

A Study On The Effectiveness Of Cargo Stacking And Stuffing Programmes At Falcon Container Fright Station

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ABSTRACT

In today's fast-moving global trade environment, the way cargo is handled plays a major role in ensuring that goods reach their destination safely and on time. Cargo stacking and stuffing are especially important tasks, as even small mistakes during loading can result in damaged goods, safety hazards, or costly delays. Recognizing this, logistics organizations are placing increasing importance on training their employees to handle cargo more carefully, efficiently, and in line with international standards. Falcon Container Station, a key player in container handling and logistics, is one such organization that has invested significantly in training its operational staff. This study focuses on understanding how cargo stacking and stuffing training programmes are conducted at Falcon Container Station and how effective these programmes are in real-world operations. Rather than looking only at classroom learning, the study explores how training influences day-to-day work on the ground. Factors such as reduced cargo damage, improved space utilization, quicker loading times, better safety practices, and feedback from employees and supervisors are considered to evaluate training outcomes. The study highlights the importance of regularly assessing training effectiveness to ensure that employees are well-prepared to handle the complexities of modern logistics operations. By identifying strengths and gaps in the existing training programmes, the research aims to support Falcon Container Station in improving its training strategies. The findings also offer useful insights for other logistics organizations seeking to enhance operational efficiency, safety, and overall service quality through effective workforce training.

Key Words: Cargo Stacking and Stuffing, Training Effectiveness, Container Handling Operations, Logistics Workforce Training, Operational Efficiency

INTRODUCTION

In logistics operations, the effectiveness of cargo stacking and stuffing plays a vital role in ensuring the safe and efficient movement of goods. Proper stacking and stuffing help secure cargo, balance container weight, and make optimal use of available space. When these processes are carried out effectively, they reduce cargo damage, improve safety, and lower operational costs. However, poor stacking and stuffing can lead to accidents, delays, and financial losses. Cargo stacking and stuffing require skill, careful judgement, and practical knowledge. The effectiveness of these activities depends on how well workers understand cargo characteristics, apply correct loading techniques, and follow safety standards. As cargo volumes and complexity increase, achieving consistent effectiveness has become a key challenge for logistics organizations. At Falcon Container Station, where a wide variety of cargo is handled daily, effective stacking and stuffing are essential for smooth operations. To improve performance, Falcon has implemented training programmes focused on developing practical skills and safe handling practices. Evaluating the effectiveness of these training programmes is important to ensure that learning translates into better on-site performance. This study examines the effectiveness of cargo stacking and stuffing training programmes at Falcon Container Station by assessing operational outcomes and employee experiences. The findings aim to support improvements in training practices and contribute to safer and more efficient cargo handling operations.

Why is this research important?

This research is important because it looks beyond the existence of training programmes and focuses on whether they actually improve cargo stacking and stuffing practices. Although Falcon Container Station invests significantly in training its cargo handling staff, the lack of a systematic method to evaluate training

effectiveness makes it difficult to know if these efforts are delivering real results. Effective cargo stacking and stuffing are essential for safe operations, cost control, and service reliability. When training outcomes are not properly assessed, inefficient or unsafe practices may continue, leading to cargo damage, workplace accidents, and operational delays. This study highlights the need to use measurable performance indicators, such as reduced cargo damage and improved container utilization, rather than relying only on attendance records or informal feedback. The research is also important because it examines whether employees are able to apply what they learn during training to real working conditions. Identifying gaps between training and actual performance helps improve knowledge retention and ensures that training remains practical and relevant. Overall, this study supports a more structured and evidence-based approach to evaluating training effectiveness. By doing so, it helps Falcon Container Station strengthen operational efficiency, improve safety standards, and achieve more consistent and reliable cargo handling performance.

OBJECTIVES

This study's main goals are to:

1. To evaluate the effectiveness of cargo stacking and stuffing training programmes at Falcon Container Station.
2. To measure the impact of training on key operational performance indicators such as cargo damage rates, loading efficiency, and compliance with safety protocols.
3. To recommend strategies for improving the design, delivery, and evaluation of training programmes to enhance overall effectiveness and operational outcomes.

REVIEW OF LITERATURE

Supriatna, A., Hidayat, R., and Pratama, Y. (2025) emphasize the central role of crew competence in ensuring effective cargo handling operations. Their study indicates that structured training in cargo stacking, stuffing, and safety procedures enhances operational efficiency, minimizes handling errors, and strengthens compliance with established safety standards. The authors highlight that continuous skill development and strict adherence to standard operating procedures are key contributors to improved cargo handling performance and reduced operational risk. Zhang, Y., Li, X., and Chen, J. (2024) analyze the link between safety training and safety performance within maritime logistics operations. Their findings demonstrate that well-structured training programs significantly improve safety awareness, procedural compliance, and overall operational effectiveness. Organizations that consistently invest in safety training report lower accident rates and higher workforce productivity.

Notteboom, T., Pallis, A., and Rodrigue, J.-P. (2023) review performance assessment practices in port operations and identify efficiency, safety, and productivity as critical performance dimensions. While technological advancements receive considerable attention in performance evaluations, the study stresses that human-related factors—particularly training and skill enhancement—are comparatively underexplored despite their significant influence on port performance outcomes. Supriatna, A. and Rahman, M. (2024) investigate operational challenges in cargo handling and their effects on terminal efficiency. The study identifies improper handling practices, inadequate training, and non-compliance with procedures as major contributors to delays and cargo damage. The authors underscore the need for targeted and role-specific training interventions to improve operational reliability and terminal performance.

International Labour Organization (2021) highlights the importance of occupational safety and health training in ports and container handling facilities. The publication outlines internationally recognized best practices related to cargo stacking, stuffing, and handling aimed at reducing workplace accidents and improving safety compliance. It reinforces the view that a well-trained workforce is fundamental to achieving safer and more efficient port operations. Lai, K.-H., Wong, C. W. Y., and Cheng, T. C. E. (2023) examine the role of key performance indicators (KPIs) in assessing logistics and port operations. The study identifies cargo damage rates, vessel turnaround time, and safety compliance as essential metrics for evaluating both training effectiveness and operational improvements within port environments.

Mariappa Babu, B. (2023) discusses container-related accidents as a persistent problem in global logistics, leading to material damage, financial losses, environmental harm, and fatalities. Such accidents occur across multiple transport settings, including ports, container yards, roadways, rail networks, and maritime routes.

Despite ongoing safety initiatives, the study identifies human-controllable factors—particularly unsafe handling practices and insufficient training—as primary contributors to these incidents. Addressing these factors is viewed as critical for promoting sustainability and safety in global logistics operations. The research adopts an exploratory design based on a comprehensive review of academic literature, industry reports, and credible secondary sources. Kim, S., Park, J., and Lee, D. (2023) investigate the underlying causes of container cargo damage during handling processes. The study identifies improper stacking techniques, inadequate securing methods, and human error as the dominant sources of cargo damage. The authors conclude that specialized and practical cargo handling training can significantly reduce damage incidents and enhance overall operational safety.

Kaliszewski, A. and Kozłowski, A. (2023) explore strategies for improving cargo handling efficiency through both operational improvements and human-factor interventions. Their findings indicate that training programs focused on worker skills, coordination, and safety awareness contribute to higher productivity levels and reduced inefficiencies in terminal operations. Fanny Saruchera (2020) examines accidents involving hazardous cargo at seaports, noting their continued occurrence despite international regulations and improved safety standards. Employing a mixed-method research design, the study combines qualitative insights from seven key informant interviews with quantitative data from a survey of 81 port employees in Namibia. The findings reveal both enabling and limiting factors affecting hazardous cargo logistics effectiveness. Importantly, the study establishes a strong association between hazardous cargo training and workers' knowledge of risk mitigation, emergency response procedures, regulatory compliance, and documentation accuracy, leading to the development of a conceptual framework for hazardous cargo logistics in developing economies.

STATEMENT OF THE PROBLEM

Efficient cargo stacking and stuffing play a key role in maintaining safety, reducing cargo damage, and improving day-to-day operations at Falcon Container Station. While training programmes are already in place to develop the skills of cargo handlers and support staff, there is limited clarity on how effective these programmes actually are. It is not fully understood whether the training methods and content truly match the practical challenges faced by employees during real cargo handling operations. In addition, the impact of these training programmes on important operational outcomes such as cargo damage levels, loading speed, and adherence to safety standards has not been systematically measured. Without clear evidence of their effectiveness, Falcon may continue to invest time and resources in training approaches that do not deliver the best possible results. This highlights the need to evaluate the existing cargo stacking and stuffing training programmes and identify ways to improve their relevance, delivery, and measurable contribution to operational performance.

RESEARCH QUESTIONS

The following research questions guided this study:

1. Has your performance improved after attending training sessions?
2. Do you feel training has reduced your chances of making errors at work?
3. How often do you apply the training skills in your daily tasks?
4. Overall, how would you rate the effectiveness of the training programme?

RESEARCH METHODOLOGY

In this research primary data is collected by distributing questionnaire to the employees of the company to obtain their perspectives and secondary data is obtained from the published materials and websites. The population of the study comprises the employees of the company and the sample size for this research is 50 and the sampling technique adopted in this study is simple random sampling. Data analysis is done by Chi-Square Goodness-of-Fit Test and percentage analysis.

Chi-square

A Chi-square statistic which is used to test the measure of expectations compare above or model result.

$$X^2 = \sum [(Observed\ Frequency - Expected\ Frequency)^2 / Expected\ Frequency]$$

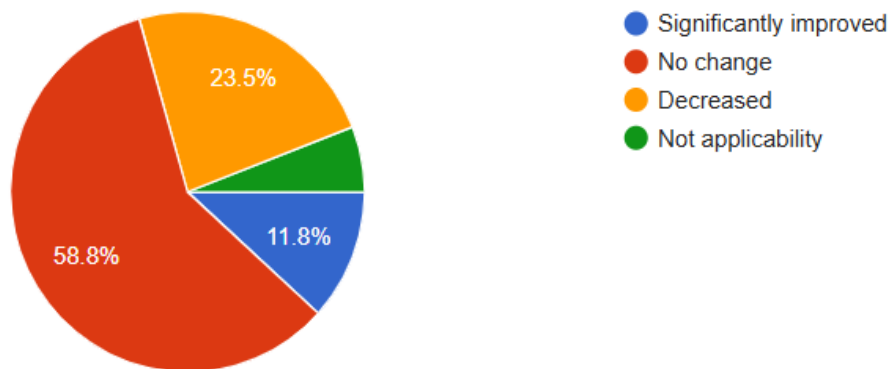
Simple percentage analysis

Percentage base analysis helps to find which factors is significant among a number of factors.

ANALYSIS AND INTERPRETATION

1: Has your performance improved after attending training sessions?

Response Category	Number of Respondents	Percentage
Significantly improved	6	11.8%
No change	30	58.8%
Decreased	12	23.5%
Not applicable	3	5.9%
Total	51	100%



INTERPRETATION

Only 11.8% reported significant improvement, while 23.5% felt their performance had decreased. This indicates that although training programmes are conducted, they may not be effectively translating into improved on-the-job performance for most employees. The findings highlight a need to review training content, delivery methods, and practical application.

Null and Alternative Hypotheses

H_0 (Null Hypothesis): Training programmes do not lead to any significant improvement in employee performance.

H_1 (Alternative Hypothesis): Training programmes lead to a significant improvement in employee performance.

Variables and Frequencies

1. Performance Improvement – Dependent Variable

Measures the impact of training on employee performance.

2. Training Outcome Category – Independent Variable

Includes responses such as significantly improved, no change, decreased, and not applicable.

Chi-Square Goodness-of-Fit Test for Evaluation with Analysis Information

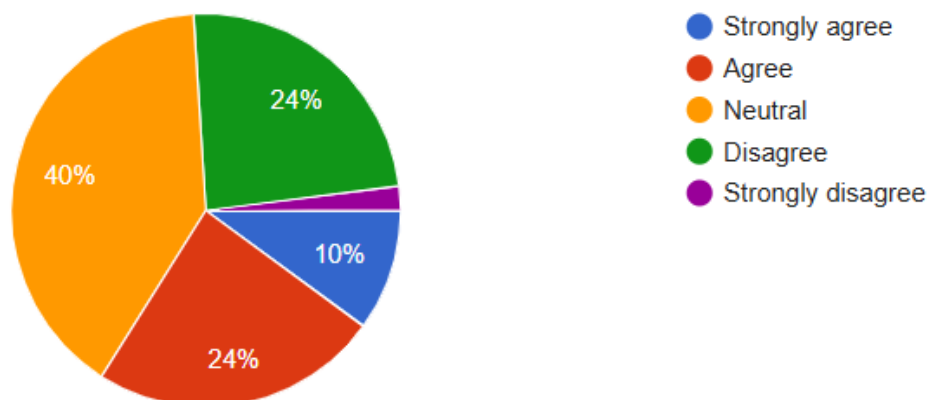
Category	Observed (O)	Expected (E)	$(O - E)^2 / E$	
Significantly	6	12.75	3.57	

improved				
No change	30	12.75	23.36	
Decreased	12	12.75	0.04	
Not applicable	3	12.75	7.46	
Total χ^2			34.43	

Since the calculated chi-square value (34.43) is greater than the critical value (7.815), the null hypothesis is rejected.

2 : Do you feel training has reduced your chances of making errors at work?

Response Category	Number of Respondents	Percentage
Strongly agree	5	10%
Agree	12	24%
Neutral	20	40%
Disagree	12	24%
Strongly disagree	1	2%
Total	50	100%



INTERPRETATION

The results indicate that most employees (40%) are neutral about whether training has reduced work-related errors.

Null and Alternative Hypotheses

H_0 (Null Hypothesis): Training does not significantly reduce employees' chances of making errors at work.

H_1 (Alternative Hypothesis): Training significantly reduces employees' chances of making errors at work.

Variables and Frequencies

Error Reduction – Dependent Variable

Measures the perceived impact of training on reducing mistakes at work.

Level of Agreement – Independent Variable

Includes strongly agree, agree, neutral, disagree, and strongly disagree.

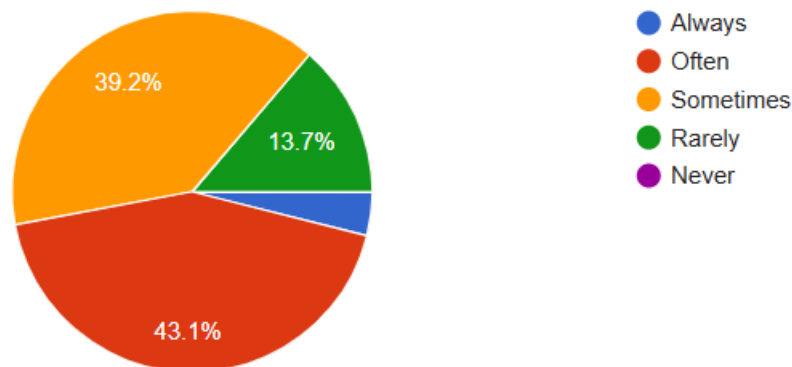
Chi-Square Goodness-of-Fit Test for Evaluation with Analysis Information

Category	Observed (O)	Expected (E)	$(O - E)^2 / E$
Strongly agree	5	10	2.50
Agree	12	10	0.40
Neutral	20	10	10.00
Disagree	12	10	0.40
Strongly disagree	1	10	8.10
Total χ^2			21.40

Since the calculated chi-square value (21.40) is greater than the critical value (9.488), the null hypothesis is rejected.

3: How often do you apply the training skills in your daily tasks?

Response Category	Number of Respondents	Percentage
Always	2	3.9%
Often	22	43.1%
Sometimes	20	39.2%
Rarely	7	13.7%
Never	0	0%
Total	51	100%



INTERPRETATION

The findings show that most employees apply training skills often or sometimes, indicating partial integration of training into daily work.

Null and Alternative Hypotheses

H_0 (Null Hypothesis): Employees do not regularly apply the training skills in their daily tasks.

H_1 (Alternative Hypothesis): Employees regularly apply the training skills in their daily tasks.

Variables and Frequencies

Application of Training Skills – Dependent Variable

Measures how frequently employees use training knowledge in daily work.

Frequency Level – Independent Variable

Includes always, often, sometimes, rarely, and never.

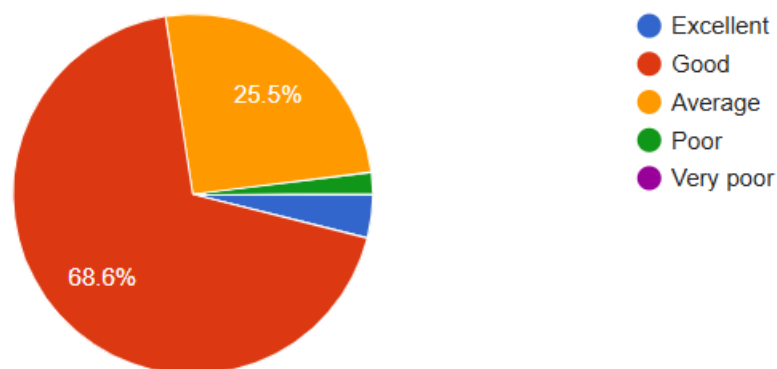
Chi-Square Goodness-of-Fit Test for Evaluation with Analysis Information

Category	Observed (O)	Expected (E)	$(O - E)^2 / E$
Always	2	10.2	6.59
Often	22	10.2	13.65
Sometimes	20	10.2	9.41
Rarely	7	10.2	1.00
Never	0	10.2	10.20
Total χ^2			40.85

Since the calculated chi-square value (40.85) is greater than the critical value (9.488), the null hypothesis is rejected.

4: Overall, how would you rate the effectiveness of the training programme?

Options	Number of Respondents	Percentage
Excellent	2	3.9%
Good	35	68.6%
Average	13	25.5%
Poor	1	2.0%
Very Poor	0	0%
Total	51	100%



Interpretation

The majority of employees rate the training programme as good, showing that the programme is effective and well-received.

Null and Alternative Hypotheses

H_0 (Null Hypothesis): Employees do not perceive the training programme as effective.

H_1 (Alternative Hypothesis): Employees perceive the training programme as effective.

Variables and Frequencies

Independent Variable: Rating of training effectiveness
(Excellent, Good, Average, Poor, Very Poor)

Dependent Variable: Perceived effectiveness of the training programme

Chi-Square Goodness-of-Fit Test for Evaluation with Analysis Information

Category	Observed (O)	Expected (E)	(O-E) ² / E
Excellent	2	10.2	6.59
Good	35	10.2	60.37
Average	13	10.2	0.77
Poor	1	10.2	8.30
Very Poor	0	10.2	10.20
Total χ^2			86.23

Since the calculated chi-square value (86.23) is greater than the critical value (9.49), the null hypothesis is rejected.

FINDINGS

- Employees are largely satisfied with the pre-recruitment information provided by the organization, which indicates that the recruitment process is clear, transparent, and effective in communicating job-related details.
- A majority of employees apply the training skills in their daily work either often or sometimes, showing that the training programmes are relevant and aligned with actual job requirements.
- The overall effectiveness of the training programme has been rated positively by most employees, with many respondents considering the programme to be good, reflecting general satisfaction with the training efforts.
- Training has resulted in improvement in the performance of some employees; however, a significant number reported no noticeable change, highlighting the need for better training methods and follow-up mechanisms.
- The impact of training on reducing workplace errors appears to be moderate, as employee opinions are mixed, suggesting that further improvements are required to enhance training effectiveness.

SUGGESTIONS

- The organization should further improve the pre-recruitment information process by providing more detailed job descriptions and realistic role expectations to ensure better candidate understanding.
- Training programmes should include more practical, hands-on sessions and real-time demonstrations so that employees can apply the skills more effectively in their daily work.
- Regular post-training evaluations and feedback sessions should be conducted to assess employee learning and identify gaps in training content or delivery.
- The training modules should be customized based on job roles and experience levels, as uniform training may not address the specific needs of all employees.
- Continuous refresher training and performance monitoring should be introduced to reinforce learning, improve performance consistency, and reduce workplace errors.

CONCLUSION

The study concludes that employees are generally satisfied with the pre-recruitment information provided by the organization, indicating a transparent and effective recruitment process. The findings further show that most employees apply the skills gained from training in their daily work, demonstrating that the training programmes are relevant to job requirements. Overall, the effectiveness of the training programme has been rated positively, with a majority of employees perceiving it as good. However, while training has resulted in performance improvement for some employees, many respondents reported no significant change, suggesting variations in training outcomes. Additionally, the impact of training on reducing workplace errors is moderate, as employee opinions remain mixed, highlighting the need for continuous improvement in training methods and follow-up mechanisms.

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