

# Determining the effect of Mood on Productivity using Statistical Data Analysis Tool.

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## ABSTRACT

*The relationship between mood and productivity has been a topic of interest for researchers and individuals seeking to improve their work output. Numerous studies have shown that mood can have a significant impact on productivity. Positive moods have been found to increase productivity, while negative moods can decrease productivity. Research suggests that positive moods, such as happiness and contentment, can lead to higher levels of productivity by increasing motivation, creativity, and focus. Positive moods have also been linked to higher levels of job satisfaction and better overall performance. On the other hand, negative moods, such as anxiety and stress, can decrease productivity by causing distractions, impairing decision-making ability, and reducing energy levels. Our study seeks to determine the effect of mood on productivity by applying statistical tools on collected data and testing the hypothesis. In our study it is found that employees who experienced positive moods were able to complete tasks faster and with fewer errors than those in a negative mood. Overall, the evidence suggests that mood plays a crucial role in productivity. By recognizing the impact of mood on productivity, individuals can take steps to cultivate positive moods and manage negative ones, leading to better outcomes both in the workplace and in other areas of life.*

**Keyword:** - Mood, Productivity, Statistical Tools Data Analysis and Hypothesis Test.

## 1. INTRODUCTION

Mood and productivity are closely related concepts, as our mood can have a significant impact on our ability to get things done. Productivity is a measure of how efficiently we use our time and resources to achieve our goals, while mood refers to our emotional state at any given time. When we are in a positive mood, we tend to feel more motivated, energized, and focused. This can lead to increased productivity as we are better able to tackle tasks and stay on track. On the other hand, when we are in a negative mood, such as feeling anxious, stressed, or overwhelmed, we may struggle to stay focused and productive. There are several factors that can influence our mood and productivity, including our physical health, the environment we work in, and our personal habits and routines. By understanding how these factors impact our mood and productivity, we can take steps to improve both. Ultimately, by paying attention to our mood and taking steps to improve it, we can become more productive and achieve our goals more effectively.

**Example:** practicing regular exercise, getting enough sleep, and maintaining a healthy diet can all help to boost our mood and energy levels, making it easier to stay focused and productive. Creating a workspace that is free of distractions and clutter can also help to improve our mood and productivity, as can establishing a regular routine and setting realistic goals.

### 1.1 Mood

Mood refers to our emotional state at any given time. It is a subjective experience that can range from feeling happy and content to sad, anxious, or angry. Our mood can be influenced by a variety of factors, including our physical health, environment, and personal experiences. Mood can also impact how we perceive and interact with the world around us. For example, if we are in a good mood, we may be more likely to engage in social activities and experience positive interactions with others. On the other hand, if we are in a negative mood, we may be more likely to withdraw and experience conflict in our relationships. Mood can be a complex and multifaceted experience that can have both positive and negative effects on our lives. While a positive mood can lead to feelings of happiness, motivation, and productivity, a negative mood can lead to feelings of sadness, anxiety, and a lack of motivation. It's important to pay attention to our mood and take steps to manage it when necessary. This can involve engaging in activities that boost our mood, such as spending time with loved ones or engaging in hobbies that we enjoy. Additionally, seeking help from a mental health professional can be beneficial for managing persistent or intense changes in mood.

### 1.2 Productivity

Productivity refers to the measure of how efficiently we use our time and resources to achieve our goals. It is a measure of how much work we can accomplish in a given amount of time. Productivity is important in many aspects of our lives, including our personal and professional endeavors. In the workplace, productivity is often used as a metric for measuring an individual's or a team's performance. There are many factors that can impact productivity, including our physical and mental health, our environment, and our habits and routines. For example, getting enough sleep, maintaining a healthy diet, and engaging in regular exercise can all help to boost our productivity by improving our energy levels and focus. Additionally, having a clear understanding of our goals and priorities can help us to stay organized and focused, which can increase productivity. Creating a workspace that is free from distractions and setting realistic deadlines can also help to improve productivity. Effective time management skills are also important for increasing productivity. This can include prioritizing tasks, breaking them down into smaller, manageable steps, and using time-tracking tools to monitor progress. Ultimately, by paying attention to the factors that impact productivity and taking steps to improve them, we can become more efficient and achieve our goals more effectively.

## 2. ANALYSIS

The data is collected for a period of one month for 10 samples and 20 samples for one more month. The data is derived from the computer vision monitoring system that captures and determines the state of mood based on facial expressions. The data thus derived is compared with the actual work log sheet to tabulate the productivity using basic formulas. The collected data and segregated into 4 data sets namely 1) happy- ideal productivity 2) sad-ideal productivity 3) anger- ideal productivity 4) disgust- ideal productivity. The data is put through hypothesis testing to check for dependencies and variances. the hypothesis is as follows: i) hypothesis for happy mood  $H_0$ ) there is no difference between the happy productivity and ideal productivity groups with respect to the dependent variable  $H_a$ ) there is a difference between the happy productivity and ideal productivity groups with respect to the dependent variable. ii) hypothesis for sad mood  $H_0$ ) there is no difference between the sad productivity and ideal productivity groups with respect to the dependent variable  $H_a$ ) there is a difference between the sad productivity and ideal productivity groups with respect to the dependent variable. iii) hypothesis for anger mood  $H_0$ ) there is no difference between the anger productivity and ideal productivity groups with respect to the dependent variable  $H_a$ ) there is a difference between the anger productivity and ideal productivity groups with respect to the dependent variable 4) hypothesis for disgust mood  $H_0$ ) there is no difference between the disgust productivity and ideal productivity groups with respect to the dependent variable  $H_a$ ) there is a difference between the disgust productivity and ideal productivity groups with respect to the dependent variable.

The data is put to mann-whitney u-test where the descriptive statistical analysis of the 1<sup>st</sup> data set states that the happy mood productivity values are higher than the ideal mood productivity values; therefore we can determine that the work done is more in happy mood as values are higher than ideal productivity. The null hypothesis is rejected in this case as the difference between happy productivity and ideal productivity is statistically significant. The descriptive statistical analysis of the 2<sup>nd</sup> data set states that the sad mood productivity values are lower than the ideal mood productivity values, therefore we can determine that the work done is less in sad mood as values are lower than ideal productivity. The null hypothesis is rejected in this case as the difference between sad Productivity and ideal productivity are statistically significant. The Descriptive Statistical analysis of the 3<sup>rd</sup> data set states that the

anger Mood Productivity values are lower than the Ideal mood Productivity values, Therefore we can determine that the work done is Less in anger mood as values are Lower than ideal productivity. The null hypothesis is rejected in this case as the difference between Sad Productivity and ideal productivity is statistically significant. The Descriptive Statistical analysis of the 4<sup>th</sup> data set states that the disgust Mood Productivity values are lower than the Ideal mood Productivity values, Therefore we can determine that the work done is Less in disgust mood as values are Lower than ideal productivity. The null hypothesis is rejected in this case as the difference between Sad Productivity and ideal productivity is statistically significant. The chart below clearly shows that the happy productivity is higher than ideal productivity and other moods are lesser than ideal productivity. Over all the productivity variance when in happy mood is always in positive curve where as in sad, anger and disgust the variance is in negative curve.

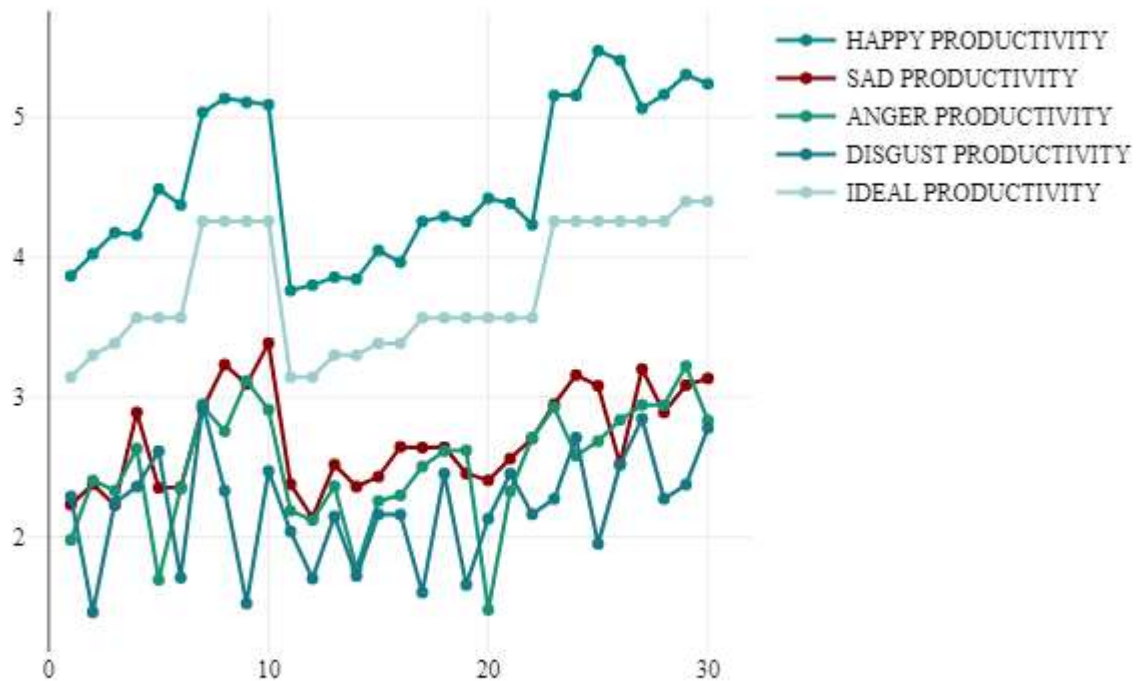


FIG-1

### 3. CONCLUSIONS

The data analysis has given clear evidence that the happy mood productivity has got higher values than ideal mood by which we can determine and conclude that the productivity is higher in happy mood when compared to other moods i.e., Sad, Anger and Disgust which ave comparatively lower values than the ideal productivity.Hence we can conclude that an individual employees productivity is high when in happy mood and is less in sad, anger and disgust moods.

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