Project Report on

Impact of Effective Organizational Communication on the Productivity of Employees

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Introduction

Effective performance management is critical for businesses. By following each formal and informal process, it assists them to align their resources, employees, and systems to fulfill their strategic targets. This may also be used as a dashboard, giving management early notice of possible problems and letting them know when they need to make changes to keep the firm on course. Organizations that get performance management correct become remarkable organizations that can compete at a greater level with their competitive companies. Ford founder Henry Ford quotes, "Coming together is a beginning; keeping together is progress; working together is a success." Yet in many organizations, the performance-management system is quite slow, wobbly, or certainly broken. These organizations, at best, aren't as efficient or successful as they could be. Changes in technology, markets, or competitive situations might render them unable to adapt in the worst-case scenario. In strong performance management, a firm should develop a cascade of measurements and targets from its top-level strategic objectives down to the everyday actions of its frontline personnel in an ideal system. Managers can use this to keep an eye on those indicators and communicate with their staff regularly to assess their progress toward reaching the goals. Sensible performance is rewarded, whereas meager performance prompts corrective action.

How is Performance Measurement Important?

The reasons for the importance of continuous performance management in any organization are listed below.

1. It Provides a Look into the Future
Leaders can keep an eye on and control workplace performance to avoid difficulties in the future. If a company learns that a specific employee isn't a team player, it may either reassign that employee to a job that doesn't need collaboration or dismiss that employee before the situation worsens.

2. Helps Create Development and Training Strategies
It is preferable to discover an issue as soon as possible. Due to supervision, if the staff does not know how to conduct particular procedures appropriately, the company may break apart. The company may then develop training programs to turn the problem into a learning opportunity.

3. Provides Clarity in the Organization
Many employees are uncertain of their specific responsibilities or whom they should report to. Employees' productivity and confidence will frequently rise as a result of giving clarity. In many cases, a lack of knowledge leads to poorer productivity and morale in the job.

4. Provides the Opportunity for Exchanging Feedback
In every relationship, especially ones at work, a lack of communication is a prescription for catastrophe. Management frequently interacts with employees on their performance, but individuals seldom get the opportunity to express their issues or complaints. Effective performance management allows both the employer and the employee to give and receive

feedback. Employees typically feel much more appreciated when they can express their opinions, in addition to getting information.

5. Increases Employee Retention

Employees want to be recognized for their efforts and to be able to provide feedback. Employees quit jobs for a variety of reasons, including a lack of appreciation. Organizations are also urged to use performance management to recognize and appreciate their personnel.

6. Boosts Employee Engagement

It's almost as if staff is merely going through the motions of the day when there's a gap between management and employees. Performance management has the power to fully engage employees and make them feel involved in the organization. This leads to increased productivity, work happiness, and employee loyalty.

The value of performance management must be recognized by your organization's leaders. To implement a performance management plan, meet with your human resources department and key executives. You could want to solicit feedback from your employees on what they believe should be addressed by your company's leadership team. It may take some time to put together, but putting resources into establishing a strategy is well worth it.

7. It encourages employee recognition and reward

The value of recognizing and thanking employees is often overlooked by most organizations. According to a survey, a third of top companies feel that rewarding and recognizing employees leads to higher employee retention. Half also believe that providing incentives, such as money or monetary awards for outstanding work, improves motivation.

Through continual performance monitoring, management may recognize efforts and actions that ought to be praised and rewarded. According to Dr. Jodie O'Mara, this fosters a development mentality among your team members. She believes it is critical to have a transparent and truthful conversation and feedback process.

Good incentive systems are essential for employee happiness and enjoyment. A continuous performance system may be used by managers to recognize employees who go above and beyond for the organization. It makes it easy for them to keep track of their personal growth and business goals, as well as make well-informed bonus selections.

Here are a few key statistics to think about:

- Employee engagement can rise by as much as 50% for companies that adopt effective compensation schemes.
- If they know their contribution is recognized and appreciated, 68 percent of employees will put in the extra effort.
- 84 percent of employees who work in firms with strong recognition and incentive systems are happy in their jobs.

8. It helps in boosting employee productivity and engagement

Individuals that are engaged remain in the organization longer, contribute more actively, and provide better results. Performance management, in most situations, promotes ongoing involvement as well as an atmosphere of encouragement, support, and trust. It also helps to establish a relationship between the company and its employees. Employees will work harder if they know their employer and organization respect their efforts.

9. Helps to enforce goal setting and achievement

Employees can grasp the company's goals and what they need to do to achieve them with the help of a good performance management system. This shows that they understand the influence of their efforts on the company's overall success. Aligning your whole team with higher-level corporate goals provides clear priorities and gives everyone a sense of pride in their job.

10. It offers mentoring for increasing performance

The goal of performance management is to boost productivity. It will assist managers in devising strategies to improve performance while also allowing them to discuss career possibilities and direction. Overall, the executive manager and/or HR manager will be able to give extra mentorship and training.

Key Components of an Effective Performance Management System

MOTIVATION

Employees' employment requirements are clarified through a performance management system, which also aids in the development of their talents. You'll have ideally sought workers that like taking on challenges, persevering in reaching their objectives, and being a good, contributing part of a team when hiring. Employees with these characteristics will be motivated by taking on difficult tasks and putting in long hours.

CULTURE

Simply said, a company's culture is how it does business. You may create expectations for how workers conduct their jobs when you provide clear expectations for what they should do for their jobs. These expectations include behaviors like open and timely communication, collaboration on projects, friendliness and responsiveness, offering new ideas, and any other actions that will move the company forward.

FEEDBACK

Instead of feedback, a new idea called 'feedforward' has been proposed. Feedforward is a concept that focuses on the future (we can't alter the past) and helps individuals to learn how to do things correctly. It's usually quicker and more efficient since individuals don't feel as though they have to defend their activities.

Holding a performance conversation

A performance discussion with all employees on his or their performance should be held by the CEO of a firm. Career progress and direction, contributions to the organization, partnerships undertaken, new ideas and efforts, and general observations made by the

employee regarding his or her work during the previous period are all possible topics. Topics can also be included in the organization's strategic goals.

A discussion with a co-worker is an excellent approach to learn more about their job and the problems they encounter. It's not enough to just look at them, analyze them, and rank them; you also need to be able to ask them questions and listen to their responses. This can reveal a lot more about what the person is doing, their achievements and challenges, and the resources or training they require.

Managers must be able to ask open, thought-provoking questions, listen effectively, use paraphrase or summarising to broaden thinking, create goals, and obtain commitment to action in the workplace. It's also critical for supervisors to have a general framework to lead the dialogue concerning their employees' performance.

Common notions regarding communication and Employee performance.

When a large portion of the staff has been working remotely for over a year, it's impossible to overlook the necessity of clear communication. As workers began working from home, the difficulties of misunderstanding increased, and they naturally prioritized the time spent on calls and meetings, to the point where they were Zoom exhausted. (Sethi, n.d.)

Rapid digital transformation
Many traditional workplace conventions and practices have been challenged by the rapid speed of digitalization. According to Dr. Jodie O'Mara Gill, these changes have raised the need for communication skills substantially during the past year. In the foreseeable future, the tendency is anticipated to continue.

Flexible hiring and partnerships
Organization's interactions with their workers and partners are becoming more fluid and adaptable. Partnerships have evolved dramatically, leaving no space for misunderstandings or unreasonable expectations. To work collaboratively on these improvements, both the employee and the employer must have strong and clear communication skills.

Working across time zones and geographies
Today's new businesses and start-ups have a genuinely global workforce, with teams operating across time zones and locations. Because the cost of operationalizing a remote workforce through co-working spaces or virtual offices is falling, having a global staff is no longer a luxury reserved for major corporations.

Increased desirability of communication skills
Communication has become one of the most sought-after talents in businesses all around the world. In reality, today's communication includes awareness and empathy as well. This is because, in today's digital-first workplace, it has a direct influence on job performance.

Individual and organizational contexts must be firmly ingrained in communication learning. This has resulted in a shift away from the traditional paradigm of 'course/curriculum' thinking. Communication now includes a goal, platform, and context, in addition to language competency and mastering the art of presenting.

Communication fitness: What it means to communicate in the workplace is evolving.

"Effective communication is a lifeline in the working world," says Rajiv Sinha of Larsen & Toubro. According to him, an organization's goal should be able to be successfully communicated throughout the ranks and file. Employees should be taught how to utilize social media to improve their communication abilities, according to Dr. Sinha.

Internal and external kinds of corporate communication can be distinguished. We must abandon outdated theoretical terminology to grasp the full extent of how communication affects all of our workplace interactions and dynamics. Here are three fresh perspectives to consider when considering the value, application, and usability of communication in the workplace. (Sethi, n.d.)

- **Purpose**: Communication is much more than being able to communicate in a foreign language or having perfect grammar. Before information can be exchanged, it must be possible to simplify and detangle thoughts, ideas, and concepts before they are uttered. Giving them structure and focusing on articulation, reasoning, and deduction are all part of this process.
- **Platform**: This article focuses on understanding the various communication channels and platforms, as well as how to select the most appropriate one for various reasons. It's critical to consider communication through the perspective of the platform on which it's delivered. Consider the contrast between how individuals interact via email and how they communicate via Slack to properly grasp this notion.
- **Context**: Contextualizing communication is an intentional decision that may be enhanced depending on the intended purpose, platform, and content. Once the communication's goal and platform are apparent, properly conveying it necessitates molding it into the most pleasant, intelligible, and receivable manner possible.

For optimum impact, this new way of thinking about communication must be implemented at the personal, organizational, and platform levels. Instead of viewing communication as a 100-meter dash, consider it as training for a marathon or relay event, which demands consistency, practice, and prolonged effort. As a result, communication fitness necessitates employees and individuals continuing to learn and improve their capacity to communicate.

Objectives of the Study

The following are the objectives of the study

- To do primary research for verifying that communication within an organization impacts the productivity of employees by employing statical measures like correlation and standard deviation.

- Use the primary data to comment on various aspects of communication concerning the performance of the employees and how communication is one of the most important factors determining employee performance.

- Highlight observed patterns in the data relating to Communication and Employee performance within an Organisation.

- To learn and employ excel functions and statistical methods for the project

Background

Employee Performance

Employees are the assets that drive a business forward. Therefore, the tasks performed by the employees greatly impact the success of an organization.

Organizations must plan ways to blaze out the best in their employees. It helps to hire, retain and develop the best talent and help them to rise with their obligations, it also helps in laying the foundation for future leaders in long-lasting success.

Constantly working towards improvement in employee performance is an ever-going process that consists of assessment, analyzing, and planning, it plays a very important role in achieving success in an organization

Employee performance is seeing how and in which manner employees fulfill their duties, accomplishes tasks, and keeps attitude in the workplace. Is done based on the quality, quantity, and efficiency of work performed

Employee performance measurement can help in understanding how a business is running, improvements in the organization, and even future growth prospects. It also guides the employees in achieving their full potential, while benefitting overall organizational success.

How is the performance of an employee measured?

Every role is different and so is the organization, so the methods used to measure employee performance depends upon the type of organization and employees perform in. (Capri, Douglas, & Gascon, 2017)

But in general, the main ways to measure performance are:

1. Quality and quantity of work
Standard of work done is a core sign of performance: Is the maximum effort being put? Is the performance objective achieved? Is there expected produce etc.? Quality and quantity of work help to analyze all other factors of work performance.

2. Effectiveness and efficiency
How much time are employees taking in fulfilling objectives in a day, week month on average? Are there deviations from standards expected? Is the work done at an effective cost? Are time and money wasted? Etc. Effectiveness and efficiency are essential to be aware of in an organization.

3. Trust and consistency
Whether the employer trusts the employees to do the entire work on their own? How is work affected in absence of a manager or employer? Is the employee punctual? Whether they are improving or declining or consistent? It helps in evaluating which employees can be trusted with independence and who can work efficiently without interference from superiors.

Evolution of Performance Management Systems

In today's competitive environment of constantly increasing demands to deliver extraordinary results with limited resources, there is a great need for performance measurement. Performance measurement is defined as the process of analyzing information to determine the progress toward the desired outcome for a given organization.

Performance management has changed a lot in a few years. The majority of companies have abandoned the usage of primitive annual performance review systems. It was the time when continuous feedback was widely accepted and considered the most efficient and effective method for performance management.

Now we will see the timeline of the evolution of performance management back in time

(1908 – 1914) F.W. Taylor and his Scientific Management Principles

Frederick Winslow Taylor introduces scientific management principles in 1908 to study the relationship between productivity and the work potential of individual workers. His work includes

- Replacement of rule of thumb (random way of doing something) with scientific principles to increase efficiency and effectiveness.
- Selecting, training, and developing every worker scientifically rather than abandoning them for training.
- Cooperation with the workers to make sure that the scientific methods are followed properly.
- Dividing work equally between managers and workers, to ensure effective planning.

Major companies and leaders like Henry Ford were greatly affected by Taylor's work and adopted his methods for a period around 1909- 1913.

(1914 – 1920) Taylor's methods in the USSR

Taylor introduced a performance appraisal mechanism in 1914 that concentrated on an individual's productivity and measures to improve it with time. The appraisal mechanism paid more attention to the individual's personality traits like willpower, dedication, etc. in place of organizational achievement and quality of service.

Ford was known for his work in assembly-line production and labor practices in the Soviet Union during the 1920s. So, when Taylor's methods were initiated in the Soviet Union in 1920, it was happily accepted by most in the USSR.

(1930 – 1960) WD Scott's Performance Appraisal system

Walter D Scott of WD Scott & Co. of Sydney introduced the concept of rating the abilities of his staff during WW1. He introduced his 'man to man comparison' scale influenced by Taylor but unfortunately, his system was not acknowledged until the 1930s.

Around the mid-1950s, his performance appraisal system was seen to be used in many organizations. The system made it possible for managers to compute the performance of individuals based upon personality traits only.

(1960 – 1970) Annual Confidential Reports/ Employee Service Records

In the 1960s, the organization started performance appraisals based on Annual Confidential Reports also known as Employee Service Records. It was used to provide crucial information about employee performance. The reports were confidential and were not shown to employees. These reports played an indispensable role in employee information. All positive and negative remarks in these reports would shape their career.

In the 1970s, to improve the employees' performance negative remarks from the report were told to them deliberately. This led to a huge change in the appraisal system from personality evaluation to objective completion. They started focusing more on employee achievement.

This system is still relevant in middle-income countries, especially in government sectors.

(1980 – 2000) 360 Degree Feedback

360-degree feedback, also known as a multi-person rating, became popular during the 1980s & 1990s. It was not accepted by some organizations because it was very costly. It was during this time that the organization thought of the need for motivating employees to improve performance. Also, organizations began measuring various new traits like teamwork, efficiency, effectiveness, etc.

In the 2000s, the performance appraisal process became more development-driven, open, and flexible instead of being restricted to employees. It required both the employee and manager to mutually decide about the performance, goals and objectives, career growth, etc. at the beginning of every year. This annual performance review is considered the most effective way of measuring performance.

Modern Performance Appraisals

In modern times, performance management has improved even more now. Organizations are now discarding the annual performance reviews and choosing frequent feedback. Performance management systems will keep on evolving with time as companies will realize the importance of a healthy work environment.

Communication in a formal Setup

Formal communication methods are means to exchange information officially. The communications are well-organized and adhere to established norms, processes, or standards. In school contexts, employment settings, and business settings, formal communications are highly widespread. Formal communications are typically written, although they can also be spoken. Formal correspondence is not the same as personal correspondence. Formal communication methods are similar to official notes sent home to your parents by your teacher. Your parents must sign the notes to ensure that your instructor receives them. This means that the information flow between the sender and the receiver is regulated. Someone who receives formal communication is frequently required to respond. (Business Jargons, n.d.)

Types of communication in an organization

- Downward Communication: When information is passed from the management level to the lower levels, it is referred to as downward communication. This is the most typical type of formal communication in which information is passed down from upper management to lower management. It mostly consists of instructions and can be written or delivered orally as well, depending on the importance of the message and the status of those participating in the communication process. Reports, emails, letters, manuals, and other forms of communication are routinely employed.
- Upward Communication: When a message is passed from the subordinate level to the management level, it is referred to as upward communication. Requests, reports, recommendations, complaints, and directions move upwards from the subordinates to the supervisors.
- Horizontal or Lateral Communication: Horizontal communication occurs when co-workers from various areas of responsibility communicate with one another at the same organizational level. The best example of horizontal communication is communication between managers from different departments, such as marketing, finance, production, and HR.
- Diagonal or Crosswise Communication: Diagonal or cross-wise communication occurs when personnel from various departments at different levels communicate with one another independently of the line of command. Diagonal communication is demonstrated by the communication between the floor manager and the sales staff.

Evolution of Business Communication

Whether it's two employees on a shop floor manufacturing a product or two organizations merging, business communication comprises two individuals sharing ideas to promote a commercial venture. Business communication, like any other connection, must deal with interruptions. In the communications process, technological advancements have presented both solutions and roadblocks. To overcome the difficulties, business communication has changed, especially since each solution brings with it a new set of challenges. (The Evolution of Communication of Business, n.d.)

Early Mechanics

Corporate communications used to run in one direction throughout the Industrial Revolution, with top leadership pushing messages down through management layers and eventually to line workers, who were supposed to simply comply. Management didn't even have to deliver the message directly: the typewriter was operated by secretaries or stenographers, and the workers read the notices posted on bulletin boards. Faster, lower-cost presses, as well as the advent of unions, provided low-wage workers a voice, which they utilized to transmit their input to management, whether or not the leaders wanted to hear it.

Communication of modern age:

In the late twentieth century, technology exploded, providing businesses with a myriad of options based on their size, spread, and structural complexity. Executives could use videotape followed by DVD to distribute multi-media programs to employees for announcements and higher-level training, and closed-circuit television allowed for virtual conferencing around the world. Company intranets became the new home for newsletters and bulletin boards. However, the most significant advancement in communications was the electronic posting of individual messages. Anyone, wherever, at any time, could send an email to anyone else, allowing for quick communication and a paperless "paper trail" of who sent what information to whom at what time. People filter out or ignore messages, restricting access to their attention and, at times, losing crucial information because it looks too much like the "junk" mail (or spam) they receive throughout the day.

Next direction

In some ways, the next step in the evolution of corporate communication will be a throwback to the early twentieth century, with workers regaining control of the news flow. Staff might subscribe to the Simple Syndication feeds that are most relevant to their job, rather than passively soaking up or occasionally failing to filter out all of the emails. These feeds can be separated and labelled by topic, allowing a firm to create RSS feeds for each department or project. As fresh announcements or reports become available, the feed only delivers material that is relevant to the topic and consequently to the viewer. The title and synopsis are usually all that is displayed in the feed; if the reader wants to learn more, he can click on a link to a full message.

Methodology

Procedure

Throughout the project, a procedural approach as represented in the figure below has been adopted. Primary data has been gathered according to the performance types and then the individual performance types have been analyzed. An average of individual performance types has been taken to compute a simple metric for measuring employee performance. The results from the survey about the communication aspect of the project will then be thoroughly analyzed with the computed performance metrics. The regression analysis has also been done to further support the objectives of the project and the results have been analyzed and tabulated in a well-represented manner. Use of appropriate graphs, illustrations, figures has been done throughout the project.

Gathering the Data

Evaluating Individual Performance Types

Computing a Metric for Employee Performance

Regressing the computed metrics with various explanatory variables

Analyzing the results
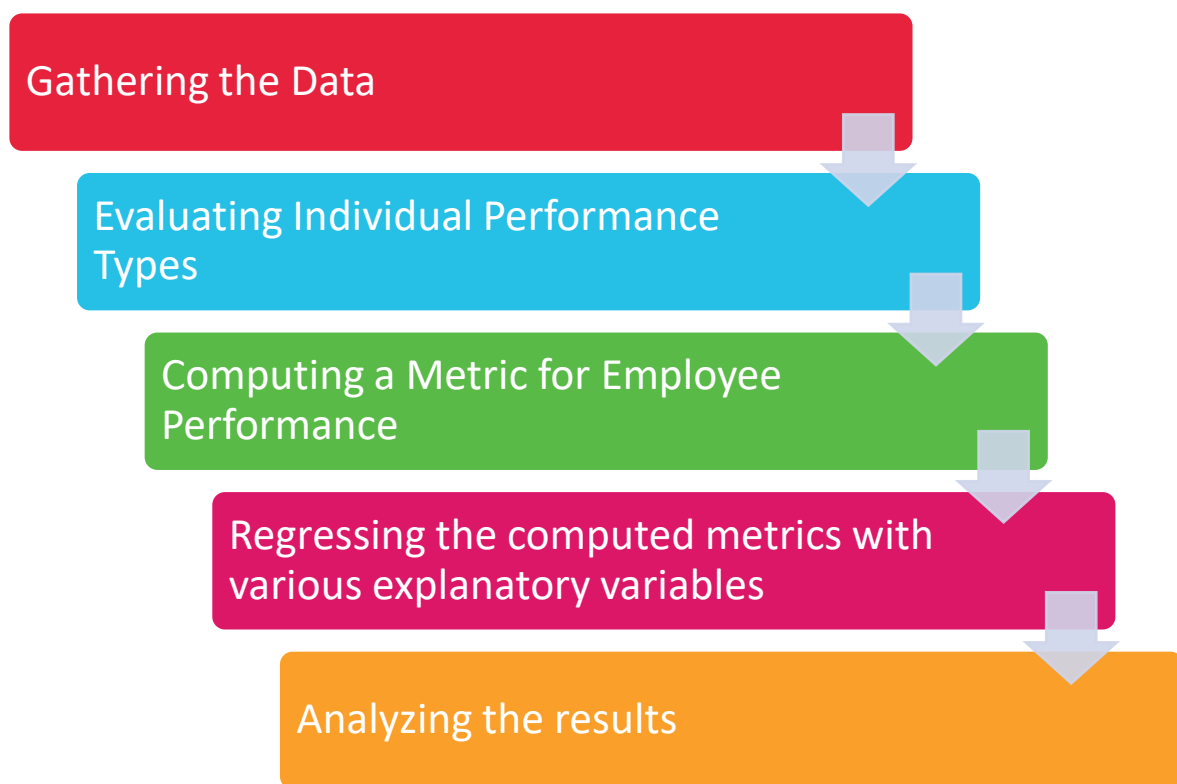
Figure 1 Approach in the project

Data Collection

Data collection is the most important part of the project. Before talking about the methods of data collection used in the project, we must define what is data? Types of data, and data collection.

Data are units of information, facts, and figures, that are collected through various methods. Data can be mainly classified into qualitative and quantitative. Quantitative data is the type of data that can be quantified or represented in numbers. Qualitative data, on the other hand, can't be quantified. Qualitative data is also called categorical data. They can be further divided as follows:
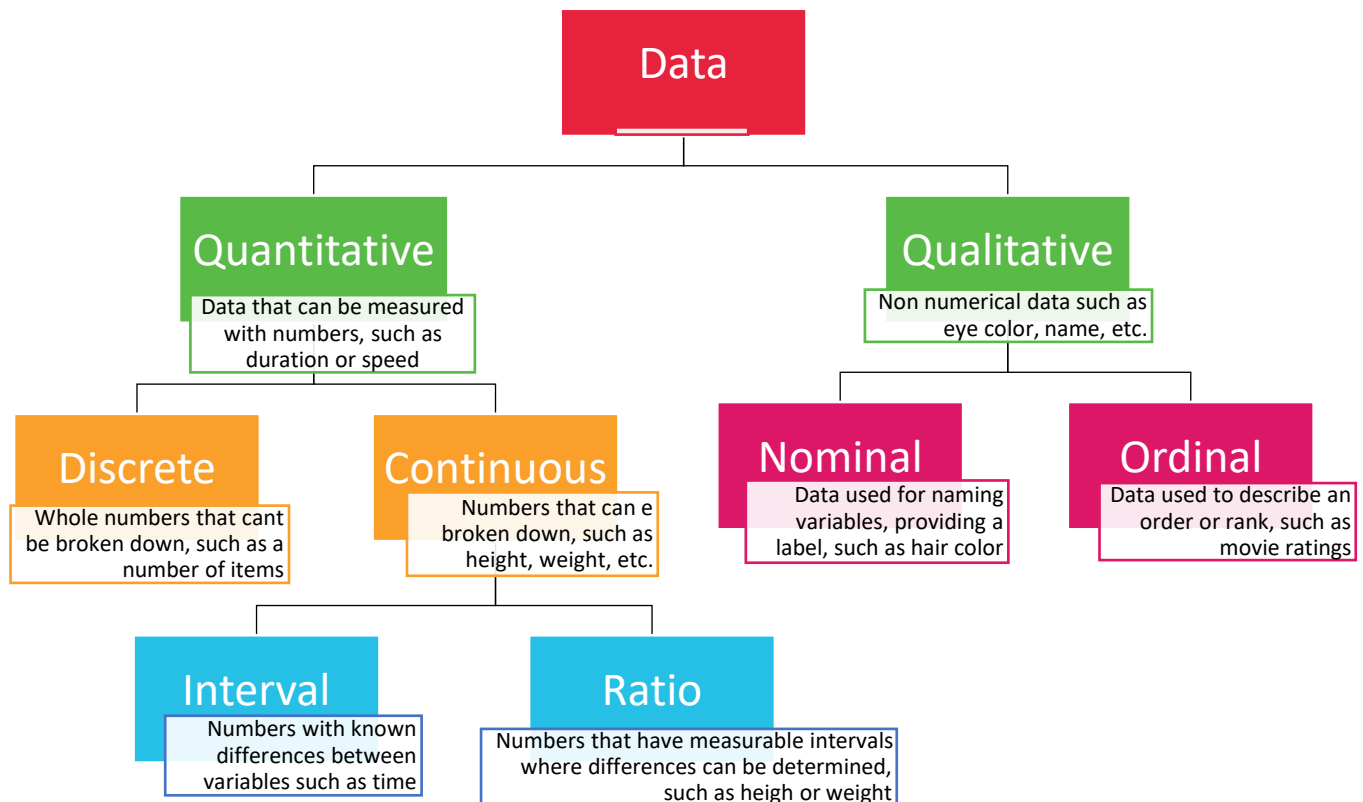
Figure 2 Types of Data

There are two types of data collection – primary and secondary. Primary data refers to the first-hand data gathered by the researcher himself. It can be collected via surveys, observations, experiments, questionnaires, personal interviews, etc. Usually, the collection time in primary data collection is long and expensive. Secondary data means data collected by someone else earlier. It can be found in government publications, websites, books, journals, articles, internal records, etc. Secondary data collection is economical and usually takes less time than primary data collection. However, they are relatively less reliable as primary data is collected keeping in mind the customized use of the data when required in the project.

In this project, we have collected primary data. The survey form has been made on google forms and circulated via digital channels. The following were the questions

Table 1 Questions in the survey

S. No.	Question	Data Type	The symbol used in the project
1	Age	Ratio	AGE
2	Gender	Nominal Data	GEN
3	Position in the firm		PIF
4	I maintain a high standard of work	Ordinal Data	A
5	I am capable of handling my assignments without much supervision		B
6	I am very passionate about my work		C
7	I know I can handle multiple assignments for achieving organizational goals		D
8	I complete my assignments on time		E
9	I perform well to mobilize collective intelligence for effective teamwork.		F
10	I could manage change in my job very well whenever the situation demands.		G
11	I lose my temper when faced with criticism from my team members		H
12	I am very comfortable with job flexibility.		I
13	I cope well with organizational changes from time to time.		J
14	I extend help to my co-workers when asked.		K
15	I love to handle extra responsibilities		L
16	I praise my co-workers for their good work		M
17	I derive a lot of satisfaction nurturing others in the organization		N
18	I guide new colleagues beyond my job purview		O
19	Do you think you can effectively communicate with your seniors?		P
20	Do you think adequate communication is received at the correct time from your organization?		Q
21	I actively participate in group discussions and work meetings		R
22	Do you think you can effectively communicate with your colleagues?		S
23	Are you satisfied with your current salary?		T
24	Are you satisfied with the time you devote to your family?		U
25	Do you think you can rely on your colleagues when needed?		V
26	Are you satisfied with your job?		W

Performance Measurement in the Project

In this project, a triarchy model of employee performance has been used and the questionnaire has been prepared to keep the model in mind. The triarchy model (Pradhan & Jena, 2016) has 3 dimensions – Task performance, Contextual performance, Adaptive Performance.

Task Performance

Task performance is that part of the performance that is most frequently recognized and it includes activities that are usually found in the formal job description. Performing the main job

task like providing a service, transforming products, designing a product, etc. comes under Task performance. (Motowidlo & Kell, 2013)

Contextual Performance

Contextual performance is that part of the performance that is relatively less acknowledged. It is defined in terms of behavior that contributes to organizational effectiveness through its effects on the psychological, social, organizational context of work. It includes motivating other employees, encourage interpersonal trust, etc. (Motowidlo & Kell, 2013)

Adaptive Performance

The adaptive performance addresses employees' adaptability to the changes in the work environment. At the individual level, adaptive performance can facilitate positive outcomes such as enhanced performance capability and career success. (Griffin, Neal, & Parker, 2007) Employees' adaptive performance can also lead to organizational outcomes including managing change, organizational learning, and keeping up with changing customer expectations (Dorsey, Cortina, & Luchman, 2010)
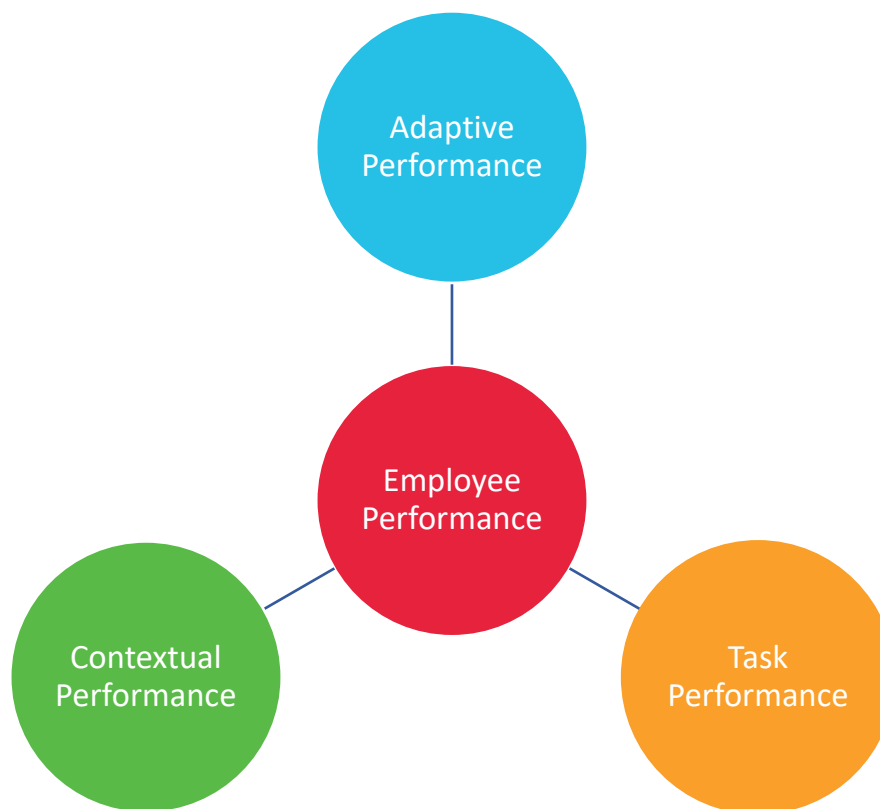

Figure 3 Triarchy model of employee performance (Pradhan & Jena, 2016)

In the project,

For example, the following response comes from a respondent

Score for Task Performance (TP) = (A+B+C+D+E)/5 = (5+4+6+6+6)/5 = 5.4

Score for Contextual Performance (CP)=(F+G+H+I+J)/5 = (5+5+5+6+6)/5 = 5.4

Score for Adaptive Performance (AP)=(K+L+M+N+O)/5 = (6+7+7+6+5)/5 = 6.2

Table 2 Example: computation of Performance Score

Question Symbol	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Response (Between 1-7)	5	4	6	6	6	5	5	5	6	6	6	7	7	6	5

Overall Performance Score (PS) = (AP+CP+TP)/3 = 5.4 + 5.4 + 6.2 = 5.67

Similarly, A communication score has been computed using the following responses

Table 3 Example: Computation of Communication Score

Question Symbol	P	Q	R	S
Response (Between 1-7)	5	4	5	7

Communication Score (CS) = (P+Q+R+S)/4 = (5+4+4+7)/4= 5

Descriptive Analysis

Descriptive statistics s an analysis of data that helps describe, show or summarize data in such a way that patterns are easy to observe. Descriptive statistics however do not allow us to make conclusions beyond the data analyzed or reach conclusions regarding a hypothesis that we might have made. There are 2 main components of descriptive statistics

1. Measures of Central Tendencies: A Measure of central tendency is simply a single value that attempts to describe a data set by identifying some central position within the data set. The following measures of central tendencies have been calculated in the project
   a. Mean: A mean is the simple mathematical average of a set of two or more numbers
   b. Median: The median is the middle number in a sorted, ascending or descending, list of numbers and can be more descriptive of that data set than the average.
   c. Mode: The mode is the value that appears most often in a set of data values
2. Measures of Dispersion: Dispersion/Variability is the extent to which a distribution is stretched or squeezed. Measures of statistical dispersion are non-negative real numbers.
   a. Standard Deviation/Variance: The term variance refers to a statistical measurement of the spread between numbers in a data set. Standard deviation is the square root of the variance, which provides us with the dispersion of a dataset relative to its mean. Mathematically,

$$Variance(\sigma^2) = \frac{\Sigma(x_i - \bar{x})^2}{n}$$

$$Standard\ Deviation(\sigma) = \sqrt{\frac{\Sigma(x_i - \bar{x})^2}{n}}$$

b. Kurtosis: Kurtosis is a measure of the combined weight of a distribution's tails w.r.t. to the it's center. When a set of approximately normal data is graphed via a histogram, it shows a bell peak and most data within positive or negative three standard deviations of the mean. However, when high kurtosis is present, the tails extend farther than the positive or negative 3 standard deviations of the normal bell-curved distribution.

$$Kurtosis(K) = \frac{\Sigma(x_i - \bar{x})^4}{n * \sigma^4}$$

c. Skewness: Skewness can be quantified as a representation of the extent to which a given distribution varies from a normal distribution.

$$Skewness(S_k) = \frac{\Sigma(x_i - \bar{x})^3}{n * \sigma^3}$$

d. Covariance/Correlation: Covariance measures the directional relationship between the returns on two arrays.

$$Pearson's\ Cov(x, y) = \frac{\Sigma(y_i - \bar{y})(y_i - \bar{y})}{n}$$

While covariance's magnitude may not be of much use in descriptive analysis, by simply dividing covariance with standard deviations of both series, we can get a correlation. Correlation can be of two types – Pearson's correlation and Spearman Correlation

Regression Analysis

A linear multivariate regression (OLS) has been done in the project with the Overall performance score (PS) as the dependent variable and the following independent variables:

Table 4 Dependent Variables for regression

S. NO.	VARIABLE NAME	SYMBOL USED
1	Are you satisfied with your job?	W
2	Do you think you can rely on your colleagues when needed?	V
3	Are you satisfied with the time you devote to your family?	U
4	Are you satisfied with your current salary?	T
5	Communication Score	CS

In the regression analysis, the following will be the main focus

1. Sign of the coefficients: The sign of a regression coefficient tells whether there is a positive or negative correlation between each independent variable and the dependent variable. A positive coefficient indicates that as the value of the independent variable increases, the mean of the dependent variable also tends to increase. A negative coefficient suggests that as the independent variable increases, the dependent variable tends to decrease.

2. The magnitude of Coefficient: The coefficient value signifies how much the mean of the dependent variable changes given a one-unit shift in the independent variable while holding other variables in the model constant. This property of holding the other variables constant is crucial because it allows you to assess the effect of each variable in isolation from the others.

Data Analysis

Sample

The questionnaire was circulated and 66 responses were obtained and analyzed. The majority of the respondents were male and working in junior-level positions. The average age of the respondents was 27 years and the maximum number of respondents were of age 23. The standard deviation in the age of the respondents was observed to be 6.38 years.
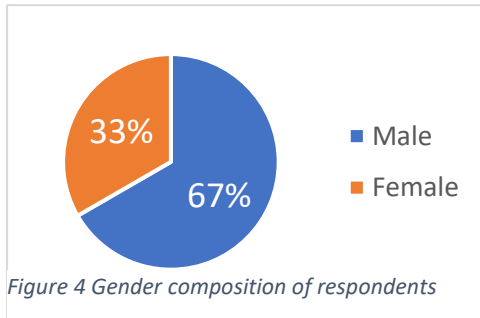
Figure 4 Gender composition of respondents
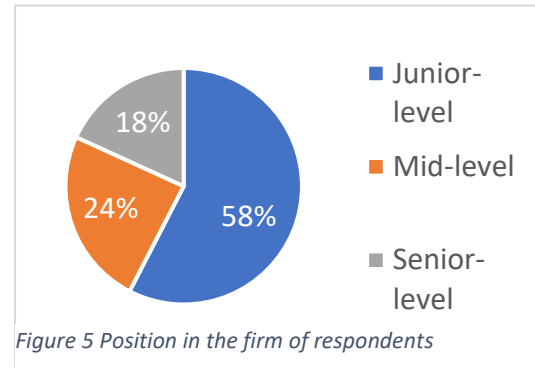
Figure 5 Position in the firm of respondents

Descriptive Analysis

Performance:

According to the data, people maintain high overall performance scores in their organization, are excellent in task performance and adaptive performance but lack in contextual performance in comparison to the other two. The responses are fairly similar in all fields. It can be observed that responses in contextual performance and task performance are less peaked as compared to adaptive performance.

Table 5 Performance for the whole survey

	AP	CP	TP	PS
Mean	6.10	5.73	6.07	5.97
Standard Error	0.11	0.12	0.10	0.10
Median	6.20	5.70	6.20	6.07
Mode	7.00	7.00	7.00	7.00
Standard Deviation	0.88	0.94	0.80	0.77
Sample Variance	0.78	0.89	0.64	0.60
Kurtosis	2.10	-0.26	-0.58	-0.16
Skewness	-1.36	-0.52	-0.61	-0.62
Range	4.20	3.80	2.80	3.00
Minimum	2.80	3.20	4.20	4.00
Maximum	7.00	7.00	7.00	7.00
Sum	402.60	378.00	400.60	393.73
Count	66.00			

In the first look, it can be observed that males maintain a slightly higher overall performance score in their organization as compared to females. However, the minimum performance score of females is higher and there is a lesser deviation from the mean performance score than males. This is further supported by a higher range of performance scores in men implying that women perform better than men in general but there is a good number of outperformers in men which results in higher mean performance.

Table 6 Performance Male vs Female

	Male				**Female**			
	AP	**CP**	**TP**	**PS**	**AP**	**CP**	**TP**	**PS**
Mean	6.11	5.76	6.11	6.00	6.08	5.65	5.98	5.91
Standard Error	0.15	0.14	0.12	0.12	0.15	0.20	0.16	0.15
Median	6.30	5.60	6.30	6.10	6.20	6.00	6.20	5.93
Mode	7.00	7.00	7.00	7.00	6.20	6.20	6.20	5.47
Standard Deviation	0.97	0.95	0.83	0.82	0.70	0.94	0.76	0.69
Sample Variance	0.93	0.91	0.68	0.67	0.49	0.88	0.58	0.48
Kurtosis	2.04	-0.13	-0.28	0.11	1.01	-0.37	-1.07	-0.96
Skewness	-1.42	-0.49	-0.77	-0.79	-1.04	-0.66	-0.31	-0.19
Range	4.20	3.80	2.80	3.00	2.80	3.40	2.40	2.33
Minimum	2.80	3.20	4.20	4.00	4.20	3.60	4.60	4.67
Maximum	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sum	268.80	253.60	269.00	263.80	133.80	124.40	131.60	129.93
Count	44.00				22.00			

An increase in employee performance can be observed as we move from junior to higher level. The dispersion in the observation also reduces as we move up the position. Another peculiar observation is that the maximum number of people in senior-level positions had the perfect score in Adaptive Performance, Task Performance, and Total Performance. Very high kurtosis levels are also observed in Senior-level.

Table 7 Performance at different levels

		Junior Level				Mid-Level				Senior Level		
	AP	CP	TP	PS	AP	CP	TP	PS	AP	CP	TP	PS
Mean	5.78	5.63	5.34	5.59	6.30	5.93	6.45	6.23	6.70	6.43	6.77	6.63
Standard Error	0.16	0.12	0.16	0.13	0.16	0.20	0.12	0.13	0.14	0.13	0.17	0.13
Median	6.20	5.70	5.50	5.64	6.20	5.90	6.50	6.20	7.00	6.30	7.00	6.70
Mode	6.20	6.40	5.60	6.40	7.00	7.00	7.00	6.20	7.00	6.20	7.00	7.00
Standard Deviation	0.96	0.74	0.95	0.75	0.63	0.80	0.46	0.51	0.48	0.47	0.58	0.45
Sample Variance	0.93	0.54	0.91	0.56	0.40	0.63	0.22	0.26	0.23	0.22	0.33	0.20
Kurtosis	1.13	-0.67	-0.49	-0.43	-0.69	-0.04	0.07	-0.93	4.76	-0.88	9.82	7.36
Skewness	-1.17	-0.21	-0.21	-0.33	-0.43	-0.17	-0.71	0.33	-2.05	0.02	-3.07	-2.47
Range	4.20	2.80	3.80	3.00	2.00	2.80	1.60	1.53	1.60	1.40	2.00	1.67
Min	2.80	4.20	3.20	4.00	5.00	4.20	5.40	5.47	5.40	5.60	5.00	5.33
Max	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sum	208.20	202.80	192.40	201.14	100.80	94.80	103.20	99.60	80.40	77.20	81.20	79.60
Count	36.00	36.00	36.00	36.00	16.00	16.00	16.00	16.00	12.00	12.00	12.00	12.00

Communication:

	P	Q	R	S	CS
Mean	5.88	5.53	5.79	5.95	5.79
Standard Error	0.14	0.17	0.16	0.13	0.13
Median	6.00	6.00	6.00	6.00	6.00
Mode	7.00	6.00	7.00	6.00	7.00
Standard Deviation	1.12	1.36	1.31	1.04	1.02
Sample Variance	1.25	1.85	1.71	1.09	1.04
Kurtosis	-0.58	2.53	1.68	0.56	1.46
Skewness	-0.71	-1.42	-1.26	-0.99	-1.09
Range	4.00	6.00	6.00	4.00	4.75
Minimum	3.00	1.00	1.00	3.00	2.25
Maximum	7.00	7.00	7.00	7.00	7.00
Sum	388.00	365.00	382.00	393.00	382.00
Count			66.00		

In the above table, it can be observed that respondents have a good communication score Maximum amount of people, according to data, have a perfect 7 score. There is moderate variability in the data as well.

	Male					Female				
	P	Q	R	S	CS	P	Q	R	S	CS
Mean	5.87	5.44	5.85	5.87	5.76	5.77	5.59	5.55	5.95	5.72
Standard Error	0.18	0.24	0.22	0.19	0.18	0.25	0.24	0.28	0.18	0.20
Median	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.75
Mode	7.00	6.00	7.00	7.00	7.00	7.00	6.00	6.00	6.00	4.75
Standard Deviation	1.13	1.50	1.35	1.17	1.10	1.19	1.14	1.30	0.84	0.93
Sample Variance	1.27	2.25	1.82	1.38	1.21	1.42	1.30	1.69	0.71	0.86
Kurtosis	-0.29	2.16	3.21	0.17	1.55	-1.33	3.62	-0.62	-0.24	0.78
Skewness	-0.78	-1.40	-1.61	-0.97	-1.17	-0.44	-1.41	-0.61	-0.43	-0.71
Range	4.00	6.00	6.00	4.00	4.75	3.00	5.00	4.00	3.00	3.75
Minimum	3.00	1.00	1.00	3.00	2.25	4.00	2.00	3.00	4.00	3.25
Maximum	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sum	229.00	212.00	228.00	229.00	224.50	127.00	123.00	122.00	131.00	125.75
Count		39.00					22.00			

According to the data, both males and females feel similar about their communication at the workplace. Few things to note are – Maximum number of males had a perfect score but the range of responses of males is more than females. Also, the minimum communication score in males is way less than in females. There is higher dispersion in responses from males than females.

Table 10 Communication at different Employment Levels

	Junior Level					Mid-Level					Senior Level				
	P	Q	R	S	CS	P	Q	R	S	CS	P	Q	R	S	CS
Mean	5.58	5.47	5.47	5.63	5.54	6.00	5.25	6.13	6.25	5.91	6.67	6.08	6.33	6.58	6.42
Standard Error	0.19	0.23	0.24	0.19	0.19	0.24	0.38	0.22	0.14	0.17	0.14	0.19	0.26	0.15	0.11
Median	6.00	6.00	6.00	6.00	5.75	6.00	5.50	6.00	6.00	5.88	7.00	6.00	7.00	7.00	6.38
Mode	7.00	6.00	6.00	7.00	7.00	6.00	6.00	6.00	6.00	6.50	7.00	6.00	7.00	7.00	6.25
Standard Deviation	1.20	1.43	1.48	1.20	1.18	0.97	1.53	0.89	0.58	0.69	0.49	0.67	0.89	0.51	0.37
Sample Variance	1.44	2.04	2.20	1.43	1.38	0.93	2.33	0.78	0.33	0.48	0.24	0.45	0.79	0.27	0.14
Kurtosis	-1.11	1.76	0.69	-0.59	0.37	0.64	2.94	0.69	-0.07	-1.25	-1.65	-0.19	-1.27	-2.26	-0.22
Skewness	-0.30	-1.27	-0.99	-0.53	-0.74	-1.01	-1.38	-0.93	0.00	0.02	-0.81	-0.09	-0.80	-0.39	0.10
Range	4.00	6.00	6.00	4.00	4.75	3.00	6.00	3.00	2.00	2.25	1.00	2.00	2.00	1.00	1.25
Min	3.00	1.00	1.00	3.00	2.25	4.00	1.00	4.00	5.00	4.75	6.00	5.00	5.00	6.00	5.75
Max	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sum	212	208	208	214	210	96	84	98	100	94	80	73	76	79	77
Count	38.00					16.00					12.00				

According to the data, communication improves as employees improve their position in the organization, employees at the senior level tend to communicate more effectively in the organization. A counterintuitive observation is that although the mean is increasing with an increase in position in the firm, the mode is decreasing at the same time. There is less dispersion in response from senior-level employees as compared to junior and mid-level employees.

Other Variables:

Table 11 Descriptive Statistics for explanatory Variables

	T	U	V	W
Mean	4.65	4.74	5.48	5.56
Standard Error	0.20	0.23	0.14	0.15
Median	5.00	5.00	5.50	6.00
Mode	5.00	5.00	5.00	5.00
Standard Deviation	1.60	1.83	1.17	1.24
Sample Variance	2.57	3.36	1.36	1.54
Kurtosis	-0.27	-0.65	2.41	1.44
Skewness	-0.42	-0.53	-1.04	-0.89
Range	6.00	6.00	6.00	6.00
Minimum	1.00	1.00	1.00	1.00
Maximum	7.00	7.00	7.00	7.00
Sum	307.00	313.00	362.00	367.00
Count	66.00	66.00	66.00	66.00

According to the data, the employees are moderate/neutral about other variables like current salary or satisfaction and there is a lot of scope improvement. The data is dispersed and a little symmetric.

Table 12 Explanatory Variables: Males vs Females

	Male				Female			
	T	U	V	W	T	U	V	W
Mean	5.00	4.84	5.64	5.64	3.95	4.55	5.18	5.41
Standard Error	0.23	0.27	0.16	0.18	0.33	0.41	0.28	0.28
Median	5.00	5.00	6.00	6.00	4.00	5.00	5.00	5.00
Mode	5.00	5.00	6.00	6.00	5.00	5.00	5.00	5.00
Standard Deviation	1.52	1.80	1.08	1.20	1.56	1.92	1.30	1.33
Sample Variance	2.33	3.25	1.17	1.45	2.43	3.69	1.68	1.78
Kurtosis	0.66	-0.73	0.50	-0.75	-0.20	-0.45	4.31	4.84
Skewness	-0.78	-0.52	-0.72	-0.51	0.17	-0.56	-1.38	-1.51
Range	6.00	6.00	4.00	4.00	6.00	6.00	6.00	6.00
Minimum	1.00	1.00	3.00	3.00	1.00	1.00	1.00	1.00
Maximum	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sum	220.00	213.00	248.00	248.00	87.00	100.00	114.00	119.00
Count	44.00				22.00			

Table 13 Explanatory variables' descriptive statistics at a different position in the firm

	Junior Level				Medium Level				Senior Level			
	T	U	V	W	*T*	U	V	W	*T*	U	V	W
Mean	4.58	4.39	5.39	5.32	4.80	5.13	5.47	6.07	4.64	5.27	5.73	5.64
Standard Error	0.26	0.34	0.22	0.19	0.43	0.39	0.22	0.23	0.53	0.33	0.30	0.53
Median	5.00	5.00	5.00	5.00	5.00	5.00	6.00	6.00	5.00	5.00	6.00	6.00
Mode	5.00	7.00	5.00	5.00	6.00	6.00	6.00	7.00	5.00	5.00	5.00	7.00
Standard Deviation	1.62	2.10	1.35	1.19	1.66	1.51	0.83	0.88	1.75	1.10	1.01	1.75
Sample Variance	2.63	4.41	1.81	1.41	2.74	2.27	0.70	0.78	3.05	1.22	1.02	3.05
Kurtosis	-0.19	-1.20	1.93	-0.90	-0.86	-0.33	-0.23	-1.78	0.72	0.69	-1.00	5.20
Skewness	-0.35	-0.20	-1.06	-0.05	-0.51	-0.55	-0.31	-0.14	-0.55	-0.65	-0.05	-2.06
Range	6.00	6.00	6.00	4.00	5.00	5.00	3.00	2.00	6.00	4.00	3.00	6.00
Min	1.00	1.00	1.00	3.00	2.00	2.00	4.00	5.00	1.00	3.00	4.00	1.00
Max	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sum	174.00	167.00	205.00	202.00	72.00	77.00	82.00	91.00	51.00	58.00	63.00	62.00
Count	38				16				12			

It can be observed that both males and females feel similar to other variables but females are more dissatisfied with the current salary than males, but otherwise, both feel moderate/neutral and feel there is the scope of improvement. Most of them believe that they can devote enough time to their families as well. However, when we analyze according to position in a firm, we find that medium-level employees have better satisfaction than most senior-level employees. The responses by medium-level employees are less varied than junior and senior-level employees as well.

Regression

The following are the results from the regression

Table 14 Regression results

S. No.	Variable Symbol	Coefficient	Standard Error
1	Intercept	2.529	0.585
2	T	-0.023	0.062
3	Y	0.045	0.049
4	V	0.060	0.075
5	W	-0.010	0.861
6	CS	0.528	0.073

It can be observed that the coefficient of communication score is positive and maximum in magnitude as compared to other explanatory variables. This means that when all other variables are held constant then 1 unit change in communication score will change the overall performance score by 0.528 units. It can also be observed that variables T (satisfaction with current salary) and W (Job satisfaction) have negative coefficients and are very less in magnitude.

Results

The following are the results of the data analysis

1. The general performance and communication scores were good. There is more variation in the results of communication scores than performance scores.
2. Among males and females, we observed that the scores were higher for males but there was less dispersion in responses from females.
3. While moving up the ladder, it is observed that senior-level employees have a better performance score and communication score than junior and mid-level. The same cannot be said for satisfaction in job, satisfaction from salary, and time devotion in the family. This can be due to excessive pressure that the senior-level employees may feel.
4. Through the regression results, we can say that communication plays a very important role in the productivity and performance of employees as its coefficient is positive and higher in magnitude than other variables.

Conclusion

Effective Communication is crucial for managers in organizations to perform the basic functions of management. All the indispensable pieces of information must be communicated to the managers properly so that they can implement them. Leaders must communicate effectively with their subordinates to achieve organizational goals. Communication also plays a crucial role in positively changing one's attitudes, i.e., a well-informed employee will have a positive work attitude than a less-informed one. It will increase productivity and ease out the decision-making process. Communication clarifies the work to be done which boosts motivation in employees and makes them feel a part of the organization. Managers must recognize different barriers to communication in their organizations, analyze the reasons for their occurrences and take preventive steps to avoid these. More women participation needs to be encouraged in organizations to provide equity in the businesses.

Managers must place a strong emphasis on communication since it is critical to an employee's ability to perform effectively and efficiently. Communication is also important in positively influencing one's mindset; for example, a well-informed professional will have a more positive attitude towards work than one who is less well-informed. It will boost productivity while also improving contextual performance easier.

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