

Impact of On the Job Training Quality for New Employee Competency at AirNav Indonesia JATSC

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Abstract

AirNav Indonesia plays a strategic role in ensuring safe and efficient air traffic operations, particularly at the Jakarta Air Traffic Service Center (JATSC), which operates in a complex and high-risk environment. This study aims to examine the impact of On-the-Job Training (OJT) quality on the competency of new employees at JATSC. OJT quality is assessed through indicators such as curriculum clarity, instructor competence, relevance of training materials, evaluation processes, and feedback mechanisms, while employee competency is measured in terms of technical skills, readiness for independent work, decision-making ability, adaptability to operational pressure, and professionalism. This research adopts a quantitative approach with a descriptive-correlational design. Data were collected from 89 respondents using structured questionnaires, supported by limited observations. The data were analyzed through validity and reliability testing, normality testing, correlation analysis, and simple linear regression. The results show that OJT quality has a positive and significant influence on new employee competency. Higher-quality OJT is associated with improved technical mastery, stronger decision-making capability, and better adaptation to operational demands. The study concludes that effective and well-structured OJT is essential for developing competent personnel who can support aviation safety and operational effectiveness at JATSC.

Keywords: *On the Job Training, Training Quality, Employee Competency, Air Traffic Controller, JATSC*

INTRODUCTION

AirNav Indonesia plays a central role in maintaining the safety, efficiency, and regularity of national air traffic operations, with operational success highly dependent on the competency of its human resources, particularly in busy units such as the Jakarta Air Traffic Service Center (JATSC). Previous studies indicate that factors such as mental workload and working duration are significantly associated with the occurrence of human error among Air Traffic Controllers (ATCs), highlighting the importance of effective workload management and training to minimize operational risks and ensure aviation safety (Senjaya et al., 2020). In addition, employee competence, motivation, and engagement have been shown to positively influence ATC performance and productivity, while career development and compensation act as supporting factors (Leswaeny et al., 2020). Work experience has also been found to correlate with ATC safety performance, emphasizing the importance of accumulated experience in enhancing service quality (Saleh et al., 2019).

The competence of new employees in air traffic control operations is highly dependent on the effectiveness of the On-the-Job Training (OJT) process, which serves as a critical bridge between academic learning and professional practice in real operational environments. OJT enables new employees to adapt to fast-paced work rhythms, understand airspace characteristics, and practice decision-making under high-pressure conditions with strict accuracy requirements (Oprins et al., 2011). Recent studies highlight the importance of competency-based assessment and continuous monitoring of learning curves during OJT to identify individual strengths and weaknesses, allowing timely and targeted feedback. The integration of simulation technologies, virtual reality, and artificial intelligence-based training tools has further enhanced adaptation speed, communication skills, and error reduction in operational settings (Chan et al., 2023).

However, the quality of OJT implementation remains a critical concern. Variations in instructor approaches, limited training duration, insufficient systematic feedback, and the absence of standardized competency assessment tools often result in inconsistencies in OJT quality and varying levels of work readiness among new employees (Shaamsiev, 2022). Effective OJT should be delivered by experienced instructors using a structured curriculum, active mentoring methods, and objective, competency-based evaluations to ensure consistent competency development (Cinar & Tuncal, 2024). Organizational factors such as instructor experience, teaching methods, and collaboration between educational institutions and air navigation service providers also influence OJT effectiveness (Estrova, 2023).

Given the high operational complexity and safety-critical nature of air traffic control at JATSC, evaluating the effectiveness of OJT in developing new employee competency is essential. Analyzing the relationship between OJT quality and employee competency is expected to provide strategic insights for improving training standards, supporting human resource development policies, and ensuring that newly trained personnel are professionally prepared to support aviation safety and operational efficiency.

RESEARCH METHODS

This study employed a quantitative research approach using a descriptive-correlational design to examine the effect of On-the-Job Training (OJT) quality on the competency of new employees at AirNav Indonesia Jakarta Air Traffic Service Center (JATSC). This design was selected to describe existing conditions and analyze the relationship between training quality and employee competency in a high-risk operational environment.

Research Subjects and Sampling Technique

The population of this study consisted of 436 Air Traffic Controllers (ATCs) assigned to Tower (TWR), Approach Control (APP), and Area Control Center (ACC) units at JATSC. A purposive sampling technique was applied with inclusion criteria of (1) active duty for at least one year and (2) willingness to participate in the study. Using the Slovin formula with a 10% margin of error, a minimum sample size of 81 respondents was obtained. To anticipate non-response, the final sample was increased to 89 respondents.

Variables and Instruments

The independent variable was OJT quality, measured through indicators such as curriculum clarity, instructor competence, relevance of training materials, evaluation mechanisms, feedback, and training environment. The dependent variable was new employee competency, assessed through technical skills, decision-making ability, adaptability to work pressure, readiness for independent work, and professionalism. Data were collected using a structured questionnaire with a five-point Likert scale, developed based on human resource training and competency theories (Cinar & Tuncal, 2024; Shaamsiev, 2022).

Data Collection Techniques

Data collection involved three techniques: non-participant observation to capture training dynamics, closed-ended questionnaires as the primary data source, and semi-structured interviews to obtain supporting qualitative insights. Prior to analysis, the instrument was tested for validity and reliability to ensure measurement accuracy.

Data Analysis Methods

Data analysis included descriptive statistics, normality testing, Pearson correlation analysis to examine the strength of relationships, and simple linear regression to determine the influence of OJT quality on employee competency. Statistical analysis was conducted using standard social science research procedures without excessive presentation of statistical formulas.

RESULT AND DISCUSSION

This section presents and discusses the findings regarding the impact of On-the-Job Training (OJT) quality on the competency of new employees at AirNav Indonesia Jakarta Air Traffic Service Center (JATSC). Due to page limitations, the presentation of results and discussion is integrated to provide a comprehensive interpretation of empirical findings within the context of a high-risk and high-complexity air traffic control environment.

Instrument Validity and Reliability

Before further analysis, the research instrument was examined to ensure that it accurately measured the intended constructs. Validity testing confirmed that all questionnaire items were suitable indicators of OJT quality and employee competency. A summary of the validity results is presented in Table 1.

Table 1. Summary of instrument validity results

Variable	Number of Items	Valid Items	Interpretation
OJT quality	8	8	Valid
Employee competency	8	8	Valid

All indicators demonstrate adequate alignment with their respective constructs. Items related to instructor competence, structured feedback, and relevance of training content show strong representativeness, emphasizing their importance in competency-based training systems. These findings support previous studies highlighting that instructor quality and feedback mechanisms are critical determinants of effective OJT implementation (Cinar & Tuncal, 2024; Shaamsiev, 2022).

Reliability testing further confirms that the instrument provides consistent measurements. High internal consistency indicates that respondents interpreted the questionnaire items in a stable manner, making the instrument suitable for assessing training quality and competency development in safety-critical organizations such as air navigation service providers.

Descriptive Results of OJT Quality

Descriptive analysis indicates that OJT quality at JATSC is generally perceived at a high level. Respondents reported that training materials are closely aligned with operational tasks, instructors possess strong technical and operational experience, and training is conducted in real working environments that expose trainees to actual operational pressure. The overall descriptive results are summarized in Table 2.

Table 2. Descriptive statistics of research variables

Variable	Mean Level	General Interpretation
OJT quality	High	Well implemented
Employee competency	High	Operationally competent

To enhance clarity, the distribution of perceived OJT quality levels is illustrated in Figure 1.

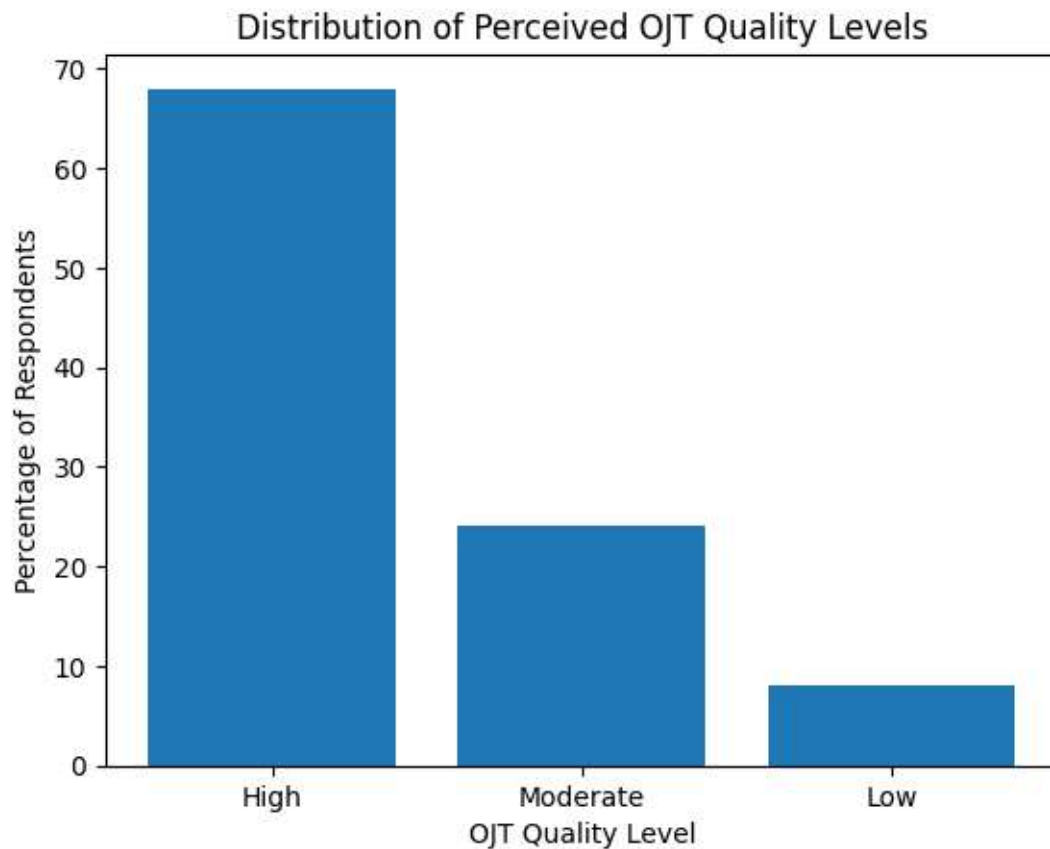


Figure 1. Distribution of perceived OJT quality levels

The figure reinforces the table results, showing that the majority of respondents perceive OJT as an effective mechanism for transferring knowledge, skills, and operational attitudes. This supports the view that OJT serves as a crucial bridge between academic preparation and operational readiness in air traffic control environments (Oprins et al., 2011).

Descriptive Results of New Employee Competency

New employee competency is also perceived at a high level, particularly in terms of technical skill mastery, adherence to standard operating procedures, and adaptability to operational pressure. However, some aspects related to independent decision-making still require experience accumulation. This pattern is visualized in Figure 2.

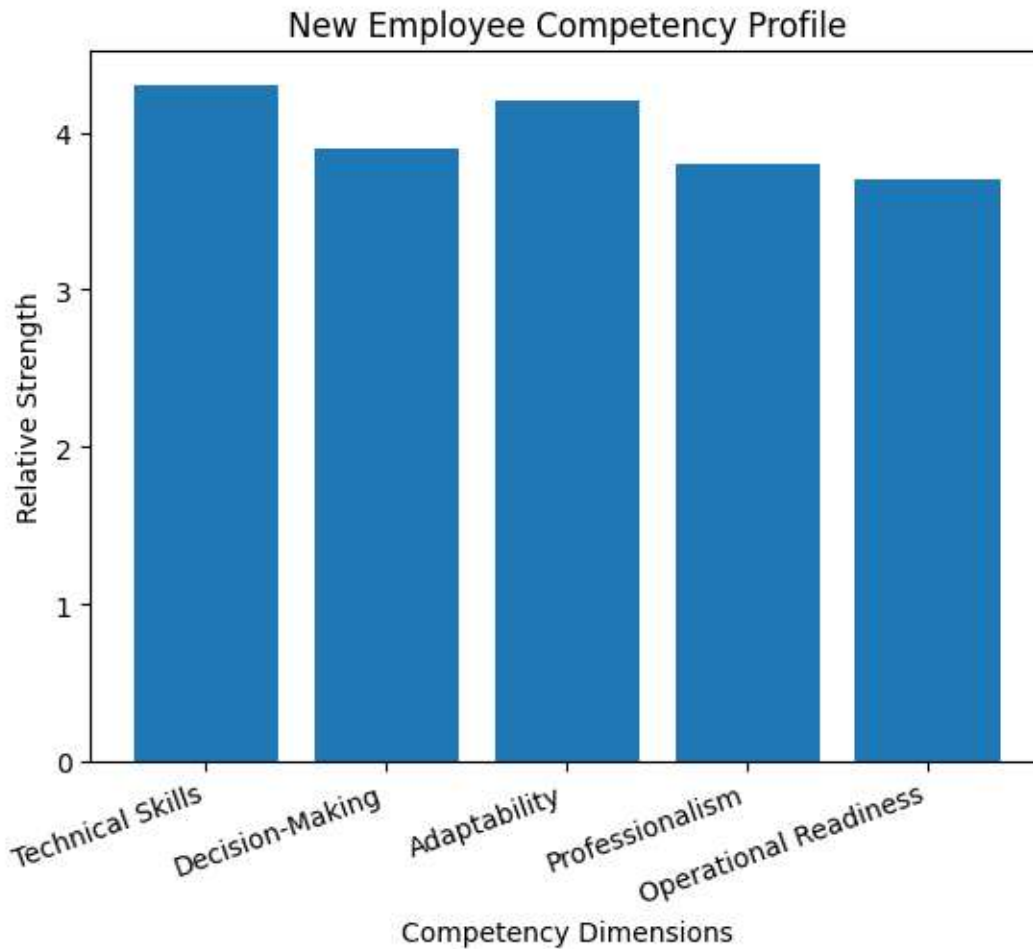


Figure 2. New employee competency profile

These findings indicate that while OJT effectively prepares new employees for operational tasks, competency development remains a continuous process that extends beyond formal training. This observation aligns with competency development theories suggesting that expertise in safety-critical professions evolves through sustained practice and exposure (Petri, 2015; Toni et al., 2022).

Relationship Between OJT Quality and Employee Competency

The integrated analysis demonstrates a strong and positive relationship between OJT quality and new employee competency. Higher-quality OJT characterized by structured curricula, competent instructors, relevant training scenarios, and continuous feedback is associated with stronger technical mastery, improved decision-making confidence, and better adaptation to operational demands. This relationship is conceptually illustrated in Figure 3.

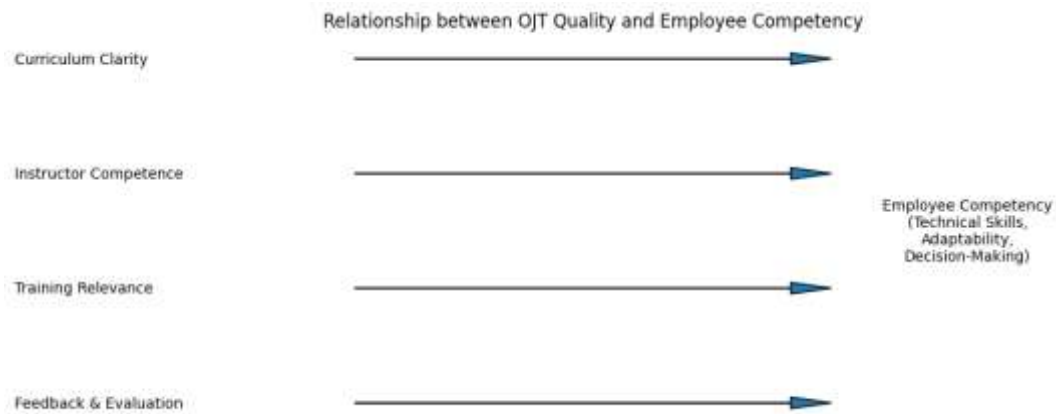


Figure 3. Relationship between OJT quality and employee competency

This finding supports previous research indicating that effective OJT not only enhances technical performance but also strengthens professional attitudes and situational awareness (Hamid et al., 2024). In the context of JATSC, where operational errors may have serious safety implications, consistent and standardized OJT implementation plays a decisive role in preparing new employees to operate safely and effectively.

Overall, the results confirm that OJT quality is a core determinant of employee competency. Variations in instructor approaches, feedback consistency, and evaluation mechanisms may influence training outcomes, reinforcing the need for standardized competency indicators and systematic evaluation frameworks (Estrova, 2023). Enhancing instructor preparation and integrating advanced simulation technologies are recommended to further strengthen training effectiveness and support aviation safety.

CONCLUSION

This study concludes that the quality of On the Job Training (OJT) plays a crucial role in shaping the competency of new employees at AirNav Indonesia Jakarta Air Traffic Service Center. Well-structured OJT programs characterized by clear curricula, competent instructors, relevant operational training, and continuous feedback contribute significantly to the development of technical skills, decision-making ability, adaptability, and professional readiness among new employees. The findings indicate that OJT is not merely a transitional training phase, but a strategic mechanism for ensuring that newly recruited personnel are capable of performing effectively in a high-risk and high-complexity air traffic control environment. Variations in training quality may influence competency outcomes, highlighting the importance of standardizing training procedures and evaluation systems. Overall, strengthening the quality and consistency of OJT implementation is essential to support sustainable human resource development and to maintain safety and operational efficiency at JATSC.

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