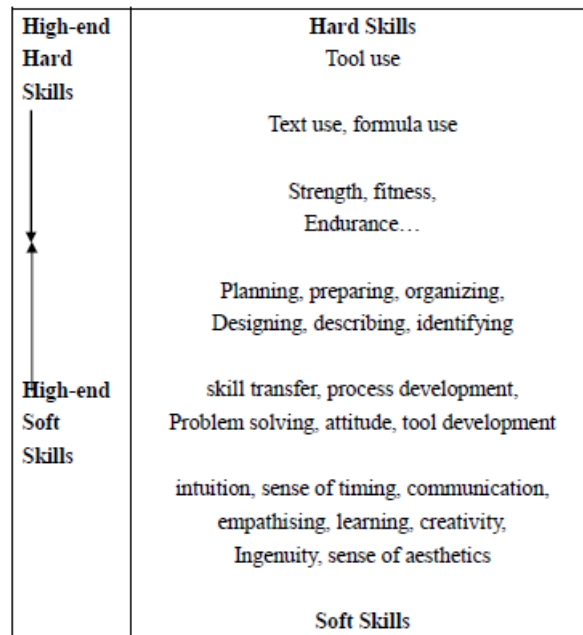


Figure-Note. From “Legitimate subjective observation (LSO) & the evaluation of soft skills in the workplace,” by G. P. Costin, 2002, Paper presented at the National Training Framework-Training Partnerships and Regional Development, Albury Convention Centre and Performing Arts Centre.

## Paradigm Shifts on Competency

Currently, several paradigm shifts in the conception and application of competency are occurring. These new paradigms are providing insight into current perspectives about the competency.

In the competition to conduct business at the lowest cost possible, companies have moved towards a performance-based pay system, differentiating employee rewards in accordance with performance, in order to minimize their personnel costs. Companies increasingly reward their workforce, focusing on employees with the greatest potential and those with the skills most valuable to the company (CCH Hong Kong Limited, 2006). According to the 2006 Towers Perrin–China Staff HKHR Council Pulse Survey (CCH Hong Kong Limited, 2006), the report showed that 84% of human resource managers perceived competencies as essential to accomplish the goals of their company. The survey also indicated that more than 75% of companies preferred to pay employees in terms of “key criteria in determining base increase and actual bonus payments” rather than giving “across-the-board/standard increases and payouts”. The survey showed a surprising pay gap of 200% to more than 300% between the average performer and high performer in best practice companies. Furthermore, the survey suggested that the connection between competency potential and rate of pay will be more significant as more

and more companies focus on “retention and limit awards under their long-term incentive” (CCH Hong Kong Limited).

More and more research has emphasized the importance of soft skills when discussing job competency. Research as early as that of Spencer and Spencer (1993) argued that high-quality performance was not only determined by better technical skills but also by the manifestation of underlying characteristics. Likewise, Buhler (2001) and Ganzel (2001) maintained that soft skills were the key in determining the actual tasks being performed because soft skills such as emotional management ability led to superior performance more than did intelligence. In line with the continuously changing business environment, competent professionals should not only have adequate professional knowledge and be proficient at task-oriented skills, but also be sensitive to changes and adapt to the new challenges in the workplace (Abanteriba, 2006). Hodges and Burchell (2003) presented their worry about undergraduate education as “traditional undergraduate degrees that focus more on cognitive and technical development within a narrow discipline-based theoretical framework may not be seen as able to produce the well-rounded, multi-skilled, flexible, and adaptable graduates demanded by today’s business organizations”.

Siriwaiprapan (2000) observed that thinking skills such as analytical thinking, problem solving, and planning have become more important in tackling contingencies when jobs change unpredictably. As the business environment becomes increasingly knowledge-oriented, “jobs require employees who can think, make decisions, conceptualize, analyze and resolve problems, implement new ideas, communicate well, and adapt to change” (Velde, 2004). Therefore, numerous contemporary social movements and educational authorities have become proponents of building strong character, an effort originally proposed by Richard Riley, the former U.S. Minister of Education (Huang, 2003).

To succeed under the market trends in the global economy, future employees need to be ready for either local or international work opportunities. A growing number of scholars have given international perspectives to the concept of competency. Reich (1991) recognized that the world has become a highly global network, suggesting that a symbolic analytic worker needed to be able to identify, solve, and broker problems. Continuously, Dlabay (1997) suggested that economic, political-legal, technology, culture, and human relations skills were basic courses of international business instruction. Three chief competencies for expatriates, including adaptation, interpersonal relationship, and culture shock management were highlighted by Feng and Pearson (2002). Hodges and Burchell (2003) suggested that highly competitive business environment required graduates to acquire the ability to understand situations in order to communicate effectively. Wu (2004) suggested that technological-vocational graduates should possess

“knowledge economics, information technology, intercultural learning, foreign language, and humanity”.

### **Managerial style**

Change is a crucial factor for all managers. One of the most important elements is the change in managerial style throughout the organization (Bogorya, 1988). Bororya (p. 10) states that “at senior management/executive level the corporate culture and leaderships styles shift and create new norms of behavior and new standards of performance.” Which managerial style a manager chooses is normally depending on both the context conditions and limits and personal preferences.

### **The manager’s power base**

Managers have legitimized power, which according to Armstrong (2003), is power conferred by the position in an organization held by an executive. A manager is placed between a board of directors and his staff. In a public organization the board of directors is a minister and/or his ministry. Furthermore, a manager’s power depends on what power the boards of directors give the manager. According to Strebel (2004) the board of directors can distinguish between four basic types of governance:

- Audit
- Supervising
- Coaching
- Steering

These types depend on the board’s perspectives, behaviors and roles. Furthermore these roles also depend on the effectiveness of the management. Inside this limitation, which in fact is liberty of action the manager, is given. From this point he or she has to navigate. An ever asking question is whether a manager is something he or she is or it is something she or he becomes.

Hildebrandt (2005) has argued that historically a change is made from formalized and position based power to more person based power parallel to the general development in the society. Furthermore, Hildebrandt has stated that managers have a power, as they partly have from themselves and partly have got from the people they manage.

The four most frequent conditions of importance that justify the existence as a leader are as follows (Hildebrandt, 2005):

- My personal qualities

- My results
- My management competencies
- My professional competencies

### **Management tools**

The rising demand to manager's means that an increasing amount of management tools are appearing. According to Jensen (2004) management tools must be handled with care. He points out that the management literature and the course marked overrun with concepts that attempt to bring management on formula. Acquiring these tools is a waste of time and money if they are not related to the specific challenges the manager faces. If they are mistaken for universal solutions on any management problem they can directly be damaging. Jensen stresses that management is decided by the situation.

The most frequently used management tools are according to Hildebrandt (2005) are mentioned below:

|    |                                   |
|----|-----------------------------------|
| 1  | Plans of action                   |
| 2  | Strategic planning                |
| 3  | Goal and results monitory         |
| 4  | Appraisal interview               |
| 5  | Financial management tools        |
| 6  | Education planning                |
| 7  | Staff-/satisfaction investigation |
| 8  | Customer investigation            |
| 9  | Contract and contract management  |
| 10 | Production operating systems      |

The implementation of new management tools is often an expensive proposition costing companies millions of dollars in training, and development, consulting fees, and other related costs (Rigby, 2001). Furthermore, Rigby states that despite the fact that tools promise more than they deliver, there are a number of tools that achieve great satisfaction among managers worldwide.

In conclusion management tools must be handled with care and must not be brought on formula. The context must decide what management tools are applied.

## **Main challenges for managers in years to come**

The future is unpredictable and it is hard to determine what it will bring. Therefore, it is important to be flexible and acquire as much knowledge as possible to help cope with the uncertainties Aghazadeh (2003). Aghazadeh (2003) suggested there are five critical challenges that businesses face:

- Globalization
- Profitability through growth
- Technology
- Intellectual capital and
- Continuous change

These challenges demand much from managers. There is no choice. These challenges must be taken seriously, since it is most likely that most managers will find these challenges to be theirs too.

In conclusion as the business environment changes the management challenges will change. Aghazadeh (2003) stated that: “The most successful organizations will be the ones which can attract, develop and retrain individuals who have the ability to manage a global organization that is responsive to customers and the opportunities being presented by technology”.

## **THE COMPETENCIES FOR 21<sup>ST</sup> CENTURY MANAGER**

Important competencies of managers in 21st century:

Manager as Visionary: Running a company requires considerable skill, knowledge of administrative principles, organization, planning, estimating outcomes and knowing how to conduct proper personnel policies. But the successful manager is more than a technical wizard; he or she must be a visionary to give the kind of direction and inspiration that can bring a team to success.

Vision is the ability to see beyond simple business solutions and outcomes, it's the notion of being able to see beyond that to the creative best in a company and its people. It is the desire to see each member of a team is as successful as possible and to provide an atmosphere for growth. A visionary makes the work atmosphere open, accepting and a place where people aren't afraid to provide suggestions and make innovations. A visionary also isn't threatened by anyone who challenges and who appears to be better in areas in which the manager excels.

**Manager as Leader:** The difference between being a manager and being a leader is simple. Management is a career. Leadership is a calling. You don't have to be tall, well-spoken and good looking to be a successful leader. You don't have to have that "special something" to fulfill the leadership role. What you have to have is clearly defined convictions - and, more importantly, the courage of your convictions to see them manifest into reality. Only when you understand your role as guide and steward based on your own most deeply held truths can you move from manager to leader. Whether the group you oversee is called employees, associates, co-workers, teammates or anything else, what they are looking for is someone in whom they can place their trust. Someone they know is working for the greater-good - for them and for the organization. They're looking for someone not only that they can but that they want to follow. Because it is only when you have followers -people who have placed their trust in you - that you know you have moved into that leadership role. And the way you see it is that your organization is transcending all previous quality, productivity, innovation and revenue achievements. The manager can very effectively manage the status quo and do things in a way that delivers historical profitability. The leaders are the people who are really seeing the new opportunities and establishing the values for the organization. Leaders are people who do the following:-

- Develop great talent and makes the organization better simply by being a part of it.
- See new opportunities and push the organization in new directions.
- Act as a moral compass for the organization, someone whose values are going to be adopted by others in the company.

The learning Manager: As information becomes the chief product of every business and knowledge continues to explode everyone will be a learner and the manager's foremost task will be to promote learning in the organization. Managers as facilitators of individual and organizational learning may act as instructors, coaches or mentors to other learners. Managers have a crucial facilitator role to play in the L&D process. Managers may also be agents of change in their organizations and through their own learning and development facilitate the learning of organization itself. The management learning takes place through management education, Management training and on the job learning (Learning & Development for Managers; Eugene Saddler-Smith; 2006)

**Manager as communicator:** As techniques for planning strategizing, decision-making and problem solving become common province of every one in organization, the need for improving communication will be paramount and managers will be increasingly using the dialogue and other communication tools. A manager has to be a great communicator if he wants to become a great manager. A great manager is one who has a vision. But, this vision will stay just that unless

you communicate it properly. Communicating a vision doesn't mean you have large message boards with your vision written on them placed at strategic locations. It might be effective to catch attention but to retain that attention you are going to have to do something else. You have to make sure that your team understands your vision and shares your vision with you. Apart from articulating your vision good communication is essential to conducting business on a day-to-day basis.

The key need is for managers to be aware of and supported on 5 distinct competencies: Context Building, Active Listening, Coaching, Sharing and Engaging. Awareness and understanding, combined with the appropriate support of communications processes and information of each of these competencies is a prerequisite for the success of face-to-face communications program.

**Manager as change agent:** As technology and information reshape all our lives, change management will be business as usual and managers will be change agents who guide everyone to find and embrace the best new practices and further managers become organizer of knowledge available in the organization specially that dwelling in heads of several employees. This is crucial task for success of organizations in competitive world and to emerge as world-class organizations. This is particularly true of large multi divisional organizations.

**Management is a Multi-task function:** As boundaries disappear within organizations and the world at large, the scope of management will grow and managers will be Organizational Development experts, diversity management experts, facilitation experts, and consultation experts.

| Competency | Definition                                                                                                                                                                                                                                                                                                              | Communication Role                                                                                                                                                                                     |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Context    | Knowledge of company strategy, Ability to link the strategy to the marketplace and to the department / team, Can communicate customer needs and expectations to staff, Can clearly help others understand the reasons behind and anticipated outcomes of change initiatives                                             | Share information on business and market issues, Focus on building depth of understanding of business strategy and priorities, Provide opportunity for discussion / dialogue - leadership forums, etc. |
| Listening  | Offers dedicated time to each employee, focusing on what they are saying; Seeks clarity and understanding of the speakers position; Probes for depth, clarity and root cause; Focuses on the issue ,not on the personality; Guides dialogue through willingness and openness to alternate ideas; Reports back regularly | Provide training, Provide ongoing skill development tips Share best practice stories                                                                                                                   |
| Coaching   | Recognizes and rewards good performance; Provides feedback aligned to observed actions and behaviors immediately; Seeks ways of developing staff through assignments; Works with staff to identify development (training or otherwise)opportunities; Provides examples using context                                    | Provide skill development tips, Provide coaching tools, Provide training and development opportunities, Provide coaches to managers / supervisors                                                      |
| Sharing    | Understands messages to be communicated and shares them appropriately and consistently; Considers the needs of the audience(s); Uses language and examples which are meaningful to the audience(s)                                                                                                                      | Provide messages and message maps, Provide training on communication delivery and planning                                                                                                             |
| Engaging   | Knows their employees; Understands and uses appropriate motivators; Seeks input and participation from all staff; Provides opportunity based on skills, needs and desires                                                                                                                                               | Provide training on various interpersonal skills, Provide engagement tips and tools in managers tool kit                                                                                               |

**Table 1-(Source: [www.strategiconnections.com](http://www.strategiconnections.com))**

## ***PRODUCTIVITY***

Productivity is important. From the employer perspective, increasing productivity can be a matter of survival in an increasingly competitive environment. The issue of productivity is also important for the country. Increases in productivity contribute to higher economic growth, higher standards of living and higher real incomes (Harchaoui and Tarkhani, 2005). Following Harchaoui and Tarkhani, productivity can be increased by building capital; improving production processes; adopting new technologies and improving workers skills.

It is easy to see that all of the above factors could contribute to improving the output of labor, i.e. labor productivity. In economic terms, labor productivity is typically measured as output per worker or output per labour-hour (Bruce 2002). If a worker is provided with better tools and equipment, he/she should be able to produce more output (being it a good or a service).

## **Measures of Productivity**

Researchers have measured productivity either at an individual level, which is the performance of individual workers, or at the organizational level, that is the performance of the organization as a whole.

Productivity has been calculated using subjective and/or objective measures. At the individual level, the productivity of a worker has been measured subjectively using performance appraisals prepared by immediate supervisors. Objective measures, instead, have included measures such as the time required to perform a task, or the number of non-defective unit completed in a unit of time. At the organizational level, subjective measures of the productivity of the organization as a whole have been obtained by subjective assessment given by management. In contrast, objective measures have been obtained through the financial figures of the organizations.

## **Determinants of Productivity Related to Indirect Variables**

### **Turnover and Productivity:**

There is much research regarding the causes of turnover (due to for example poor pay, bad management), yet comparatively little research exists on the actual effects of turnover.

There are immediate costs associated with employee turnover, which could affect the productivity of the organization in a number of ways. First, if the organization had invested resources on the departing employee, that investment will not have the expected returns. Secondly, there are costs associated with replacing the employee, e.g. hiring a new one. Thirdly, the new employee will require an adjustment period. Finally, the organization will have to spend resources in training the new employee. Hence, the impact of turnover on productivity is assumed to exist because of the costs associated with turnover as well as the loss of employees' acquired knowledge and familiarity with the organization's products and processes. According to Osterman (1987), new employees are rarely as productive as long-tenured ones, since their human capital accumulations are much lower. This is because the accumulation of firm-specific human capital embodied in a workforce determines performance (Strober, 1990).

Research on the impact of turnover on the organization suggests that this relation may not be so straightforward. Perhaps one of the main reasons is that the true costs for an organization associated with employee departure cannot be determined without considering the employee performance. According to Jackofsky, performance and turnover are related in a curvilinear fashion in which" (i) very low performers are pushed out by the organization (ii) low but adequate performers who are allowed to remain on the job stay because of low ease of

movement; and (iii) as performance increases, turnover increases because of increases in ease of movement" (Jackofsky, 1984: 79). While the exit of low performers may not necessarily be bad for the organization, turnover of high performance individuals is likely to impact organizational performance. Jackofsky noted that the desirability of movement can be influenced by the reward administration that is in place within an organization, such as promotions and pay growth. Williams and Livingstone's meta-analysis study confirm this view. The authors found that the negative relationship between performance and turnover was significantly stronger in organizations in which reward contingency was used as compared to those organizations that did not have such a system in place (Williams and Livingstone, 1997: 286-287).

Shaw et al. (2005) also examined the impact of voluntary turnover on workforce performance outcomes in two intra-industry studies: a concrete pipe company and a trucking company. In the production worker study, the two measures of workforce performance used were labor hours per ton and accident rates. For the trucking company three measures of performance were used. The first was the amount of revenue generated by the driver, an out-of service percentage (i.e., violations of federal and state regulations) and the accident frequency ratio.

In both cases, the relationship between voluntary turnover and workforce performance outcome was consistently curvilinear. It was generally negative, but was attenuated as turnover rates rose. The authors described the results as an attenuated negative relationship. These results are in agreement with Price (1977), which had proposed that successively higher amounts of turnover would be found ultimately to produce, more often than not, successively lower amounts of effectiveness at a decreasing rate. When turnover is very high the organization is geared towards a continual workforce replacement, and increases in voluntary turnover beyond some point are minimally disruptive. When the workforce is being constantly replaced (for example, the turnover rate is 100 percent), marginal increases in voluntary turnover (such as to 110 percent), are proportionally less problematic in terms of productivity and safety than increases at lower average turnover rates (e.g., from 10 to 20 percent).

Hence, in agreement with the human capital theory quits deprive an organization of the skills and abilities necessary for high performance among the workforce. However, Shaw et al. (2005) also showed that beyond a certain point, increases in quit rates are not incrementally erosive. That is, since average firm-specific human capital returns diminish as voluntary turnover increases, the incremental effect of turnover on workforce performance is less severe.

## **Absenteeism and Productivity:**

Absenteeism, particularly when not anticipated, can potentially have negative consequences for an organization. It can constitute a source of irritation to employers and co-workers. Typically, the work performed by the absentee is either not done or, more likely, performed by a co-worker. As well, the absences of an employee can be bad for the morale of co-workers. A high degree of absenteeism may be an indication of low morale and little commitment towards the organization. More importantly, co-workers are generally less familiar with the work performed by others and, hence, they might perform that work less efficiently. The result translates into loss of output for the organization.

Moch and Fitzgibbons (1985) measured the impact of absenteeism on organizational efficiency in a manufacturing industry. They gathered data from company records in a medium-sized assembly and packaging plant in the United States. The company distinguished between unanticipated absences due to sickness and those due to other reasons (anticipated absences). Efficiency was measured using the number of pounds of each product rejected as waste for each week, which were kept in company records. The records used for the analysis spanned a two-year observation period. Moch and Fitzgibbons (1985) suspected that automation might also affect efficiency. To assess the impact of automation they gathered data for those products, which required higher levels of automation, and for those that did not, that is they required high levels of employee involvement. The authors found that absenteeism did not affect efficiency under all conditions. Rather, the results showed that absenteeism affected efficiency only when the absences were unanticipated and when production was not highly automated. Moch and Fitzgibbons' study is important for it provides some insights on the costs of absenteeism for the employer; however, the study was limited to one organization in the manufacturing sector.

To derive a measure of absenteeism, the authors focused on two types of leave: sick leave and family care leave. These leaves accrued as a function of number of hours worked. Employees were entitled to take the leaves as they saw fit. Since preliminary analysis indicates that there was a tendency among certain employees to take Mondays and Fridays off, leaves taken in these days were also recorded separately.

The findings provided only a partial confirmation of the relation between absenteeism and productivity. The results did not show a significant inverse correlation between the incidence of sick or family leave and any measure of worker's productivity, although there was a trend in that direction. However, the results did show a significant inverse relationship between the percentage of sick leave and family care leave taken on Mondays and Fridays and workers'

productivity. They also noted that tenure with the organization was inversely related to absenteeism.

The authors noted that some of the correlations were small but in the expected direction. They speculated low statistical power might have obscured potentially significant effects.

### **Job Satisfaction and Productivity:**

The interest in job satisfaction stems from the assumption that employee satisfaction could help lower costs through increased productivity and reduced absences, turnover (Cranny et al., 1992).

Job satisfaction might be affected by both economic and non-economic factors. For this reason, it has been argued that measures of job satisfaction related to economic rewards should be separated from overall satisfaction, as they are conceptually different. Overall, satisfaction is essentially the global attitude or feeling individuals have about their job as a whole.

Already in 1964, Vroom showed that job satisfaction and productivity are positively correlated. He reviewed about twenty studies and found a median correlation of about .14. Nearly twenty years after, Iaffaldano and Muchinsky (1985) conducted a similar meta-analysis of several studies. Their results were not very different from those obtained by Vroom. The meta-analysis by Iaffaldano and Muchinsky shows that the correlation between performance and satisfaction is about .17 with a variance of .016. The studies included in Iaffaldano and Muchinsky's analysis measured productivity using objective (i.e., output) or subjective measures (i.e., performance appraisal). On the contrary, the authors excluded from the analysis those studies that measured job performance based upon absence, turnover, or union grievances. These variables were excluded in an effort to preserve the clarity of interpretations regarding the satisfaction-productivity relation. Thus, the meta-analysis performed by Iaffaldano & Muchinsky shows that a satisfied employee/worker performs more or better. This point was reinforced by a meta-analysis conducted by Podsakoff & Williams (1986). They examined the results obtained through laboratory and field settings in an attempt to better understand the extent to which rewards are linked to performance.

### **Why productivity is important?**

The Indian economy is said to be growing at its fastest rate and organizations are beginning to competitively grow, with their employees at the heart of this. Each employee's individual productivity at work contributes to this, and organizations will continue to measure the productivity of their workforce to gauge their performance and growth. But, imagine that each employee became 1% more productive at work – what would this constitute? Before it is

possible to consider the bearing that such an increase in workforce productivity would have, it is necessary to establish the best way to accurately quantify productivity.

The simple, classic view of productivity is concerned with measuring inputs in relation to outputs. It can be calculated as the amount of output generated in a given amount of time. A simple productivity equation can be seen below:

Productivity = Outputs provided by the process/Inputs consumed by the process

Others have defined productivity as how well a system uses its resources to achieve a goal. From this stance, other factors are incorporated into the overall picture of how productive an organization is. For example, an organization that uses employee training and development as a way to improve the knowledge, skills and abilities of their workforce. This approach focuses less on 'hard' outcomes of productivity and more on the aims an individual is working towards.

For all conceptualizations of productivity, higher productivity is better than lower productivity. Therefore, organizations should identify the ways in which productivity can best be measured. If productivity is not measured accurately, there is increased risk of adverse economic impact at the organizational level and it will be unclear how factors such as poor psychological wellbeing and employee resilience are impacting organizational performance.

The difficulty in conceptualizing productivity has, in part, developed with the changing nature of work. A traditional view of improving labor productivity through scientific management was applicable at a time when many jobs involved working on the assembly line. Nowadays, it is service jobs and knowledge work that dominate the economy which in turn forces the development of different approaches to productivity that do not simply look at hard outcomes.

### **How can productivity be measured?**

The first thing to consider when measuring productivity within an organization is why it is being measured. Depending upon the purpose of measuring productivity, there is an array of different stances from which it can be measured: the economist, accountant and manager approaches.

#### **The economist:**

From this perspective, productivity is measured as the ratio of outputs to associated inputs where both are expressed in real, quantifiable units. That is, outputs and inputs can be counted numerically. In this case, productivity is the efficiency with which an organization turns inputs into outputs. Further distinctions can be made within this approach depending upon the specific inputs and outputs included in the ratio. If all the inputs and outputs of the process are included

in the ratio, then total-factor productivity has been calculated (this is also referred to as multi-factor productivity). If the organization selects particular inputs and outputs to include in the ratio then partial-factor productivity has been calculated. In most cases, the outputs are divided specifically by the amount of labor used to produce them; this is referred to as labor productivity.

#### **The accountant:**

This is similar to the economist approach. However, financial ratios of input and output are calculated. Therefore, the focus is on the rupee to rupee ratio of productivity – how much money is spent on payroll, resources, training (inputs) and how much profit is generated (output) from these. The accountant approach is a type of efficiency measure but focuses specifically on the financial efficiency of the organization.

#### **The manager:**

This is the broadest approach to measuring productivity. It includes all the aspects that can influence productivity such as the quality of output, work disruptions, absenteeism, turnover, and customer satisfaction. Due to the range of factors involved, productivity can be defined and measured differently depending upon the role, organization or sector. It could be described as representing a board member or shareholder perspective of an organization.

#### **Efficiency vs. effectiveness:**

Deciding between efficiency and effectiveness measures of productivity appears a salient issue within the productivity literature. By definition, efficiency measures of productivity are concerned with output relative to input. This would be the classic view of productivity and most similar to the economist and accountant approaches described above.

As efficiency measures only incorporate quantifiable inputs and outputs, this allows calculating productivity to be relatively straightforward and easily interpretable. In addition, when inputs and outputs are defined in monetary terms, productivity becomes directly reconcilable with profitability – making it a more attractive approach for management and stakeholders.

At the same time, efficiency measures have some obvious disadvantages. Principally, that they tend to take no account of output quality, customer satisfaction, training or resources used – factors which are crucial to an organizations functioning and therefore productivity.

Furthermore, efficiency approaches take no account of the demand for a product or service. An organization may produce masses of product and therefore appear productive. However, if there is no market demand for these products then the organization will suffer. Ultimately, efficiency

measures as indicators of productivity may provide useful, basic information on the proficiency with which an organization is operating, but they do not appear comprehensive enough to provide a true picture of either individual-level or organizational-level productivity.

Effectiveness measures of productivity attempt to fill this gap. This type of productivity measure looks at output in relation to goals; these can be individual goals or wider organizational goals. These measures work best when applied to a specific organizational unit, for example the sales department. The difficulty faced in this approach is defining the goals that input is being compared to. Despite organizations as a whole striving to achieve high level goals and objectives, the functions that make up an organization will each operate to achieve their own relative goals. For instance, the sales unit of an organization will have different goals to the marketing or IT functions. Therefore, if goals are defined for each organizational unit, it is easier to calculate productivity than if broad organizational goals are used. In adopting this method, smaller changes in productivity across units of the organization can be identified.

The resources used in attaining these goals are another important consideration. It is evidently counter-productive to achieve goals but exhaust resources in the process. It is often the case that managers judge productivity of employees by whether performance targets are achieved, without looking closely at how they are met. There is no inclusion of the resources used or the quality of work when productivity is measured in this way. This further emphasizes the issue of using basic and simplistic measures of productivity.

Overall, while effectiveness measures may give a clearer indication of organizational productivity they still hold limitations. It is recommended that a combination of both efficiency and effectiveness measures be used in order to develop a comprehensive picture of organizational productivity.

### **Subjective vs. objective:**

Considering the subjectivity or objectivity of productivity measures is another consideration for organizations. Objective measures of productivity provide an impartial view that is not biased by the individual's personal views and feelings. In work environments where individual output can be quantified, it makes sense that objective measures are used. For example, the productivity of an estate agent can be measured by the number of properties they sell in a fixed period. However, these objective and quantifiable measures are not available for all jobs. For instance, for knowledge workers (e.g., engineers, architects, scientists) who are subject matter experts within their field, finding all-encompassing, objective productivity measures is an arduous task.

Due to complications in achieving objective measures, subjective productivity reporting is widely used.

## **RESEARCH GAPS**

From the examination of the literature four major research gaps has been emerged with production managers competencies and employee productivity has been explored in this thesis:

- What demographics influence competencies of production managers in large companies?
- What is the component hierarchy of different competencies practiced by production managers of large companies?
- What are the effects of production manager's competencies on employee productivity?
- What are the relations exist between production manager's competencies and employee productivity?

There is a lack of research into production manager's competencies and employee productivity with special reference to Pune region. As different competencies or in combination of these competencies of these production managers can encourage their staff to achieve the set productivity efficiently. This led the researcher to investigate which competencies relates and impact more on employee productivity.

## **CHAPTER-3: RESEARCH METHODOLOGY**

### **INTRODUCTION**

The sole objective of quantitative study was to assess whether production managers competencies in large companies have any correlation to employees productivity. That is whether competencies (i.e. independent variables) significantly impacts employee productivity (i.e. dependent variables). The study involved an investigation into whether qualification, experience significantly impact the competencies of production managers in large companies.

**This chapter highlights the following points of discussion:**

1. Research design and approach
2. Population, sample, and setting plan
3. Ethical protection of participants
4. Plan for Primary Data Collection
5. Data collection and analysis
6. Measurement Instruments (Reliability)
7. Research Questions

### **RESEARCH DESIGN AND APPROACH**

The study involves descriptive research, descriptive study is often used to validate current practices and make verdict or conclusion. For this particular study descriptive research was used to obtain a picture of production manager's competencies with a perspective of whether it has any correlation to employee productivity.

For this study the structured questionnaire were used with limited probing approach to keep focus on the desired subject using five point likert scales. Considering time dimension of the research project, this study has used the cross-sectional study which measures sample units from the population at only one point in time , this cross-sectional study is representation of a population and hence it can also be named subsequently as sample survey. The study included statistical design and analysis approach to reject or not to reject the hypothesis.

## **POPULATION, SAMPLE AND SETTING PLAN**

Population is the togetherness of all the elements that has or shares some common characteristics and which subsequently includes the universe for the ultimate purpose of the research problem. In the current research study, population is finite and comprises of all production managers of large companies in the manufacturing sector in Pune region of Maharashtra.

### **SAMPLE ELEMENT**

The sample element in current study is production managers of large companies in Pune manufacturing sector from whom the information are sought.

### **SAMPLE UNIT**

The Unit of Analysis in the present study is the large manufacturing companies excluding MSME enterprise in the manufacturing sector in Pune region which contains the sample element (i.e. production managers). Large company in this context is the company having Investment in Plant and Machinery of more than 10 crores.

In current research study, sample is from Pune which is a manufacturing hub and growing rapidly with heavy industrialization. The Pune city is having good number of large manufacturing companies such as Volkswagen, Mahindra, Mercedes-Benz, Bajaj Auto etc.

### **SAMPLE SIZE**

Sample size was determined using sample size determination by following method.

$$\text{Sample Size} = (Z\text{-score})^2 * \text{StdDev} * (1 - \text{StdDev}) / (\text{margin of error})^2$$

Here is how it works assuming 95% confidence level, .5 standard deviation, and a margin of error (confidence interval) of +/- 6%.

$$((1.96)^2 * .5(.5)) / (.06)^2$$

$$(3.8416 * .25) / .0036$$

267 respondents are needed

As a buffer we consider 300 samples in case of non-respondents, but fortunate enough that organizations allow to complete all the required samples surveys.

## **SAMPLING CRITERIA**

The sampling criteria included the following

- The organization should be a manufacturing organization.
- The operations must be using machineries for production with employees under manager's supervision.
- The organization must be located in Pune region.

## **SAMPLING PROCEDURE**

The probability sampling technique involved into this study is simple random sampling method. Thus the method is employed to select respondents in random fashion which happen in this way, we select a group of subjects (a sample) for study from a larger group (a population). Each individual production manager is chosen entirely by chance and each member of the population has an equal chance of being included in the sample. Thus it gives us an opportunity to deal with samples randomly. This is done to ensure adequate and equal chance of respondents to get selected in the study.

## **SAMPLING FRAME**

The study is conducted in Pune district of the state considering the time and cost involved in collecting data. Therefore, sampling frame was developed from three sources:

- Directory of Maratha Chamber of Commerce and Industries.
- <http://www.fundoodata.com/>

## **SAMPLE DURATION**

The time taken to complete the interview process of all the required sample elements i.e. production managers took 5 months' time.

## **SAMPLE PROFILE**

### **JOB DESCRIPTION OF PRODUCTION MANAGER**

Production managers are responsible for the technical management, supervision and control of industrial production processes. Production managers ensure that manufacturing processes run reliably and efficiently. To plan, organize and control production in an organization to ensure that goods are produced efficiently, on time, within budget and to standard.

#### **Responsibilities of the job include:**

Planning and organizing production schedules overseeing production processes implement and control the production schedule review and adjust the schedule where needed assessing project and determine the human and material resources required make decisions about equipment use, maintenance, modification and procurement work out and implement standard operating procedures for production operations ensure that standard operating procedures are adhered to ensure implementation and adherence to health and safety procedures estimating, negotiating and agreeing budgets and timescales with clients and managers determining quality control standards re-negotiating timescales or schedules as necessary selecting, ordering and purchasing materials organizing the repair and routine maintenance of production equipment liaising with buyers and marketing and sales staff supervising the work of junior staff organizing relevant training sessions In larger companies, there may be close links between production management and general or strategic management and marketing or finance roles.

- set product quality standards
- monitor quality standards of products
- implement and enforce quality control and tracking programs to meet quality objectives
- analyze production and quality control to detect and correct problems
- determine and implement improvements to the production process
- prepare and maintain production reports
- monitor and review the performance of staff and organize necessary interventions for improvement
- estimate production costs
- set production budgets
- manage production budgets
- implement cost control programs
- ensure efficient collaboration and co-ordination between relevant departments including procurement, distribution and management

## **Education and Experience**

- usually require a bachelor's degree - business administration, management, engineering, industrial technology
- knowledge and experience in production and manufacturing processes and techniques
- knowledge of raw materials
- knowledge of quality systems and standards
- knowledge of health and safety standards and compliance
- knowledge of process improvement techniques
- knowledge of business, finance and management principles
- knowledge of human resource principles and practices
- knowledge of machines and tools
- knowledge of engineering and technology principles and practices
- solid computer skills

## **ETHICAL CONSIDERATION IN THE RESEARCH**

Ethical issues are of prime importance considering social science research. Several issues such as Participating Voluntarily, Respecting Participants Integrity, Anonymity and Confidentiality, Avoiding Deception and fair reporting has been considered as some important ethical considerations in social science research.

## **PLAN FOR PRIMARY DATA COLLECTION**

### **Research Technique**

Survey research technique has been chosen for the current study, as it involves the collection of information from sample elements through their responses to questions. Survey data can be collected from many respondents at relatively low cost without substantially increasing the time. Survey methods allow themselves to probability sampling from large population.

### **Contact Method**

In-person interview method is adopted for current research study, as it involves face-to-face social interaction between respective production managers and researcher. This method has given higher response rate; the reason is researcher has complete awareness of the respondent's situation which allows the researcher to have more control on interview process.

## **Research Instrument**

A survey research questionnaire was used in current research study to collect the data. While preparing the questionnaire for the survey it has kept in mind that the focus of the questionnaire should be towards the research problem under investigation. Thus it becomes the primary basis for selecting the questions which should be included into research questionnaire and which should be excluded. The questionnaire has been designed using precisely and neatly written close ended questions, which gives an opportunity to process and analyze them statistically. For writing the responses of close ended questions likert rating scale (5 points) has been used which generally ask respondents to indicate the extent to which they agree or disagree with the statements in the questionnaire.

## **DATA COLLECTION AND ANALYSIS**

### **Data Collection**

The data collection process has been carried out for both pilot and final survey.

**Pilot study for survey:** A pilot study is conducted to detect the weakness in design and instrumentation and provide the sample data for statistical analysis. The sample size of Pilot study was 30 Production Managers. Pilot survey was conducted and it is found that the reliability and validity of the instruments were good. On the other hand the instrument has been tested on following fronts:

- The wording of survey questionnaire
- Questionnaire completion time
- Layout of survey questionnaire

**Final Survey:** The complete survey was conducted with expected sample of 300 respondents from 41 large companies of Pune region. The 300 paper based questionnaire were used by the researcher to collect the data. Researcher has completely adhered to the ethical guidelines mentioned in ethical consideration in research. In final survey, all respondents were given the questionnaire with introduction letter of from the researcher which was briefing about the researchers identity and the university under which the research was going on. Before they decided to be a part of this research study researcher told them that the survey was anonymous and complete confidentiality will be taken care off. Though, respondents have complete rights to

withdraw from the survey at any point of time. The researcher took about 5 months' time to collect the data from 300 respondents.

## **Analysis**

To analyze the collected data from respondents, researcher has used various statistical tests which are explained below.

1. **Descriptive Statistics:** To make sense of our large data we have chosen graphical descriptions and numerical description.
2. **Friedman test:** The Friedman test is a non-parametric test which is used for testing the difference between several related samples. The Friedman test will tell us if there are any significant differences among the medians of two or more groups
3. **MANOVA (Multivariate Analysis of Variance):** The purpose of multivariate analysis of variance (MANOVA) is to determine whether multiple levels of independent variables on their own or in combination with one another have an effect on the dependent variables
4. **Spearman Rank Order Correlation:** Spearman rank correlation is used when we have two ranked variables, and we want to see whether the two variables co varies; whether, as one variable increases, the other variable tends to increase or decrease.
5. **Multiple Regressions:** Multiple linear regressions is the most common form of linear regression analysis. As a predictive analysis, the multiple linear regressions is used to explain the relationship between one continuous dependent variable from two or more independent variables. The independent variables can be continuous or categorical.

Other than correlation analysis, which focuses on the strength of the relationship between two or more variables, regression analysis assumes a dependence or causal relationship between one or more independent and one dependent variable.

## **MEASUREMENT INSTRUMENTS**

Two instruments were used in this research, namely the production manager's competencies questionnaire and employee productivity questionnaire. These instruments are now discussed in detail below.

The production managers competencies assessment questionnaire is adapted from [www.hr-surveys.com](http://www.hr-surveys.com) and made up of 44 statements using 5 point likert scale which include items from Creativity and Innovation, Continual Learning, Internal and External Awareness, Flexibility, Resilience, Strategic Thinking, Vision, Conflict Management, Cultural Awareness, Integrity Honesty, Team Building, Accountability, Customer service, Decisiveness, Problem Solving, Technical Credibility, Human Resources Management, Influencing, Interpersonal Skills, Oral Communications, Partnering, and Political Savvy. The employee productivity questionnaire was adapted from HH Spangenberg's- Development of questionnaire for assessing work unit performance: 2004 and is made using 18 items using extensive literature study to consider both the soft and hard points of productivity.

### **Reliability of Competencies Questionnaire:**

Reliability is the most important aspects to be considered while formulating the instrument. Reliability is the statistical criteria used to assess whether the research provides a good measure. Reliability for competencies of production managers was tested using Cronbach's alpha, it is widely used to study whether items of a construct get along with each other well or not. A Cronbach's value of more than 0.7 indicates sufficient internal consistency among items of a construct.

The reliability of the competencies instrument is:

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .856             | 44         |

The results indicated that the competencies instrument was reliable and viable for use.

### **Reliability of Productivity Questionnaire:**

Reliability is the most important aspects to be considered while formulating the instrument. Reliability is the statistical criteria used to assess whether the research provides a good measure. Reliability for employee productivity was tested using Cronbach's alpha, it is widely used to

study whether items of a construct get along with each other well or not. A Cronbach's value of more than 0.7 indicates sufficient internal consistency among items of a construct.

The reliability of the employee productivity instrument is:

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .700                   | 18         |

The results indicated that the productivity instrument was reliable and viable for use.

## RESEARCH QUESTIONS AND HYPOTHESIS

The quantitative research questions that will guide the study and generate the hypothesis are as follows:

### Research Question-1:

Whether there is the difference in the extent of competencies practiced among production managers of large companies.

H1: There is a significant difference in the extent of competencies practiced among production managers of large companies.

### Research Question-2:

Whether Competencies of Production Managers of Large Companies and Employee Productivity are co-related?

H1: There is a significant relationship between Competencies of Production Managers of Large Companies and Employee Productivity ( $\rho \neq 0$ )

### Research Question-3:

Does experience influence competencies of production managers?

H1: Experience does influence Competencies of Production Managers.

**Research Question-4:**

Does Paper qualification influence competencies of production managers?

H1: Paper Qualification does influence Competencies of Production Managers.

**Definition of the Term Paper Qualification:** The term paper qualification means merely any degree, diploma or post graduation and it excludes the professional and technical training and certification.

**Research Question-5:**

Do competencies of production managers have an impact on the productivity of the employees?

H1: Competencies of production managers have an impact on the productivity of the employees

## **CHAPTER-4: DATA ANALYSIS AND FINDINGS**

### **INTRODUCTION**

This chapter presents the data analysis and interpretation of study findings. It outlines the competencies and productivity including how competencies can impact the productivity. The study is guided by the following objectives: To determine the relationship between competencies of production managers and productivity of employees; explore which competencies were practiced by the production managers more frequently. In addition to the demographic information and courses offered by the colleges. Descriptive statistics and correlations on study variables are explained. Hypotheses testing and interpretation of the study findings are also presented.

### **DEMOGRAPHIC INFORMATION**

This section concentrates on the profiling of the production managers surveyed. The study targeted 300 production managers from large automotive companies as the production of products was the main criteria to select the required companies in Pune region.

The demographics assessment is presented below:

#### **Age:**

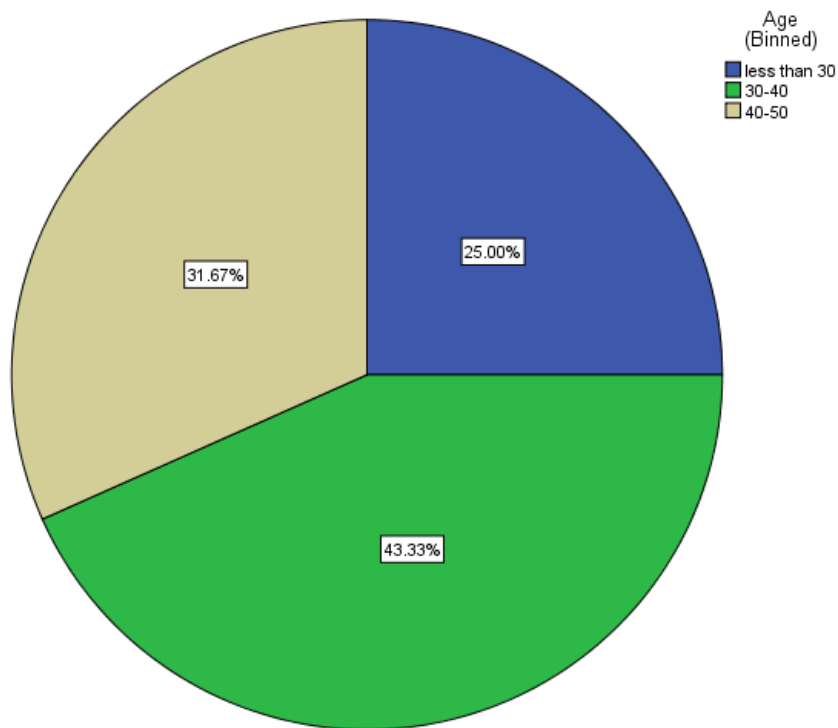
Purpose: Production managers were asked to share their age so we can identify which age group has maximum samples.

Scale (ordinal): The age is classified into three groups, which are mentioned below:

- Less than 30 years
- 30-40 years
- 40-50 years

The below mentioned pie chart shows that age has been classified into groups and most of the samples are from 30-40 age group comprising 43% of the total samples followed to that we have

samples from 40-50 age group comprising 31% and the least is from less than 30 age group comprising to 25% of the total samples.



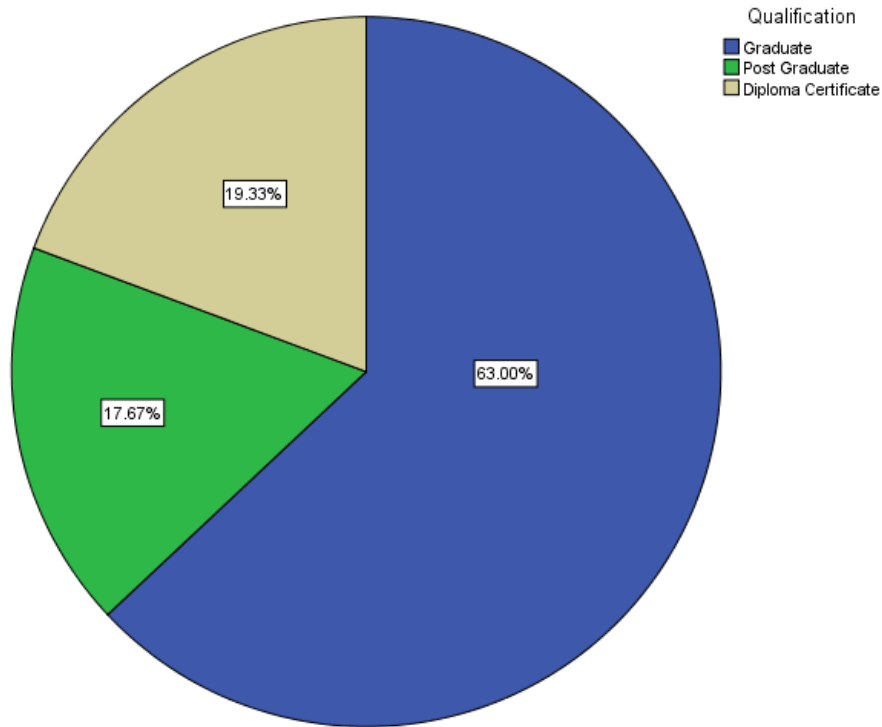
### **Qualifications:**

Purpose: Production managers were asked to share their qualification so we can identify which qualification will constitute more in samples.

Scale (ordinal): The qualification is classified into three groups, which are mentioned below:

- Graduate
- Post Graduate
- Diploma Certificate

The below mentioned pie chart shows that qualification has been classified into groups and most of the samples are from graduate group comprising 63% of the total samples followed to that we have diploma holders comprising 19.3% and the least one in total samples are postgraduates comprising 17.7% of the total sample.



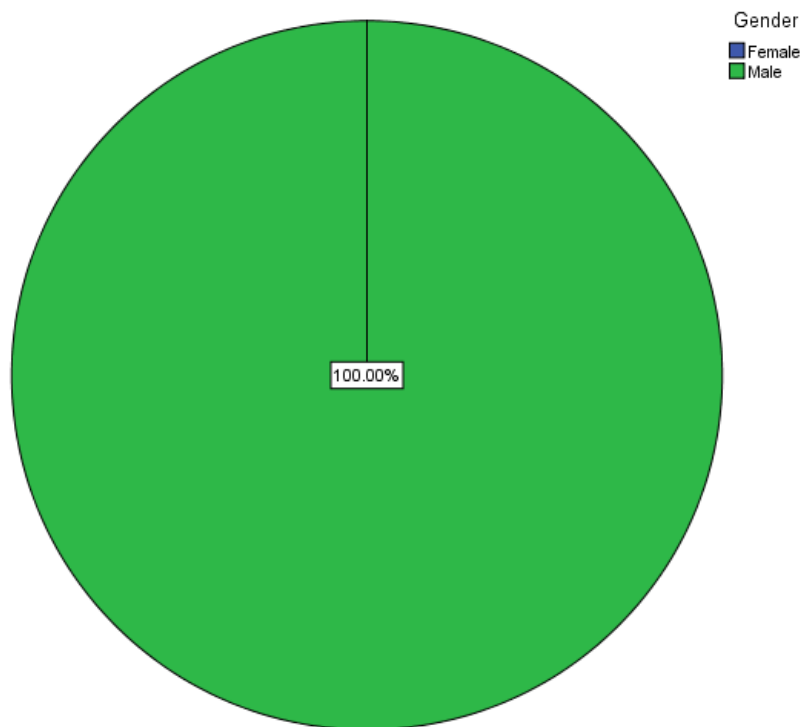
### **Gender:**

Purpose: Production managers were asked to share their gender so we can club and identify which gender is more in samples.

Scale (nominal): The gender is classified into two groups, which are mentioned below:

- Female
- Male

The below mentioned pie chart shows that gender has been classified into groups and all the sample belongs to male category comprising 100% of the total samples.



### **Experience:**

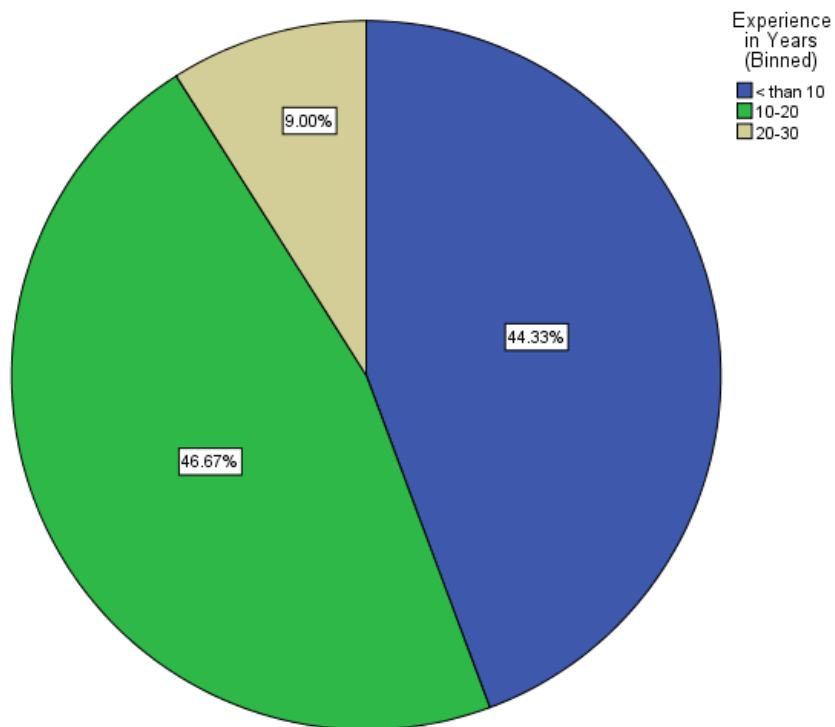
**Purpose:** Respondents were asked to share their number of years of experience so we can identify which experience group will constitute more samples.

**Scale (ordinal):** The experience response is classified into three groups, which are mentioned

Below:

- Less than 10 years
- 10-20 years
- 20-30 years

The below mentioned pie chart shows that experience has been classified into groups and most of the samples are from less than 10 years of experience group which comprises of 44.33% of total samples followed to that there were 46.67% samples who belong to group of 10-20 years of experience and the least is 20-30 years of experience group which comprises only 9% of the experience considering total samples.



## DESCRIPTIVE ASSESSMENTS

1. Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness

### Statistics

Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.54   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .666   |
| Skewness               |         | -1.414 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 1.804  |
| Std. Error of Kurtosis |         | .281   |

The below table & histogram provides descriptive statistics for the variable CI-1, where mean is 3.54 and Std. deviation is 0.666. Since Std. deviation is less than the one third of the mean, mean is a representative value.

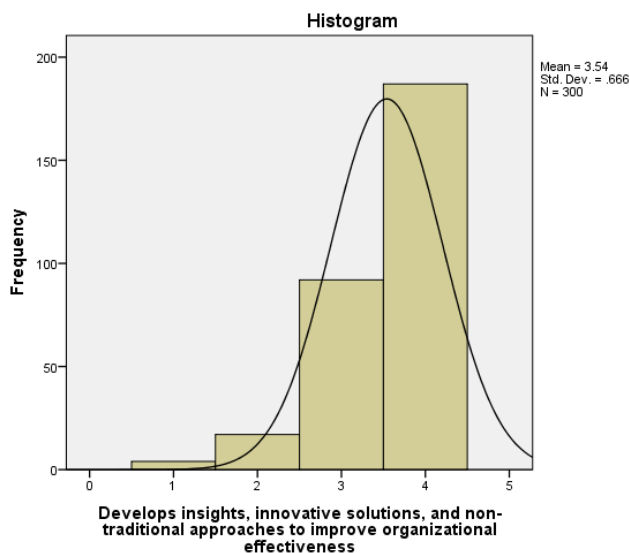
**Conclusion:** We can conclude that frequently the production managers are engaged developing insights, innovative solutions to improve organizational effectiveness.

**Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 4         | 1.3     | 1.3           | 1.3                |
| Sometimes                 | 17        | 5.7     | 5.7           | 7.0                |
| Fairly Often              | 92        | 30.7    | 30.7          | 37.7               |
| Frequently, if not always | 187       | 62.3    | 62.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 1- Frequency distribution table: Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness

Figure 1- Histogram of variable: Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness



**2. Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process**

**Statistics**

Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.79   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .572   |
| Skewness               |         | -3.000 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 8.988  |
| Std. Error of Kurtosis |         | .281   |

The below table & histogram provides descriptive statistics for the variable CI-2, where mean is 3.79 and Std. deviation is 0.572. Since Std. deviation is less than the one third of the mean, mean is a representative value.

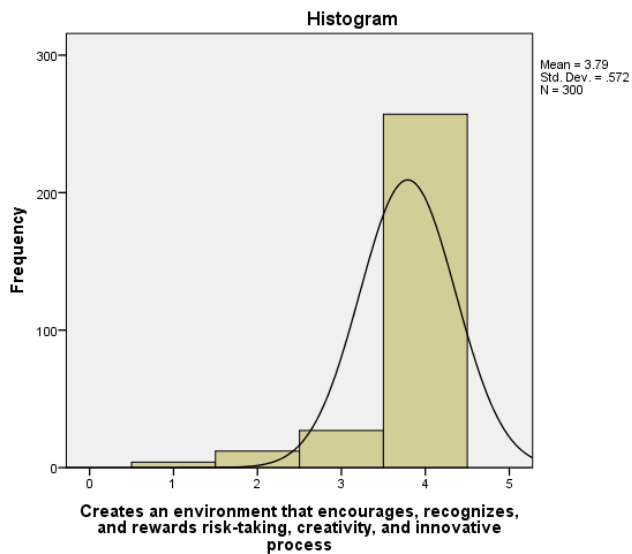
**Conclusion:** We can conclude that frequently the production managers are engaged creating and rewarding risk-taking innovative process.

**Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 4         | 1.3     | 1.3           | 1.3                |
| Sometimes                 | 12        | 4.0     | 4.0           | 5.3                |
| Fairly Often              | 27        | 9.0     | 9.0           | 14.3               |
| Frequently, if not always | 257       | 85.7    | 85.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

**Table 2- Frequency distribution table: Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process**

**Figure 2- Histogram of variable: Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process**



**3. Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work**

**Statistics**

Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.26   |
| Median                 |         | 3.00   |
| Std. Deviation         |         | .673   |
| Skewness               |         | -1.220 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 4.332  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CL-1, where mean is 3.26 and Std. deviation is 0.673. Since Std. deviation is less than the one third of the mean, mean is a representative value.

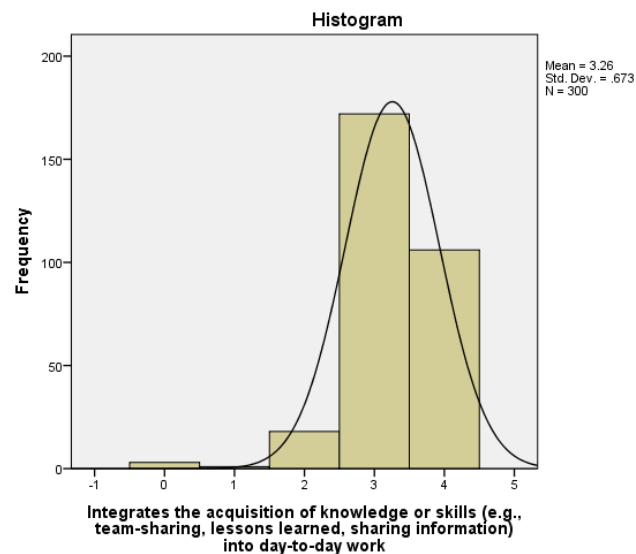
**Conclusion:** We can conclude that frequently the production managers are integrating knowledge and skills in their day to day work.

**Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 3         | 1.0     | 1.0           | 1.0                |
| Once in a while           | 1         | .3      | .3            | 1.3                |
| Sometimes                 | 18        | 6.0     | 6.0           | 7.3                |
| Fairly Often              | 172       | 57.3    | 57.3          | 64.7               |
| Frequently, if not always | 106       | 35.3    | 35.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 3- Frequency distribution table: Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work

Figure 3- Histogram of variable: Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work



#### 4. Creates systems that facilitate communication of knowledge internal and external

##### Statistics

Creates systems that facilitate communication of knowledge internal and external

|                        |         |       |
|------------------------|---------|-------|
| N                      | Valid   | 300   |
|                        | Missing | 0     |
| Mean                   |         | 3.44  |
| Median                 |         | 4.00  |
| Std. Deviation         |         | .722  |
| Skewness               |         | -.953 |
| Std. Error of Skewness |         | .141  |
| Kurtosis               |         | -.267 |
| Std. Error of Kurtosis |         | .281  |

The above table & histogram provides descriptive statistics for the variable CL-2, where mean is 3.44 and Std. deviation is 0.722. Since Std. deviation is less than the one third of the mean, mean is a representative value.

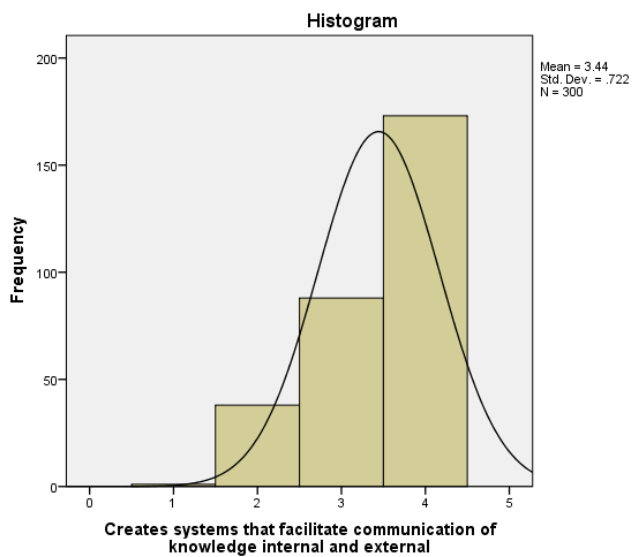
**Conclusion:** We can conclude that frequently the production managers are facilitating communication of knowledge internal and external.

### Creates systems that facilitate communication of knowledge internal and external

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 1         | .3      | .3            | .3                 |
| Sometimes                 | 38        | 12.7    | 12.7          | 13.0               |
| Fairly Often              | 88        | 29.3    | 29.3          | 42.3               |
| Frequently, if not always | 173       | 57.7    | 57.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 4- Frequency distribution table: Creates systems that facilitate communication of knowledge internal and external

Figure 4- Histogram of variable: Creates systems that facilitate communication of knowledge internal and external



**5. Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management**

**Statistics**

Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.55   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .732   |
| Skewness               |         | -1.937 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 4.775  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable IEA-1, where mean is 3.55 and Std. deviation is 0.732. Since Std. deviation is less than the one third of the mean, mean is a representative value.

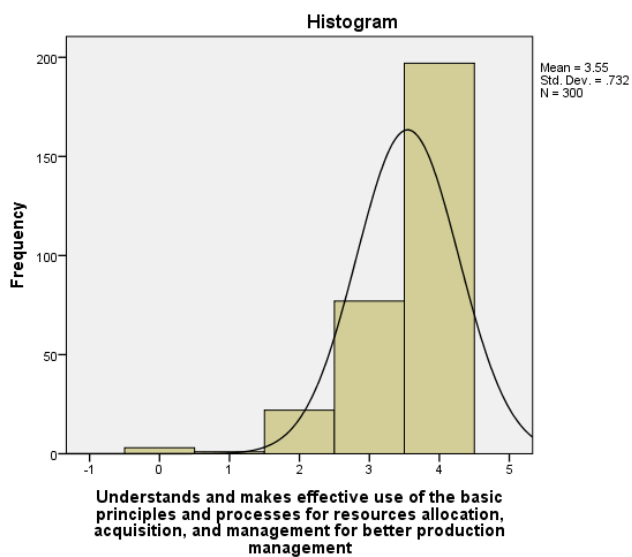
**Conclusion:** We can conclude that frequently the production managers are making effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management.

**Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 3         | 1.0     | 1.0           | 1.0                |
| Once in a while           | 1         | .3      | .3            | 1.3                |
| Sometimes                 | 22        | 7.3     | 7.3           | 8.7                |
| Fairly Often              | 77        | 25.7    | 25.7          | 34.3               |
| Frequently, if not always | 197       | 65.7    | 65.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

**Table 5- Frequency distribution table: Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management**

**Figure 5- Histogram of variable: Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management**



**6. Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations**

**Statistics**

Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.60   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .675   |
| Skewness               |         | -1.408 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | .601   |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable IEA-1, where mean is 3.55 and Std. deviation is 0.732. Since Std. deviation is less than the one third of the mean, mean is a representative value.

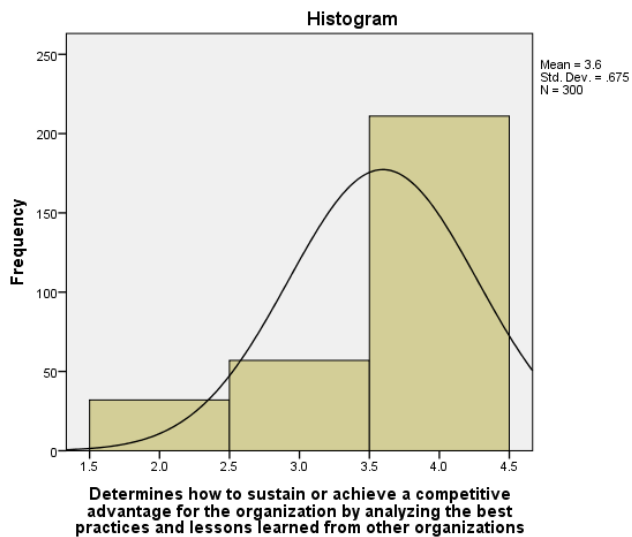
**Conclusion:** We can conclude that frequently the production managers are making effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management.

**Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations**

|                                 | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------------|-----------|---------|---------------|--------------------|
| Sometimes                       | 32        | 10.7    | 10.7          | 10.7               |
| Fairly Often                    | 57        | 19.0    | 19.0          | 29.7               |
| Valid Frequently, if not always | 211       | 70.3    | 70.3          | 100.0              |
| Total                           | 300       | 100.0   | 100.0         |                    |

**Table 6- Frequency distribution table: Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations**

**Figure 6- Histogram of variable: Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations**



**7. Adjusts behaviour and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity**

**Statistics**

Adjusts behavior and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.70   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .635   |
| Skewness               |         | -2.259 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 5.215  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable F-1, where mean is 3.70 and Std. deviation is 0.635. Since Std. deviation is less than the one third of the mean, mean is a representative value.

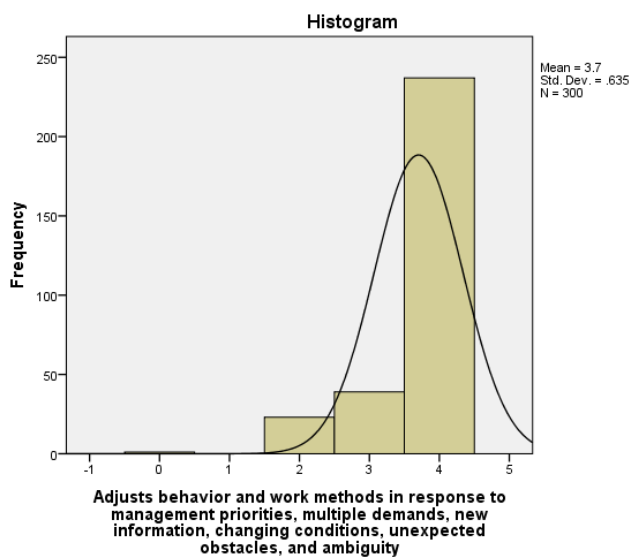
**Conclusion:** We can conclude that frequently the production managers adjust their behavior and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity

**Adjusts behavior and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Sometimes                 | 23        | 7.7     | 7.7           | 8.0                |
| Fairly Often              | 39        | 13.0    | 13.0          | 21.0               |
| Frequently, if not always | 237       | 79.0    | 79.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 7- Frequency distribution table: Adjusts behavior and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity

Figure 7- Histogram of variable: Adjusts behavior and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity



**8. Works concurrently on related and/or conflicting priorities without losing focus or attention**

**Statistics**

Works concurrently on related and/or conflicting priorities without losing focus or attention

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.79   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .626   |
| Skewness               |         | -3.934 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 17.905 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable F-2, where mean is 3.79 and Std. deviation is 0.626. Since Std. deviation is less than the one third of the mean, mean is a representative value.

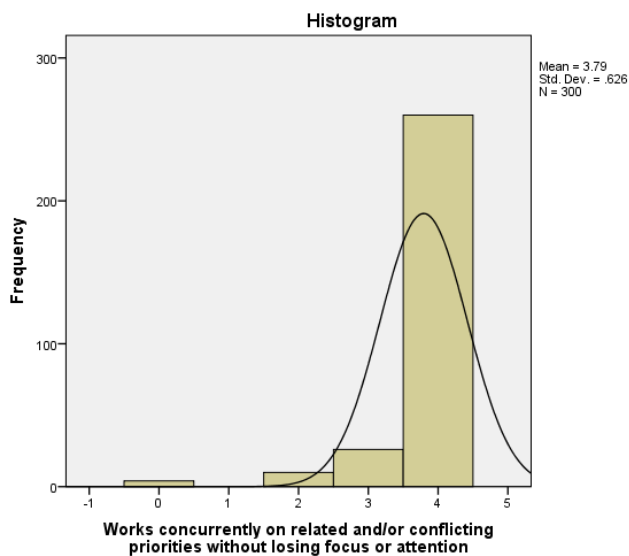
**Conclusion:** We can conclude that frequently the production managers work concurrently on related and/or conflicting priorities without losing focus or attention

**Works concurrently on related and/or conflicting priorities without losing focus or attention**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 4         | 1.3     | 1.3           | 1.3                |
| Sometimes                 | 10        | 3.3     | 3.3           | 4.7                |
| Fairly Often              | 26        | 8.7     | 8.7           | 13.3               |
| Frequently, if not always | 260       | 86.7    | 86.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

**Table 8- Frequency distribution table: Works concurrently on related and/or conflicting priorities without losing focus or attention**

**Figure 8- Histogram of variable: Works concurrently on related and/or conflicting priorities without losing focus or attention**



## 9. Responds constructively to reversals and setbacks

### Statistics

Responds constructively to reversals and setbacks

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.86   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .505   |
| Skewness               |         | -4.802 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 27.629 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable R-1, where mean is 3.86 and Std. deviation is 0.505. Since Std. deviation is less than the one third of the mean, mean is a representative value.

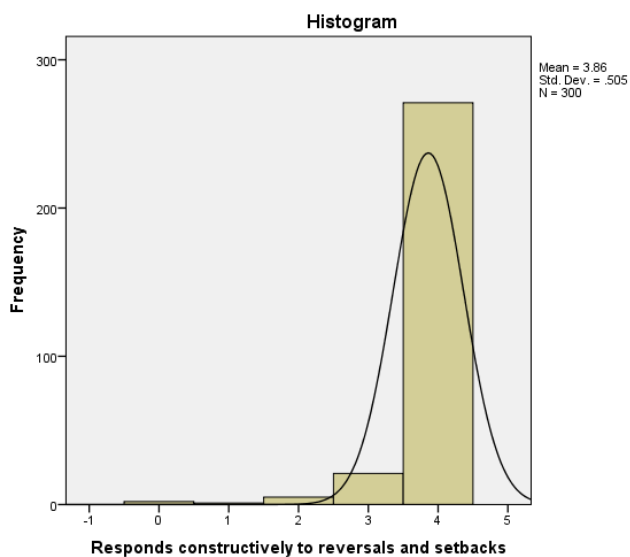
**Conclusion:** We can conclude that frequently the production managers respond constructively to reversals and setbacks.

## Responds constructively to reversals and setbacks

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 2         | .7      | .7            | .7                 |
| Once in a while           | 1         | .3      | .3            | 1.0                |
| Sometimes                 | 5         | 1.7     | 1.7           | 2.7                |
| Fairly Often              | 21        | 7.0     | 7.0           | 9.7                |
| Frequently, if not always | 271       | 90.3    | 90.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 9- Frequency distribution table: Responds constructively to reversals and setbacks

Figure 9- Histogram of variable: Responds constructively to reversals and setbacks



## 10. Maintains a professional demeanour in stressful and difficult situations

### Statistics

Maintains a professional demeanor in stressful and difficult situations

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.79   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .540   |
| Skewness               |         | -3.064 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 11.202 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable R-2, where mean is 3.79 and Std. deviation is 0.540. Since Std. deviation is less than the one third of the mean, mean is a representative value.

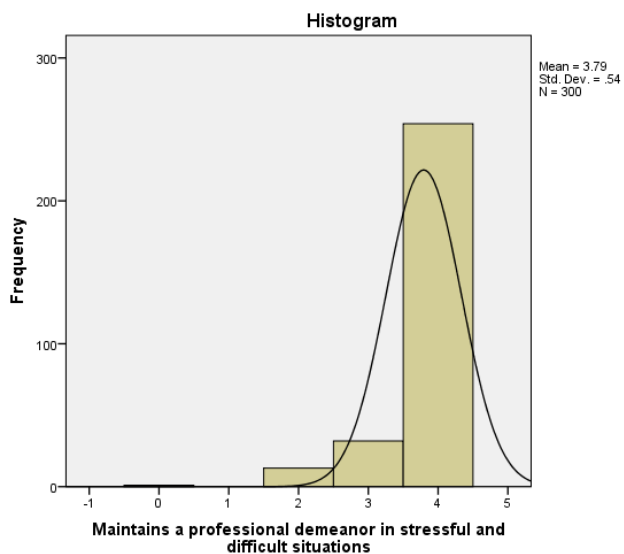
**Conclusion:** We can conclude that frequently the production managers maintain a professional demeanor in stressful and difficult situations.

## Maintains a professional demeanor in stressful and difficult situations

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Sometimes                 | 13        | 4.3     | 4.3           | 4.7                |
| Fairly Often              | 32        | 10.7    | 10.7          | 15.3               |
| Frequently, if not always | 254       | 84.7    | 84.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 10- Frequency distribution table: Maintains a professional demeanor in stressful and difficult situations

Figure 10- Histogram of variable: Maintains a professional demeanor in stressful and difficult situations



## 11. Develops objectives and sets priorities consistent with the organization's long-term strategies

### Statistics

Develops objectives and sets priorities consistent with the organization's long-term strategies

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.63   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .617   |
| Skewness               |         | -1.640 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.292  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable ST-1, where mean is 3.63 and Std. deviation is 0.617. Since Std. deviation is less than the one third of the mean, mean is a representative value.

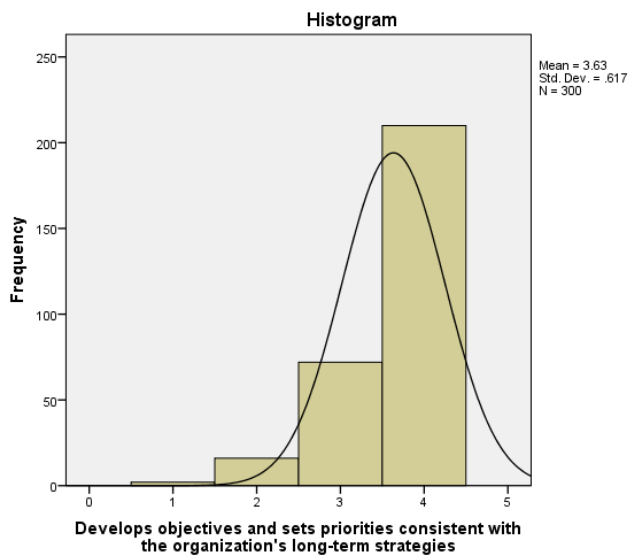
**Conclusion:** We can conclude that frequently the production managers develop objectives and sets priorities consistent with the organization's long-term strategies.

**Develops objectives and sets priorities consistent with the organization's long-term strategies**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 2         | .7      | .7            | .7                 |
| Sometimes                 | 16        | 5.3     | 5.3           | 6.0                |
| Fairly Often              | 72        | 24.0    | 24.0          | 30.0               |
| Frequently, if not always | 210       | 70.0    | 70.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 11- Develops objectives and sets priorities consistent with the organization's long-term strategies

Figure 11- Develops objectives and sets priorities consistent with the organization's long-term strategies



## 12. Adjusts strategic policies and plans in response to change, both internal and external

### Statistics

Adjusts strategic policies and plans in response to change, both internal and external

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.64   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .647   |
| Skewness               |         | -1.727 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.225  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable ST-2, where mean is 3.64 and Std. deviation is 0.647. Since Std. deviation is less than the one third of the mean, mean is a representative value.

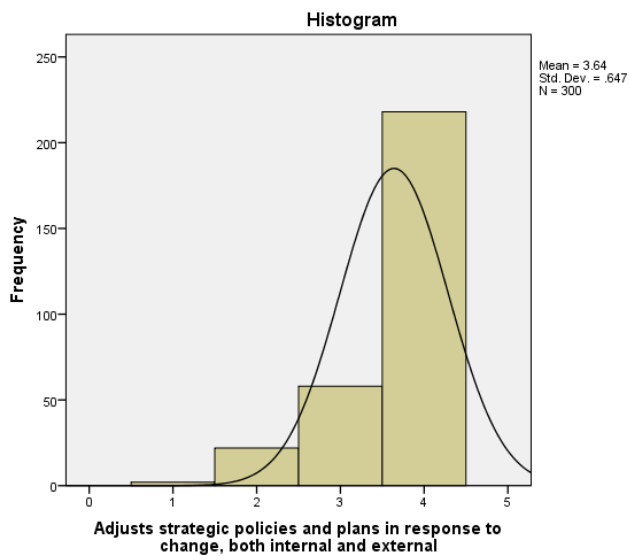
**Conclusion:** We can conclude that frequently the production managers adjust strategic policies and plans in response to change, both internal and external.

# **Adjusts strategic policies and plans in response to change, both internal and external**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 2         | .7      | .7            | .7                 |
| Sometimes                 | 22        | 7.3     | 7.3           | 8.0                |
| Fairly Often              | 58        | 19.3    | 19.3          | 27.3               |
| Frequently, if not always | 218       | 72.7    | 72.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 12- Adjusts strategic policies and plans in response to change, both internal and external

Figure 12- Histogram of variable: Adjusts strategic policies and plans in response to change, both internal and external



**13. Articulates and actively supports the companies vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies**

**Statistics**

Articulates and actively supports the companies vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.80   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .549   |
| Skewness               |         | -3.254 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 12.345 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable V-1, where mean is 3.80 and Std. deviation is 0.549. Since Std. deviation is less than the one third of the mean, mean is a representative value.

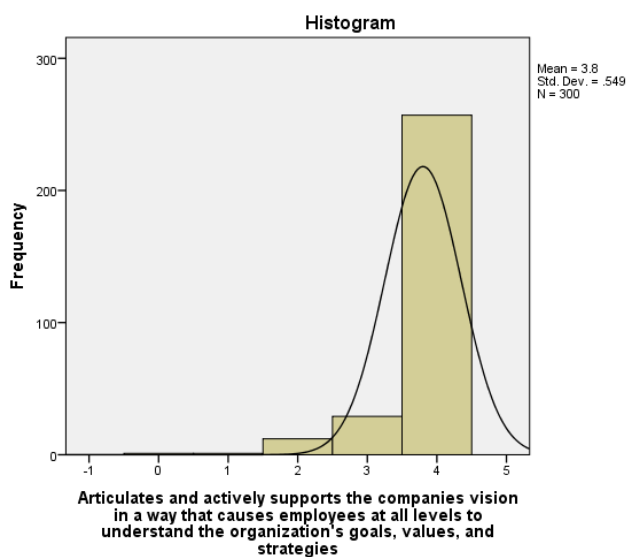
**Conclusion:** We can conclude that frequently the production managers adjust strategic policies and plans in response to change, both internal and external.

**Articulates and actively supports the companies vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Once in a while           | 1         | .3      | .3            | .7                 |
| Sometimes                 | 12        | 4.0     | 4.0           | 4.7                |
| Fairly Often              | 29        | 9.7     | 9.7           | 14.3               |
| Frequently, if not always | 257       | 85.7    | 85.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 13- Articulates and actively supports the companies' vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies

Figure 13- Histogram of variable: Articulates and actively supports the companies vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies



#### 14. Takes a long-term view and acts as a catalyst and champion of change

##### Statistics

Takes a long-term view and acts as a catalyst and champion of change

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.84   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .437   |
| Skewness               |         | -2.984 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 10.067 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable V-2, where mean is 3.84 and Std. deviation is 0.437. Since Std. deviation is less than the one third of the mean, mean is a representative value.

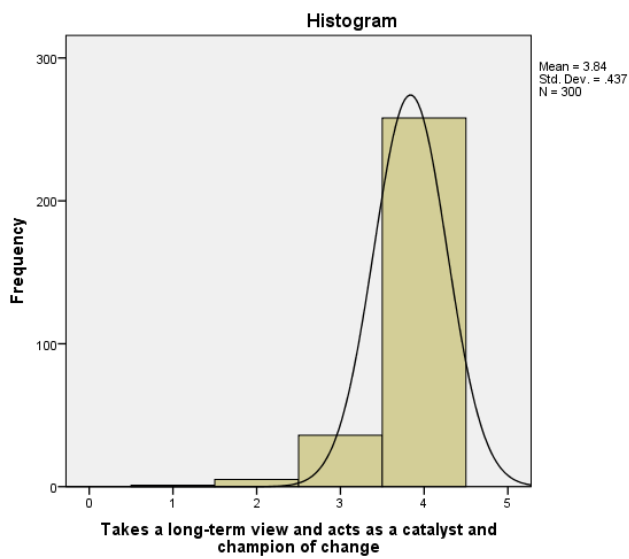
**Conclusion:** We can conclude that frequently the production managers take a long-term view and acts as a catalyst and champion of change.

## Takes a long-term view and acts as a catalyst and champion of change

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 1         | .3      | .3            | .3                 |
| Sometimes                 | 5         | 1.7     | 1.7           | 2.0                |
| Fairly Often              | 36        | 12.0    | 12.0          | 14.0               |
| Frequently, if not always | 258       | 86.0    | 86.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 14- Frequency distribution table: Takes a long-term view and acts as a catalyst and champion of change

Figure 14- Histogram of variable: Takes a long-term view and acts as a catalyst and champion of change



## 15. Attempts to resolve interpersonal and inter-group conflict constructively through self-management

### Statistics

Attempts to resolve interpersonal and inter-group conflict constructively through self-management

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.74   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .561   |
| Skewness               |         | -2.268 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 5.115  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CM-1, where mean is 3.74 and Std. deviation is 0.561. Since Std. deviation is less than the one third of the mean, mean is a representative value.

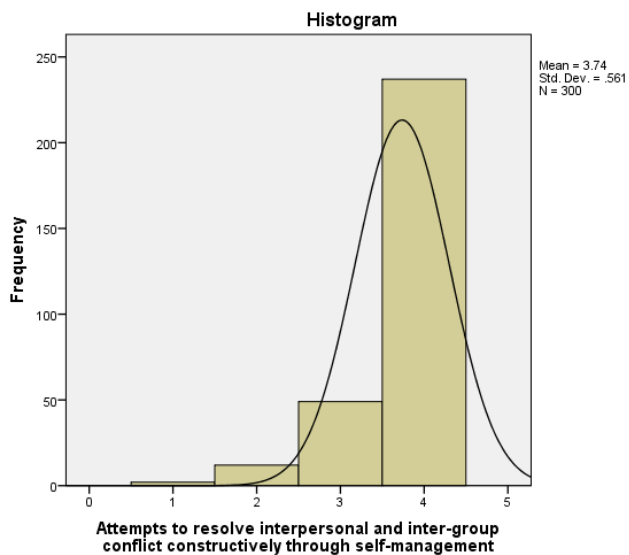
**Conclusion:** We can conclude that frequently the production managers attempt to resolve interpersonal and inter-group conflict constructively through self-management.

# **Attempts to resolve interpersonal and inter-group conflict constructively through self-management**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 2         | .7      | .7            | .7                 |
| Sometimes                 | 12        | 4.0     | 4.0           | 4.7                |
| Fairly Often              | 49        | 16.3    | 16.3          | 21.0               |
| Frequently, if not always | 237       | 79.0    | 79.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

**Table 15- Frequency distribution table: Attempts to resolve interpersonal and inter-group conflict constructively through self-management**

**Figure 15- Histogram of variable: Attempts to resolve interpersonal and inter-group conflict constructively through self-management**



## 16. Addresses and seeks to resolve formal and informal complaints from employees

### Statistics

Addresses and seeks to resolve formal and informal complaints from employees

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.10   |
| Median                 |         | 3.00   |
| Std. Deviation         |         | 1.174  |
| Skewness               |         | -1.662 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.020  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CM-2, where mean is 3.10 and Std. deviation is 1.174. Since Std. deviation is not less than the one third of the mean, mean is not a representative value. Hence we will follow the frequency distribution table mentioned below:

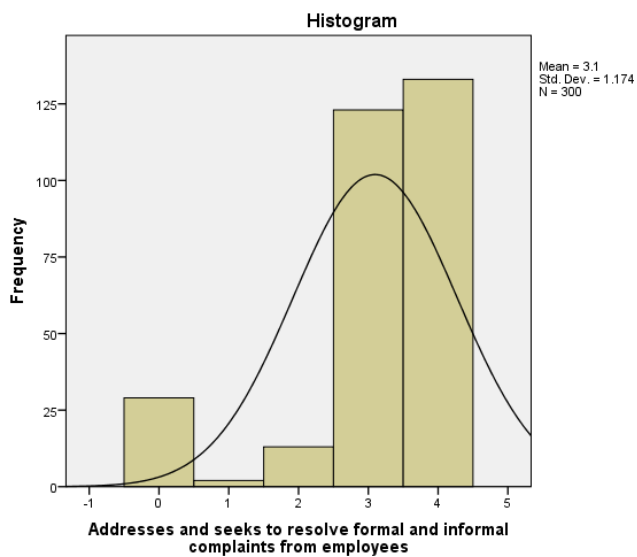
**Conclusion:** We can conclude that frequently and fairly the production manager's address and seeks to resolve formal and informal complaints from employees.

## Addresses and seeks to resolve formal and informal complaints from employees

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 29        | 9.7     | 9.7           | 9.7                |
| Once in a while           | 2         | .7      | .7            | 10.3               |
| Sometimes                 | 13        | 4.3     | 4.3           | 14.7               |
| Fairly Often              | 123       | 41.0    | 41.0          | 55.7               |
| Frequently, if not always | 133       | 44.3    | 44.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 16- Frequency distribution table: Addresses and seeks to resolve formal and informal complaints from employees

Figure 16- Histogram of variable: Addresses and seeks to resolve formal and informal complaints from employees



## 17. Respect cultures and values different from one's own

### Statistics

Respect cultures and values different from one's own

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.62   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .691   |
| Skewness               |         | -1.970 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 4.027  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CA-1, where mean is 3.62 and Std. deviation is .691. Since Std. deviation is less than the one third of the mean, mean is a representative value.

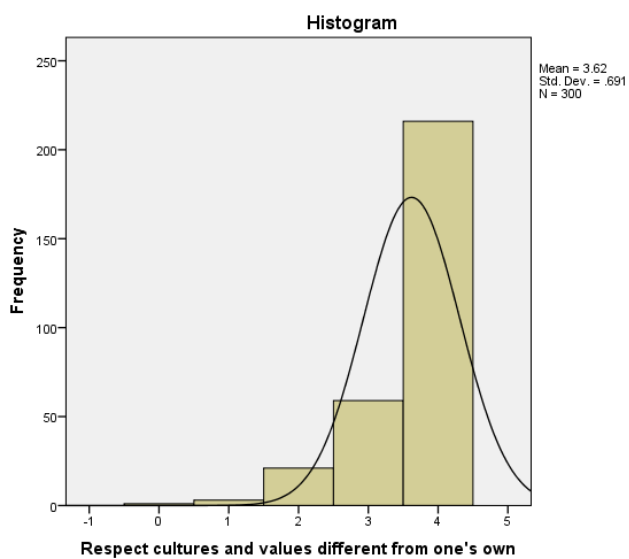
**Conclusion:** We can conclude that frequently the production manager's respect cultures and values different from one's own.

## Respect cultures and values different from one's own

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Once in a while           | 3         | 1.0     | 1.0           | 1.3                |
| Sometimes                 | 21        | 7.0     | 7.0           | 8.3                |
| Fairly Often              | 59        | 19.7    | 19.7          | 28.0               |
| Frequently, if not always | 216       | 72.0    | 72.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 17- Frequency distribution table: Respect cultures and values different from one's own

Figure 17- Histogram of variable: Respect cultures and values different from one's own



## 18. Understands how cultures differ and how these differences impact work behavior

### Statistics

Understands how cultures differ and how these differences impact work behavior

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.63   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .818   |
| Skewness               |         | -2.386 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 5.504  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CA-2, where mean is 3.63 and Std. deviation is .818. Since Std. deviation is less than the one third of the mean, mean is a representative value.

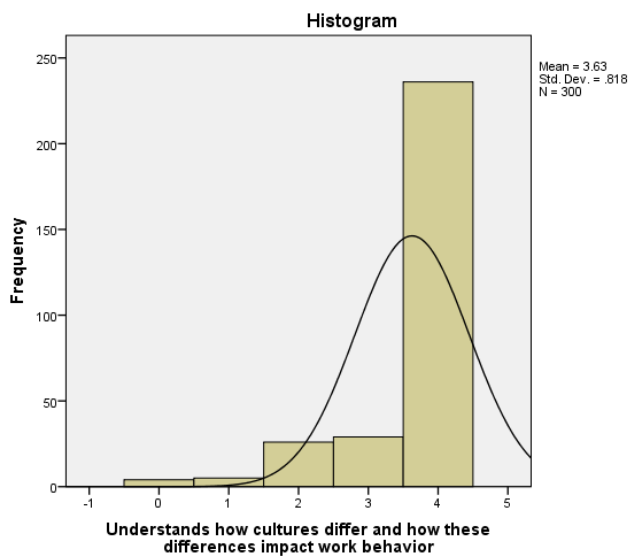
**Conclusion:** We can conclude that frequently the production manager's understands how cultures differ and how these differences impact work behavior.

### Understands how cultures differ and how these differences impact work behavior

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 4         | 1.3     | 1.3           | 1.3                |
| Once in a while           | 5         | 1.7     | 1.7           | 3.0                |
| Sometimes                 | 26        | 8.7     | 8.7           | 11.7               |
| Fairly Often              | 29        | 9.7     | 9.7           | 21.3               |
| Frequently, if not always | 236       | 78.7    | 78.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 18- Frequency distribution table: Understands how cultures differ and how these differences impact work behavior

Figure 18- Histogram of variable: Understands how cultures differ and how these differences impact work behavior



**19. Models and encourages high standards of honesty, integrity, trust, openness, and respect for others**

**Statistics**

Models and encourages high standards of honesty, integrity, trust, openness, and respect for others

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.73   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .698   |
| Skewness               |         | -3.374 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 13.101 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable IH-1, where mean is 3.73 and Std. deviation is .698. Since Std. deviation is less than the one third of the mean, mean is a representative value.

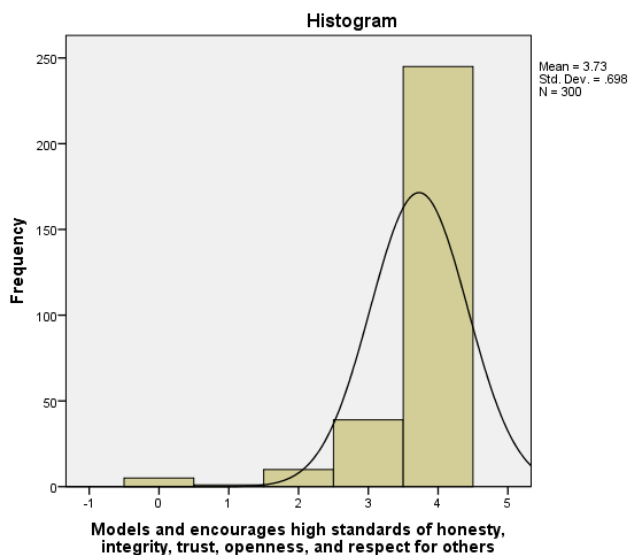
**Conclusion:** We can conclude that frequently the production manager's models and encourages high standards of honesty, integrity, trust, openness, and respect for others.

**Models and encourages high standards of honesty, integrity, trust, openness, and respect for others**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 5         | 1.7     | 1.7           | 1.7                |
| Once in a while           | 1         | .3      | .3            | 2.0                |
| Sometimes                 | 10        | 3.3     | 3.3           | 5.3                |
| Fairly Often              | 39        | 13.0    | 13.0          | 18.3               |
| Frequently, if not always | 245       | 81.7    | 81.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 19- Frequency distribution table: Models and encourages high standards of honesty, integrity, trust, openness, and respect for others

Figure 19- Histogram of variable: Models and encourages high standards of honesty, integrity, trust, openness, and respect for others



## 20. Creates a culture that fosters high standards of ethics

### Statistics

Creates a culture that fosters high standards of ethics

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.68   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .662   |
| Skewness               |         | -2.755 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 9.694  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable IH-2, where mean is 3.68 and Std. deviation is .662. Since Std. deviation is less than the one third of the mean, mean is a representative value.

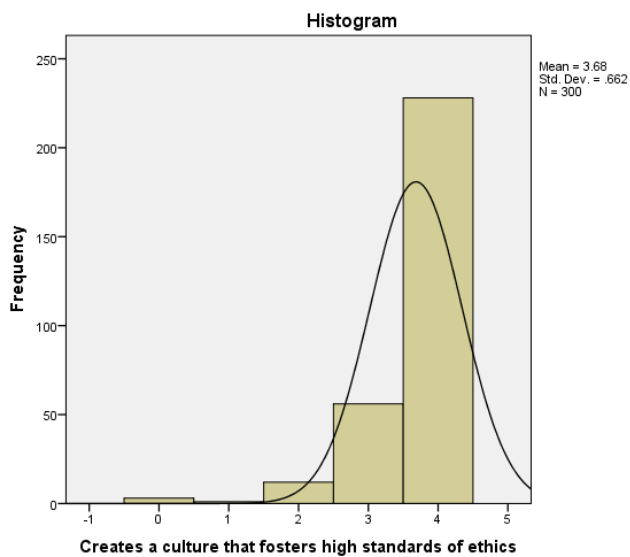
**Conclusion:** We can conclude that frequently the production manager's creates a culture that fosters high standards of ethics.

### Creates a culture that fosters high standards of ethics

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 3         | 1.0     | 1.0           | 1.0                |
| Once in a while           | 1         | .3      | .3            | 1.3                |
| Sometimes                 | 12        | 4.0     | 4.0           | 5.3                |
| Fairly Often              | 56        | 18.7    | 18.7          | 24.0               |
| Frequently, if not always | 228       | 76.0    | 76.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 20- Frequency distribution table: Creates a culture that fosters high standards of ethics

Figure 20- Histogram of variable: Creates a culture that fosters high standards of ethics



## 21. Inspires, motivates, and guides others toward goal accomplishment

### Statistics

Inspires, motivates, and guides others toward goal accomplishment

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.60   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .622   |
| Skewness               |         | -1.571 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.425  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable TB-1, where mean is 3.60 and Std. deviation is .622. Since Std. deviation is less than the one third of the mean, mean is a representative value.

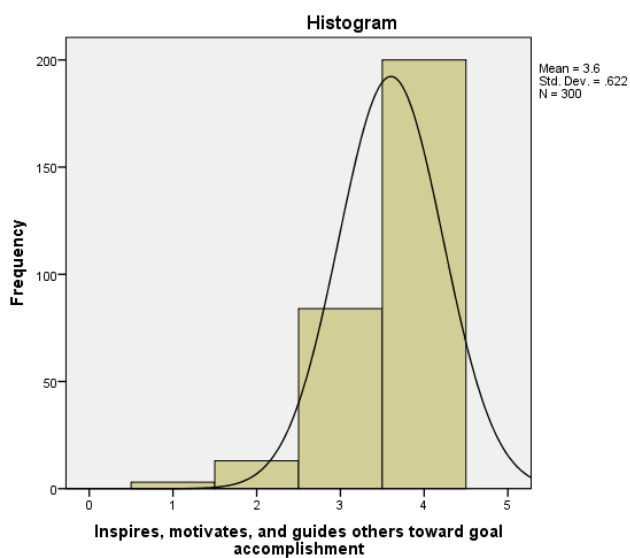
**Conclusion:** We can conclude that frequently the production manager's inspires, motivates, and guides others toward goal accomplishment.

## Inspires, motivates, and guides others toward goal accomplishment

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 3         | 1.0     | 1.0           | 1.0                |
| Sometimes                 | 13        | 4.3     | 4.3           | 5.3                |
| Fairly Often              | 84        | 28.0    | 28.0          | 33.3               |
| Frequently, if not always | 200       | 66.7    | 66.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 21- Frequency distribution table: Inspires, motivates, and guides others toward goal accomplishment

Figure 21- Histogram of variable: Inspires, motivates, and guides others toward goal accomplishment



## 22. Emphasizes cooperation and a team approach to work

### Statistics

Emphasizes cooperation and a team approach to work

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.61   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .626   |
| Skewness               |         | -1.878 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 4.854  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable TB-2, where mean is 3.61 and Std. deviation is .626. Since Std. deviation is less than the one third of the mean, mean is a representative value.

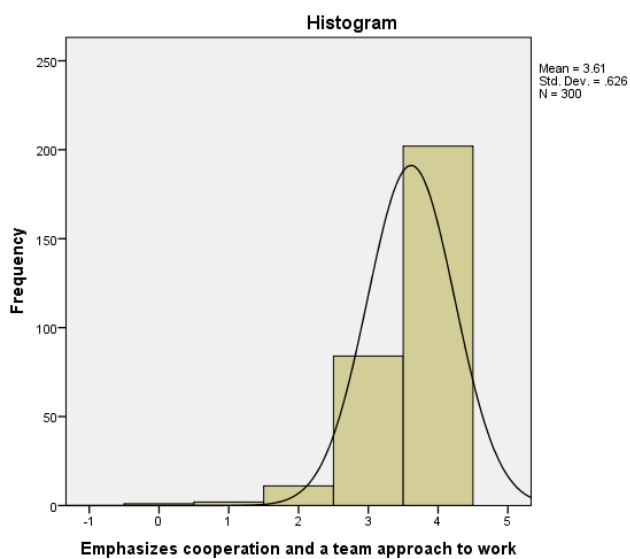
**Conclusion:** We can conclude that frequently the production manager's emphasizes cooperation and a team approach to work.

## Emphasizes cooperation and a team approach to work

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Once in a while           | 2         | .7      | .7            | 1.0                |
| Sometimes                 | 11        | 3.7     | 3.7           | 4.7                |
| Fairly Often              | 84        | 28.0    | 28.0          | 32.7               |
| Frequently, if not always | 202       | 67.3    | 67.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 22- Frequency distribution table: Emphasizes cooperation and a team approach to work

Figure 22- Histogram of variable: Emphasizes cooperation and a team approach to work



### 23. Monitors processes and/or activities and takes corrective actions when necessary

#### Statistics

Monitors processes and/or activities and takes corrective actions when necessary

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.74   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .552   |
| Skewness               |         | -2.430 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 6.524  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable A-1, where mean is 3.74 and Std. deviation is .552. Since Std. deviation is less than the one third of the mean, mean is a representative value.

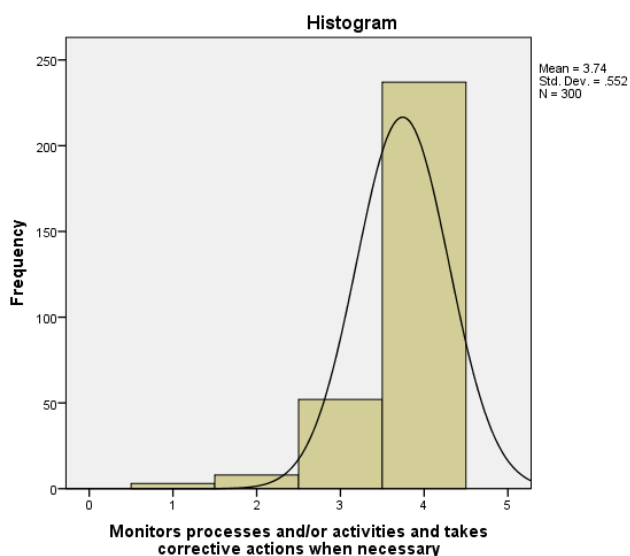
**Conclusion:** We can conclude that frequently the production manager's monitors processes and/or activities and takes corrective actions when necessary.

### Monitors processes and/or activities and takes corrective actions when necessary

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 3         | 1.0     | 1.0           | 1.0                |
| Sometimes                 | 8         | 2.7     | 2.7           | 3.7                |
| Fairly Often              | 52        | 17.3    | 17.3          | 21.0               |
| Frequently, if not always | 237       | 79.0    | 79.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 23- Frequency distribution table: Monitors processes and/or activities and takes corrective actions when necessary

Figure 23- Histogram of variable: Monitors processes and/or activities and takes corrective actions when necessary



## 24. Encourages others to take ownership of work, products, and results

### Statistics

Encourages others to take ownership of work, products, and results

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.85   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .441   |
| Skewness               |         | -3.280 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 11.599 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable A-2, where mean is 3.85 and Std. deviation is .441. Since Std. deviation is less than the one third of the mean, mean is a representative value.

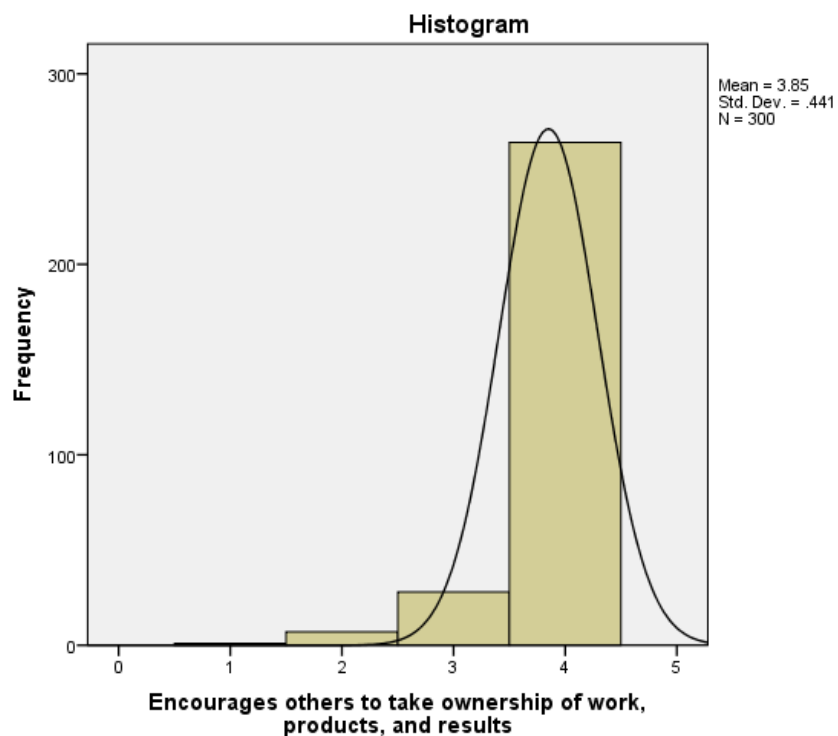
**Conclusion:** We can conclude that frequently the production manager's encourages others to take ownership of work, products, and results

## Encourages others to take ownership of work, products, and results

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Once in a while     | 1         | .3      | .3            | .3                 |
| Sometimes                 | 7         | 2.3     | 2.3           | 2.7                |
| Fairly Often              | 28        | 9.3     | 9.3           | 12.0               |
| Frequently, if not always | 264       | 88.0    | 88.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 24- Frequency distribution table: Encourages others to take ownership of work, products, and results

Figure 24- Histogram of variable: Encourages others to take ownership of work, products, and results



**25. Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products**

**Statistics**

Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.66   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .571   |
| Skewness               |         | -1.990 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 6.324  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CS-1, where mean is 3.66 and Std. deviation is .571. Since Std. deviation is less than the one third of the mean, mean is a representative value.

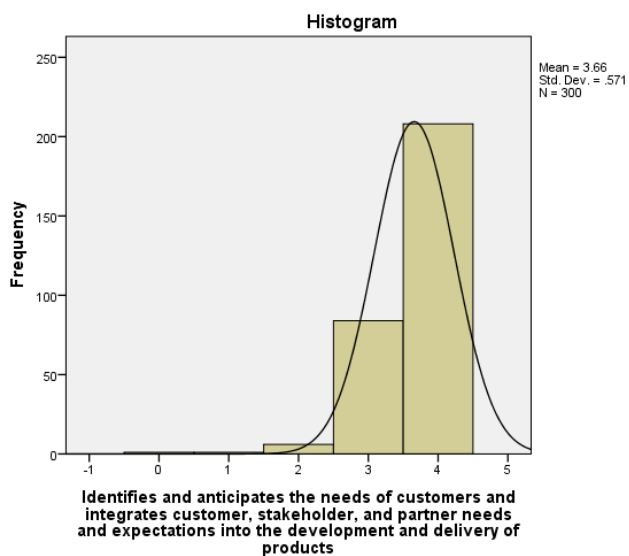
**Conclusion:** We can conclude that frequently the production manager's identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products.

**Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 1         | .3      | .3            | .3                 |
| Once in a while           | 1         | .3      | .3            | .7                 |
| Sometimes                 | 6         | 2.0     | 2.0           | 2.7                |
| Fairly Often              | 84        | 28.0    | 28.0          | 30.7               |
| Frequently, if not always | 208       | 69.3    | 69.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

**Table 25- Frequency distribution table: Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products**

**Figure 25- Histogram of variable: Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products**



## 26. Establishes and uses feedback systems to meet customer requirements and expectations

### Statistics

Establishes and uses feedback systems to meet customer requirements and expectations

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.74   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .806   |
| Skewness               |         | -3.577 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 12.719 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable CS-2, where mean is 3.66 and Std. deviation is .571. Since Std. deviation is less than the one third of the mean, mean is a representative value.

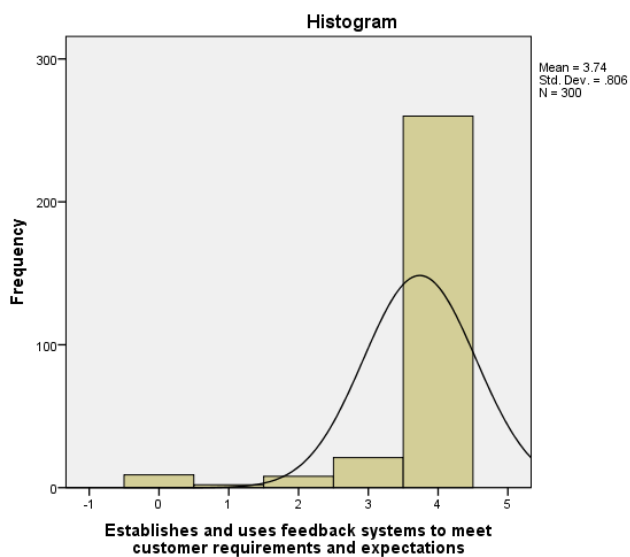
**Conclusion:** We can conclude that frequently the production manager's establishes and uses feedback systems to meet customer requirements and expectations.

**Establishes and uses feedback systems to meet customer requirements and expectations**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 9         | 3.0     | 3.0           | 3.0                |
| Once in a while           | 2         | .7      | .7            | 3.7                |
| Sometimes                 | 8         | 2.7     | 2.7           | 6.3                |
| Fairly Often              | 21        | 7.0     | 7.0           | 13.3               |
| Frequently, if not always | 260       | 86.7    | 86.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 26- Frequency distribution table: Establishes and uses feedback systems to meet customer requirements and expectations

Figure 26- Histogram of variable: Establishes and uses feedback systems to meet customer requirements and expectations



## 27. Makes difficult or controversial decisions when necessary

### Statistics

Makes difficult or controversial decisions when necessary

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.78   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .514   |
| Skewness               |         | -2.499 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 6.124  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable D-1, where mean is 3.78 and Std. deviation is .514. Since Std. deviation is less than the one third of the mean, mean is a representative value.

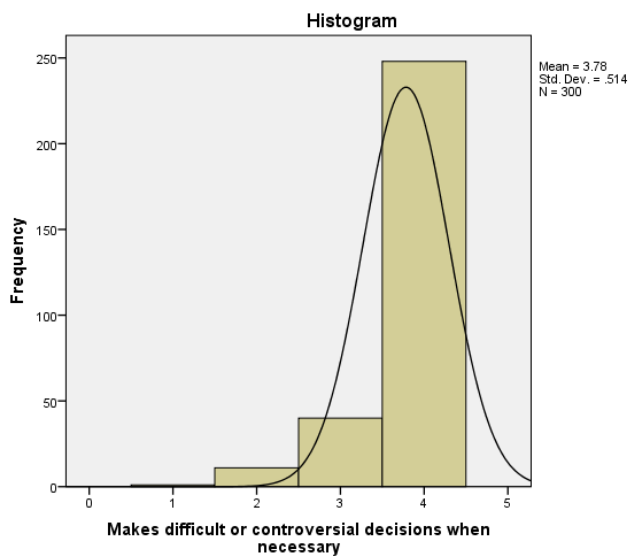
**Conclusion:** We can conclude that frequently the production manager's makes difficult or controversial decisions when necessary.

### Makes difficult or controversial decisions when necessary

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 1         | .3      | .3            | .3                 |
| Sometimes                 | 11        | 3.7     | 3.7           | 4.0                |
| Fairly Often              | 40        | 13.3    | 13.3          | 17.3               |
| Frequently, if not always | 248       | 82.7    | 82.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 27- Frequency distribution table: Makes difficult or controversial decisions when necessary

Figure 27- Histogram of variable: Makes difficult or controversial decisions when necessary



## 28. Exercises good judgment by making sound and well-informed decisions

### Statistics

Exercises good judgment by making sound and well-informed decisions

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.56   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .978   |
| Skewness               |         | -2.708 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 6.875  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable D-2, where mean is 3.56 and Std. deviation is .978. Since Std. deviation is less than the one third of the mean, mean is a representative value.

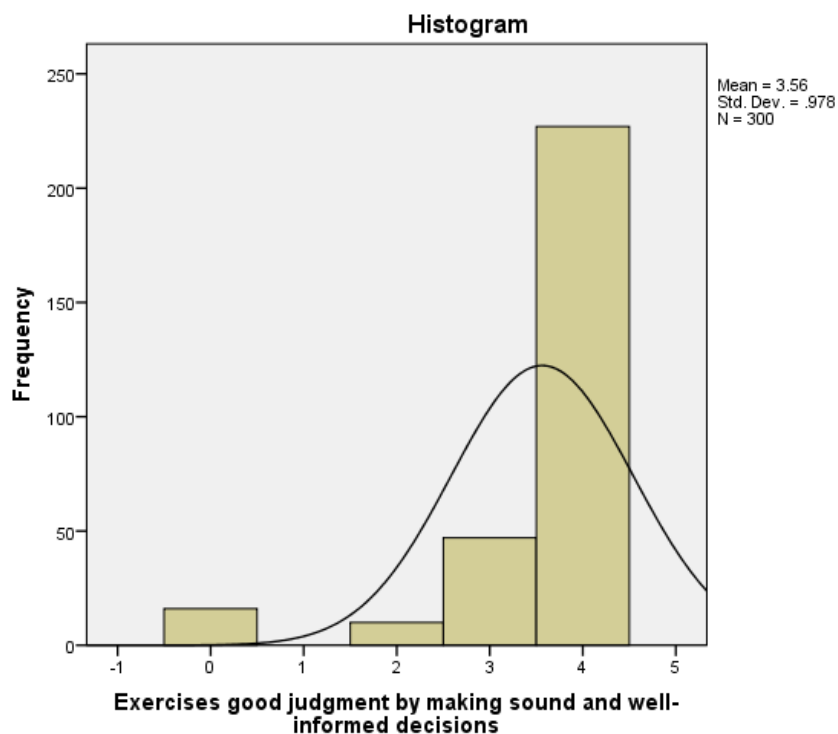
**Conclusion:** We can conclude that frequently the production manager's exercises good judgment by making sound and well-informed decisions

## Exercises good judgment by making sound and well-informed decisions

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 16        | 5.3     | 5.3           | 5.3                |
| Sometimes                 | 10        | 3.3     | 3.3           | 8.7                |
| Fairly Often              | 47        | 15.7    | 15.7          | 24.3               |
| Frequently, if not always | 227       | 75.7    | 75.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 28- Frequency distribution table: Exercises good judgment by making sound and well-informed decisions

Figure 28- Histogram of variable: Exercises good judgment by making sound and well-informed decisions



## 29. Recognizes, defines, and analyzes problems and issues

### Statistics

Recognizes, defines, and analyzes problems and issues

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.73   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .651   |
| Skewness               |         | -3.480 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 14.851 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PS-1, where mean is 3.73 and Std. deviation is .651. Since Std. deviation is less than the one third of the mean, mean is a representative value.

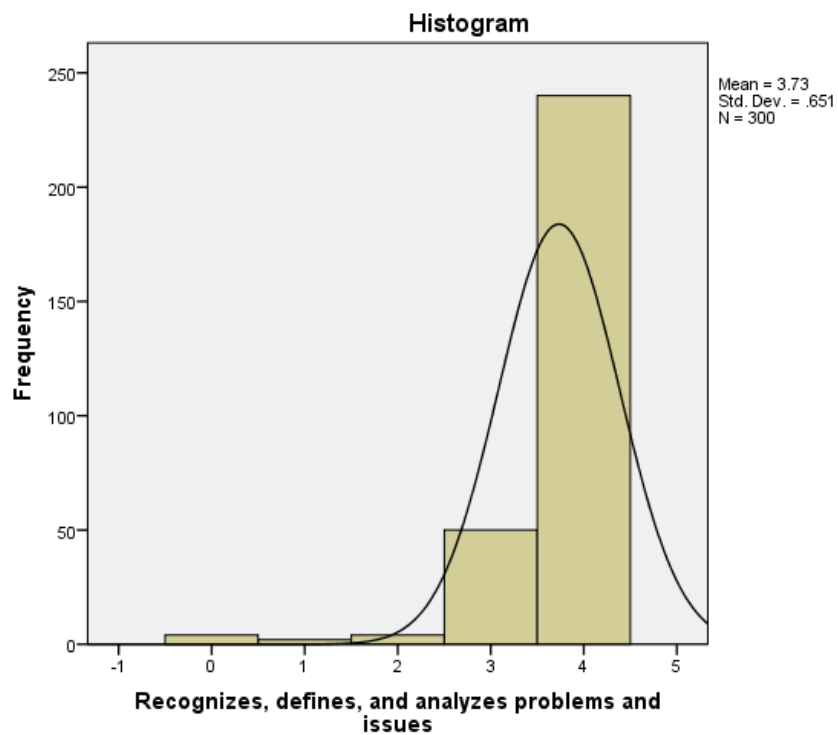
**Conclusion:** We can conclude that frequently the production manager's recognizes, defines, and analyzes problems and issues.

## Recognizes, defines, and analyzes problems and issues

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 4         | 1.3     | 1.3           | 1.3                |
| Once in a while           | 2         | .7      | .7            | 2.0                |
| Sometimes                 | 4         | 1.3     | 1.3           | 3.3                |
| Fairly Often              | 50        | 16.7    | 16.7          | 20.0               |
| Frequently, if not always | 240       | 80.0    | 80.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 29- Frequency distribution table: Recognizes, defines, and analyzes problems and issues

Figure 29- Histogram of variable: Recognizes, defines, and analyzes problems and issues



### 30. Uses qualitative and quantitative data and analytical tools in problem solving

#### Statistics

Uses qualitative and quantitative data and analytical tools in problem solving

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.87   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .412   |
| Skewness               |         | -3.525 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 14.029 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PS-2, where mean is 3.87 and Std. deviation is .412. Since Std. deviation is less than the one third of the mean, mean is a representative value.

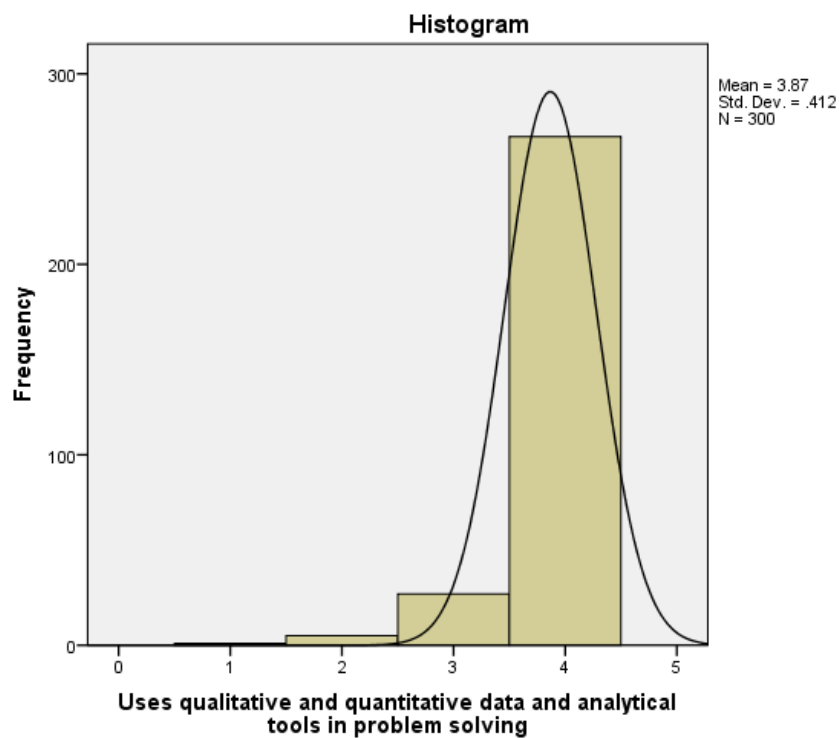
**Conclusion:** We can conclude that frequently the production manager's uses qualitative and quantitative data and analytical tools in problem solving.

### Uses qualitative and quantitative data and analytical tools in problem solving

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 1         | .3      | .3            | .3                 |
| Sometimes                 | 5         | 1.7     | 1.7           | 2.0                |
| Fairly Often              | 27        | 9.0     | 9.0           | 11.0               |
| Frequently, if not always | 267       | 89.0    | 89.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 30- Frequency distribution table: Uses qualitative and quantitative data and analytical tools in problem solving

Figure 30- Histogram of variable: Uses qualitative and quantitative data and analytical tools in problem solving



**31. Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility**

**Statistics**

Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.29   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | 1.334  |
| Skewness               |         | -1.698 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 1.307  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable TC-1, where mean is 3.29 and Std. deviation is 1.334. Since Std. deviation is not less than the one third of the mean, mean is not a representative value. Hence we will follow the frequency distribution table mentioned below.

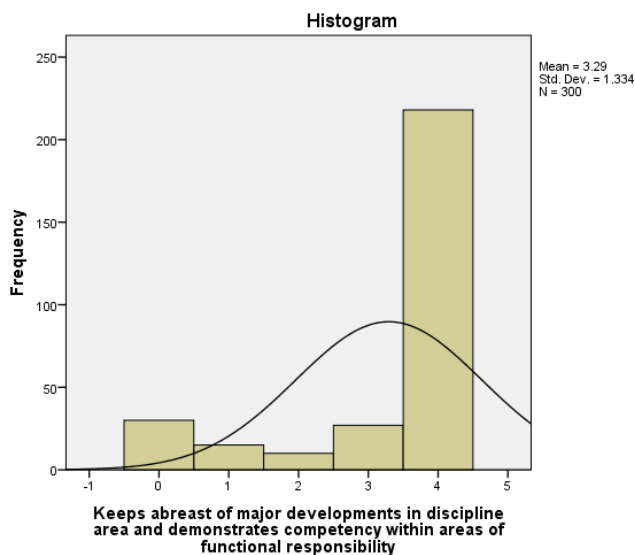
**Conclusion:** We can conclude that some sample they said they exercise this competency in less frequent manner, hence it is evident that they keeps less abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility.

**Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 30        | 10.0    | 10.0          | 10.0               |
| Once in a while           | 15        | 5.0     | 5.0           | 15.0               |
| Sometimes                 | 10        | 3.3     | 3.3           | 18.3               |
| Fairly Often              | 27        | 9.0     | 9.0           | 27.3               |
| Frequently, if not always | 218       | 72.7    | 72.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 31- Frequency distribution table: Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility

Figure 31- Histogram of variable: Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility



### 32. Plans for needed or mandated changes in size and composition of staff

#### Statistics

Plans for needed or mandated changes in size and composition of staff

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 2.92   |
| Median                 |         | 3.00   |
| Std. Deviation         |         | .404   |
| Skewness               |         | -5.526 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 32.252 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable TC-2, where mean is 2.92 and Std. deviation is .404. Since Std. deviation is less than the one third of the mean, mean is a representative value.

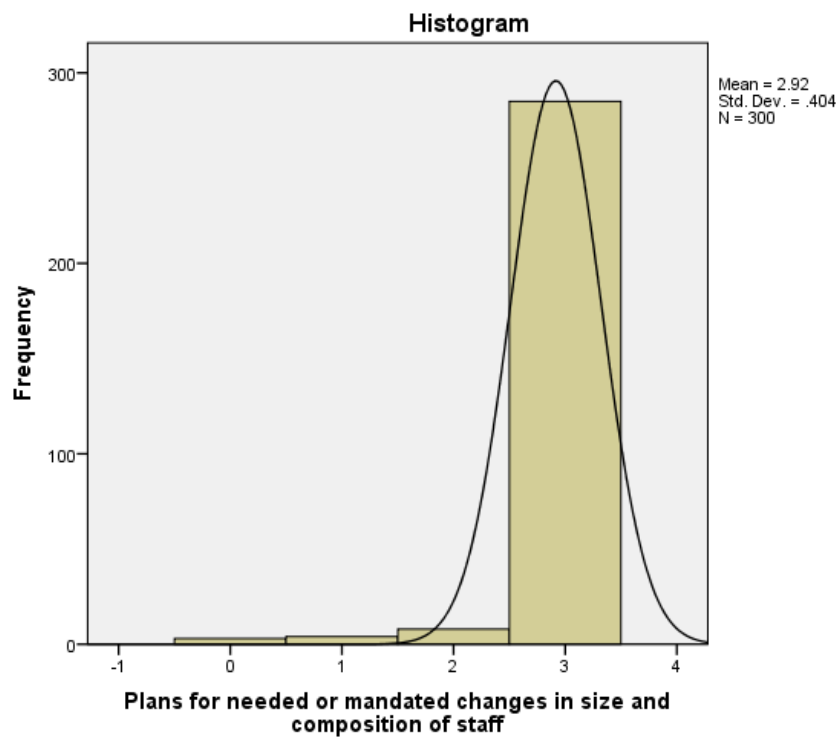
**Conclusion:** We can conclude that frequently the production manager's plans for needed or mandated changes in size and composition of staff.

### Plans for needed or mandated changes in size and composition of staff

|                 | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------|-----------|---------|---------------|--------------------|
| Not at All      | 3         | 1.0     | 1.0           | 1.0                |
| Once in a while | 4         | 1.3     | 1.3           | 2.3                |
| Sometimes       | 8         | 2.7     | 2.7           | 5.0                |
| Fairly Often    | 285       | 95.0    | 95.0          | 100.0              |
| Total           | 300       | 100.0   | 100.0         |                    |

Table 32- Frequency distribution table: Plans for needed or mandated changes in size and composition of staff

Figure 32- Histogram of variable: Plans for needed or mandated changes in size and composition of staff



### 33. Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals

#### Statistics

Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.55   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .866   |
| Skewness               |         | -2.659 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 7.676  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable HRM-1, where mean is 3.55 and Std. deviation is .866. Since Std. deviation is less than the one third of the mean, mean is a representative value.

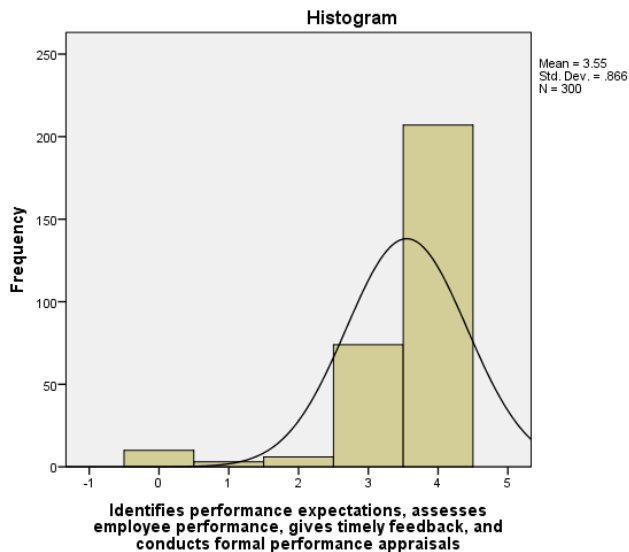
**Conclusion:** We can conclude that frequently the production managers identify performance expectations, assess employee performance, give timely feedback, and conducts formal performance appraisals.

**Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 10        | 3.3     | 3.3           | 3.3                |
| Once in a while           | 3         | 1.0     | 1.0           | 4.3                |
| Sometimes                 | 6         | 2.0     | 2.0           | 6.3                |
| Fairly Often              | 74        | 24.7    | 24.7          | 31.0               |
| Frequently, if not always | 207       | 69.0    | 69.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 33- Frequency distribution table: Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals

Figure 33- Histogram of variable: Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals



### 34. Recognizes and rewards team members based on performance

#### Statistics

Recognizes and rewards team members based on performance

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.73   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .514   |
| Skewness               |         | -2.349 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 9.159  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable HRM-2, where mean is 3.73 and Std. deviation is .514. Since Std. deviation is less than the one third of the mean, mean is a representative value.

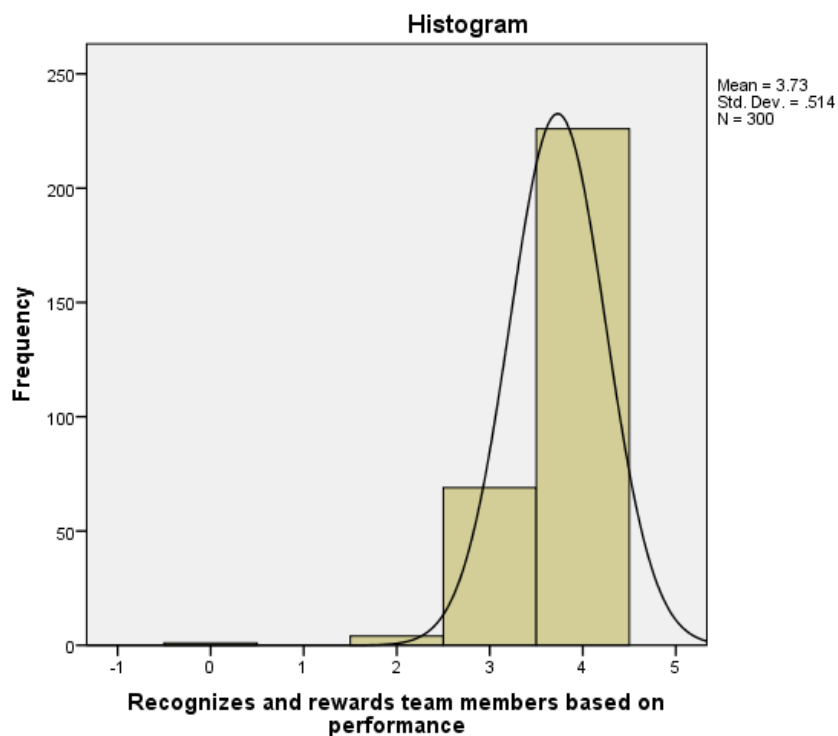
**Conclusion:** We can conclude that frequently the production managers recognize and rewards team members based on performance

## Recognizes and rewards team members based on performance

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Sometimes                 | 4         | 1.3     | 1.3           | 1.7                |
| Fairly Often              | 69        | 23.0    | 23.0          | 24.7               |
| Frequently, if not always | 226       | 75.3    | 75.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 34- Frequency distribution table: Recognizes and rewards team members based on performance

Figure 34- Histogram of variable: Recognizes and rewards team members based on performance



**35. Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts**

**Statistics**

Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.62   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .691   |
| Skewness               |         | -2.093 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 4.832  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable I-1, where mean is 3.62 and Std. deviation is .691. Since Std. deviation is less than the one third of the mean, mean is a representative value.

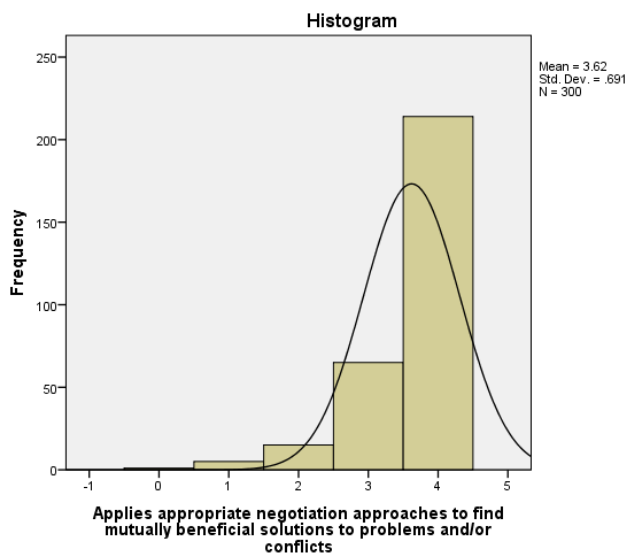
**Conclusion:** We can conclude that frequently the production managers apply appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts.

**Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 1         | .3      | .3            | .3                 |
| Once in a while           | 5         | 1.7     | 1.7           | 2.0                |
| Sometimes                 | 15        | 5.0     | 5.0           | 7.0                |
| Fairly Often              | 65        | 21.7    | 21.7          | 28.7               |
| Frequently, if not always | 214       | 71.3    | 71.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 35- Frequency distribution table: Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts

Figure 35- Histogram of variable: Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts



### 36. Gains cooperation from others to obtain information and accomplish goals

#### Statistics

Gains cooperation from others to obtain information and accomplish goals

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.78   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .498   |
| Skewness               |         | -2.843 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 12.171 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable I-2, where mean is 3.78 and Std. deviation is .498. Since Std. deviation is less than the one third of the mean, mean is a representative value.

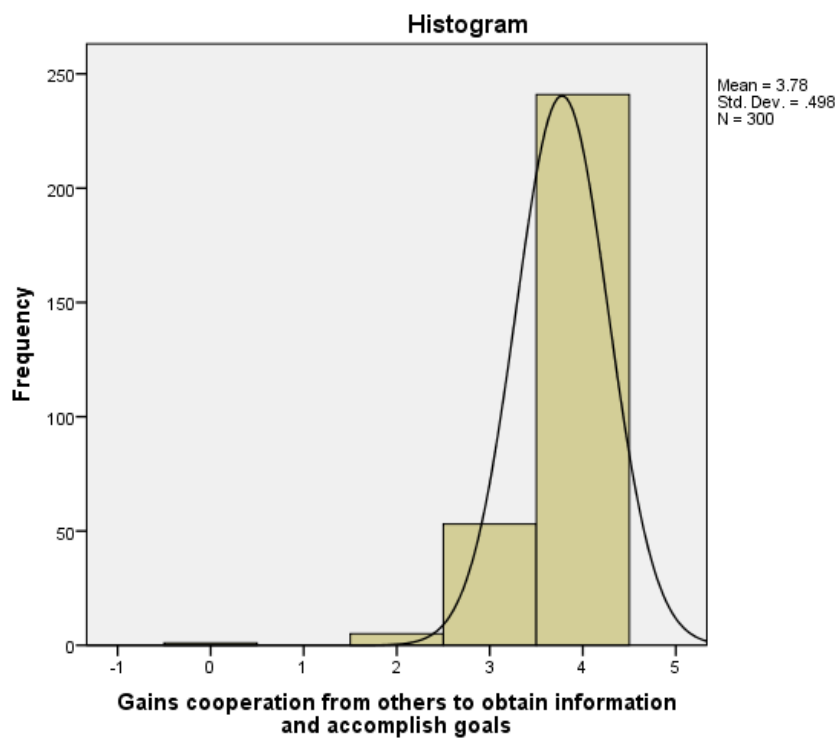
**Conclusion:** We can conclude that frequently the production managers gains cooperation from others to obtain information and accomplish goals.

### Gains cooperation from others to obtain information and accomplish goals

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 1         | .3      | .3            | .3                 |
| Sometimes                 | 5         | 1.7     | 1.7           | 2.0                |
| Fairly Often              | 53        | 17.7    | 17.7          | 19.7               |
| Frequently, if not always | 241       | 80.3    | 80.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 36- Frequency distribution table: Gains cooperation from others to obtain information and accomplish goals

Figure 36- Histogram of variable: Gains cooperation from others to obtain information and accomplish goals



**37. Provides appropriate feedback in a manner that reinforces or elicits desirable behavior**

**Statistics**

Provides appropriate feedback in a manner that reinforces or elicits desirable behavior

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.69   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .665   |
| Skewness               |         | -2.992 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 11.607 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable IS-1, where mean is 3.69 and Std. deviation is .665. Since Std. deviation is less than the one third of the mean, mean is a representative value.

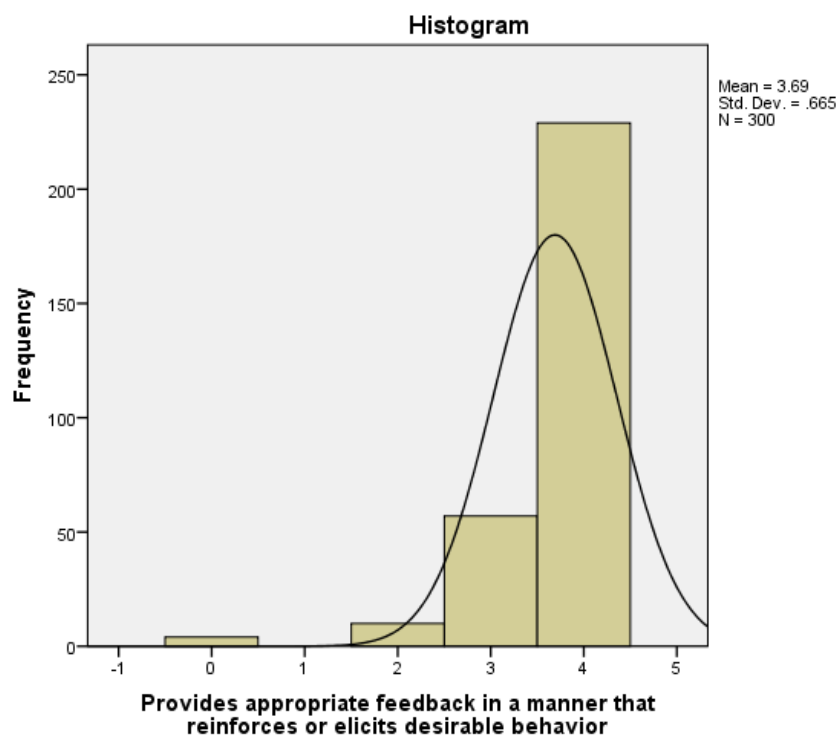
**Conclusion:** We can conclude that frequently the production managers provide appropriate feedback in a manner that reinforces or elicits desirable behavior.

**Provides appropriate feedback in a manner that reinforces or elicits desirable behavior**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 4         | 1.3     | 1.3           | 1.3                |
| Sometimes                 | 10        | 3.3     | 3.3           | 4.7                |
| Fairly Often              | 57        | 19.0    | 19.0          | 23.7               |
| Frequently, if not always | 229       | 76.3    | 76.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 37- Frequency distribution table: Provides appropriate feedback in a manner that reinforces or elicits desirable behavior

Figure 37- Histogram of variable: Provides appropriate feedback in a manner that reinforces or elicits desirable behavior



**38. Considers and responds appropriately to the needs, feelings, and capabilities of others**

**Statistics**

Considers and responds appropriately to the needs, feelings, and capabilities of others

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.74   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .588   |
| Skewness               |         | -2.961 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 10.872 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable IS-2, where mean is 3.74 and Std. deviation is .588. Since Std. deviation is less than the one third of the mean, mean is a representative value.

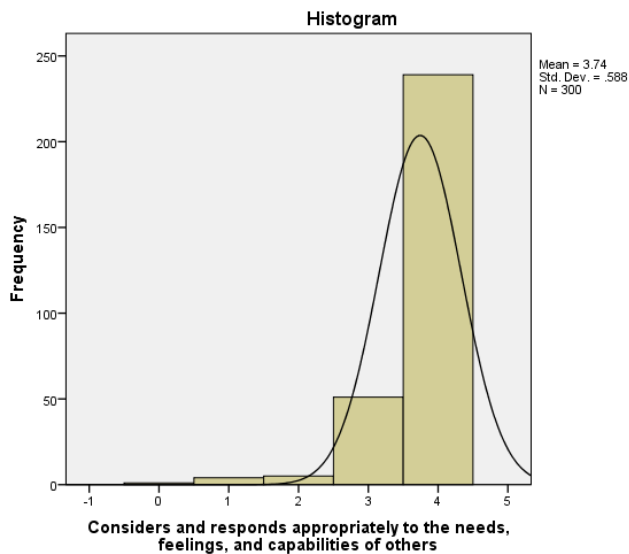
**Conclusion:** We can conclude that frequently the production managers consider and respond appropriately to the needs, feelings, and capabilities of others

**Considers and responds appropriately to the needs, feelings, and capabilities of others**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 1         | .3      | .3            | .3                 |
| Once in a while           | 4         | 1.3     | 1.3           | 1.7                |
| Sometimes                 | 5         | 1.7     | 1.7           | 3.3                |
| Fairly Often              | 51        | 17.0    | 17.0          | 20.3               |
| Frequently, if not always | 239       | 79.7    | 79.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 38- Frequency distribution table: Considers and responds appropriately to the needs, feelings, and capabilities of others

Figure 38- Histogram of variable: Considers and responds appropriately to the needs, feelings, and capabilities of others



**39. Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion**

**Statistics**

Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.75   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .503   |
| Skewness               |         | -2.098 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 4.565  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable OC-1, where mean is 3.75 and Std. deviation is .503. Since Std. deviation is less than the one third of the mean, mean is a representative value.

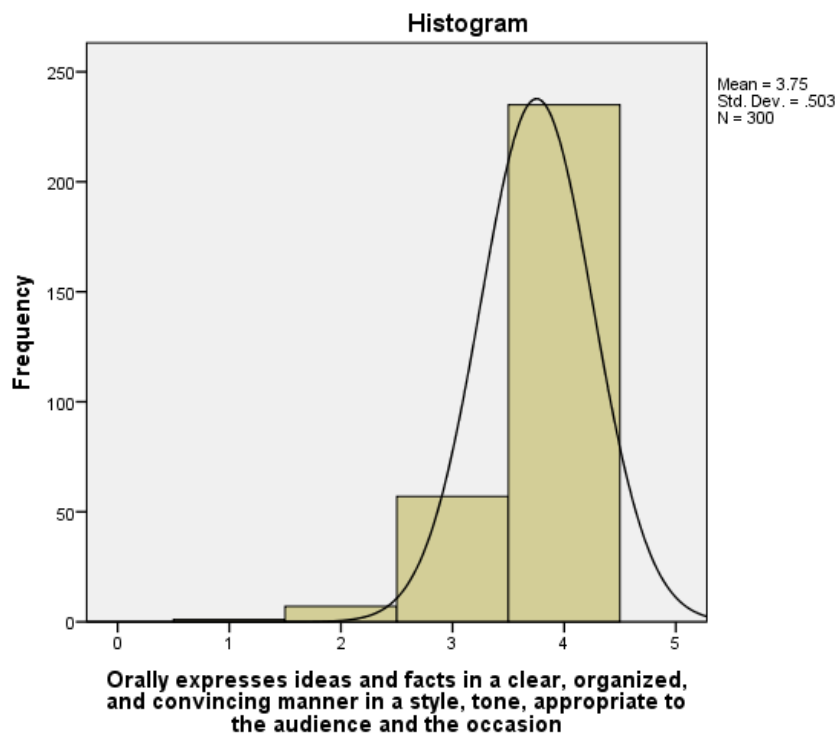
**Conclusion:** We can conclude that frequently the production managers orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion.

**Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Once in a while           | 1         | .3      | .3            | .3                 |
| Sometimes                 | 7         | 2.3     | 2.3           | 2.7                |
| Fairly Often              | 57        | 19.0    | 19.0          | 21.7               |
| Frequently, if not always | 235       | 78.3    | 78.3          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 39- Frequency distribution table: Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion

Figure 39- Histogram of variable: Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion



#### 40. Listens to others and shows understanding of what they are saying

##### Statistics

Listens to others and shows understanding of what they are saying

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.83   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .442   |
| Skewness               |         | -3.586 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 20.122 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable OC-2, where mean is 3.83 and Std. deviation is .442. Since Std. deviation is less than the one third of the mean, mean is a representative value.

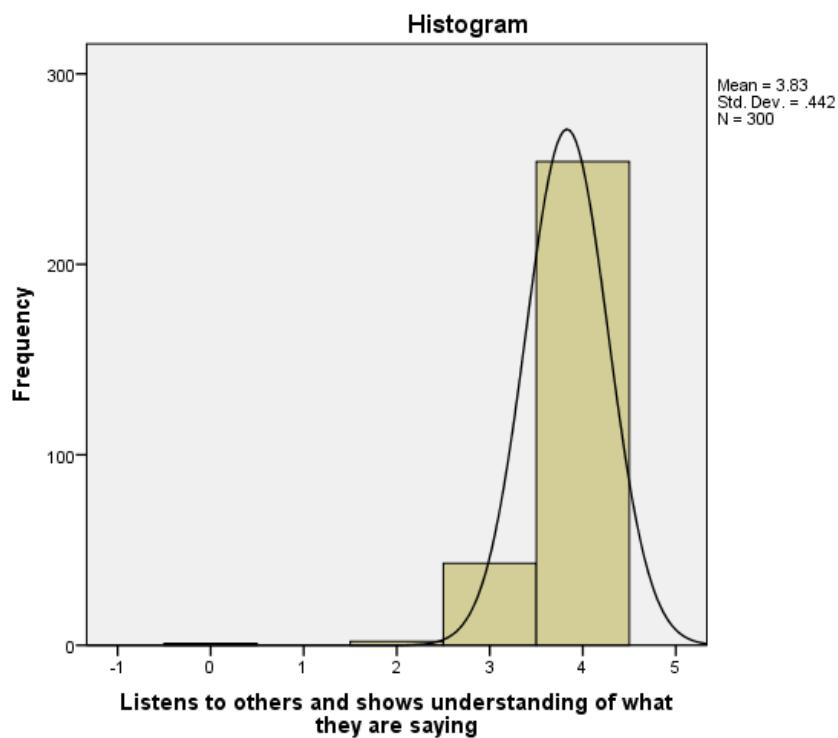
**Conclusion:** We can conclude that frequently the production managers listen to others and show understanding of what they are saying.

## Listens to others and shows understanding of what they are saying

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 1         | .3      | .3            | .3                 |
| Sometimes                 | 2         | .7      | .7            | 1.0                |
| Fairly Often              | 43        | 14.3    | 14.3          | 15.3               |
| Frequently, if not always | 254       | 84.7    | 84.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 40- Frequency distribution table: Listens to others and shows understanding of what they are saying

Figure 40- Histogram of variable: Listens to others and shows understanding of what they are saying



#### 41. Effectively develops networks and builds alliances with key individuals or groups

##### Statistics

Effectively develops networks and builds alliances with key individuals or groups

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.63   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .981   |
| Skewness               |         | -2.978 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 7.919  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable P-1, where mean is 3.63 and Std. deviation is .981. Since Std. deviation is less than the one third of the mean, mean is a representative value.

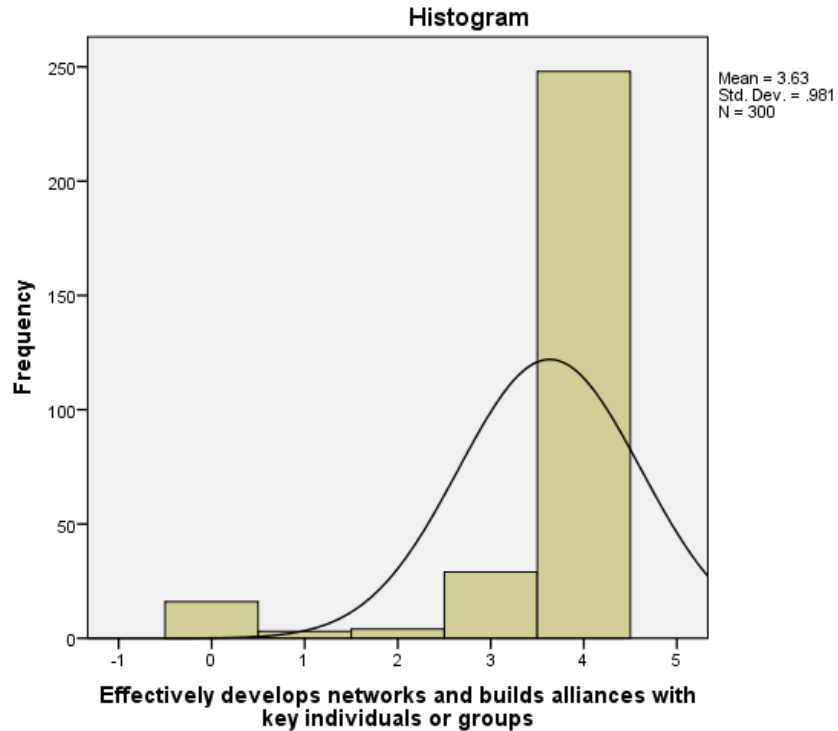
**Conclusion:** We can conclude that frequently the production managers effectively develop networks and builds alliances with key individuals or groups.

## Effectively develops networks and builds alliances with key individuals or groups

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 16        | 5.3     | 5.3           | 5.3                |
| Once in a while           | 3         | 1.0     | 1.0           | 6.3                |
| Sometimes                 | 4         | 1.3     | 1.3           | 7.7                |
| Fairly Often              | 29        | 9.7     | 9.7           | 17.3               |
| Frequently, if not always | 248       | 82.7    | 82.7          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 41- Frequency distribution table: Effectively develops networks and builds alliances with key individuals or groups

Figure 41- Histogram of variable: Effectively develops networks and builds alliances with key individuals or groups



## 42. Manages competition between individuals or groups to eliminate barriers to building partnerships

### Statistics

Manages competition between individuals or groups to eliminate barriers to building partnerships

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.50   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .963   |
| Skewness               |         | -2.367 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 5.445  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable P-2, where mean is 3.50 and Std. deviation is .963. Since Std. deviation is less than the one third of the mean, mean is a representative value.

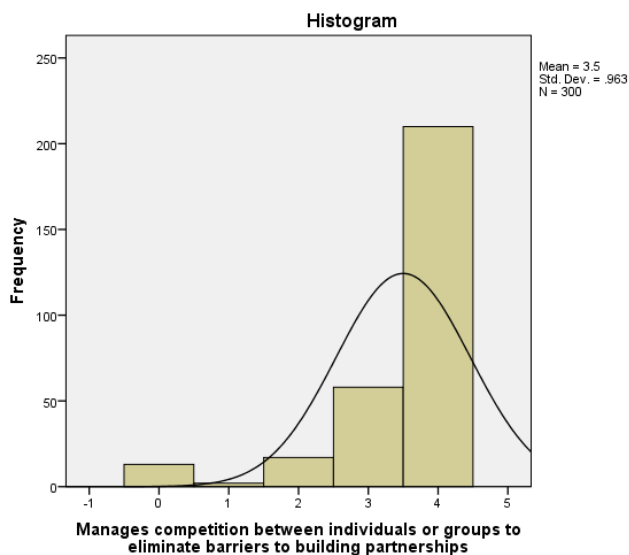
**Conclusion:** We can conclude that frequently the production managers manage competition between individuals or groups to eliminate barriers to building partnerships.

**Manages competition between individuals or groups to eliminate barriers to building partnerships**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid Not at All          | 13        | 4.3     | 4.3           | 4.3                |
| Once in a while           | 2         | .7      | .7            | 5.0                |
| Sometimes                 | 17        | 5.7     | 5.7           | 10.7               |
| Fairly Often              | 58        | 19.3    | 19.3          | 30.0               |
| Frequently, if not always | 210       | 70.0    | 70.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 42- Frequency distribution table: Manages competition between individuals or groups to eliminate barriers to building partnerships

Figure 42- Histogram of variable: Manages competition between individuals or groups to eliminate barriers to building partnerships



**43. Keeps current with internal and external politics and issues that impact the work of the organization**

**Statistics**

Keeps current with internal and external politics and issues that impact the work of the organization

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.59   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | 1.026  |
| Skewness               |         | -2.602 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 5.724  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable POS-1, where mean is 3.59 and Std. deviation is 1.026. Since Std. deviation is less than the one third of the mean, mean is a representative value.

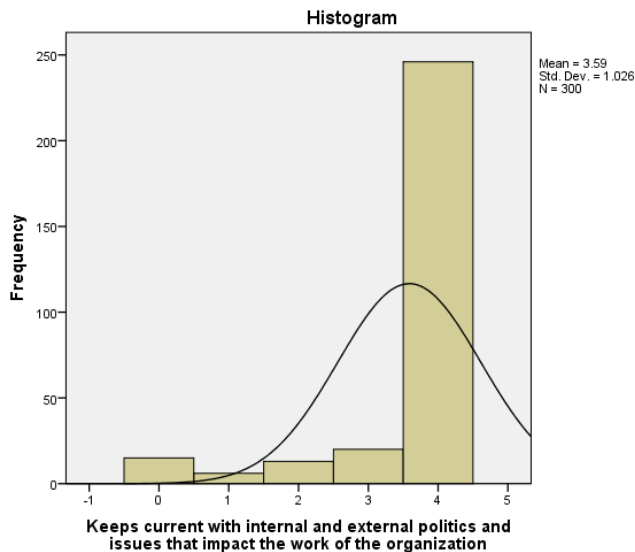
**Conclusion:** We can conclude that frequently the production managers keep current with internal and external politics and issues that impact the work of the organization.

**Keeps current with internal and external politics and issues that impact the work of the organization**

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 15        | 5.0     | 5.0           | 5.0                |
| Once in a while           | 6         | 2.0     | 2.0           | 7.0                |
| Sometimes                 | 13        | 4.3     | 4.3           | 11.3               |
| Fairly Often              | 20        | 6.7     | 6.7           | 18.0               |
| Frequently, if not always | 246       | 82.0    | 82.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 43- Frequency distribution table: Keeps current with internal and external politics and issues that impact the work of the organization

Figure 43- Histogram of variable: Keeps current with internal and external politics and issues that impact the work of the organization



#### 44. Anticipates the internal and external implications of statements or actions

##### Statistics

Anticipates the internal and external implications of statements or actions

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 3.70   |
| Median                 |         | 4.00   |
| Std. Deviation         |         | .775   |
| Skewness               |         | -3.285 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 11.523 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable POS-2, where mean is 3.70 and Std. deviation is .775. Since Std. deviation is less than the one third of the mean, mean is a representative value.

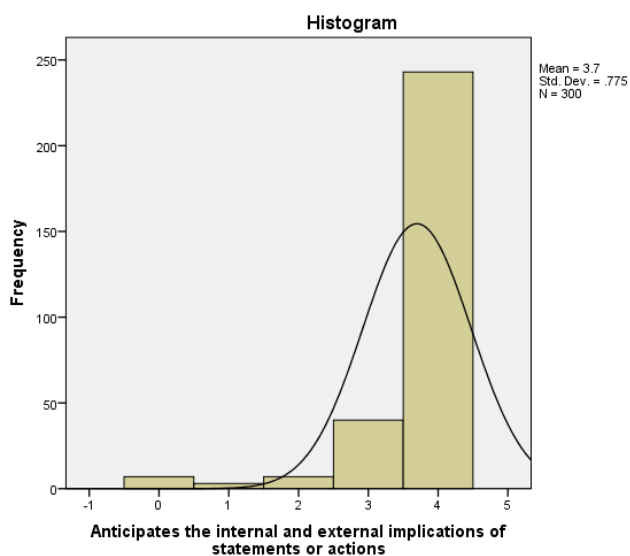
**Conclusion:** We can conclude that frequently the production managers anticipate the internal and external implications of statements or actions.

### Anticipates the internal and external implications of statements or actions

|                           | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Not at All                | 7         | 2.3     | 2.3           | 2.3                |
| Once in a while           | 3         | 1.0     | 1.0           | 3.3                |
| Sometimes                 | 7         | 2.3     | 2.3           | 5.7                |
| Fairly Often              | 40        | 13.3    | 13.3          | 19.0               |
| Frequently, if not always | 243       | 81.0    | 81.0          | 100.0              |
| Total                     | 300       | 100.0   | 100.0         |                    |

Table 44- Frequency of distribution table: Anticipates the internal and external implications of statements or actions

Figure 44- Histogram of variable: Anticipates the internal and external implications of statements or actions



#### 45. You are satisfied with the number of units delivered by the employees

##### Statistics

You are satisfied with the number of units delivered by the employees

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.65   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .664   |
| Skewness               |         | -2.507 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 8.427  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-1, where mean is 4.65 and Std. deviation is .664. Since Std. deviation is less than the one third of the mean, mean is a representative value.

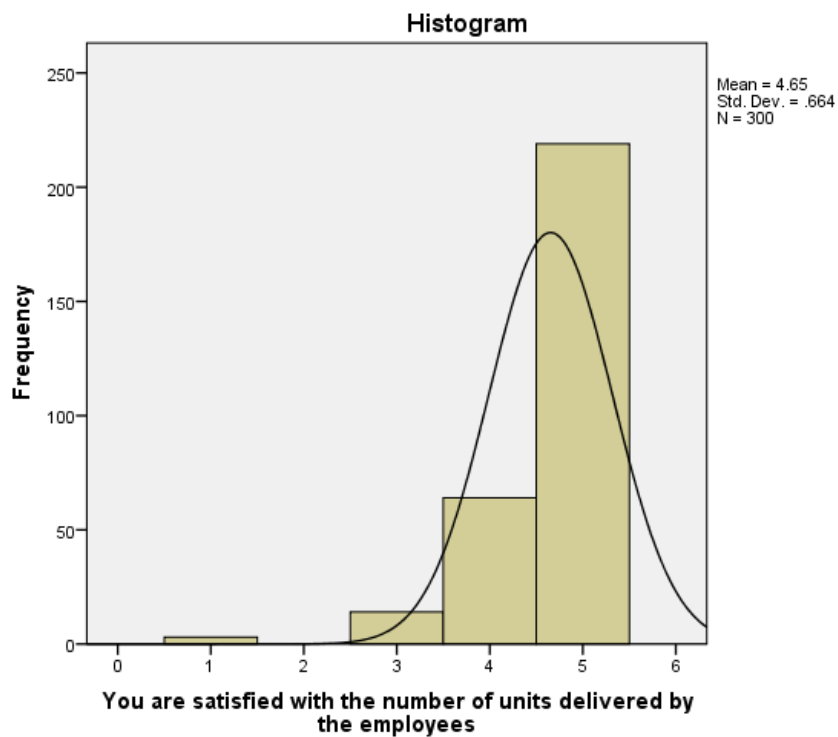
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with the number of units delivered by the employees.

### You are satisfied with the number of units delivered by the employees

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 3         | 1.0     | 1.0           | 1.0                |
| Neutral              | 14        | 4.7     | 4.7           | 5.7                |
| Valid Agreed         | 64        | 21.3    | 21.3          | 27.0               |
| Completely Agreed    | 219       | 73.0    | 73.0          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 45- Frequency distribution table: You are satisfied with the number of units delivered by the employees

Figure 45- Histogram of variable: You are satisfied with the number of units delivered by the employees



#### 46. You are satisfied with the quality of the product manufactured

##### Statistics

You are satisfied with the quality of the product manufactured

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.68   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .762   |
| Skewness               |         | -2.940 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 9.365  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-2, where mean is 4.68 and Std. deviation is .762. Since Std. deviation is less than the one third of the mean, mean is a representative value.

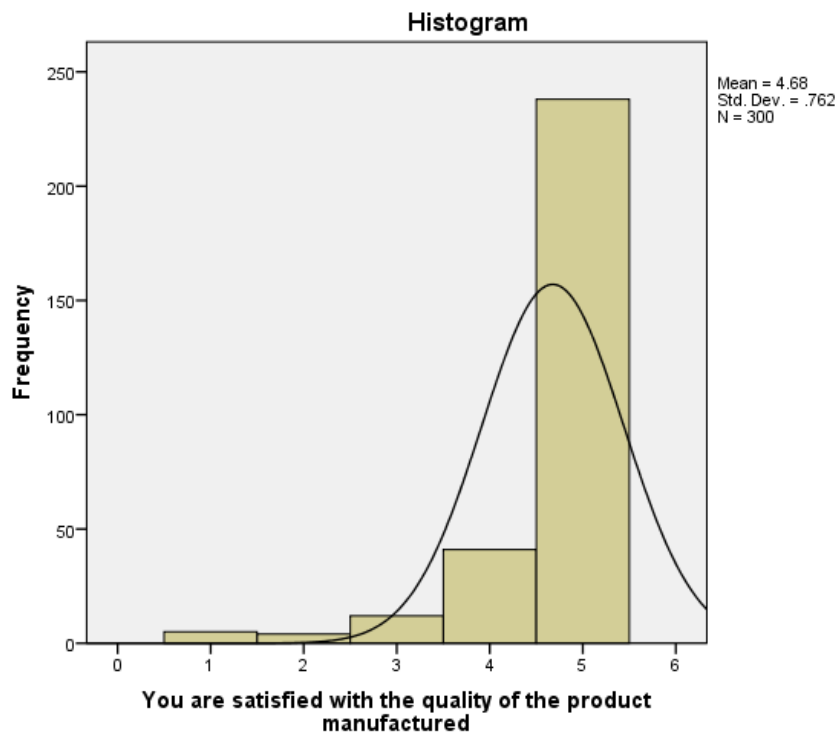
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with the quality of the product manufactured.

### You are satisfied with the quality of the product manufactured

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 5         | 1.7     | 1.7           | 1.7                |
| Disagreed            | 4         | 1.3     | 1.3           | 3.0                |
| Neutral              | 12        | 4.0     | 4.0           | 7.0                |
| Agreed               | 41        | 13.7    | 13.7          | 20.7               |
| Completely Agreed    | 238       | 79.3    | 79.3          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 46- Frequency distribution table: You are satisfied with the quality of the product manufactured

Figure 46- Histogram of variable: You are satisfied with the quality of the product manufactured



#### 47. Machine utilization by the employees is up to the mark

##### Statistics

Machine utilization by the employees is up to the mark

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.29   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | 1.230  |
| Skewness               |         | -1.867 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.306  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-3, where mean is 4.29 and Std. deviation is .762. Since Std. deviation is less than the one third of the mean, mean is a representative value.

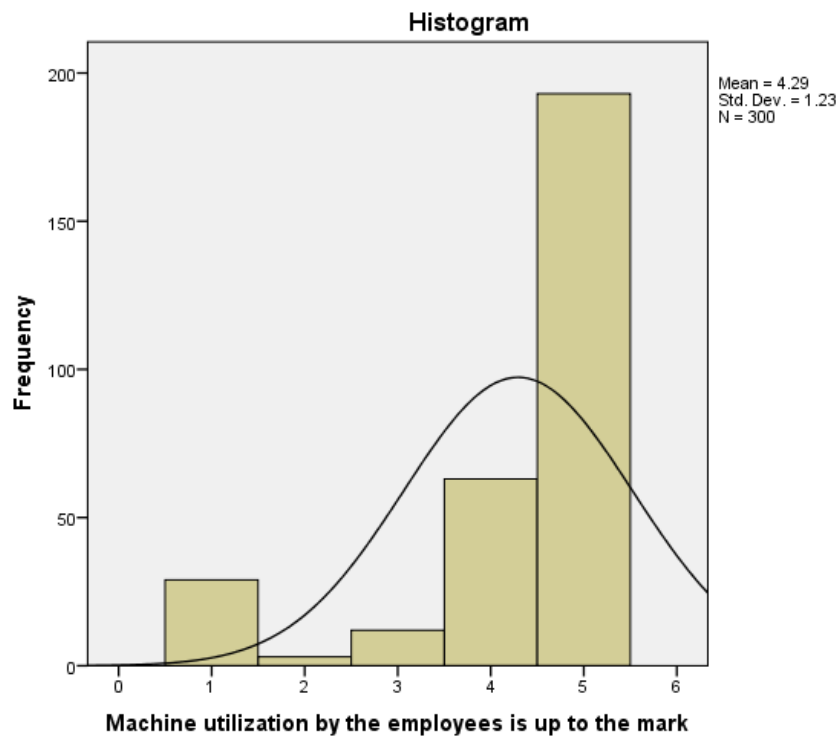
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with the machine utilization by the employees is up to the mark.

### Machine utilization by the employees is up to the mark

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 29        | 9.7     | 9.7           | 9.7                |
| Disagreed            | 3         | 1.0     | 1.0           | 10.7               |
| Neutral              | 12        | 4.0     | 4.0           | 14.7               |
| Agreed               | 63        | 21.0    | 21.0          | 35.7               |
| Completely Agreed    | 193       | 64.3    | 64.3          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 47- Frequency distribution table: Machine utilization by the employees is up to the mark

Figure 47- Histogram of variable: Machine utilization by the employees is up to the mark



#### 48. You are satisfied with your employees for their on time delivery

##### Statistics

You are satisfied with your employees for their on time delivery

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.62   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .666   |
| Skewness               |         | -2.327 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 7.719  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-4, where mean is 4.62 and Std. deviation is .666. Since Std. deviation is less than the one third of the mean, mean is a representative value.

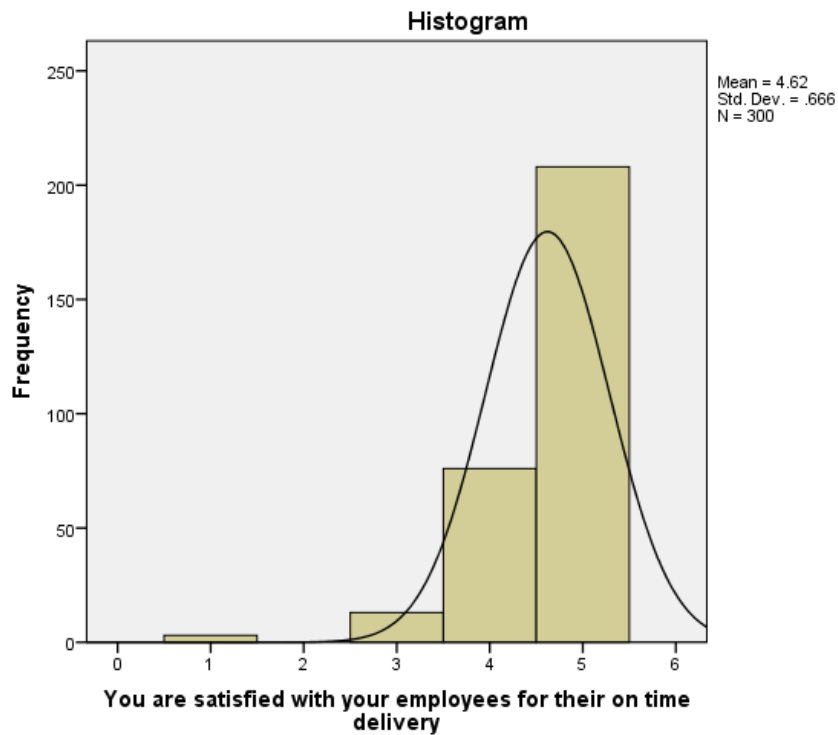
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with their employees for their on-time delivery.

### You are satisfied with your employees for their on-time delivery

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 3         | 1.0     | 1.0           | 1.0                |
| Neutral              | 13        | 4.3     | 4.3           | 5.3                |
| Valid Agreed         | 76        | 25.3    | 25.3          | 30.7               |
| Completely Agreed    | 208       | 69.3    | 69.3          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 48- Frequency distribution table: You are satisfied with your employees for their on time delivery

Figure 48- Histogram of variable: You are satisfied with your employees for their on time delivery



#### 49. You are comfortable with defect rates

##### Statistics

You are comfortable with defect rates

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.79   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .464   |
| Skewness               |         | -2.088 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 3.673  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-5, where mean is 4.64 and Std. deviation is .464. Since Std. deviation is less than the one third of the mean, mean is a representative value.

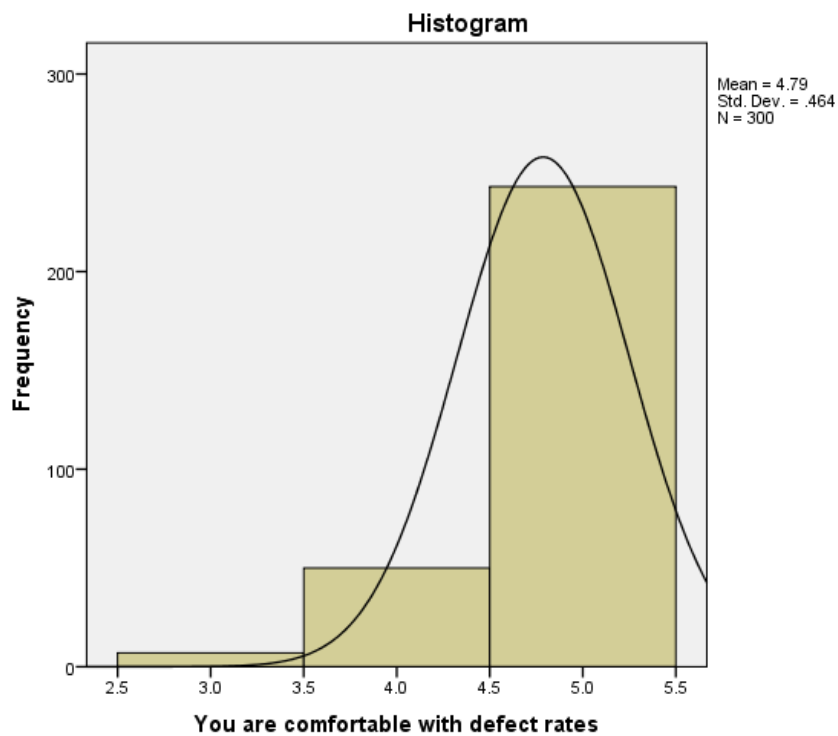
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with their with defect rates.

### You are comfortable with defect rates

|                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Neutral           | 7         | 2.3     | 2.3           | 2.3                |
| Agreed            | 50        | 16.7    | 16.7          | 19.0               |
| Completely Agreed | 243       | 81.0    | 81.0          | 100.0              |
| Total             | 300       | 100.0   | 100.0         |                    |

Table 49- Frequency distribution table: You are comfortable with defect rates

Figure 49- Histogram of variable: You are comfortable with defect rates



## 50. You are satisfied with the employee turnover

### Statistics

You are satisfied with the employee turnover

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.72   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .539   |
| Skewness               |         | -2.284 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 7.902  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-6, where mean is 4.72 and Std. deviation is .539. Since Std. deviation is less than the one third of the mean, mean is a representative value.

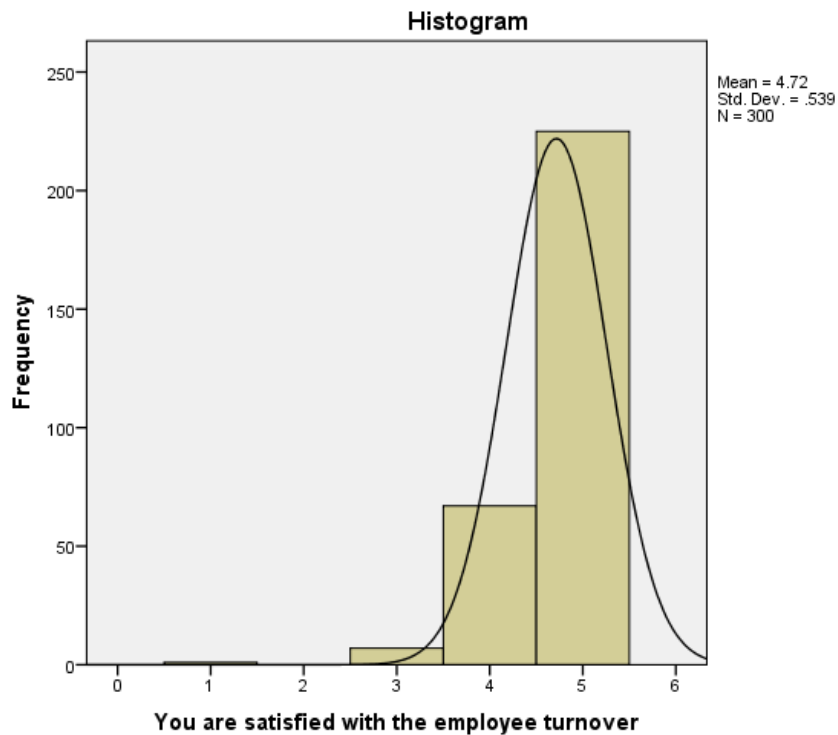
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with their employee turnover.

### You are satisfied with the employee turnover

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 1         | .3      | .3            | .3                 |
| Neutral              | 7         | 2.3     | 2.3           | 2.7                |
| Valid Agreed         | 67        | 22.3    | 22.3          | 25.0               |
| Completely Agreed    | 225       | 75.0    | 75.0          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 50- Frequency distribution table: You are satisfied with the employee turnover

Figure 50- Histogram of variable: You are satisfied with the employee turnover



### 51. You are satisfied with the employees absenteeism rate

#### Statistics

You are satisfied with the employees absenteeism rate

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.42   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | 1.153  |
| Skewness               |         | -2.252 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 3.969  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-7, where mean is 4.42 and Std. deviation is 1.153. Since Std. deviation is less than the one third of the mean, mean is a representative value.

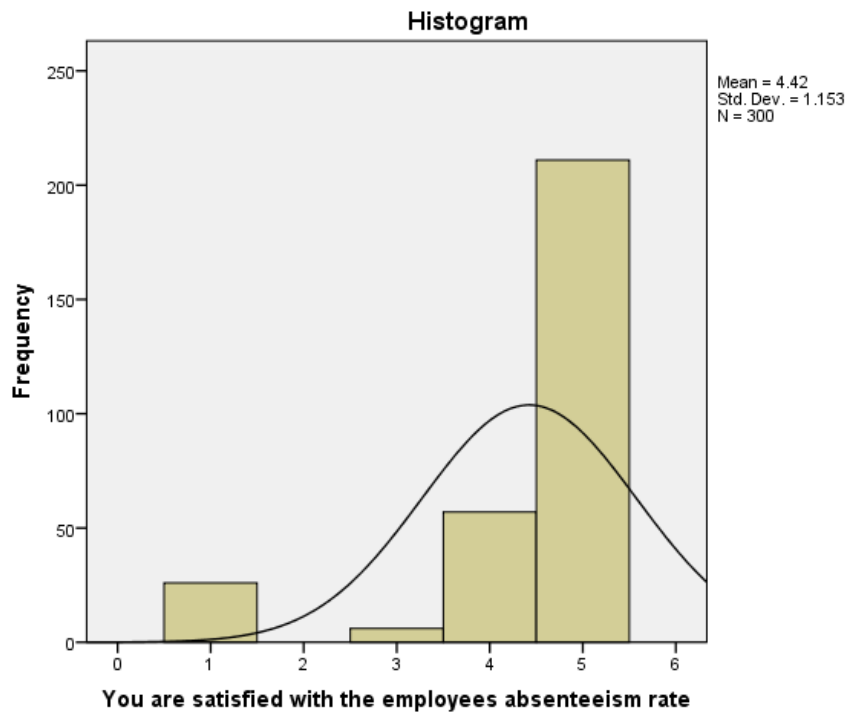
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with their employee's absenteeism rate.

### You are satisfied with the employees absenteeism rate

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 26        | 8.7     | 8.7           | 8.7                |
| Neutral              | 6         | 2.0     | 2.0           | 10.7               |
| Valid Agreed         | 57        | 19.0    | 19.0          | 29.7               |
| Completely Agreed    | 211       | 70.3    | 70.3          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 51- Frequency distribution table: You are satisfied with the employees absenteeism rate

Figure 51- Histogram of variable: You are satisfied with the employees absenteeism rate



## 52. You are satisfied with the punctuality of the employees

### Statistics

You are satisfied with the punctuality of the employees

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.84   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .452   |
| Skewness               |         | -2.843 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 7.480  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-8, where mean is 4.84 and Std. deviation is .452. Since Std. deviation is less than the one third of the mean, mean is a representative value.

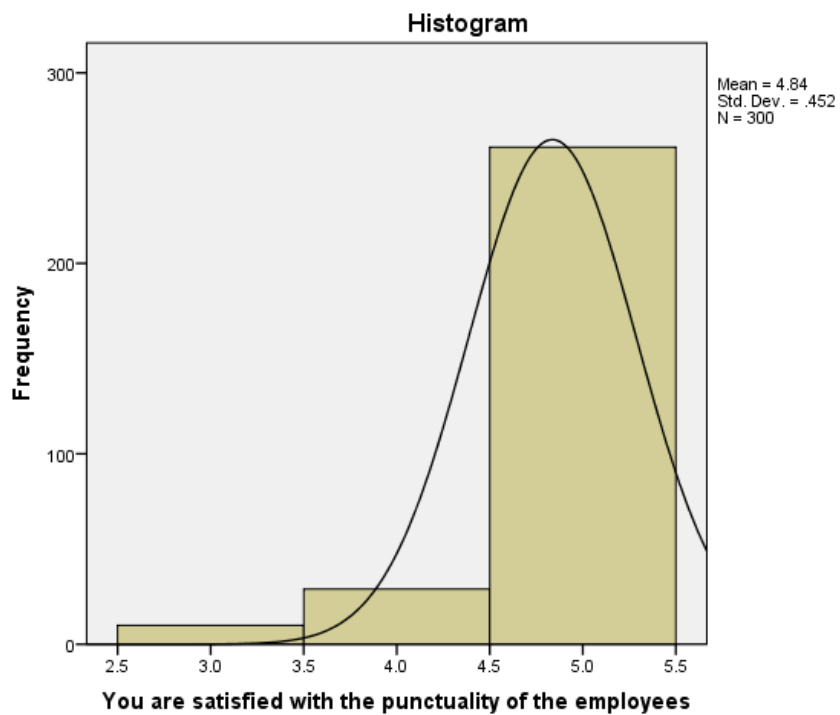
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with their employee's punctuality.

### You are satisfied with the punctuality of the employees

|                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Neutral           | 10        | 3.3     | 3.3           | 3.3                |
| Agreed            | 29        | 9.7     | 9.7           | 13.0               |
| Completely Agreed | 261       | 87.0    | 87.0          | 100.0              |
| Total             | 300       | 100.0   | 100.0         |                    |

Table 52- Frequency distribution table: You are satisfied with the punctuality of the employees

Figure 52- Histogram of variable: You are satisfied with the punctuality of the employees



### 53. You are satisfied with the employees grievances have been handled

#### Statistics

You are satisfied with the employees grievances have been handled

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.87   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .465   |
| Skewness               |         | -4.667 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 26.781 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-9, where mean is 4.87 and Std. deviation is .465. Since Std. deviation is less than the one third of the mean, mean is a representative value.

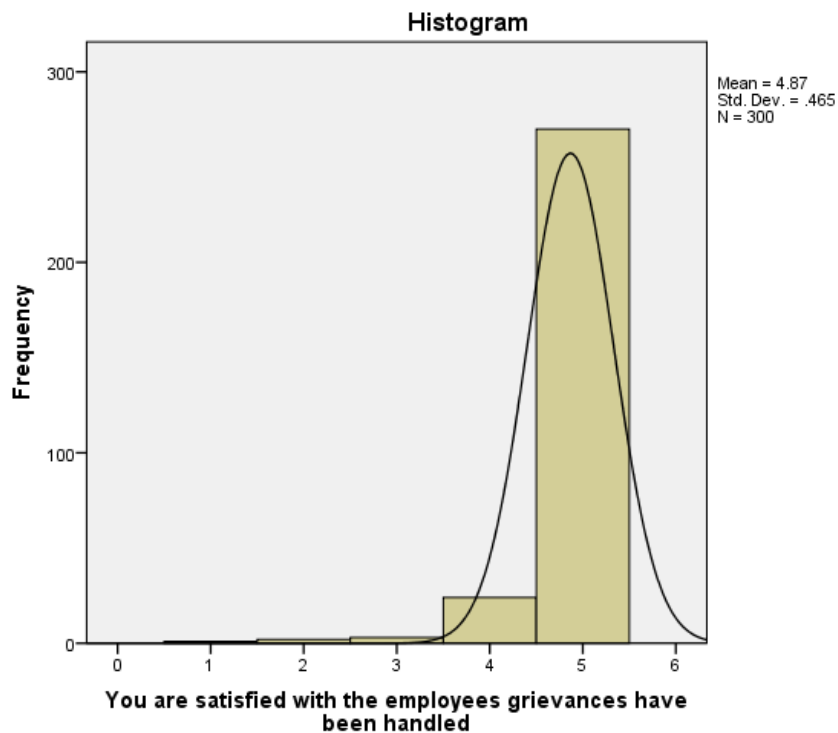
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with the way their employee's grievances have been handled.

### You are satisfied with the employees grievances have been handled

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 1         | .3      | .3            | .3                 |
| Disagreed            | 2         | .7      | .7            | 1.0                |
| Neutral              | 3         | 1.0     | 1.0           | 2.0                |
| Agreed               | 24        | 8.0     | 8.0           | 10.0               |
| Completely Agreed    | 270       | 90.0    | 90.0          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 53- Frequency distribution table: You are satisfied with the employees grievances have been handled

Figure 53- Histogram of variable: You are satisfied with the employees grievances have been handled



#### 54. You believe that your staff is competitive enough to perform the assigned task

##### Statistics

You believe that your staff is competitive enough to perform the assigned task

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.74   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .521   |
| Skewness               |         | -1.935 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.889  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-10, where mean is 4.74 and Std. deviation is .521. Since Std. deviation is less than the one third of the mean, mean is a representative value.

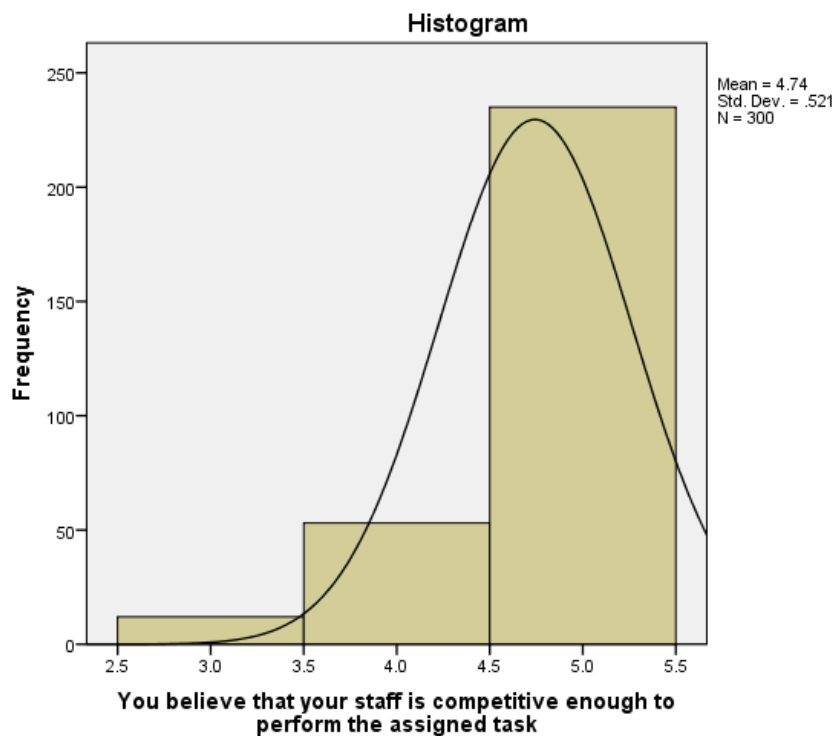
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with their staff's competitiveness to perform the assigned task.

**You believe that your staff is competitive enough to perform the assigned task**

|                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Neutral           | 12        | 4.0     | 4.0           | 4.0                |
| Agreed            | 53        | 17.7    | 17.7          | 21.7               |
| Completely Agreed | 235       | 78.3    | 78.3          | 100.0              |
| Total             | 300       | 100.0   | 100.0         |                    |

Table 54- Frequency distribution table: You believe that your staff is competitive enough to perform the assigned task

Figure 54- Histogram of variable: You believe that your staff is competitive enough to perform the assigned task



**55. You consider your employees to be a physical assets which needs to be managed appropriately**

**Statistics**

You consider your employees to be a physical assets which needs to be managed appropriately

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.85   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .485   |
| Skewness               |         | -4.091 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 20.480 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-11, where mean is 4.85 and Std. deviation is .485. Since Std. deviation is less than the one third of the mean, mean is a representative value.

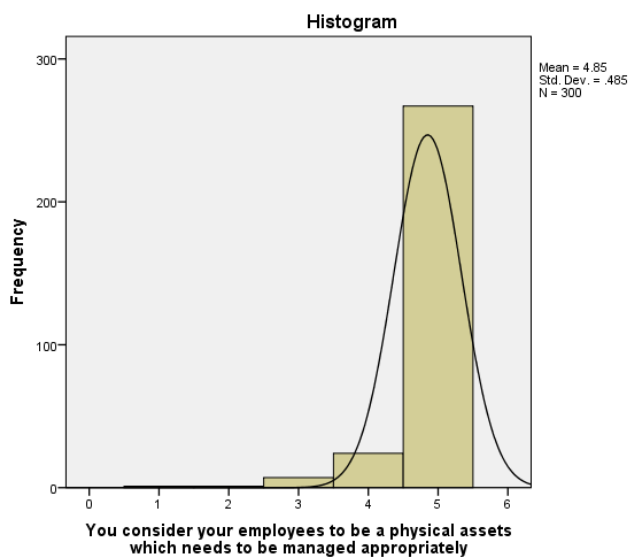
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with the way there employees were managed.

**You consider your employees to be a physical assets which needs to be managed appropriately**

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 1         | .3      | .3            | .3                 |
| Disagreed            | 1         | .3      | .3            | .7                 |
| Neutral              | 7         | 2.3     | 2.3           | 3.0                |
| Agreed               | 24        | 8.0     | 8.0           | 11.0               |
| Completely Agreed    | 267       | 89.0    | 89.0          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 55- Frequency distribution table: You consider your employees to be a physical assets which needs to be managed appropriately

Figure 55- Histogram of variable: You consider your employees to be a physical assets which needs to be managed appropriately



**56. Your employees are smart enough to respond to change due to external environment**

**Statistics**

Your employees are smart enough to respond to change due to external environment

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.88   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .364   |
| Skewness               |         | -3.148 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 9.915  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-12, where mean is 4.88 and Std. deviation is .364. Since Std. deviation is less than the one third of the mean, mean is a representative value.

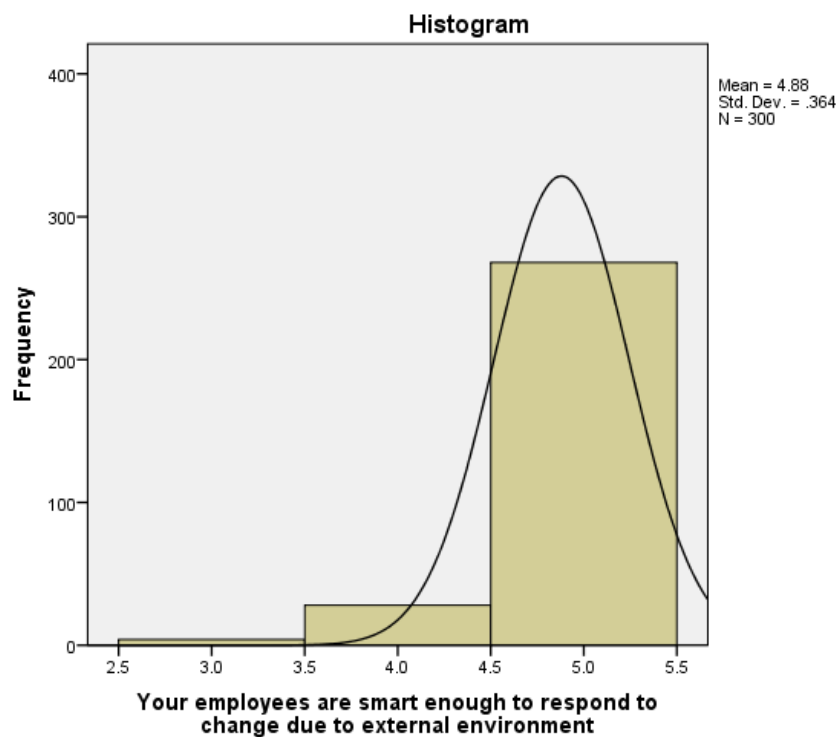
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with employee's smartness to respond to change due to external environment.

**Your employees are smart enough to respond to change due to external environment**

|                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Valid Neutral     | 4         | 1.3     | 1.3           | 1.3                |
| Agreed            | 28        | 9.3     | 9.3           | 10.7               |
| Completely Agreed | 268       | 89.3    | 89.3          | 100.0              |
| Total             | 300       | 100.0   | 100.0         |                    |

Table 56- Frequency distribution table: Your employees are smart enough to respond to change due to external environment

Figure 56- Histogram of variable: Your employees are smart enough to respond to change due to external environment



**57. You are satisfied with the management plans which are focused on performance improvement**

**Statistics**

You are satisfied with the management plans which are focused on performance improvement

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.73   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .574   |
| Skewness               |         | -2.902 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 11.952 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-13, where mean is 4.73 and Std. deviation is .574. Since Std. deviation is less than the one third of the mean, mean is a representative value.

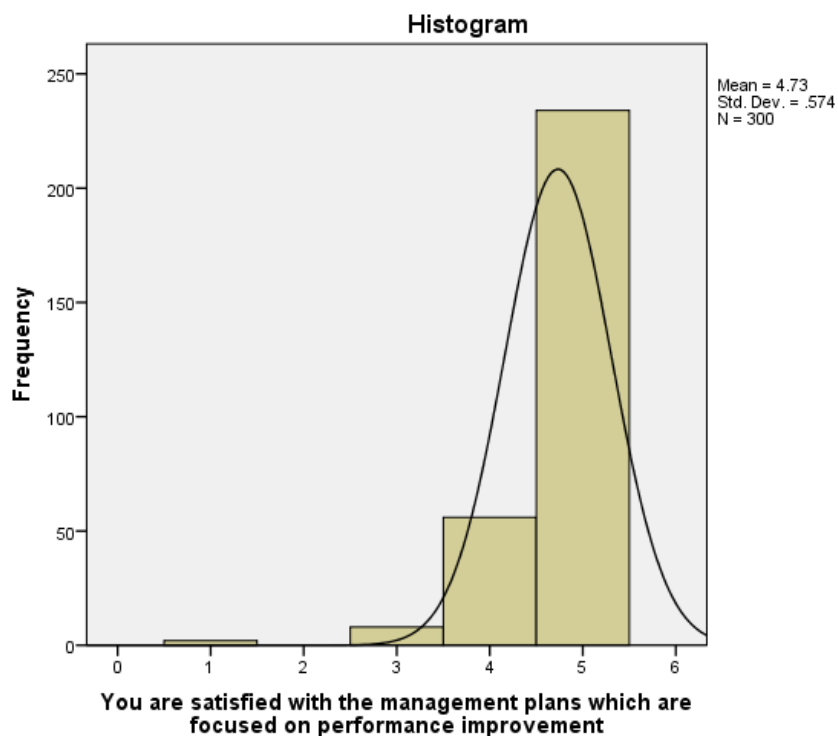
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with management plans which are focused on performance improvement.

**You are satisfied with the management plans which are focused on performance improvement**

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 2         | .7      | .7            | .7                 |
| Neutral              | 8         | 2.7     | 2.7           | 3.3                |
| Valid Agreed         | 56        | 18.7    | 18.7          | 22.0               |
| Completely Agreed    | 234       | 78.0    | 78.0          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 57- Frequency distribution table: You are satisfied with the management plans which are focused on performance improvement

Figure 57- Histogram of variable: You are satisfied with the management plans which are focused on performance improvement



## 58. You believe that organization and employees share some values

### Statistics

You believe that organization and employees share some values

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.73   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .615   |
| Skewness               |         | -2.972 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 11.129 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-14, where mean is 4.73 and Std. deviation is .615. Since Std. deviation is less than the one third of the mean, mean is a representative value.

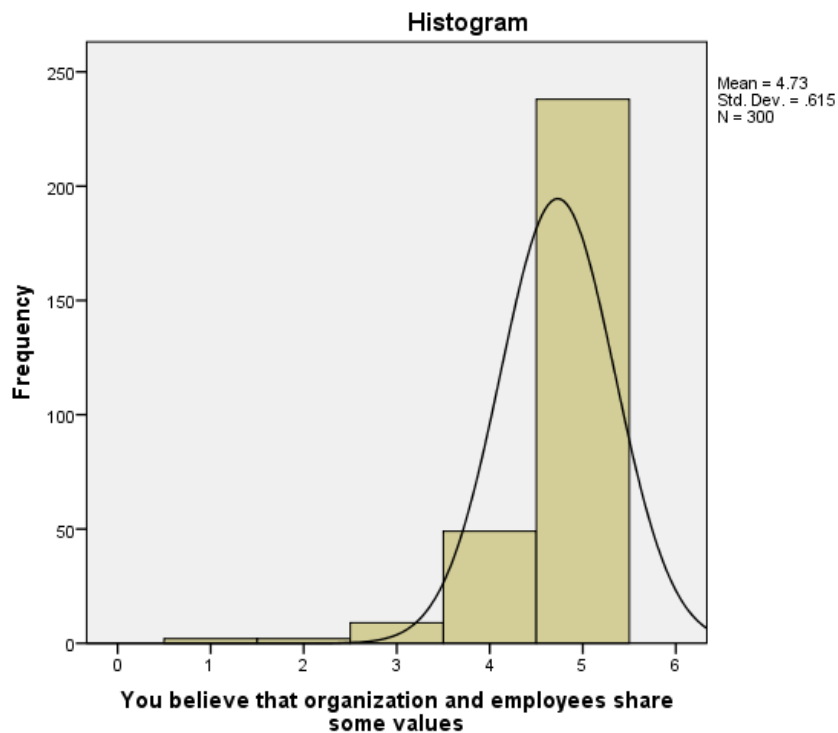
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with values which have been shared by organization and employees.

### You believe that organization and employees share some values

|                            | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|-----------|---------|---------------|--------------------|
| Valid Completely Disagreed | 2         | .7      | .7            | .7                 |
| Disagreed                  | 2         | .7      | .7            | 1.3                |
| Neutral                    | 9         | 3.0     | 3.0           | 4.3                |
| Agreed                     | 49        | 16.3    | 16.3          | 20.7               |
| Completely Agreed          | 238       | 79.3    | 79.3          | 100.0              |
| Total                      | 300       | 100.0   | 100.0         |                    |

Table 58- Frequency distribution table: You believe that organization and employees share some values

Figure 58- Histogram of variable: You believe that organization and employees share some values



### 59. You are satisfied with the organizations reputation for efficient employees

#### Statistics

You are satisfied with the organizations reputation for efficient employees

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.70   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .559   |
| Skewness               |         | -1.806 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.890  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-15, where mean is 4.70 and Std. deviation is .559. Since Std. deviation is less than the one third of the mean, mean is a representative value.

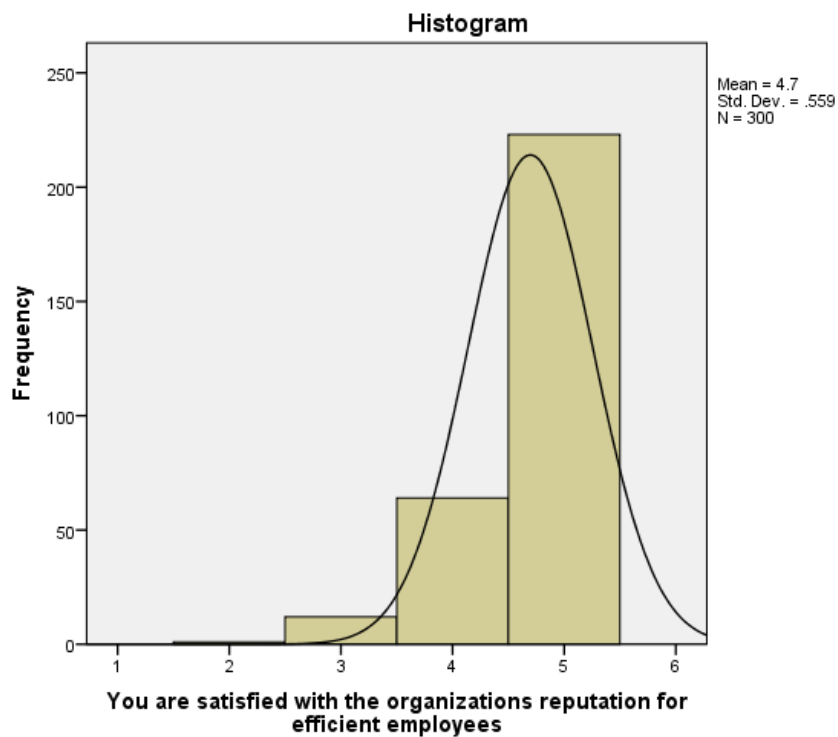
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with organizations reputation for efficient employees.

### You are satisfied with the organizations reputation for efficient employees

|                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Disagreed         | 1         | .3      | .3            | .3                 |
| Neutral           | 12        | 4.0     | 4.0           | 4.3                |
| Valid Agreed      | 64        | 21.3    | 21.3          | 25.7               |
| Completely Agreed | 223       | 74.3    | 74.3          | 100.0              |
| Total             | 300       | 100.0   | 100.0         |                    |

Table 59- Frequency distribution table: You are satisfied with the organizations reputation for efficient employees

Figure 59- Histogram of variable: You are satisfied with the organizations reputation for efficient employees



**60. You are satisfied with competitiveness shown by the organization while confronting to competition**

**Statistics**

You are satisfied with competitiveness shown by the organization while confronting to competition

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.73   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .527   |
| Skewness               |         | -1.832 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 2.483  |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-16, where mean is 4.73 and Std. deviation is .527. Since Std. deviation is less than the one third of the mean, mean is a representative value.

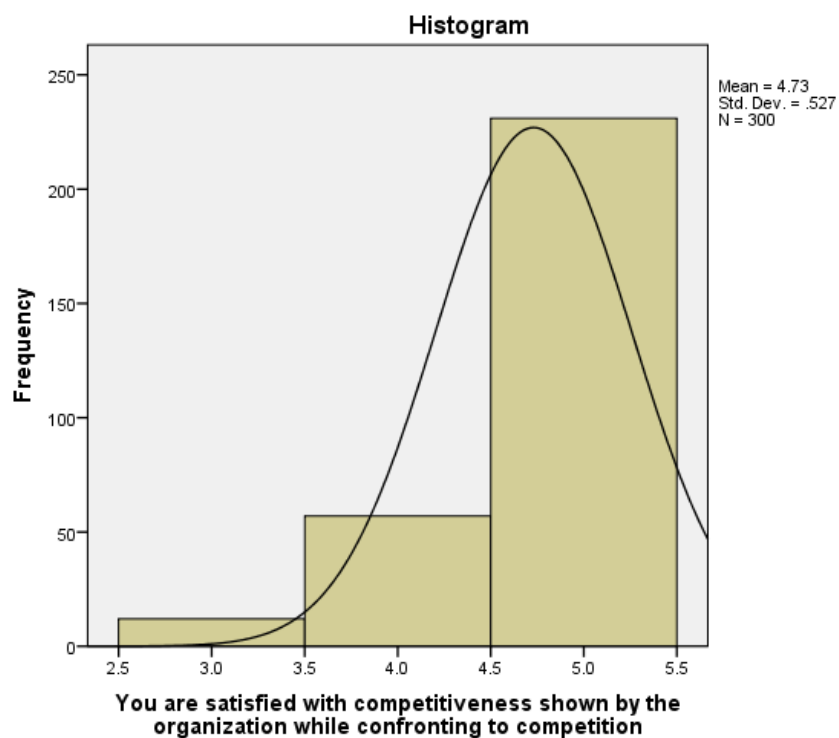
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with competitiveness shown by the organization while confronting to competition.

**You are satisfied with competitiveness shown by the organization while confronting to competition**

|                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Valid Neutral     | 12        | 4.0     | 4.0           | 4.0                |
| Agreed            | 57        | 19.0    | 19.0          | 23.0               |
| Completely Agreed | 231       | 77.0    | 77.0          | 100.0              |
| Total             | 300       | 100.0   | 100.0         |                    |

**Table 60- Frequency distribution table: You are satisfied with competitiveness shown by the organization while confronting to competition**

**Figure 60- Histogram of variable: You are satisfied with competitiveness shown by the organization while confronting to competition**



### 61. You are satisfied with the staff level you have

#### Statistics

You are satisfied with the staff level you have

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.83   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .439   |
| Skewness               |         | -3.648 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 20.727 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-17, where mean is 4.83 and Std. deviation is .439. Since Std. deviation is less than the one third of the mean, mean is a representative value.

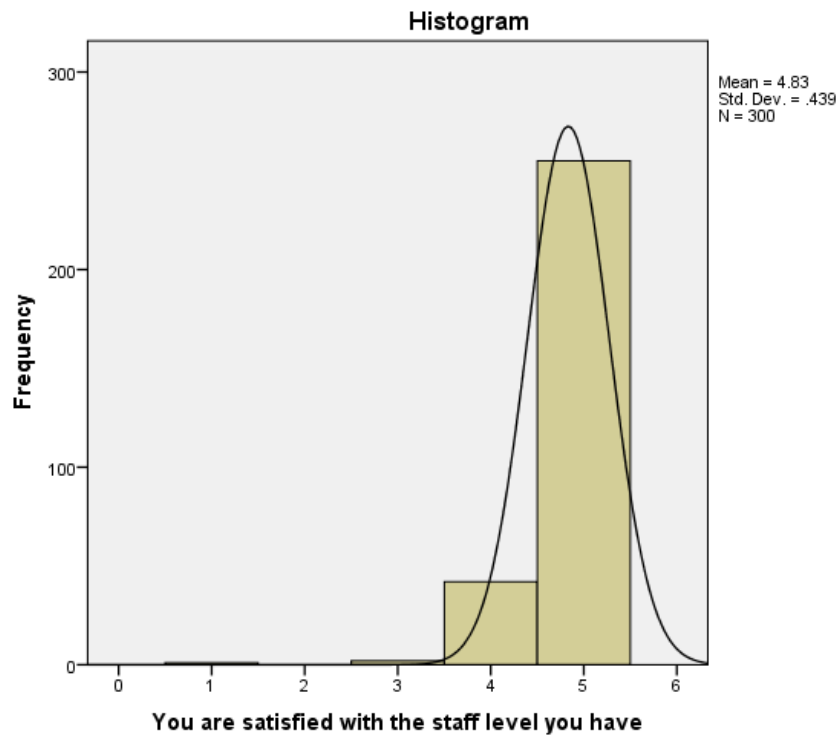
**Conclusion:** We can conclude that production managers are completely agreed to the fact that they are satisfied with staff level they have.

### You are satisfied with the staff level you have

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 1         | .3      | .3            | .3                 |
| Neutral              | 2         | .7      | .7            | 1.0                |
| Valid Agreed         | 42        | 14.0    | 14.0          | 15.0               |
| Completely Agreed    | 255       | 85.0    | 85.0          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 61- Frequency distribution table: You are satisfied with the staff level you have

Figure 61- Histogram of variable: You are satisfied with the staff level you have



## 62. Your employees are prepared enough to execute an unanticipated task

### Statistics

Your employees are prepared enough to execute an unanticipated task

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 300    |
|                        | Missing | 0      |
| Mean                   |         | 4.83   |
| Median                 |         | 5.00   |
| Std. Deviation         |         | .469   |
| Skewness               |         | -3.657 |
| Std. Error of Skewness |         | .141   |
| Kurtosis               |         | 18.215 |
| Std. Error of Kurtosis |         | .281   |

The above table & histogram provides descriptive statistics for the variable PRO-18, where mean is 4.83 and Std. deviation is .469. Since Std. deviation is not less than the one third of the mean, mean is not a representative value. Hence we will follow the frequency distribution table mentioned below.

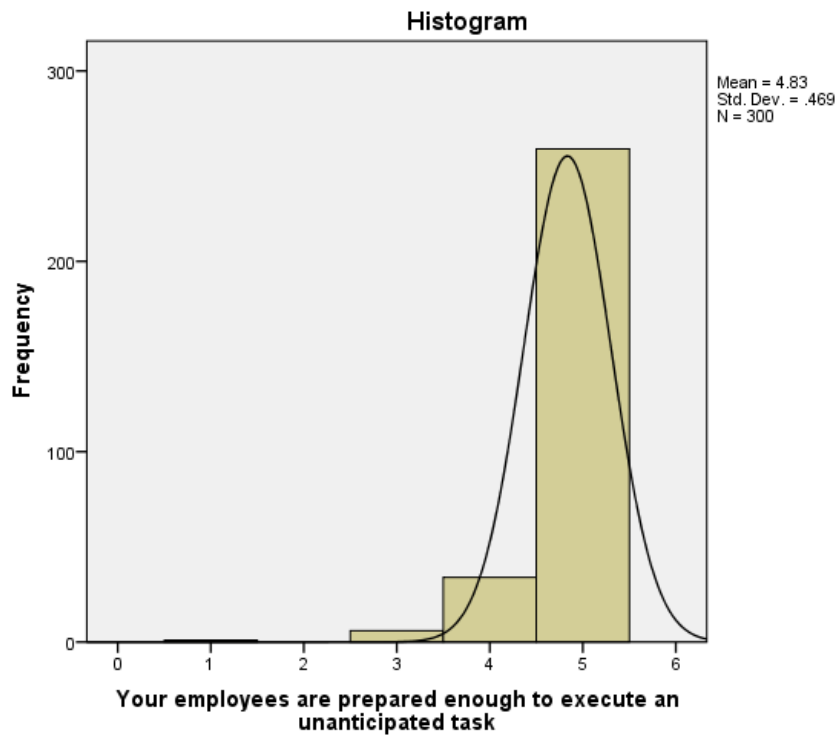
**Conclusion:** We can conclude that most of the production managers are completely agreed to the fact that they are satisfied with employee's readiness to execute an unanticipated task.

### Your employees are prepared enough to execute an unanticipated task

|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Completely Disagreed | 1         | .3      | .3            | .3                 |
| Neutral              | 6         | 2.0     | 2.0           | 2.3                |
| Valid Agreed         | 34        | 11.3    | 11.3          | 13.7               |
| Completely Agreed    | 259       | 86.3    | 86.3          | 100.0              |
| Total                | 300       | 100.0   | 100.0         |                    |

Table 62- Frequency distribution table: Your employees are prepared enough to execute an unanticipated task

Figure 62- Histogram of variable: Your employees are prepared enough to execute an unanticipated task



# HYPOTHESIS ASSESSMENTS

## Research Question-1:

Whether there is the difference in the extent of competencies practiced among production managers of large companies.

## Statistical Test: Friedman Chi-square Test

## Variables and Measurement:

Production Managers were presented with the following competencies components: Creativity and Innovation, Continual Learning, Internal and External Awareness, Flexibility, Resilience, Strategic Thinking, Vision, Conflict Management, Cultural Awareness, Integrity Honesty, Team Building, Accountability, Customer service, Decisiveness, Problem Solving, Technical Credibility, Human Resources Management, Influencing, Interpersonal Skills, Oral Communications, Partnering, Political Savvy which have been measured on a 5 point rating scale (liker scale). The indicators for measuring them are given below:

| <b>Variables</b>                       | <b>Indicators</b>                                                                                                                                                   |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Creativity and Innovation</b>       | Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness.                                                    |
|                                        | Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process                                                     |
| <b>Continual Learning</b>              | Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work                                   |
|                                        | Creates systems that facilitate communication of knowledge internal and external                                                                                    |
| <b>Internal and External Awareness</b> | Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management    |
|                                        | Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations      |
| <b>Flexibility</b>                     | Adjusts behavior and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity |
|                                        | Works concurrently on related and/or conflicting priorities without losing focus our attention                                                                      |
| <b>Resilience</b>                      | Responds constructively to reversals and setbacks                                                                                                                   |

|                                   |                                                                                                                                                                          |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | Maintains a professional demeanor in stressful and difficult situations                                                                                                  |
| <b>Strategic Thinking</b>         | Develops objectives and sets priorities consistent with the organization's long-term strategies                                                                          |
|                                   | Adjusts strategic policies and plans in response to change, both internal and external                                                                                   |
| <b>Vision</b>                     | Articulates and actively supports the Agency's vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies        |
|                                   | Takes a long-term view and acts as a catalyst and champion of change                                                                                                     |
| <b>Conflict Management</b>        | Attempts to resolve interpersonal and inter-group conflict constructively through self-management                                                                        |
|                                   | Addresses and seeks to resolve formal and informal complaints from employees                                                                                             |
| <b>Cultural Awareness</b>         | Respect cultures and values different from one's own                                                                                                                     |
|                                   | Understands how cultures differ and how these differences impact work behavior                                                                                           |
| <b>Integrity Honesty</b>          | Models and encourages high standards of honesty, integrity, trust, openness, and respect for others                                                                      |
|                                   | Creates a culture that fosters high standards of ethics                                                                                                                  |
| <b>Team Building</b>              | Inspires, motivates, and guides others toward goal accomplishment                                                                                                        |
|                                   | Emphasizes cooperation and a team approach to work                                                                                                                       |
| <b>Accountability</b>             | Monitors processes and/or activities and takes corrective actions when necessary                                                                                         |
|                                   | Encourages others to take ownership of work, products, and results                                                                                                       |
| <b>Customer service</b>           | Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products |
|                                   | Establishes and uses feedback systems to meet customer requirements and expectations                                                                                     |
| <b>Decisiveness</b>               | Makes difficult or controversial decisions when necessary                                                                                                                |
|                                   | Exercises good judgment by making sound and well-informed decisions                                                                                                      |
| <b>Problem Solving</b>            | Recognizes, defines, and analyzes problems and issues                                                                                                                    |
|                                   | Uses qualitative and quantitative data and analytical tools in problem solving                                                                                           |
| <b>Technical Credibility</b>      | Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility                                             |
|                                   | Plans for needed or mandated changes in size and composition of staff                                                                                                    |
| <b>Human Resources Management</b> | Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals                                    |
|                                   | Recognizes and rewards team members based on performance                                                                                                                 |
| <b>Influencing</b>                | Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts                                                            |

|                             |                                                                                                                                              |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                             | Gains cooperation from others to obtain information and accomplish goals                                                                     |
| <b>Interpersonal Skills</b> | Provides appropriate feedback in a manner that reinforces or elicits desirable behavior                                                      |
|                             | Considers and responds appropriately to the needs, feelings, and capabilities of others                                                      |
| <b>Oral Communications</b>  | Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion |
|                             | Listens to others and shows understanding of what they are saying                                                                            |
| <b>Partnering</b>           | Effectively develops networks and builds alliances with key individuals or groups                                                            |
|                             | Manages competition between individuals or groups to eliminate barriers to building partnerships                                             |
| <b>Political Savvy</b>      | Keeps current with internal and external politics and issues that impact the work of the organization                                        |
|                             | Anticipates the internal and external implications of statements or actions                                                                  |

Each item was measured on a five point scale, mentioned below:

0- Not at all

1- Once in a while

2- Sometimes

3- Fairly Often

4- Frequently, if not always

### **Hypothesis:**

H0: There is no difference in the extent of competencies practiced among production managers of large companies.

H1: There is a significant difference in the extent of competencies practiced among production managers of large companies.

**Level of Significance ( $\alpha$ ) = 0.05**

### Test Statistics Table:

Test Statistics<sup>a</sup>

|                |         |
|----------------|---------|
| N              | 300     |
| Chi-Square     | 951.040 |
| df             | 21      |
| Asymp.<br>Sig. | .000    |

**Observation:  $X^2(21) = 951.040$ ,  $P = 0.000$ ,  $N = 300$**

### Conclusion:

Since the p value is less than the level of significance (0.05) the null hypothesis is rejected. Hence it is concluded that there is a significant difference in the extent of competencies practiced among production managers of large companies.

In order to find out where the differences lies we refer to the rank table, which is mentioned below:

| Competencies                | Mean Rank    |
|-----------------------------|--------------|
| <b>Resilience</b>           | <b>14.03</b> |
| <b>Vision</b>               | <b>13.72</b> |
| <b>Problem Solving</b>      | <b>13.59</b> |
| <b>Accountability</b>       | <b>13.26</b> |
| <b>Political Savvy</b>      | <b>13.09</b> |
| Flexibility                 | 12.98        |
| Oral Communications         | 12.9         |
| Interpersonal Skills        | 12.52        |
| Integrity Honesty           | 12.36        |
| Decisiveness                | 12.21        |
| Customer service            | 12.05        |
| Partnering                  | 11.93        |
| Influencing                 | 11.71        |
| Cultural Awareness          | 11.52        |
| Human Resources Management  | 11.32        |
| Creativity and Innovation   | 11.26        |
| Strategic Thinking          | 10.81        |
| Team Building               | 10.41        |
| Internal External Awareness | 10.09        |
| Conflict Management         | 8.48         |
| Continua Learning           | 7.39         |
| Technical Credibility       | 5.38         |

From the ranks table it can be seen that top five competencies practiced by production managers are Resilience, Vision, Problem Solving, Accountability, and Political Savvy. Hence it is concluded that the most noticeable competencies are these.

## Research Question-2:

Whether Competencies of Production Managers of Large Companies and Employee Productivity are co-related?

## Statistical Test: Spearman Rank Order Correlation

### Variables and Measurement:

Production Managers were presented with the following competencies components: Creativity and Innovation, Continual Learning, Internal and External Awareness, Flexibility, Resilience, Strategic Thinking, Vision, Conflict Management, Cultural Awareness, Integrity Honesty, Team Building, Accountability, Customer service, Decisiveness, Problem Solving, Technical Credibility, Human Resources Management, Influencing, Interpersonal Skills, Oral Communications, Partnering, Political Savvy which have been measured on a 5 point rating scale (liker scale). The indicators for measuring them are given below:

| Variables                              | Indicators                                                                                                                                                       |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Creativity and Innovation</b>       | Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness.                                                 |
|                                        | Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process                                                  |
| <b>Continual Learning</b>              | Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work                                |
|                                        | Creates systems that facilitate communication of knowledge internal and external                                                                                 |
| <b>Internal and External Awareness</b> | Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management |
|                                        | Determines how to sustain or achieve a competitive advantage for the organization by analyzing the best practices and lessons learned from other organizations   |
| <b>Flexibility</b>                     | Adjusts behavior and work methods in response to management priorities,                                                                                          |

|                            |                                                                                                                                                                   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity                                                                       |
|                            | Works concurrently on related and/or conflicting priorities without losing focus or attention                                                                     |
| <b>Resilience</b>          | Responds constructively to reversals and setbacks                                                                                                                 |
|                            | Maintains a professional demeanor in stressful and difficult situations                                                                                           |
| <b>Strategic Thinking</b>  | Develops objectives and sets priorities consistent with the organization's long-term strategies                                                                   |
|                            | Adjusts strategic policies and plans in response to change, both internal and external                                                                            |
| <b>Vision</b>              | Articulates and actively supports the Agency's vision in a way that causes employees at all levels to understand the organization's goals, values, and strategies |
|                            | Takes a long-term view and acts as a catalyst and champion of change                                                                                              |
| <b>Conflict Management</b> | Attempts to resolve interpersonal and inter-group conflict constructively through self-management                                                                 |
|                            | Addresses and seeks to resolve formal and informal complaints from employees                                                                                      |
| <b>Cultural Awareness</b>  | Respect cultures and values different from one's own                                                                                                              |
|                            | Understands how cultures differ and how these differences impact work behavior                                                                                    |
| <b>Integrity Honesty</b>   | Models and encourages high standards of honesty, integrity, trust, openness, and respect for others                                                               |
|                            | Creates a culture that fosters high standards of ethics                                                                                                           |
| <b>Team Building</b>       | Inspires, motivates, and guides others toward goal accomplishment                                                                                                 |
|                            | Emphasizes cooperation and a team approach to work                                                                                                                |
| <b>Accountability</b>      | Monitors processes and/or activities and takes corrective actions when necessary                                                                                  |
|                            | Encourages others to take ownership of work, products, and results                                                                                                |
| <b>Customer service</b>    | Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and               |

|                                   |                                                                                                                                              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | delivery of products                                                                                                                         |
|                                   | Establishes and uses feedback systems to meet customer requirements and expectations                                                         |
| <b>Decisiveness</b>               | Makes difficult or controversial decisions when necessary                                                                                    |
|                                   | Exercises good judgment by making sound and well-informed decisions                                                                          |
| <b>Problem Solving</b>            | Recognizes, defines, and analyzes problems and issues                                                                                        |
|                                   | Uses qualitative and quantitative data and analytical tools in problem solving                                                               |
| <b>Technical Credibility</b>      | Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility                 |
|                                   | Plans for needed or mandated changes in size and composition of staff                                                                        |
| <b>Human Resources Management</b> | Identifies performance expectations, assesses employee performance, gives timely feedback, and conducts formal performance appraisals        |
|                                   | Recognizes and rewards team members based on performance                                                                                     |
| <b>Influencing</b>                | Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts                                |
|                                   | Gains cooperation from others to obtain information and accomplish goals                                                                     |
| <b>Interpersonal Skills</b>       | Provides appropriate feedback in a manner that reinforces or elicits desirable behavior                                                      |
|                                   | Considers and responds appropriately to the needs, feelings, and capabilities of others                                                      |
| <b>Oral Communications</b>        | Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion |
|                                   | Listens to others and shows understanding of what they are saying                                                                            |
| <b>Partnering</b>                 | Effectively develops networks and builds alliances with key individuals or groups                                                            |
|                                   | Manages competition between individuals or groups to eliminate barriers to building partnerships                                             |
| <b>Political Savvy</b>            | Keeps current with internal and external politics and issues that impact the work of the organization                                        |
|                                   | Anticipates the internal and external implications of statements or actions                                                                  |

Each item was measured on a five point scale, mentioned below:

0- Not at all

1- Once in a while

2- Sometimes

3- Fairly Often

4- Frequently, if not always

Production Managers were presented with the following Productivity indicators which have been measured on a 5 point rating scale (liker scale). The indicators for measuring them are given below:

| Variable     | Indicator                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------|
| Productivity | You are satisfied with the number of units delivered by the employees                             |
|              | You are satisfied with the quality of the product manufactured                                    |
|              | Machine utilization by the employees is up to the mark                                            |
|              | You are satisfied with your employees for their own time delivery                                 |
|              | You are comfortable with defect rates                                                             |
|              | You are satisfied with the employee turnover                                                      |
|              | You are satisfied with the employees absenteeism rate                                             |
|              | You are satisfied with the punctuality of the employees                                           |
|              | You are satisfied with the employees grievances have been handled                                 |
|              | You believe that your staff is competitive enough to perform the assigned task                    |
|              | You consider your employees to be a physical assets which needs to be managed appropriately       |
|              | Your employees are smart enough to respond to change due to external environment                  |
|              | You are satisfied with the management plans which are focused on performance improvement          |
|              | You believe that organization and employees share some values                                     |
|              | You are satisfied with the organizations reputation for efficient employees                       |
|              | You are satisfied with competitiveness shown by the organization while confronting to competition |
|              | You are satisfied with the staff level you have                                                   |
|              | Your employees are prepared enough to execute an unanticipated task                               |

**Each item was measured on a five point Likert scale, mentioned below:**

1- Completely Disagree

2- Disagree

3- Neutral

4- Agree

5- Completely Agree

### **Hypothesis:**

H0: There is no relationship between Competencies of Production Managers of Large Companies and Employee Productivity ( $\rho=0$ )

H1: There is a significant relationship between Competencies of Production Managers of Large Companies and Employee Productivity ( $\rho\neq 0$ )

**Level of Significance ( $\alpha$ ) = 0.05**

### **Correlation Table:**

| <b>Pair</b>                                         | <b>Spearman's rho(<math>\rho</math>)</b> | <b>P-value</b> | <b>Result</b>          |
|-----------------------------------------------------|------------------------------------------|----------------|------------------------|
| <b>Creativity and Innovation -Productivity</b>      | <b>.224</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Continual Learning-Productivity</b>              | <b>-.096</b>                             | <b>0.098</b>   | <b>Non-Significant</b> |
| <b>Internal and External Awareness-Productivity</b> | <b>.208</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Flexibility-Productivity</b>                     | <b>.297</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Resilience-Productivity</b>                      | <b>.367</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Strategic Thinking-Productivity</b>              | <b>.105</b>                              | <b>0.069</b>   | <b>Non-Significant</b> |
| <b>Vision-Productivity</b>                          | <b>.299</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Conflict Management-Productivity</b>             | <b>.153</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Cultural Awareness-Productivity</b>              | <b>.403</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Integrity Honesty-Productivity</b>               | <b>.384</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Team Building-Productivity</b>                   | <b>.159</b>                              | <b>0.006</b>   | <b>Significant</b>     |
| <b>Accountability-Productivity</b>                  | <b>.278</b>                              | <b>0.000</b>   | <b>Significant</b>     |
| <b>Customer service-</b>                            | <b>.292</b>                              | <b>0.000</b>   | <b>Significant</b>     |

|                                                |             |              |                    |
|------------------------------------------------|-------------|--------------|--------------------|
| <b>Productivity</b>                            |             |              |                    |
| <b>Decisiveness-Productivity</b>               | <b>.298</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Problem Solving-Productivity</b>            | <b>.380</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Technical Credibility-Productivity</b>      | <b>.490</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Human Resources Management-Productivity</b> | <b>.358</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Influencing-Productivity</b>                | <b>.315</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Interpersonal Skills-Productivity</b>       | <b>.367</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Oral Communications-Productivity</b>        | <b>.242</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Partnering –Productivity</b>                | <b>.281</b> | <b>0.000</b> | <b>Significant</b> |
| <b>Political Savvy - Productivity</b>          | <b>.549</b> | <b>0.000</b> | <b>Significant</b> |

### **Conclusion:**

From the above table it can be seen that there is a significant relationship between Competencies of Production Managers of Large Companies and Employee Productivity except continual learning and strategic thinking component of competency. Thus we can conclude that we reject null hypothesis and accepts alternate hypothesis, which says that there is a positive relationship between Competencies of Production Managers of Large Companies and Employee Productivity.

### **Research Question-3:**

Does experience influence competencies of production managers?

### **Statistical Test: MANOVA**

### **Variables and Measurement**

## Independent Variable: Experience

| Between-Subjects Factors     |   |             |     |
|------------------------------|---|-------------|-----|
|                              |   | Value Label | N   |
| Experience in Years (Binned) | 1 | < than 10   | 133 |
|                              | 2 | 10-20       | 140 |
|                              | 3 | 20-30       | 27  |

## Dependent Variable:

- Creativity and Innovation
- Continual Learning
- Internal and External Awareness
- Flexibility
- Resilience
- Strategic Thinking
- Vision
- Conflict Management
- Cultural Awareness
- Integrity Honesty
- Team Building
- Accountability
- Customer service
- Decisiveness
- Problem Solving
- Technical Credibility
- Human Resources Management
- Influencing
- Interpersonal Skills
- Oral Communications
- Partnering
- Political Savvy

## Hypothesis:

H0: Experience does not influence Competencies of Production Managers.

H1: Experience does influence Competencies of Production Managers.

**Level of Significance  $\alpha = 0.05$**

| Descriptive Statistics      |                              |        |                |     |
|-----------------------------|------------------------------|--------|----------------|-----|
|                             | Experience in Years (Binned) | Mean   | Std. Deviation | N   |
| Creativity Innovation       | < than 10                    | 3.6579 | .43679         | 133 |
|                             | 10-20                        | 3.6571 | .54669         | 140 |
|                             | 20-30                        | 3.7407 | .37648         | 27  |
|                             | Total                        | 3.6650 | .48586         | 300 |
| Continual earning           | < than 10                    | 3.3045 | .52163         | 133 |
|                             | 10-20                        | 3.3464 | .59342         | 140 |
|                             | 20-30                        | 3.5926 | .39314         | 27  |
|                             | Total                        | 3.3500 | .55092         | 300 |
| Internal External Awareness | < than 10                    | 3.6128 | .46717         | 133 |
|                             | 10-20                        | 3.5357 | .53524         | 140 |
|                             | 20-30                        | 3.5556 | .48701         | 27  |
|                             | Total                        | 3.5717 | .50153         | 300 |
| Flexibility                 | < than 10                    | 3.7180 | .55170         | 133 |
|                             | 10-20                        | 3.7500 | .54145         | 140 |
|                             | 20-30                        | 3.8889 | .21183         | 27  |
|                             | Total                        | 3.7483 | .52607         | 300 |
| Resilience                  | < than 10                    | 3.7707 | .53126         | 133 |
|                             | 10-20                        | 3.8607 | .37964         | 140 |
|                             | 20-30                        | 3.9259 | .18101         | 27  |
|                             | Total                        | 3.8267 | .44416         | 300 |
| Strategic Thinking          | < than 10                    | 3.6015 | .47577         | 133 |
|                             | 10-20                        | 3.6429 | .47712         | 140 |
|                             | 20-30                        | 3.7778 | .34899         | 27  |
|                             | Total                        | 3.6367 | .46767         | 300 |
| Vision                      | < than 10                    | 3.8346 | .36784         | 133 |
|                             | 10-20                        | 3.7893 | .46095         | 140 |
|                             | 20-30                        | 3.8889 | .32026         | 27  |
|                             | Total                        | 3.8183 | .41036         | 300 |
| Conflict Management         | < than 10                    | 3.3571 | .66450         | 133 |
|                             | 10-20                        | 3.4464 | .69865         | 140 |
|                             | 20-30                        | 3.5556 | .54302         | 27  |
|                             | Total                        | 3.4167 | .67173         | 300 |
| Cultural Awareness          | < than 10                    | 3.6955 | .51799         | 133 |

|                            |           |        |        |     |
|----------------------------|-----------|--------|--------|-----|
|                            | 10-20     | 3.6000 | .60928 | 140 |
|                            | 20-30     | 3.3889 | .64051 | 27  |
|                            | Total     | 3.6233 | .57813 | 300 |
|                            | < than 10 | 3.7180 | .53070 | 133 |
| Integrity Honesty          | 10-20     | 3.6679 | .53176 | 140 |
|                            | 20-30     | 3.8333 | .43853 | 27  |
|                            | Total     | 3.7050 | .52414 | 300 |
|                            | < than 10 | 3.6015 | .47974 | 133 |
| Team Building              | 10-20     | 3.5786 | .54400 | 140 |
|                            | 20-30     | 3.7963 | .37363 | 27  |
|                            | Total     | 3.6083 | .50492 | 300 |
|                            | < than 10 | 3.8083 | .38789 | 133 |
| Accountability             | 10-20     | 3.7857 | .41614 | 140 |
|                            | 20-30     | 3.7963 | .46532 | 27  |
|                            | Total     | 3.7967 | .40728 | 300 |
|                            | < than 10 | 3.6617 | .54893 | 133 |
| Customer service           | 10-20     | 3.7143 | .58193 | 140 |
|                            | 20-30     | 3.7778 | .50637 | 27  |
|                            | Total     | 3.6967 | .56039 | 300 |
|                            | < than 10 | 3.7030 | .57747 | 133 |
| Decisiveness               | 10-20     | 3.6786 | .58171 | 140 |
|                            | 20-30     | 3.5000 | .65044 | 27  |
|                            | Total     | 3.6733 | .58689 | 300 |
|                            | < than 10 | 3.8571 | .35125 | 133 |
| Problem Solving            | 10-20     | 3.8036 | .37309 | 140 |
|                            | 20-30     | 3.5000 | .93026 | 27  |
|                            | Total     | 3.8000 | .45168 | 300 |
|                            | < than 10 | 3.1880 | .69523 | 133 |
| Technical Credibility      | 10-20     | 3.0607 | .80571 | 140 |
|                            | 20-30     | 2.9259 | .76841 | 27  |
|                            | Total     | 3.1050 | .75722 | 300 |
|                            | < than 10 | 3.6805 | .42790 | 133 |
| Human Resources Management | 10-20     | 3.6179 | .61049 | 140 |
|                            | 20-30     | 3.5556 | .75107 | 27  |
|                            | Total     | 3.6400 | .55204 | 300 |
|                            | < than 10 | 3.6955 | .46399 | 133 |
| Influencing                | 10-20     | 3.6929 | .42657 | 140 |
|                            | 20-30     | 3.7407 | .35001 | 27  |
|                            | Total     | 3.6983 | .43642 | 300 |
|                            | < than 10 | 3.7256 | .49797 | 133 |
| Interpersonal Skills       | 10-20     | 3.7393 | .48156 | 140 |
|                            | 20-30     | 3.5556 | .64051 | 27  |
|                            | Total     | 3.7167 | .50554 | 300 |
| Oral Communications        | < than 10 | 3.7519 | .43355 | 133 |

|                 |           |        |         |     |
|-----------------|-----------|--------|---------|-----|
| Partnering      | 10-20     | 3.8036 | .30403  | 140 |
|                 | 20-30     | 3.9259 | .18101  | 27  |
|                 | Total     | 3.7917 | .36222  | 300 |
|                 | < than 10 | 3.7030 | .60627  | 133 |
|                 | 10-20     | 3.5214 | .88933  | 140 |
|                 | 20-30     | 3.1296 | .99607  | 27  |
|                 | Total     | 3.5667 | .80168  | 300 |
|                 | < than 10 | 3.6917 | .68180  | 133 |
| Political Savvy | 10-20     | 3.6429 | .78494  | 140 |
|                 | 20-30     | 3.3889 | 1.09486 | 27  |
|                 | Total     | 3.6417 | .77638  | 300 |

A twenty two group between subjects MANOVA was conducted on 22 dependent variables which comprises of competencies of production managers.

**Bartlett's Test of Sphericity<sup>a</sup>**

|                    |          |
|--------------------|----------|
| Likelihood Ratio   | .000     |
| Approx. Chi-Square | 2984.461 |
| df                 | 252      |
| Sig.               | .000     |

Tests the null hypothesis that the residual covariance matrix is proportional to an identity matrix.

a. Design: Intercept + experience

The Bartlett's Test of Sphericity is statistically significant; p value is less than 0.001 indicating sufficient correlation between dependent variables to proceed with the analysis.

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

|         |           |
|---------|-----------|
| Box's M | 1151.586  |
| F       | 1.780     |
| df1     | 506       |
| df2     | 16174.586 |
| Sig.    | .000      |

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + experience

Production manager's surveyed were 300- Box's Test of Equality of Covariance Matrices was statistically significant (p value is less than 0.001).

Indicating that the observed covariance matrices of the dependent variable were unequal across independent variable groups, hence Pillai's Trace was employed to evaluate all multivariate effects. The Pillai's Trace was significant at 5% level of significance.

#### Multivariate Test

| Effect     |                    | Value   | F                     | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|------------|--------------------|---------|-----------------------|---------------|----------|------|---------------------|
| Intercept  | Pillai's Trace     | .994    | 2228.405 <sup>b</sup> | 22.000        | 276.000  | .000 | .994                |
|            | Wilks' Lambda      | .006    | 2228.405 <sup>b</sup> | 22.000        | 276.000  | .000 | .994                |
|            | Hotelling's Trace  | 177.627 | 2228.405 <sup>b</sup> | 22.000        | 276.000  | .000 | .994                |
|            | Roy's Largest Root | 177.627 | 2228.405 <sup>b</sup> | 22.000        | 276.000  | .000 | .994                |
| experience | Pillai's Trace     | .258    | 1.866                 | 44.000        | 554.000  | .001 | .129                |
|            | Wilks' Lambda      | .754    | 1.905 <sup>b</sup>    | 44.000        | 552.000  | .001 | .132                |
|            | Hotelling's Trace  | .311    | 1.943                 | 44.000        | 550.000  | .000 | .135                |
|            | Roy's Largest Root | .247    | 3.112 <sup>c</sup>    | 22.000        | 277.000  | .000 | .198                |

**Pillai's Trace =.258, f (44,554) =1.866, P value= .001**

Since p value is less than 0.05, we reject the null hypothesis, hence it can be concluded that experience has influence on competencies of production managers.

Since Pillai's Trace was significant, Univariate ANOVA was conducted on each dependent variable separately to determine the locus of statistically significant multivariate effects. Since impact of Experience is examined on each dependent variable separately we use Bonferroni corrected alpha level to avoid alpha inflation, we therefore divide alpha by number of dependent variables. Hence the new alpha is  $0.05/22=0.002$ .

#### Tests of Between-Subjects Effects

| Source          | Dependent Variable          | Type III Sum of Squares | df | Mean Square | F     | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power <sup>w</sup> |
|-----------------|-----------------------------|-------------------------|----|-------------|-------|------|---------------------|--------------------|-----------------------------|
| Corrected Model | Creativity Innovation       | .170 <sup>a</sup>       | 2  | .085        | .359  | .699 | .002                | .718               | .107                        |
|                 | Continual earning           | 1.866 <sup>b</sup>      | 2  | .933        | 3.118 | .046 | .021                | 6.235              | .597                        |
|                 | Internal External Awareness | .413 <sup>c</sup>       | 2  | .206        | .820  | .442 | .005                | 1.639              | .190                        |
|                 | Flexibility                 | .656 <sup>d</sup>       | 2  | .328        | 1.186 | .307 | .008                | 2.373              | .259                        |
|                 | Resilience                  | .845 <sup>e</sup>       | 2  | .423        | 2.159 | .117 | .014                | 4.318              | .440                        |
|                 | Strategic Thinking          | .707 <sup>f</sup>       | 2  | .354        | 1.624 | .199 | .011                | 3.248              | .342                        |

|           |                             |                    |   |          |           |      |      |           |       |
|-----------|-----------------------------|--------------------|---|----------|-----------|------|------|-----------|-------|
| Intercept | Vision                      | .288 <sup>g</sup>  | 2 | .144     | .853      | .427 | .006 | 1.707     | .196  |
|           | Conflict Management         | 1.116 <sup>h</sup> | 2 | .558     | 1.239     | .291 | .008 | 2.477     | .269  |
|           | Cultural Awareness          | 2.253 <sup>i</sup> | 2 | 1.126    | 3.425     | .034 | .023 | 6.849     | .641  |
|           | Integrity Honesty           | .660 <sup>j</sup>  | 2 | .330     | 1.204     | .302 | .008 | 2.407     | .262  |
|           | Team Building               | 1.084 <sup>k</sup> | 2 | .542     | 2.142     | .119 | .014 | 4.285     | .437  |
|           | Accountability              | .035 <sup>l</sup>  | 2 | .017     | .104      | .901 | .001 | .208      | .066  |
|           | Customer service            | .384 <sup>m</sup>  | 2 | .192     | .610      | .544 | .004 | 1.220     | .151  |
|           | Decisiveness                | .932 <sup>n</sup>  | 2 | .466     | 1.356     | .259 | .009 | 2.713     | .291  |
|           | Problem Solving             | 2.866 <sup>o</sup> | 2 | 1.433    | 7.321     | .001 | .047 | 14.642    | .936  |
|           | Technical Credibility       | 2.056 <sup>p</sup> | 2 | 1.028    | 1.802     | .167 | .012 | 3.605     | .375  |
|           | Human Resources Management  | .479 <sup>q</sup>  | 2 | .239     | .784      | .457 | .005 | 1.569     | .183  |
|           | Influencing                 | .054 <sup>r</sup>  | 2 | .027     | .141      | .869 | .001 | .281      | .072  |
|           | Interpersonal Skills        | .783 <sup>s</sup>  | 2 | .391     | 1.537     | .217 | .010 | 3.075     | .326  |
|           | Oral Communications         | .717 <sup>t</sup>  | 2 | .359     | 2.765     | .065 | .018 | 5.530     | .543  |
|           | Partnering                  | 7.916 <sup>u</sup> | 2 | 3.958    | 6.380     | .002 | .041 | 12.760    | .899  |
|           | Political Savvy             | 2.059 <sup>v</sup> | 2 | 1.029    | 1.716     | .182 | .011 | 3.432     | .359  |
|           | Creativity Innovation       | 2364.281           | 1 | 2364.281 | 9972.575  | .000 | .971 | 9972.575  | 1.000 |
|           | Continual earning           | 2029.644           | 1 | 2029.644 | 6781.920  | .000 | .958 | 6781.920  | 1.000 |
|           | Internal External Awareness | 2216.240           | 1 | 2216.240 | 8800.205  | .000 | .967 | 8800.205  | 1.000 |
|           | Flexibility                 | 2494.840           | 1 | 2494.840 | 9025.912  | .000 | .968 | 9025.912  | 1.000 |
|           | Resilience                  | 2583.655           | 1 | 2583.655 | 13197.915 | .000 | .978 | 13197.915 | 1.000 |
|           | Strategic Thinking          | 2349.915           | 1 | 2349.915 | 10788.889 | .000 | .973 | 10788.889 | 1.000 |
|           | Vision                      | 2563.772           | 1 | 2563.772 | 15210.099 | .000 | .981 | 15210.099 | 1.000 |
|           | Conflict Management         | 2075.710           | 1 | 2075.710 | 4607.498  | .000 | .939 | 4607.498  | 1.000 |
|           | Cultural Awareness          | 2208.101           | 1 | 2208.101 | 6713.548  | .000 | .958 | 6713.548  | 1.000 |
|           | Integrity Honesty           | 2434.709           | 1 | 2434.709 | 8874.451  | .000 | .968 | 8874.451  | 1.000 |
|           | Team Building               | 2330.441           | 1 | 2330.441 | 9210.732  | .000 | .969 | 9210.732  | 1.000 |
|           | Accountability              | 2509.512           | 1 | 2509.512 | 15038.251 | .000 | .981 | 15038.251 | 1.000 |
|           | Customer service            | 2406.355           | 1 | 2406.355 | 7642.692  | .000 | .963 | 7642.692  | 1.000 |
|           | Decisiveness                | 2290.363           | 1 | 2290.363 | 6665.435  | .000 | .957 | 6665.435  | 1.000 |
|           | Problem Solving             | 2409.375           | 1 | 2409.375 | 12309.239 | .000 | .976 | 12309.239 | 1.000 |

|                             |                             |          |       |          |           |      |        |           |       |
|-----------------------------|-----------------------------|----------|-------|----------|-----------|------|--------|-----------|-------|
| experience                  | Technical Credibility       | 1628.155 | 1     | 1628.155 | 2854.784  | .000 | .906   | 2854.784  | 1.000 |
|                             | Human Resources Management  | 2278.711 | 1     | 2278.711 | 7466.551  | .000 | .962   | 7466.551  | 1.000 |
|                             | Influencing                 | 2395.739 | 1     | 2395.739 | 12506.025 | .000 | .977   | 12506.025 | 1.000 |
|                             | Interpersonal Skills        | 2349.176 | 1     | 2349.176 | 9224.797  | .000 | .969   | 9224.797  | 1.000 |
|                             | Oral Communications         | 2549.813 | 1     | 2549.813 | 19663.811 | .000 | .985   | 19663.811 | 1.000 |
|                             | Partnering                  | 2073.683 | 1     | 2073.683 | 3342.638  | .000 | .918   | 3342.638  | 1.000 |
|                             | Political Savvy             | 2224.291 | 1     | 2224.291 | 3707.767  | .000 | .926   | 3707.767  | 1.000 |
|                             | Creativity                  | .170     | 2     | .085     | .359      | .699 | .002   | .718      | .107  |
|                             | Innovation                  | 1.866    | 2     | .933     | 3.118     | .046 | .021   | 6.235     | .597  |
|                             | Continual earning           | .413     | 2     | .206     | .820      | .442 | .005   | 1.639     | .190  |
|                             | Internal External Awareness | .656     | 2     | .328     | 1.186     | .307 | .008   | 2.373     | .259  |
|                             | Flexibility                 | .845     | 2     | .423     | 2.159     | .117 | .014   | 4.318     | .440  |
|                             | Resilience                  | .707     | 2     | .354     | 1.624     | .199 | .011   | 3.248     | .342  |
|                             | Strategic Thinking          | .288     | 2     | .144     | .853      | .427 | .006   | 1.707     | .196  |
|                             | Vision                      | 1.116    | 2     | .558     | 1.239     | .291 | .008   | 2.477     | .269  |
|                             | Conflict Management         | 2.253    | 2     | 1.126    | 3.425     | .034 | .023   | 6.849     | .641  |
|                             | Cultural Awareness          | .660     | 2     | .330     | 1.204     | .302 | .008   | 2.407     | .262  |
|                             | Integrity Honesty           | 1.084    | 2     | .542     | 2.142     | .119 | .014   | 4.285     | .437  |
|                             | Teambuilding                | .035     | 2     | .017     | .104      | .901 | .001   | .208      | .066  |
|                             | Accountability              | .384     | 2     | .192     | .610      | .544 | .004   | 1.220     | .151  |
| Customer service            | .932                        | 2        | .466  | 1.356    | .259      | .009 | 2.713  | .291      |       |
| Decisiveness                | 2.866                       | 2        | 1.433 | 7.321    | .001      | .047 | 14.642 | .936      |       |
| Problem Solving             | 2.056                       | 2        | 1.028 | 1.802    | .167      | .012 | 3.605  | .375      |       |
| Technical Credibility       | .479                        | 2        | .239  | .784     | .457      | .005 | 1.569  | .183      |       |
| Human Resources Management  | .054                        | 2        | .027  | .141     | .869      | .001 | .281   | .072      |       |
| Influencing                 | .783                        | 2        | .391  | 1.537    | .217      | .010 | 3.075  | .326      |       |
| Interpersonal Skills        | .717                        | 2        | .359  | 2.765    | .065      | .018 | 5.530  | .543      |       |
| Oral Communications         | 7.916                       | 2        | 3.958 | 6.380    | .002      | .041 | 12.760 | .899      |       |
| Partnering                  | 2.059                       | 2        | 1.029 | 1.716    | .182      | .011 | 3.432  | .359      |       |
| Political Savvy             | 70.412                      | 297      | .237  |          |           |      |        |           |       |
| Creativity                  | 88.884                      | 297      | .299  |          |           |      |        |           |       |
| Innovation                  | 74.796                      | 297      | .252  |          |           |      |        |           |       |
| Continual earning           | 82.093                      | 297      | .276  |          |           |      |        |           |       |
| Internal External Awareness | 58.141                      | 297      | .196  |          |           |      |        |           |       |
| Flexibility                 |                             |          |       |          |           |      |        |           |       |
| Resilience                  |                             |          |       |          |           |      |        |           |       |

|       |                       |          |     |      |  |  |  |  |  |
|-------|-----------------------|----------|-----|------|--|--|--|--|--|
| Total | Strategic Thinking    | 64.689   | 297 | .218 |  |  |  |  |  |
|       | Vision                | 50.061   | 297 | .169 |  |  |  |  |  |
|       | Conflict              | 133.801  | 297 | .451 |  |  |  |  |  |
|       | Management            |          |     |      |  |  |  |  |  |
|       | Cultural Awareness    | 97.684   | 297 | .329 |  |  |  |  |  |
|       | Integrity Honesty     | 81.482   | 297 | .274 |  |  |  |  |  |
|       | Team Building         | 75.145   | 297 | .253 |  |  |  |  |  |
|       | Accountability        | 49.562   | 297 | .167 |  |  |  |  |  |
|       | Customer service      | 93.513   | 297 | .315 |  |  |  |  |  |
|       | Decisiveness          | 102.055  | 297 | .344 |  |  |  |  |  |
|       | Problem Solving       | 58.134   | 297 | .196 |  |  |  |  |  |
|       | Technical Credibility | 169.387  | 297 | .570 |  |  |  |  |  |
|       | Human Resources       |          |     |      |  |  |  |  |  |
|       | Management            | 90.641   | 297 | .305 |  |  |  |  |  |
|       | Influencing           | 56.895   | 297 | .192 |  |  |  |  |  |
|       | Interpersonal Skills  | 75.634   | 297 | .255 |  |  |  |  |  |
|       | Oral                  | 38.512   | 297 | .130 |  |  |  |  |  |
|       | Communications        |          |     |      |  |  |  |  |  |
|       | Partnering            | 184.251  | 297 | .620 |  |  |  |  |  |
|       | Political Savvy       | 178.170  | 297 | .600 |  |  |  |  |  |
|       | Creativity            | 4100.250 | 300 |      |  |  |  |  |  |
|       | Innovation            |          |     |      |  |  |  |  |  |
|       | Continual earning     | 3457.500 | 300 |      |  |  |  |  |  |
|       | Internal External     | 3902.250 | 300 |      |  |  |  |  |  |
|       | Awareness             |          |     |      |  |  |  |  |  |
|       | Flexibility           | 4297.750 | 300 |      |  |  |  |  |  |
|       | Resilience            | 4452.000 | 300 |      |  |  |  |  |  |
|       | Strategic Thinking    | 4033.000 | 300 |      |  |  |  |  |  |
|       | Vision                | 4424.250 | 300 |      |  |  |  |  |  |
|       | Conflict              | 3637.000 | 300 |      |  |  |  |  |  |
|       | Management            |          |     |      |  |  |  |  |  |
|       | Cultural Awareness    | 4038.500 | 300 |      |  |  |  |  |  |
|       | Integrity Honesty     | 4200.250 | 300 |      |  |  |  |  |  |
|       | Teambuilding          | 3982.250 | 300 |      |  |  |  |  |  |
|       | Accountability        | 4374.000 | 300 |      |  |  |  |  |  |
|       | Customer service      | 4193.500 | 300 |      |  |  |  |  |  |
|       | Decisiveness          | 4151.000 | 300 |      |  |  |  |  |  |
|       | Problem Solving       | 4393.000 | 300 |      |  |  |  |  |  |
|       | Technical Credibility | 3063.750 | 300 |      |  |  |  |  |  |
|       | Human Resources       |          |     |      |  |  |  |  |  |
|       | Management            | 4066.000 | 300 |      |  |  |  |  |  |
|       | Influencing           | 4160.250 | 300 |      |  |  |  |  |  |
|       | Interpersonal Skills  | 4220.500 | 300 |      |  |  |  |  |  |

|                    |                       |          |     |  |  |  |  |  |  |
|--------------------|-----------------------|----------|-----|--|--|--|--|--|--|
| Corrected<br>Total | Oral                  | 4352.250 | 300 |  |  |  |  |  |  |
|                    | Communications        |          |     |  |  |  |  |  |  |
|                    | Partnering            | 4008.500 | 300 |  |  |  |  |  |  |
|                    | Political Savvy       | 4158.750 | 300 |  |  |  |  |  |  |
|                    | Creativity            | 70.583   | 299 |  |  |  |  |  |  |
|                    | Innovation            |          |     |  |  |  |  |  |  |
|                    | Continual earning     | 90.750   | 299 |  |  |  |  |  |  |
|                    | Internal External     | 75.209   | 299 |  |  |  |  |  |  |
|                    | Awareness             |          |     |  |  |  |  |  |  |
|                    | Flexibility           | 82.749   | 299 |  |  |  |  |  |  |
|                    | Resilience            | 58.987   | 299 |  |  |  |  |  |  |
|                    | Strategic Thinking    | 65.397   | 299 |  |  |  |  |  |  |
|                    | Vision                | 50.349   | 299 |  |  |  |  |  |  |
|                    | Conflict              | 134.917  | 299 |  |  |  |  |  |  |
|                    | Management            |          |     |  |  |  |  |  |  |
|                    | Cultural Awareness    | 99.937   | 299 |  |  |  |  |  |  |
|                    | Integrity Honesty     | 82.143   | 299 |  |  |  |  |  |  |
|                    | Teambuilding          | 76.229   | 299 |  |  |  |  |  |  |
|                    | Accountability        | 49.597   | 299 |  |  |  |  |  |  |
|                    | Customer service      | 93.897   | 299 |  |  |  |  |  |  |
|                    | Decisiveness          | 102.987  | 299 |  |  |  |  |  |  |
|                    | Problem Solving       | 61.000   | 299 |  |  |  |  |  |  |
|                    | Technical Credibility | 171.443  | 299 |  |  |  |  |  |  |
|                    | Human Resources       | 91.120   | 299 |  |  |  |  |  |  |
|                    | Management            |          |     |  |  |  |  |  |  |
|                    | Influencing           | 56.949   | 299 |  |  |  |  |  |  |
|                    | Interpersonal Skills  | 76.417   | 299 |  |  |  |  |  |  |
|                    | Oral                  | 39.229   | 299 |  |  |  |  |  |  |
|                    | Communications        |          |     |  |  |  |  |  |  |
|                    | Partnering            | 192.167  | 299 |  |  |  |  |  |  |
|                    | Political Savvy       | 180.229  | 299 |  |  |  |  |  |  |

a. R Squared = .002 (Adjusted R Squared = -.004)

b. R Squared = .021 (Adjusted R Squared = .014)

c. R Squared = .005 (Adjusted R Squared = -.001)

d. R Squared = .008 (Adjusted R Squared = .001)

e. R Squared = .014 (Adjusted R Squared = .008)

f. R Squared = .011 (Adjusted R Squared = .004)

g. R Squared = .006 (Adjusted R Squared = -.001)

h. R Squared = .008 (Adjusted R Squared = .002)

i. R Squared = .023 (Adjusted R Squared = .016)

j. R Squared = .008 (Adjusted R Squared = .001)

- k. R Squared = .014 (Adjusted R Squared = .008)
- l. R Squared = .001 (Adjusted R Squared = -.006)
- m. R Squared = .004 (Adjusted R Squared = -.003)
- n. R Squared = .009 (Adjusted R Squared = .002)
- o. R Squared = .047 (Adjusted R Squared = .041)
- p. R Squared = .012 (Adjusted R Squared = .005)
- q. R Squared = .005 (Adjusted R Squared = -.001)
- r. R Squared = .001 (Adjusted R Squared = -.006)
- s. R Squared = .010 (Adjusted R Squared = .004)
- t. R Squared = .018 (Adjusted R Squared = .012)
- u. R Squared = .041 (Adjusted R Squared = .035)
- v. R Squared = .011 (Adjusted R Squared = .005)
- w. Computed using alpha = .05

It is evident that experience has influence on problem solving and partnering competency of production managers only. To know more about this relationship and to study where the difference lies, we refer to descriptive statistics table. It is seen from descriptive statistics table that managers with the experience of less than ten years were high on problem solving and partnering competencies. It can be seen that experience has no influence on other competencies.

#### **Research Question-4:**

Does qualification influence competencies of production managers?

#### **Statistical Test: MANOVA**

#### **Variables and Measurement**

#### **Independent Variable: Qualification**

| Between-Subjects Factors |                 |     |
|--------------------------|-----------------|-----|
|                          | Value Label     | N   |
| Qualification            | 1 Graduate      | 189 |
|                          | 2 Post Graduate | 53  |
|                          | 3 Diploma       | 58  |
|                          | Certificate     |     |

#### **Dependent Variable:**

- Creativity and Innovation
- Continual Learning
- Internal and External Awareness

- Flexibility
- Resilience
- Strategic Thinking
- Vision
- Conflict Management
- Cultural Awareness
- Integrity Honesty
- Team Building
- Accountability
- Customer service
- Decisiveness
- Problem Solving
- Technical Credibility
- Human Resources Management
- Influencing
- Interpersonal Skills
- Oral Communications
- Partnering
- Political Savvy

### **Hypothesis:**

H0: Qualification does not influence Competencies of Production Managers.

H1: Qualification does influence Competencies of Production Managers.

**Level of Significance  $\alpha = 0.05$**

| Descriptive Statistics |                     |        |                |     |
|------------------------|---------------------|--------|----------------|-----|
|                        | Qualification       | Mean   | Std. Deviation | N   |
| Creativity Innovation  | Graduate            | 3.6852 | .47557         | 189 |
|                        | Post Graduate       | 3.5660 | .54630         | 53  |
|                        | Diploma Certificate | 3.6897 | .45718         | 58  |
|                        | Total               | 3.6650 | .48586         | 300 |
| Continual earning      | Graduate            | 3.3651 | .52749         | 189 |

|                             |                     |               |        |        |
|-----------------------------|---------------------|---------------|--------|--------|
| Internal External Awareness | Post Graduate       | 3.3019        | .66751 | 53     |
|                             | Diploma Certificate | 3.3448        | .51476 | 58     |
|                             | Total               | 3.3500        | .55092 | 300    |
|                             | Graduate            | 3.6111        | .49286 | 189    |
|                             | Post Graduate       | 3.4717        | .55829 | 53     |
|                             | Diploma Certificate | 3.5345        | .46700 | 58     |
|                             | Total               | 3.5717        | .50153 | 300    |
|                             | Graduate            | 3.7910        | .50262 | 189    |
|                             | Flexibility         | Post Graduate | 3.5000 | .69338 |
| Diploma Certificate         |                     | 3.8362        | .32965 | 58     |
| Total                       |                     | 3.7483        | .52607 | 300    |
| Resilience                  | Graduate            | 3.8651        | .35959 | 189    |
|                             | Post Graduate       | 3.6981        | .71616 | 53     |
|                             | Diploma Certificate | 3.8190        | .34664 | 58     |
|                             | Total               | 3.8267        | .44416 | 300    |
| Strategic Thinking          | Graduate            | 3.6349        | .47440 | 189    |
|                             | Post Graduate       | 3.6415        | .45338 | 53     |
|                             | Diploma Certificate | 3.6379        | .46635 | 58     |
|                             | Total               | 3.6367        | .46767 | 300    |
| Vision                      | Graduate            | 3.8307        | .40332 | 189    |
|                             | Post Graduate       | 3.6981        | .54895 | 53     |
|                             | Diploma Certificate | 3.8879        | .23024 | 58     |
|                             | Total               | 3.8183        | .41036 | 300    |
| Conflict Management         | Graduate            | 3.4392        | .68047 | 189    |
|                             | Post Graduate       | 3.1981        | .78041 | 53     |
|                             | Diploma Certificate | 3.5431        | .47095 | 58     |
|                             | Total               | 3.4167        | .67173 | 300    |
| Cultural Awareness          | Graduate            | 3.6243        | .59173 | 189    |
|                             | Post Graduate       | 3.5472        | .61444 | 53     |
|                             | Diploma Certificate | 3.6897        | .49407 | 58     |
|                             | Total               | 3.6233        | .57813 | 300    |
| Integrity Honesty           | Graduate            | 3.7328        | .47968 | 189    |
|                             | Post Graduate       | 3.5377        | .69924 | 53     |
|                             | Diploma Certificate | 3.7672        | .45127 | 58     |
|                             | Total               | 3.7050        | .52414 | 300    |
| Teambuilding                | Graduate            | 3.6058        | .52533 | 189    |
|                             | Post Graduate       | 3.5377        | .55339 | 53     |
|                             | Diploma Certificate | 3.6810        | .37109 | 58     |
|                             | Total               | 3.6083        | .50492 | 300    |
| Accountability              | Graduate            | 3.8201        | .41823 | 189    |
|                             | Post Graduate       | 3.6604        | .46795 | 53     |
|                             | Diploma Certificate | 3.8448        | .26831 | 58     |
|                             | Total               | 3.7967        | .40728 | 300    |
| Customer service            | Graduate            | 3.7354        | .49612 | 189    |

|                            |                     |        |        |     |
|----------------------------|---------------------|--------|--------|-----|
|                            | Post Graduate       | 3.4434 | .83009 | 53  |
|                            | Diploma Certificate | 3.8017 | .36201 | 58  |
|                            | Total               | 3.6967 | .56039 | 300 |
|                            | Graduate            | 3.6614 | .57809 | 189 |
| Decisiveness               | Post Graduate       | 3.5660 | .68667 | 53  |
|                            | Diploma Certificate | 3.8103 | .49407 | 58  |
|                            | Total               | 3.6733 | .58689 | 300 |
|                            | Graduate            | 3.7513 | .53001 | 189 |
| Problem Solving            | Post Graduate       | 3.8208 | .31155 | 53  |
|                            | Diploma Certificate | 3.9397 | .16431 | 58  |
|                            | Total               | 3.8000 | .45168 | 300 |
|                            | Graduate            | 3.1243 | .74315 | 189 |
| Technical Credibility      | Post Graduate       | 3.1415 | .74921 | 53  |
|                            | Diploma Certificate | 3.0086 | .81376 | 58  |
|                            | Total               | 3.1050 | .75722 | 300 |
|                            | Graduate            | 3.6138 | .60055 | 189 |
| Human Resources Management | Post Graduate       | 3.6887 | .41863 | 53  |
|                            | Diploma Certificate | 3.6810 | .49292 | 58  |
|                            | Total               | 3.6400 | .55204 | 300 |
|                            | Graduate            | 3.6825 | .46099 | 189 |
| Influencing                | Post Graduate       | 3.6792 | .41711 | 53  |
|                            | Diploma Certificate | 3.7672 | .36533 | 58  |
|                            | Total               | 3.6983 | .43642 | 300 |
|                            | Graduate            | 3.7302 | .51177 | 189 |
| Interpersonal Skills       | Post Graduate       | 3.6887 | .48265 | 53  |
|                            | Diploma Certificate | 3.6983 | .51247 | 58  |
|                            | Total               | 3.7167 | .50554 | 300 |
|                            | Graduate            | 3.7857 | .39660 | 189 |
| Oral Communications        | Post Graduate       | 3.7358 | .34812 | 53  |
|                            | Diploma Certificate | 3.8621 | .22543 | 58  |
|                            | Total               | 3.7917 | .36222 | 300 |
|                            | Graduate            | 3.5794 | .75551 | 189 |
| Partnering                 | Post Graduate       | 3.5377 | .86519 | 53  |
|                            | Diploma Certificate | 3.5517 | .89683 | 58  |
|                            | Total               | 3.5667 | .80168 | 300 |
|                            | Graduate            | 3.6455 | .75705 | 189 |
| Political Savvy            | Post Graduate       | 3.6038 | .83412 | 53  |
|                            | Diploma Certificate | 3.6638 | .79686 | 58  |
|                            | Total               | 3.6417 | .77638 | 300 |

A twenty two group between subjects MANOVA was conducted on 22 dependent variables which comprises of competencies of production managers.

**Bartlett's Test of Sphericity<sup>a</sup>**

|                    |          |
|--------------------|----------|
| Likelihood Ratio   | .000     |
| Approx. Chi-Square | 2964.309 |
| df                 | 252      |
| Sig.               | .000     |

Tests the null hypothesis that the residual covariance matrix is proportional to an identity matrix.

a. Design: Intercept + Qualification

The Bartlett's Test of Sphericity is statistically significant; p value is less than 0.001 indicating sufficient correlation between dependent variables to proceed with the analysis.

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

|         |           |
|---------|-----------|
| Box's M | 1040.325  |
| F       | 1.741     |
| df1     | 506       |
| df2     | 62233.627 |
| Sig.    | .000      |

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + Qualification

Production manager's surveyed were 300- Box's Test of Equality of Covariance Matrices was statistically significant (p value is less than 0.001).

Indicating that the observed covariance matrices of the dependent variable were unequal across independent variable groups, hence Pillai's Trace was employed to evaluate all multivariate effects. The Pillai's Trace was not significant at 5% level of significance.

| Effect        |                    | Value   | F                     | Hypothesis<br>df | Error df | Sig. | Partial Eta<br>Squared |
|---------------|--------------------|---------|-----------------------|------------------|----------|------|------------------------|
| Intercept     | Pillai's Trace     | .996    | 2796.679 <sup>b</sup> | 22.000           | 276.000  | .000 | .996                   |
|               | Wilks' Lambda      | .004    | 2796.679 <sup>b</sup> | 22.000           | 276.000  | .000 | .996                   |
|               | Hotelling's Trace  | 222.924 | 2796.679 <sup>b</sup> | 22.000           | 276.000  | .000 | .996                   |
|               | Roy's Largest Root | 222.924 | 2796.679 <sup>b</sup> | 22.000           | 276.000  | .000 | .996                   |
| Qualification | Pillai's Trace     | .173    | 1.195                 | 44.000           | 554.000  | .187 | .087                   |
|               | Wilks' Lambda      | .834    | 1.195 <sup>b</sup>    | 44.000           | 552.000  | .188 | .087                   |
|               | Hotelling's Trace  | .191    | 1.194                 | 44.000           | 550.000  | .189 | .087                   |
|               | Roy's Largest Root | .120    | 1.513 <sup>c</sup>    | 22.000           | 277.000  | .069 | .107                   |

**Pillai's Trace = .173, f (44,554) =1.195, P value= .187**

Since p value is more than 0.05, we accept the null hypothesis, hence it can be concluded that qualification has no influence on competencies of production managers.

#### **Research Question-5:**

Do competencies of production managers have an impact on the productivity of the employees?

#### **Statistical Test: Multiple Regression**

#### **Variables and Measurement**

##### **Independent Variable: Competencies**

- Creativity and Innovation
- Continual Learning
- Internal and External Awareness
- Flexibility
- Resilience
- Strategic Thinking
- Vision
- Conflict Management
- Cultural Awareness
- Integrity Honesty
- Team Building
- Accountability
- Customer service
- Decisiveness
- Problem Solving
- Technical Credibility
- Human Resources Management
- Influencing
- Interpersonal Skills
- Oral Communications
- Partnering
- Political Savvy
-

## Dependent Variable: Productivity of Employees

### Hypothesis:

H0: Competencies of production managers have no impact on the productivity of the employees

H1: Competencies of production managers have an impact on the productivity of the employees

Level of Significance  $\alpha = 0.05$

Model Summary<sup>b</sup>

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .841 <sup>a</sup> | .707     | .684              | .14770                     |

a. Predictors: (Constant), Political Savvy, Vision, Continual earning, Oral Communications, Problem Solving, Decisiveness, Interpersonal Skills, Internal External Awareness, Influencing, Strategic Thinking, Human Resources Management, Resilience, Partnering, Teambuilding, Flexibility, Cultural Awareness, Creativity Innovation, Conflict Management, Accountability, Integrity Honesty, Technical Credibility, Customer service

b. Dependent Variable: Productivity

Model summary of the impact of competencies on the productivity of the employees suggests that R-Square value is quite high and it make sense to study the model further.

ANOVA<sup>a</sup>

| Model        | Sum of Squares | df  | Mean Square | F      | Sig.              |
|--------------|----------------|-----|-------------|--------|-------------------|
| 1 Regression | 14.606         | 22  | .664        | 30.432 | .000 <sup>b</sup> |
| Residual     | 6.043          | 277 | .022        |        |                   |
| Total        | 20.649         | 299 |             |        |                   |

a. Dependent Variable: Productivity

b. Predictors: (Constant), Political Savvy, Vision, Continual earning, Oral Communications, Problem Solving, Decisiveness, Interpersonal Skills, Internal External Awareness, Influencing, Strategic Thinking, Human Resources Management, Resilience, Partnering, Teambuilding, Flexibility, Cultural Awareness, Creativity Innovation, Conflict Management, Accountability, Integrity Honesty, Technical Credibility, Customer service

$F(22,277) = 30.432, p < .05$

Since ANOVA of the regression model is having p-value less than 0.05, we can say that the model is significant and valid.

Hence to know more about the model, like which of the predictors of competencies does impact the employee productivity, we will follow the coefficient table which is mentioned below:

Coefficients<sup>a</sup>

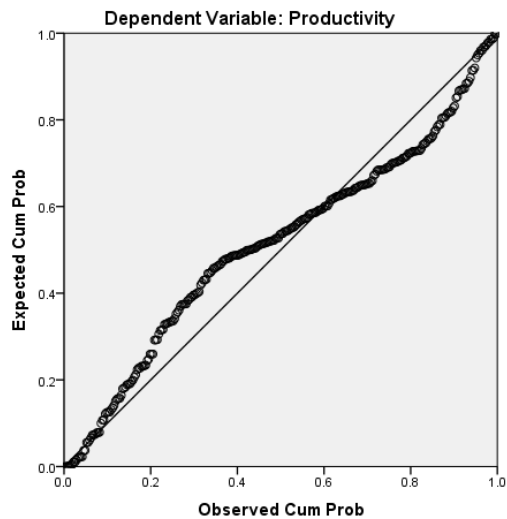
| Model                       | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. | Correlations |         |       | Collinearity Statistics |       |
|-----------------------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|-------|-------------------------|-------|
|                             | B                           | Std. Error | Beta                      |        |      | Zero-order   | Partial | Part  | Tolerance               | VIF   |
| (Constant)                  | 2.131                       | .149       |                           | 14.286 | .000 |              |         |       |                         |       |
| Creativity Innovation       | .001                        | .024       | .001                      | .032   | .974 | .254         | .002    | .001  | .559                    | 1.789 |
| Continual learning          | .015                        | .019       | .032                      | .821   | .412 | -.013        | .049    | .027  | .688                    | 1.453 |
| Internal External Awareness | -.028                       | .020       | -.054                     | -1.399 | .163 | .195         | -.084   | -.045 | .707                    | 1.415 |
| Flexibility                 | .022                        | .024       | .045                      | .923   | .357 | .290         | .055    | .030  | .449                    | 2.229 |
| Resilience                  | .010                        | .025       | .017                      | .415   | .678 | .281         | .025    | .013  | .614                    | 1.628 |
| Strategic Thinking          | .032                        | .023       | .057                      | 1.386  | .167 | .105         | .083    | .045  | .631                    | 1.585 |
| Vision                      | .028                        | .033       | .043                      | .841   | .401 | .309         | .050    | .027  | .400                    | 2.498 |
| Conflict Management         | -.015                       | .017       | -.038                     | -.868  | .386 | .142         | -.052   | -.028 | .554                    | 1.806 |
| Cultural Awareness          | -.003                       | .020       | -.006                     | -.144  | .885 | .446         | -.009   | -.005 | .561                    | 1.783 |
| Integrity Honesty           | .010                        | .024       | .020                      | .419   | .675 | .402         | .025    | .014  | .452                    | 2.212 |
| Teambuilding                | .001                        | .023       | .002                      | .045   | .965 | .201         | .003    | .001  | .536                    | 1.867 |
| Accountability              | -.006                       | .030       | -.009                     | -.203  | .840 | .237         | -.012   | -.007 | .499                    | 2.003 |
| Customer service            | .080                        | .025       | .170                      | 3.237  | .001 | .296         | .191    | .105  | .381                    | 2.623 |
| Decisiveness                | .033                        | .020       | .075                      | 1.666  | .097 | .208         | .100    | .054  | .528                    | 1.893 |
| Problem Solving             | .088                        | .022       | .150                      | 3.954  | .000 | .410         | .231    | .129  | .729                    | 1.371 |
| Technical Credibility       | .086                        | .018       | .247                      | 4.731  | .000 | .531         | .273    | .154  | .387                    | 2.583 |
| Human Resources Management  | .051                        | .018       | .107                      | 2.766  | .006 | .468         | .164    | .090  | .701                    | 1.426 |
| Influencing                 | .052                        | .023       | .086                      | 2.294  | .023 | .397         | .137    | .075  | .746                    | 1.340 |
| Interpersonal Skills        | .134                        | .019       | .259                      | 6.951  | .000 | .544         | .385    | .226  | .763                    | 1.311 |
| Oral Communications         | .016                        | .028       | .022                      | .573   | .567 | .275         | .034    | .019  | .694                    | 1.441 |

|                 |            |      |      |       |      |      |      |      |      |       |
|-----------------|------------|------|------|-------|------|------|------|------|------|-------|
| Partnering      | 7.032E-005 | .016 | .000 | .004  | .996 | .460 | .000 | .000 | .457 | 2.191 |
| Political Savvy | .103       | .016 | .304 | 6.461 | .000 | .633 | .362 | .210 | .478 | 2.092 |

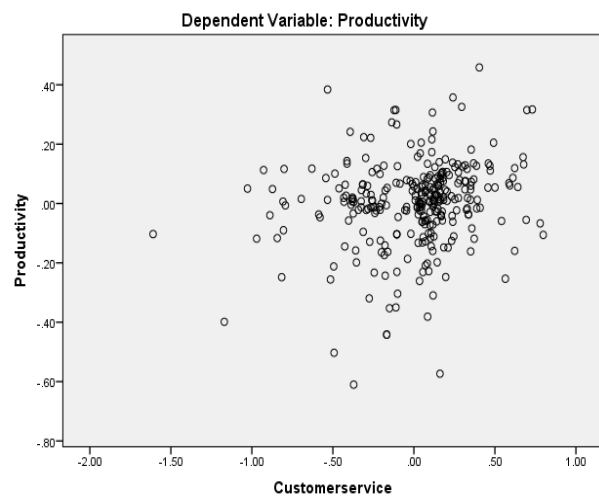
a. Dependent Variable: Productivity

The plots explaining the phenomenon of competencies impacting employee productivity are mentioned below:

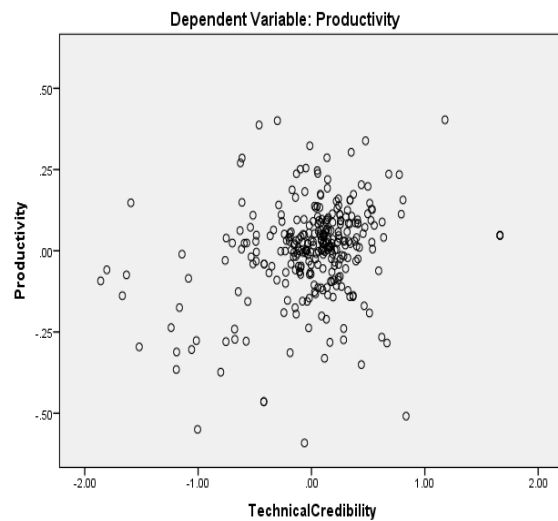
Normal P-P Plot of Regression Standardized Residual



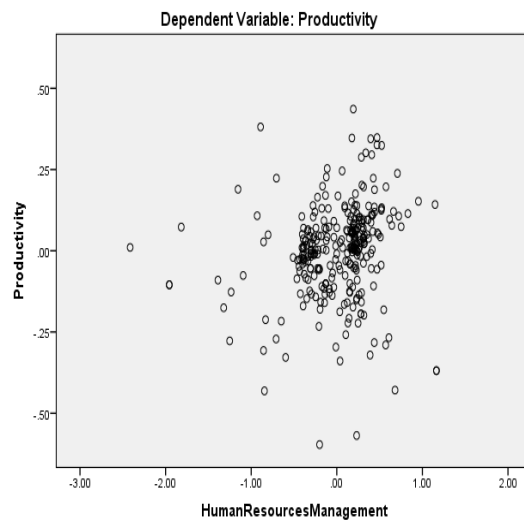
Partial Regression Plot

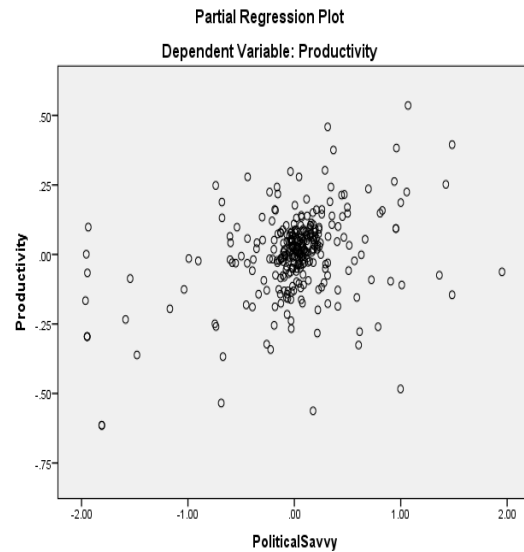
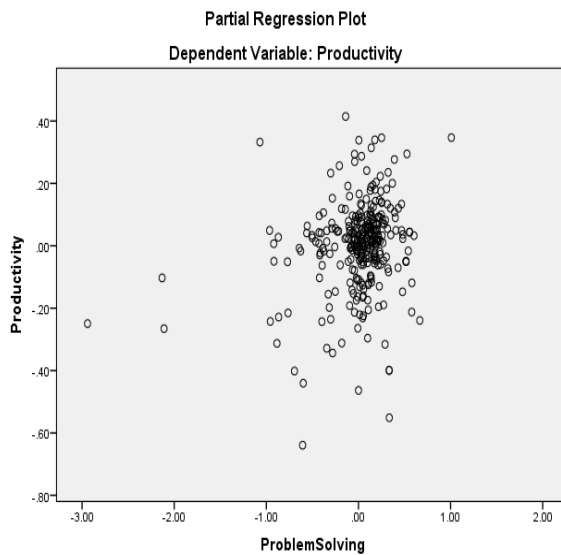
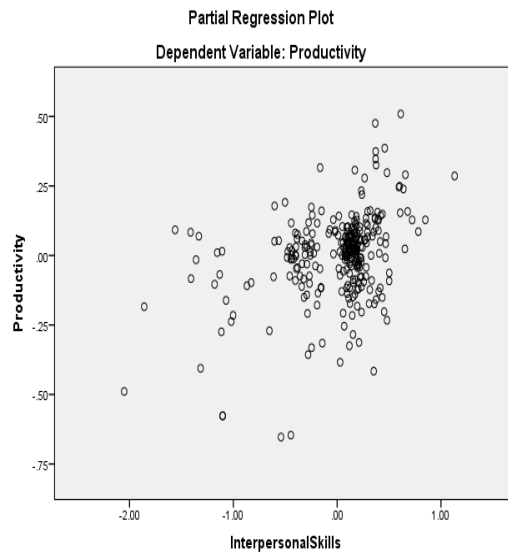
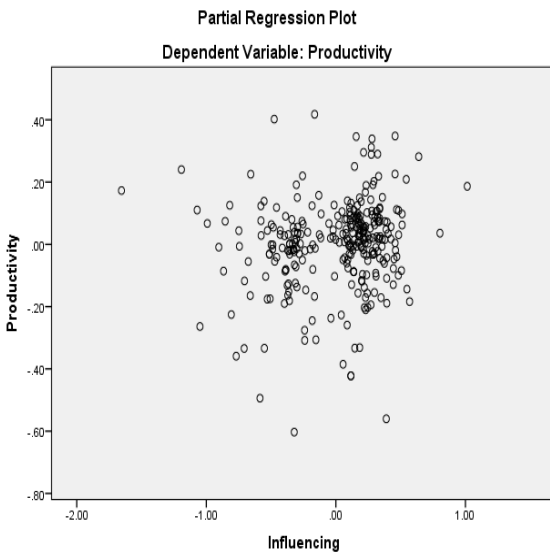


Partial Regression Plot



Partial Regression Plot





### Conclusion:

A multiple regression was run to predict employee productivity from competencies. And it has been observed that following competencies were able to predict the productivity of the employees successfully. These competencies are mentioned below:

- Customer Service
- Problem Solving
- Technical Credibility
- Human Resource Management
- Influencing
- Interpersonal Skills
- Political Savvy

## **CHAPTER-5: CONCLUSION**

The sole purpose of this chapter is to segregate overall findings of this quantitative study and discuss the results leading to a conclusion. The data analysis has been performed for demographics assessment, descriptive statistics has been tested for all the variables involved into study and various statistical tests has been performed to test the research question leading to hypothesis assessment. This chapter is structured as follows: Section-1: Demographics Assessment, Section-2: Descriptive Assessment, Section-3: Hypothesis Assessment.

### **Section-1: Demographics Information**

The demographic information has been taken from the production managers participated in research which is important to determine whether respondents can make representative sample for the population to generalize the results. The demographics have been treated as independent variables in this research design.

The demographic information has been taken for age, experience, gender, qualification. The age has been asked to production managers of large companies in Pune region. Later it is grouped into 3 groups ranging from less than 30 years to 50 years and it has been found that maximum participants were from the age group between 30-40 years followed by 40-50 years age group and the least one is from less than ten years of age group.

So the conclusion is that respondents who are between 30-40 years of age group comprise maximum production managers.

The production managers were asked about their experience level and later it is converted into 3 groups having experience less than 10 years to 30 years and it has been found that production managers who are having experience between 10-20 years are maximum in numbers followed by the managers having experience level less than 10 years.

The production managers were asked about their gender and it has been divided into two groups which are namely male and female. It has been found that all were male.

The qualification information has been asked to the production managers later the qualification has been classified into 3 groups namely diploma holders, graduate and post graduate. It has been found that most of the production managers were graduates followed by diploma holders and the least were post graduate qualifications.

The conclusion is that the most of the production managers were in the age group of 30-40 years having experience of 10-20 years and they were graduates.

## **Section-2: Descriptive Assessment**

The production managers were asked to rate on various statements which will be helpful to determine their competencies and their employee's productivity. The research has involved 44 statements which have been tested using descriptive statistics for production manager's competencies. The employee's productivity has been assessed using 18 statements.

The finding of competencies of production managers of large companies in Pune region shows that the manager's practice most of the competencies frequently, and the employee productivity is seen as satisfied from production manager's perspective.

## **Section-3: Hypothesis Assessment**

The sole purpose of this quantitative research study was to explore the relationship between competencies of production manager from large companies in Pune region and their employee's productivity. This section will present the conclusion to each research question for which hypothesis has been formulated and tested.

**Research Question-1:** Whether there is the difference in the extent of competencies practiced among production managers of large companies?

There has been a little research on how production managers practice various competencies. The way they will practice these competencies will decide the employee's productivity as they are going to deal with them.

The findings of the study have suggested that production manager's practice all competencies mentioned in research, they may vary in their usage. The results has suggested that the top five competencies practiced by production managers are Resilience, Vision, Problem Solving,

Accountability, and Political Savvy. Hence it is concluded that the most noticeable competencies are these along with other competencies mentioned in research.

Thus, it leads to the conclusion that production managers are more political savvy and also have vision to drive employee in particular manner and they feel accountable for the roles and responsibilities towards their employees.

**Research Question-2:** Whether Competencies of Production Managers of Large Companies and Employee Productivity are co-related?

The data analysis of research has helped in answering this question which has various production managers' competencies and employee productivity aspect. The researcher has found that there is a strong correlation between production manager's competencies and employee productivity. In specific terms creativity and innovation, internal and external awareness, flexibility, resilience, vision, conflict management, cultural awareness, integrity and honesty, team building, accountability, customer service, decisiveness, problem solving, technical credibility, human resources management, influencing, interpersonal skills, oral communications, partnering and political Savvy are the competencies which are co-related to employees overall productivity. The competencies which didn't have correlation with the employee productivity is continual learning and strategic thinking.

**Research Question-3:** Does experience influence competencies of production managers?

The analysis of the research data have suggested that experience does influence the competencies of the production managers. In particular the researcher has found that the production managers having experience less than 10 years were high on problem solving skills and partnering with employees followed by the managers having experience ranging between 10-20 years of experience and the least influence of problem solving and partnering with employees is shown by the production managers with the experience of 20-30 years.

**Research Question-4:** Does paper qualification influence competencies of production managers?

The analysis of the research data have suggested that production managers of the large companies were having varied qualifications such as some were graduates some were post

graduates and some were diploma holders. In specific to study their influence on production managers competencies it has been found that qualification of these production managers were not having any influence on their competencies. Hence we can say that the organizations must not focus on particular paper qualification of the managers as anyways it is not the things which can impact their competencies and thereby on the productivity of the employees under them.

**Research Question-5:** Do competencies of production managers have an impact on the productivity of the employees?

The data analysis of survey has helped in developing the answer to this question. The researcher has run a multiple regression to predict employee productivity from competencies of production managers of large companies in Pune region. The regression model has suggested that not all competencies mentioned in the research study were helpful to predict the productivity of the employees.

In particular the anova model summary was significant and coefficient table help us to understand which competencies of production manager were able to actually predict the productivity of the employees. And it has been observed that following competencies were able to predict the productivity of the employees successfully. These competencies are: Customer Service, Technical Credibility, Human Resource Management, Influencing, Interpersonal Skills, and Political Savvy.

It has been observed in particular that Political Savvy, Technical Credibility, Problem Solving are the competencies which were very strong in predicting the productivity of the employees. Hence organizations and respective production managers should focus on developing these competencies more strongly with other respective competencies which will help to improve their employee's productivity in more efficient way.

These competencies can help to build a strong partnership between respective production managers and their employees and create a distinctive advantage for their team to be more productive.

## CHAPTER-6: RECOMMENDATIONS

On the basis of research findings researcher has certain recommendations which are described below:

It has seen that lot of time organization promotes people to management position or fails to understand their competencies; without understanding key competencies they fail to be effective managers.

Based on this research study, and observation from the interactions and interviews with the Production managers, following are some of the recommendations for managers and the respective organizations to focus on with respect to competencies:

1. **Effective communication skills:** Managers should focus more on enhancing their interpersonal and intrapersonal communication skills which will help them to effectively communicate the vision or organization to their respective employees, this way all the people involved into the work will have satisfactory outcome. It was observed that the production managers lacked soft skills and was evident also from the questionnaire filled were not up to the expected standards.
2. **Understanding Young Workforce:** The new scenario of industry is that most of the organizations having young workforce maximum and the more experienced one are ready to pass on the baton to these young lads. Our today's young employees have different style of working as compared to the older one these youngsters are good at multitasking and ready to go extra mile due to flexible thinking in their approach. To be an effective organization, organization musts understand the needs of these young generations and adapt themselves accordingly. It has been seen in this research that the production managers with less than 10 years of experience were more active in problem solving and partnering with the employees than the managers with high number of years of experience.
3. **Extending helping hand:** Employees should be coached and mentored by the experience managers which will help employees to realize their true potential and perform their best.

Experienced managers know how to create an environment which is conducive; they know how to charge the employees by creating a compelling vision and thereby creating an environment of creativity and innovation which will help employees to perform their best.

4. **Building Leadership:** A managers should become aware of his own leadership styles which help him to devise a strategy to deal with employees and capitalize their strengths to create a differential advantage for the organization. Effective managers are also aware of their flexibility and resilient competencies and consciously create environment to maximize employee's strengths. Organisations should arrange leadership and team building activities and outbound training programs.
5. **Up Skilling:** Effective managers were always involved into continuous learning process whether it is in-house or out of the organizations which help them to build on their respective competencies to be more impactful in delivering their best results. As per the feedback of respondents they were keen to join the management development programs, computer training as some of them were not very computer savvy and were reluctant for any online communication. So they were keen to enhance and up skill their managerial competencies to combat with the uphill task.

## **CHAPTER-7: LIMITATIONS OF THIS RESEARCH**

As a natural phenomenon in any research study, several limitations arise due to constraints like limited resources; time. These limitations may affect the findings and conclusions of the research study. The limitations related to this study within the context of large companies in Pune are given below:

Firstly, the limitation was the time of production managers: It was difficult for researcher to get the time slot to interview the respective production managers as the work demands were quite high considering the scope of their work and organizations requirements. Hence prior appointments have been taken before interviewing them.

Secondly, due to scarcity of research journals and articles, the researcher has found that there were limitations in concern to information sought on competencies of production managers and employee productivity with special reference to Pune region. This pointed out to be a research gap in the literature and thus it justifies the importance of this competency based research topic in research study. To assess the competencies and productivity various literatures has been studied and adapted the relevant items.

Thirdly, the productivity concept in itself is a very difficult concept to interpret. Several research scholars have tried to do that from different perspective. So it was really tough to boil down to particular concept. In this research we have considered the soft as well as hard point of productivity and considered the productivity as a whole.

Fourth, since the research study has used cross-sectional design in which the data has been collected once i.e only one point of time it leaves the researcher with inability to capture the long term effect of competencies of production managers on employee productivity. As competencies can be build it give importance to look for long term study of these particular competencies.

Fifth, sector-wise comparative study with respect to the industry sectors has not been done as was out of the scope for this study considering time and money dimensions.

## **CHAPTER-8: SCOPE OF FUTURE RESEARCH**

The researcher has several suggestions based on the findings of current research study for the future researchers who wish to focus and study on production manager's competencies and employee productivity.

1. The sample size of the survey should consider all the sectors in Pune region considering their status as large companies, it would be beneficial to study the phenomena in more detail and the results would be more generalizable across the industry sectors.
2. A production managers gender based study would provide more insights on competencies of male and female managers and also it will help to understand which gender is having higher influence on employee productivity.
3. A longitudinal study rather than cross-sectional study would help to determine and extend the findings further, as it will help to study the phenomena over the period of time where researchers can study that whether the competencies of production managers have changed or build and does it influence the employee's productivity over the period of time.
4. A sector-wise comparative study with respect to the industry sectors will give insights into how the dynamics of the competencies of production managers varies from one industry sector to other and how does it impact the employees overall productivity in the long run.

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## **APPENDICES**

### **Introductory Cover Letter**

Dear Survey Participant,

I am Mrs. Prajyakti Bakre, and I am a doctoral (Ph.D) student in Business Management discipline at Tilak Maharashtra Vidyapeeth, Pune. As a part of the research study, all candidates are required to undertake a research project which will examine an issue relating to business environment. With this letter, I would like to invite you to participate in this research.

The objective of this research is to investigate the relationship between competencies of production managers and employees productivity of large manufacturing organizations in Pune region.

In particular, this research is expected to provide a better understanding of competencies of production managers in large manufacturing organizations and employee productivity. My intended respondents are production managers of the firms.

In this regard, I have attached a survey questionnaire. Completion of survey is voluntary and should take approximately 35 minutes to complete. Please answer all questions based on your experience and knowledge. Surveys are anonymous and all are private and confidential. Only my research guide and I will have access to information you give and it will be kept secure.

Your assistance in completing the survey is highly appreciated and participants may withdraw at any point of time.

If you would like to have a copy of the results of this research, simply insert your business card with the questionnaire.

Kind Regards,

Mrs. Prajyakti Bakre

PhD Student, Tilak Maharashtra Vidyapeeth, Pune.

## **Appendix -1**

### **Managers Competencies**

| <b>Sr. No.</b> | <b>Structured Questions</b>                                                                                                                                           | <b>Not at all</b> | <b>Once in a while</b> | <b>Some times</b> | <b>Fairly often</b> | <b>Frequently if not always</b> |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------|-------------------|---------------------|---------------------------------|
| 1              | Develops insights, innovative solutions, and non-traditional approaches to improve organizational effectiveness.                                                      |                   |                        |                   |                     |                                 |
| 2              | Creates an environment that encourages, recognizes, and rewards risk-taking, creativity, and innovative process.                                                      |                   |                        |                   |                     |                                 |
| 3              | Integrates the acquisition of knowledge or skills (e.g., team-sharing, lessons learned, sharing information) into day-to-day work.                                    |                   |                        |                   |                     |                                 |
| 4              | Creates systems that facilitate communication of knowledge internal and external.                                                                                     |                   |                        |                   |                     |                                 |
| 5              | Understands and makes effective use of the basic principles and processes for resources allocation, acquisition, and management for better production management.     |                   |                        |                   |                     |                                 |
| 6              | Determines how to sustain or achieve a competitive advantage for the organization by analysing the best practices and lessons learned from other organizations        |                   |                        |                   |                     |                                 |
| 7              | Adjusts behaviour and work methods in response to management priorities, multiple demands, new information, changing conditions, unexpected obstacles, and ambiguity. |                   |                        |                   |                     |                                 |
| 8              | Works concurrently on related and/or conflicting priorities without losing focus or attention.                                                                        |                   |                        |                   |                     |                                 |
| 9              | Responds constructively to reversals and setbacks                                                                                                                     |                   |                        |                   |                     |                                 |
| 10             | Maintains a professional demeanour in stressful and difficult situations                                                                                              |                   |                        |                   |                     |                                 |
| 11             | Develops objectives and sets priorities consistent with the organization's long-term strategies                                                                       |                   |                        |                   |                     |                                 |
| 12             | Adjusts strategic policies and plans in response to change, both internal and external                                                                                |                   |                        |                   |                     |                                 |
| 13             | Articulates and actively supports the Agency's vision in a way that causes employees at all levels to understand the organization's goals, values, and                |                   |                        |                   |                     |                                 |

|    |                                                                                                                                                                          |  |  |  |  |  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
|    | strategies                                                                                                                                                               |  |  |  |  |  |
| 14 | Takes a long-term view and acts as a catalyst and champion of change                                                                                                     |  |  |  |  |  |
| 15 | Attempts to resolve interpersonal and inter-group conflict constructively through self-management                                                                        |  |  |  |  |  |
| 16 | Addresses and seeks to resolve formal and informal complaints from employees                                                                                             |  |  |  |  |  |
| 17 | Respect cultures and values different from one's own                                                                                                                     |  |  |  |  |  |
| 18 | Understands how cultures differ and how these differences impact work behaviour                                                                                          |  |  |  |  |  |
| 19 | Models and encourages high standards of honesty, integrity, trust, openness, and respect for others                                                                      |  |  |  |  |  |
| 20 | Creates a culture that fosters high standards of ethics                                                                                                                  |  |  |  |  |  |
| 21 | Inspires, motivates, and guides others toward goal accomplishment                                                                                                        |  |  |  |  |  |
| 22 | Emphasizes cooperation and a team approach to work                                                                                                                       |  |  |  |  |  |
| 23 | Monitors processes and/or activities and takes corrective actions when necessary                                                                                         |  |  |  |  |  |
| 24 | Encourages others to take ownership of work, products, and results                                                                                                       |  |  |  |  |  |
| 25 | Identifies and anticipates the needs of customers and integrates customer, stakeholder, and partner needs and expectations into the development and delivery of products |  |  |  |  |  |
| 26 | Establishes and uses feedback systems to meet customer requirements and expectations                                                                                     |  |  |  |  |  |
| 27 | Makes difficult or controversial decisions when necessary                                                                                                                |  |  |  |  |  |
| 28 | Exercises good judgment by making sound and well-informed decisions                                                                                                      |  |  |  |  |  |
| 29 | Recognizes, defines, and analyses problems and issues                                                                                                                    |  |  |  |  |  |
| 30 | Uses qualitative and quantitative data and analytical tools in problem solving                                                                                           |  |  |  |  |  |
| 31 | Keeps abreast of major developments in discipline area and demonstrates competency within areas of functional responsibility                                             |  |  |  |  |  |
| 32 | Plans for needed or mandated changes in size and composition of staff                                                                                                    |  |  |  |  |  |
| 33 | Identifies performance expectations, assesses employee performance, gives                                                                                                |  |  |  |  |  |

|    |                                                                                                                                              |  |  |  |  |  |
|----|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
|    | timely feedback, and conducts formal performance appraisals                                                                                  |  |  |  |  |  |
| 34 | Recognizes and rewards team members based on performance                                                                                     |  |  |  |  |  |
| 35 | Applies appropriate negotiation approaches to find mutually beneficial solutions to problems and/or conflicts                                |  |  |  |  |  |
| 36 | Gains cooperation from others to obtain information and accomplish goals                                                                     |  |  |  |  |  |
| 37 | Provides appropriate feedback in a manner that reinforces or elicits desirable behaviour                                                     |  |  |  |  |  |
| 38 | Considers and responds appropriately to the needs, feelings, and capabilities of others                                                      |  |  |  |  |  |
| 39 | Orally expresses ideas and facts in a clear, organized, and convincing manner in a style, tone, appropriate to the audience and the occasion |  |  |  |  |  |
| 40 | Listens to others and shows understanding of what they are saying                                                                            |  |  |  |  |  |
| 41 | Effectively develops networks and builds alliances with key individuals or groups                                                            |  |  |  |  |  |
| 42 | Manages competition between individuals or groups to eliminate barriers to building partnerships                                             |  |  |  |  |  |
| 43 | Keeps current with internal and external politics and issues that impact the work of the organization                                        |  |  |  |  |  |
| 44 | Anticipates the internal and external implications of statements or actions                                                                  |  |  |  |  |  |

## ***Appendix-2***

### **Employee Productivity**

| <b>Sr. No.</b> | <b>Structured Questions</b>                                           | <b>Completely Disagreed</b> | <b>Disagreed</b> | <b>Neutral</b> | <b>Agreed</b> | <b>Strongly Agreed</b> |
|----------------|-----------------------------------------------------------------------|-----------------------------|------------------|----------------|---------------|------------------------|
| 1              | You are satisfied with the number of units delivered by the employees |                             |                  |                |               |                        |
| 2              | You are satisfied with the quality of the product manufactured        |                             |                  |                |               |                        |
| 3              | Machine utilization by the employees is up to the mark                |                             |                  |                |               |                        |
| 4              | You are satisfied with your employees for their on time delivery      |                             |                  |                |               |                        |

|    |                                                                                                   |  |  |  |  |  |
|----|---------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 5  | You are comfortable with defect rates                                                             |  |  |  |  |  |
| 6  | You are satisfied with the employee turnover                                                      |  |  |  |  |  |
| 7  | You are satisfied with the employees absenteeism rate                                             |  |  |  |  |  |
| 8  | You are satisfied with the punctuality of the employees                                           |  |  |  |  |  |
| 9  | You are satisfied with the employees grievances have been handled                                 |  |  |  |  |  |
| 10 | You believe that your staff is competitive enough to perform the assigned task                    |  |  |  |  |  |
| 11 | You consider your employees to be a physical assets which needs to be managed appropriately       |  |  |  |  |  |
| 12 | Your employees are smart enough to respond to change due to external environment                  |  |  |  |  |  |
| 13 | You are satisfied with the management plans which are focused on performance improvement          |  |  |  |  |  |
| 14 | You believe that organization and employees share some values                                     |  |  |  |  |  |
| 15 | You are satisfied with the organizations reputation for efficient employees                       |  |  |  |  |  |
| 16 | You are satisfied with competitiveness shown by the organization while confronting to competition |  |  |  |  |  |
| 17 | You are satisfied with the staff level you have                                                   |  |  |  |  |  |
| 18 | Your employees are prepared enough to execute an unanticipated task                               |  |  |  |  |  |