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A Study on the Effects of Leadership Styles and Strategies on Operational Productivity in Sorting Center

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Abstract- This study investigates the influence of leadership styles and strategies on operational productivity as a key performance indicator (KPI) within a logistics sorting center. Leadership is widely acknowledged as a determinant of organizational success, affecting communication, employee motivation, and team collaboration. A descriptive-correlational research design was employed, using survey questionnaires and operational data to analyze the relationship between leadership approaches and productivity levels. The study utilized the Multi-Factor Leadership Questionnaire (MLQ) and involved a stratified random sample of team leaders, sorters, and supervisors. Statistical analyses, including Pearson correlation and regression, were used to assess the data. Results show no significant difference in leadership style across gender, age, or department, although coaching leadership had the highest mean score among styles. Despite variations in leadership approach, all departments consistently met or exceeded productivity targets. These findings suggest that while multiple leadership styles are at play, coaching leadership may be particularly effective in enhancing operational outcomes. The study recommends reinforcing coaching leadership practices through training and development initiatives.

Indexed Terms- Leadership styles, Coaching leadership, Operational productivity, Key performance indicators (KPI), Sorting center, Quantitative research, Multi-Factor Leadership Questionnaire

I. INTRODUCTION

Leadership has a positive and significant influence on members' work lives. Naturally, strong leaders can run an organization calmly and effectively and set a positive example for their subordinates. This will cause members to have more motivation to work harder and produce the best possible work results (Vanesa et al, 2023). As leadership plays a vital role on any industry and it shows a positive relationship between management and the employees that results to a better turnover and recognition (Ladores, Estacio, Manzon, & Florencondia, 2023). An interactive leader can influence his members to be more optimistic, self-aware, and committed to the goals and mission of the organization.

The power of leadership cannot be underestimated as it is among the determinants of the success and failure of an organization. Nilo, Dungca, Mallari, & Florencondia (2025) elaborated that leadership is a critical factor in determining organizational success. It also influences decision-making processes, shapes employee motivation, and significantly impacts overall institutional performance. When an organization has effective leadership, it is likely to experience improved employee productivity; good leaders provide purpose and direction for achieving organizational goals. Moreover, leadership is a significant element of teamwork and interrelationship among employees and shapes organizational behavior. When an organization enjoys strong leadership, employees are likely to achieve organizational goals. When an organization has leadership that portrays social and emotional intelligence and interpersonal and technical skills, it increases employee productivity (Kier, 2022); therefore, it is unlikely to achieve organizational goals without effective and reliable leadership

Apart from leadership, organizational communication is related to flexible and all-encompassing conditions and situations. As we all know, poor communication will only hinder work performance because information regarding work cannot be provided clearly and effectively. (Vanesa et al, 2023) Effective communication will produce a safe and transparent work environment. If communication is carried out well, the organization will become more developed and unified, and its members will be firmer and more committed to improving the organization that has been formed and producing good results from various sources (Vanesa et al, 2023).

Collaboration processes and strategies are designed to fulfill the organization's mission. Generally, collaboration is a creative way of working that requires effective communication and the ability to resolve problems as they arise cooperatively. Strong workers can provide efficient work so that members can implement predetermined organizational goals (Vanesa et al, 2023). Members respond more creatively and innovatively when they are given flexibility and understanding, as well as supportive guidance. This encourages them to contribute more and helps them in the collaborative process in overcoming work obstacles (Vanesa et al, 2021). Also data-driven activities plays a crucial role on each team activity or key process indicators thru data-driven it attributes a timely decision-making, data-driven operations and robust stakeholder participation (Balagtas & Mallari, 2025).

There are several ways to enhance employee productivity and realize organizational objectives. According to Kier (2022), effective leadership improves employee attitude, morale, and creativity by improving teamwork, effective communication, and eliminating potential conflicts that might delay production. According to Johnson and Kier (2022), leadership is challenging to define. It is when a group, an organization, or a person guides a team, other individuals, or an organization and their activities towards achieving the set goals. Kier (2022) states that leadership behavior directly impacts employee job satisfaction and motivation, where good leadership and desirable behaviors enhance the organization's success.

On the the assessment of leadership style that are innate on the leaders widely use Multifactor leadership questionnaire (MLQ) has been the use to measure leadership behaviors (Ridder, 2015). Frigillana, Muldong, Tiongson, Aduna, & Florencondia (2023) stated that the leadership style is influenced by personality, ability and skills of each individual. As this MLQ is designed to assess wide range leadership behaviors including passive, contingent award, and transformational leadership (Ridder, 2015). By using these MLQ it is possible to assess which leadership style is dominant and not on the existing organization.

1.1. Objective of the study

The main objective of this study is to examine the impact of different leadership styles and strategies on key performance indicators (KPI) - productivity of operations in the Sorting Center.

Specific Objectives:

1.To examine the leadership styles across various departments within the sorting center.

2.To study how leadership styles vary according to the age of respondents in the sorting center.

3.To identify the leadership style based on respondents' gender in the sorting center.

To determine the most prevalent leadership styles in the sorting center..

1.2. Significance of the Study

1.3. This study holds importance for various stakeholders by offering insights into how leadership styles and strategies influence key performance indicators (KPIs) - productivity - in the operational environment of the Sorting Center. The findings will be valuable in several ways.

A. For Management and Leaders

- Provides evidence-based recommendations on effective leadership styles and strategies to improve operational performance.
- Helps managers and team leaders understand the direct impact of their leadership on KPIs, enabling more informed decision-making.
- Supports leadership development programs aimed at enhancing supervisory skills in the workplace.

B. For Employees

- Encourages better communication and understanding between team members and leaders.
- Promotes a more supportive and motivating work environment, potentially increasing job satisfaction and engagement.
- Helps identify leadership practices that can reduce operational errors and enhance task completion efficiency.

C. For the Sorting Center

- Offers practical strategies to optimize overall operational efficiency, leading to reduced delays and higher service quality.
- Provides a framework for improving sorting center performance based on measurable KPIs.
- Contributes to the organization's competitive advantage by ensuring higher throughput and operational consistency.

D. For future researchers

- Serves as a foundation for future research on leadership and operational performance in similar industries.
- Opens new avenues for exploring the relationship between leadership styles and other operational metrics like employee turnover, satisfaction, or innovation.Scope and Limitations of the Study

II. METHODOLOGY

2.1. Research Design

The researchers employed a quantitative research design using a descriptive-correlational approach to analyze the relationship between leadership styles, strategies to the key performance indicators (KPIs) of the sorting center related to productivity.

2.2 Research Method

The study will utilize a survey-based quantitative method to gather numerical data from employees. This will allow for statistical; analysis of the correlation between leadership styles and operational performance metrics.

2.3. Population and Sampling

2.3.1. Population

The target population consist of all team leaders of the sorting center.

2.3.2. Sampling Technique

A stratified random sampling method will be used to ensure representation across different roles (team leaders, sorters and supervisor)

2.3.3. Sample Size

The sample size will be determined using the Slovin's formula with a margin of error set at 5% to ensure reliability.

2.4. Research Instruments / Data Collection Methods

2.4.1. Survey Questionnaires

The researchers will use structured questionnaires will be distributed to team leaders to assess leadership styles.

2.4.2. Operational Data

The researchers will use the KPI data for productivity which shall be obtained from company records over a specified period for comparison against survey responses.

2.5. Research Instruments

The researchers used the Leadership Style Assessment by using the multi-factor leadership questionnaire (MLQ) to classify leadership styles. While a custom-designed form will record operational performance metrics, including task completion rates, error rates and sorting speed.

2.6. Data Analysis Techniques

The researchers will be using descriptive statistics to find the mean, median, standard deviation and frequency distribution to summarize the data. Also, correlation analysis will be used on the study by using Pearson's correlation coefficient will be applied to determine the relationship between leadership styles and KPIs. While regression analysis will also be helpful in this research by using multiple regression analysis to assess the predictive power of leadership styles on operational performance.

2.7. Ethical Considerations

The researcher will inform all the participants by obtaining a consent form. While for the data confidentiality and participant anonymity will be strictly maintained. And this study will comply with all ethical research guidelines set by the sorting center.

2.8. Limitations of the Study

The study is limited to one sorting center which may affect the generalization of the results. And self-reported data from surveys may be subject to bias.

III. RESULTS AND DISCUSSIONS

As the researchers completed the data collection process. On this chapter analysis and interpretation of the gathered data from the group of respondents using the Multi-factor Leadership Questionnaire used during the date gathering process.

3.1. Evaluation of respondent's department versus leadership style

Based on Table 1, it shows that each leadership style has no differences across all departments. Based on the Cross-tabulation test Inbound (IB) department has 25.7% in all leadership style, Outbound (OB) has 31.4%, Sort Pack (SP) has 42.9%. and a total of 100%.

Table 1. Cross-tabulation result of Department versus Leadership Style

Department * Leadership Style Cross Tabulation Result

Department	Leadership Style	Coaching	Democratic	Servant	Situational	Transactional	Transformational	Total
INBOUND	Count	9	9	9	9	9	9	54
	Expected Count	9.0	9.0	9.0	9.0	9.0	9.0	54.0
	% within Department	16.70%	16.70%	16.70%	16.70%	16.70%	16.70%	100.00%
	% within Leadership Style	25.70%	25.70%	25.70%	25.70%	25.70%	25.70%	25.70%
OUTBOUND	Count	11	11	11	11	11	11	66
	Expected Count	11.0	11.0	11.0	11.0	11.0	11.0	66.0
	% within Department	16.70%	16.70%	16.70%	16.70%	16.70%	16.70%	100.00%
	% within Leadership Style	31.40%	31.40%	31.40%	31.40%	31.40%	31.40%	31.40%
SORT PACK	Count	15	15	15	15	15	15	90
	Expected Count	15.0	15.0	15.0	15.0	15.0	15.0	90.0
	% within Department	16.70%	16.70%	16.70%	16.70%	16.70%	16.70%	100.00%
	% within Leadership Style	42.90%	42.90%	42.90%	42.90%	42.90%	42.90%	42.90%
TOTAL	**Count**	**35**	**35**	**35**	**35**	**35**	**35**	**210**
	Expected Count	**35.0**	**35.0**	**35.0**	**35.0**	**35.0**	**35.0**	**210.0**
	% within Department	**16.70%**	**16.70%**	**16.70%**	**16.70%**	**16.70%**	**16.70%**	**100.00%**
	% within Leadership Style	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

As shown in Table 2, The Chi-Square Test results show no significant difference in the department's response in relation to leadership style. A result of 1.000 shows on the Pearson Chi-Square test which is greater than the 0.05 p-value.

Table 2. Chi-Square Test result of respondent's department versus leadership style.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.000[a]	10	1.000
Likelihood Ratio	.000	10	1.000
N of Valid Cases	210		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.00.

3.2. Evaluation of respondent's age versus leadership style

Based on the Table 3 Appendix A, it shows that each leadership style has no differences in terms of respondent's age. Based on the Cross-tabulation result age of 35, 36, 43 and 45 has 8.6% across all respondents.

As shown in Table 4, The Chi-Square Test result shows no significant difference on the respondent's age in relation to leadership style. A result of 1.000 shows on the Pearson Chi-Square test which is greater than the 0.05 p-value.\

Table 4. Chi-Square Test result of respondent's age versus leadership style

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.000[a]	10	1.000
Likelihood Ratio	.000	10	1.000
N of Valid Cases	210		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.00.

3.3. Evaluation of respondent's gender versus leadership style

Based on Table 5, it shows that each leadership style has no differences in terms of gender. Based on the Cross-tabulation test female gender has 48.6% in all leadership style while male gender responded showed 51.4% across all department as well.

Table 5. Cross Tabulation result of gender versus leadership style

Gender * Leadership Style Cross Tabulation Result								
Gender	**Leadership Style**	**Coaching**	**Democratic**	**Servant**	**Situational**	**Transactional**	**Transformational**	**Total**
FEMALE	Count	17	17	17	17	17	17	102
	Expected Count	17.0	17.0	17.0	17.0	17.0	17.0	102.0
	% within Leadership Style	48.60%	48.60%	48.60%	48.60%	48.60%	48.60%	48.60%
MALE	Count	18	18	18	18	18	18	108
	Expected Count	18.0	18.0	18.0	18.0	18.0	18.0	108.0
	% within Leadership Style	51.40%	51.40%	51.40%	51.40%	51.40%	51.40%	51.40%
TOTAL	**Count**	**35**	**35**	**35**	**35**	**35**	**35**	**210**
	Expected Count	**35.0**	**35.0**	**35.0**	**35.0**	**35.0**	**35.0**	**210.0**
	% within Leadership Style	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

As shown on Table 6, The Chi-Square Test results show no significant difference on the gender's responded in relation to leadership style. A result of 1.000 shows on the Pearson Chi-Square test which is greater than the 0.05 p-value.

Table 6. Chi-Square Test result of respondent's gender versus leadership style

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.000[a]	5	1.000
Likelihood Ratio	.000	5	1.000
N of Valid Cases	210		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.00.

3.4.Overall result of Multi-Factor Leadership Questionnaire

According to Northouse (2021), leadership styles can be quantitatively assessed by calculating mean scores to determine the prevalence of each style. A higher mean score indicates a more dominant leadership approach, while a lower mean suggests less emphasis on that particular style.

The result of the Multifactor Leadership Questionnaire shows on Table 7 is that Coaching leadership shows the highest mean of 3.514 and dominant among the six leadership style tested. Also a high response on transformational and servant leadership with 3.486 and 3.464 showing a focus on inspiring, changing others and serving others describe their leadership to achieve organizational goals. While situational and demographic leadership results shows a moderate practice with 3.271 and 3.207 mean respectively. And the lowest style with 2.343 is the transactional leadership which shows that leaders may not be as prevalent.

Table 7. Descriptive Statistics result of Multi-factor Leadership Questionnaire

Leadership Style	Mean	Standard Deviation
Transformational Leadership	3.486	1.083
Transactional Leadership	2.343	1.826
Democratic Leadership	3.207	1.154
Coaching Leadership	3.514	0.818
Servant Leadership	3.464	1.069
Situational Leadership	3.271	1.187

3.5. Overall result of productivity

Based on Table 8, Average productivity result in the past 3 months is within the target as Inbound 3-month average productivity result of 98.80%, Sort Pack at 96.65% and Outbound at 98.87%. This shows that any leadership style across all departments is not significant due to all departments hitting the target productivity.

Table 8. 3-Month Productivity Result per Department

Department	Target Productivity	Average Result			
		Feb-25	Mar-25	Apr-25	Total
Inbound (IB)	98%	99.50%	98.78%	98.11%	98.80%
Sort Pack (SP)	95%	96.35%	97.25%	96.34%	96.65%
Outbound (OB)	98%	99.60%	98.35%	98.67%	98.87%

IV. SUMMARY AND CONCLUSION

4.1. Summary of Findings

Evaluation of leadership style per department, age and sex do not significantly differ across departments, age groups, or sex, as indicated by a p-value of 1. This suggests no meaningful association between leadership style and these demographic variables. The data also implies that various leadership styles are being applied unconsciously, as supported by the non-significant chi-square results. Among all styles, the coaching leadership style recorded the highest mean score.

4.2. Conclusion

The study reveals that a variety of leadership styles are being practiced within the sorting center. Although the coaching leadership style yielded the highest mean score among the six styles evaluated, the difference is not statistically significant and therefore does not establish it as the dominant approach. All six leadership styles appear to be relevant and applicable in this setting. However, the coaching style shows potential as an effective leadership approach across departments. Additionally, productivity data indicate that all departments are exceeding their target goals, regardless of the leadership style employed.

4.3. Recommendation

The recommendation of the study:

1. Strong coaching leadership style practice and application.
2. Training related to coaching leadership style to all team leaders.

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