

The Impact of Training Effectiveness and Aviation Training Facilities on Perceived Value among Aviation Personnel

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Abstract

This study investigates the relationships between training effectiveness, aviation training facilities and perceived value among aviation personnel. A mixed-methods approach was employed, integrating quantitative data from 420 respondents with qualitative insights from interviews. The findings indicate that both training effectiveness and aviation training facilities were rated at high levels. Pearson's correlation analysis revealed strong positive relationships between training effectiveness and perceived value ($r = 0.72$), as well as between training facilities and perceived value ($r = 0.75$). Additionally, a substantial relationship was found between training effectiveness and aviation training facilities ($r = 0.68$). These results suggest that both instructional quality and physical infrastructure play critical roles in shaping perceived value.

Qualitative findings further support the quantitative results, highlighting service quality, professional staff, and practical training as key strengths. However, areas for improvement include facility design, user comfort, parking coverage, and audio-visual systems.

This study contributes to the aviation training literature by emphasizing the integration of effective training design and well-developed facilities. The findings provide practical implications for enhancing training programs, facility management, and service delivery to improve overall trainee experience and perceived value in aviation training centers.

Keywords: training effectiveness, aviation training facilities, perceived value, aviation personnel

1. Background of the Study

Aviation safety and operational performance rely heavily on the competency of aviation personnel, including pilots, flight attendants, and aviation support staff. International aviation organizations such as the International Civil Aviation Organization (ICAO, 2014; 2018) emphasize that continuous training and competency development are essential for maintaining safety standards and operational effectiveness in the aviation industry. Consequently, aviation training centers play a significant role in providing structured learning environments, simulation technologies, and practical training programs.

Previous studies have demonstrated that training effectiveness significantly influences employee performance, knowledge retention, and workplace competency (Salas et al., 2012; Phillips & Phillips, 2016). In addition, service quality and physical learning environments have been identified as important factors affecting user satisfaction and perceived value (Parasuraman et al., 1988). Recent

aviation-related studies also highlight the growing importance of simulation technologies and modern training environments in improving aviation learning outcomes (Gu et al., 2025; Zhang et al., 2025).

Despite increasing attention to aviation training quality, most previous studies have primarily focused on instructional effectiveness or technological innovation separately. Limited empirical research has examined the combined influence of training effectiveness and aviation training facilities on perceived value among aviation personnel, particularly within the Southeast Asian aviation training context. Furthermore, previous research has rarely integrated both quantitative and qualitative perspectives to explain how physical infrastructure, service quality, and instructional design jointly contribute to trainees' perceptions.

2. Objectives

This study aims to:

1. Evaluate training effectiveness, aviation training facilities, and perceived value among aviation personnel.
2. Examine the relationships among training effectiveness, aviation training facilities, and perceived value.
3. Provide recommendations for improving aviation training programs and facilities.

3. Methodology

3.1 Research Design

This study employed a mixed-methods approach to provide a comprehensive understanding of the research problem (Creswell & Creswell, 2018). The quantitative component focused on measuring perceptions through structured questionnaires, while the qualitative component provided deeper insights through interviews.

3.2 Population and Sample

The target population consisted of aviation personnel who attended training programs at the Aviation Personnel Development Institute (APDI) within a one-year period. A census sampling approach was adopted to include all available trainees rather than selecting a subset of participants. A total of 420 valid responses were obtained.

Although this study focused on one aviation training center, APDI serves participants from multiple aviation organizations, including pilots, flight attendants, and operational personnel from both public and private sectors. However, the findings should be interpreted cautiously in terms of external generalizability.

To ensure that the sample size was statistically adequate, an a priori power analysis was conducted using G*Power software for correlation analysis with a medium effect size ($r = 0.30$), significance level of 0.05, and statistical power of 0.95. The recommended minimum sample size was substantially lower than the obtained sample of 420 participants, indicating that the study had

sufficient statistical power. Sample adequacy was further supported by the recommendations of Krejcie and Morgan (1970) and Hair et al. (2019).

3.3 Research Instrument

The research instrument used in this study was a structured questionnaire developed based on relevant literature in training effectiveness and service quality. The questionnaire consisted of five main dimensions: training effectiveness, service quality, facility conditions, equipment availability, and perceived value.

All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items were designed to reflect participants' perceptions of training experiences and outcomes.

Content validity was assessed by three experts in aviation training and research methodology to ensure the relevance and clarity of the questionnaire items. Reliability testing was conducted using Cronbach's alpha coefficient, with values ranging from 0.78 to 0.91, indicating acceptable internal consistency.

3.4 Data Collection

Quantitative data were collected immediately after participants completed their training sessions to capture fresh perceptions regarding training effectiveness, facilities, and perceived value. Participation was voluntary, and respondents were informed that all responses would remain confidential and be used only for academic purposes.

For the qualitative component, semi-structured interviews were conducted with 15 selected participants representing different aviation occupations, including pilots, flight attendants, and aviation support staff. Purposive sampling was used to ensure variation in professional backgrounds and training experiences. The interview questions focused on:

- 1) perceptions of training effectiveness,
- 2) experiences with training facilities,
- 3) perceived benefits and value of the training programs, and
- 4) suggestions for improvement.

Each interview lasted approximately 20–30 minutes and was recorded with participant consent. Data collection continued until thematic saturation was achieved, meaning no substantial new themes emerged from additional interviews.

3.5 Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Pearson's correlation analysis was employed to examine relationships among training effectiveness, aviation training facilities, and perceived value.

Qualitative data were analyzed using thematic content analysis. Interview recordings were transcribed and coded systematically. Initial open coding was first conducted to identify meaningful statements, followed by grouping similar codes into broader themes. To enhance trustworthiness, the researcher reviewed the coding multiple times and compared interpretations across transcripts to ensure consistency and credibility.

4. Results

Table 1: General Information of Respondents (N = 420)

Variable	Category	Frequency	Percentage
Gender	Male	260	61.90
	Female	155	36.90
	Not specified	5	1.19
Position	Pilot	180	42.86
	Flight Attendants	160	38.10
	Others	80	19.04

The majority of respondents were male (61.90%), followed by female (36.90%). Most participants were pilots (42.86%) and flight attendants (38.10%), indicating that the training center primarily serves operational aviation personnel.

Table 2: Training Effectiveness

Item	Mean	S.D.	Interpretation
Clear content	4.78	0.65	Highest
Relevant to work	4.80	0.62	Highest
Enhances skills	4.79	0.64	Highest
Applicable	4.76	0.66	Highest
Duration appropriate	4.75	0.68	Highest

The results indicated that training effectiveness was rated at a high level (M = 4.78). The highest-rated aspect was the relevance of training content to actual work (M = 4.80), followed by knowledge and skill enhancement (M = 4.79). These findings suggest that the training programs were well aligned with operational requirements.

Table 3: Facilities and Services

Dimension	Mean	Interpretation
Staff Service	4.74	Highest
Parking	4.71	Highest
Safety	4.69	Highest
Cleanliness	4.66	Highest

All aspects of facilities and services were rated at the highest level. Staff service received the highest rating (M = 4.74), followed by parking service (M = 4.71) and safety (M = 4.69).

Table 4: Perceived Value

Item	Mean	S.D.	Interpretation
Worth time/cost	4.10	0.78	High
Useful for work	4.75	0.50	Highest
Long-term capability	4.75	0.55	Highest
Overall satisfaction	4.50	0.60	High
Overall Mean	4.53	-	High

Perceived value was rated at a high level overall (M = 4.53). Participants strongly agreed that training enhances their work performance and long-term capabilities. However, the perceived value in terms of cost and time was comparatively lower (M = 4.10).

Table 5: Correlation Results

Hypothesis	Variables	r	Strength of Relationship	Significance	Result
H1	Training Effectiveness and Perceived Value	0.72	Strong Positive	p < .01	Supported
H2	Aviation Training Facilities and Perceived Value	0.75	Strong Positive	p < .01	Supported
H3	Training Effectiveness and Aviation Training Facilities	0.68	Moderate to Strong Positive	p < .01	Supported

The correlation analysis revealed statistically significant positive relationships among all key variables at the 0.01 level. Training effectiveness demonstrated a strong positive relationship with perceived value ($r = 0.72$), indicating that well-designed training content and instructional quality substantially enhance trainees' perceived benefits.

Notably, aviation training facilities exhibited the strongest correlation with perceived value ($r = 0.75$), suggesting that physical learning environments, equipment availability, and service quality play slightly more influential roles in shaping trainees' overall perceptions.

Furthermore, the relationship between training effectiveness and aviation training facilities ($r = 0.68$), which indicates a moderate to strong association, highlights that well-developed infrastructure can support and enhance training delivery.

Overall, these findings suggest that perceived value in aviation training is not driven by a single factor but rather by the integration of both instructional quality and physical environment. This underscores the importance of adopting a holistic approach to training system development in aviation training centers.

4.1 Qualitative Findings

Interview results highlighted several key strengths, including high service quality, professional and supportive staff, and practical, engaging training methods.

However, areas for improvement were also identified, including covered parking, restroom conditions, training space design, audio-visual systems, seating arrangements, and temperature control.

5. Discussion and Conclusion

This study confirms that both training effectiveness and aviation training facilities significantly influence the perceived value of aviation personnel. Training effectiveness, particularly in terms of content relevance, skill enhancement, and applicability, was found to positively contribute to trainees' work performance and long-term capability development.

The findings also indicate that aviation training facilities have a slightly stronger relationship with perceived value than training effectiveness. This suggests that physical learning environments, service quality, and facility conditions play important roles in shaping trainees' overall experiences and satisfaction.

These findings are consistent with previous studies by Salas et al. (2012), which emphasized the importance of effective training systems in enhancing learning outcomes, and Parasuraman et al. (1988), which highlighted the influence of service quality on user satisfaction and perceived value. The present study further demonstrates the relevance of these factors within the aviation training context.

From a practical perspective, aviation training centers should continuously improve both instructional quality and facility management to enhance trainee experiences and maintain training effectiveness. Investment in modern learning environments and service quality improvement may further strengthen perceived value among aviation personnel.

In conclusion, perceived value in aviation training is influenced by both instructional effectiveness and physical learning environments. A balanced development of these elements is essential for improving aviation training quality and supporting sustainable personnel development in the aviation industry.

6. Author contribution

The author was solely responsible for all aspects of this study, including research conceptualization, study design, data collection, data analysis, and interpretation of results. The author also prepared, reviewed, and approved the final manuscript.

7. Limitations and Future Research

This study has several limitations. First, the study was conducted at a single aviation training center in Thailand. Although the participants represented diverse aviation professions and organizations, the findings may still reflect context-specific conditions related to the selected training center. Therefore, caution should be exercised when generalizing the findings to other aviation training institutions or countries.

Second, the study relied on self-reported data collected immediately after training sessions, which may be subject to response bias. In addition, the study focused primarily on perceived value rather than objective performance outcomes.

Future research should expand the investigation to multiple aviation training centers across different countries and employ probability-based sampling methods to enhance external validity and broader generalizability. Longitudinal studies and the inclusion of objective performance indicators are also recommended to provide a more comprehensive understanding of aviation training effectiveness.

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