

Impact of Crew Training and Safety Management System on Operational Management in Aviation Industry of Pakistan

Impacto del sistema de gestión de la formación y la seguridad de la tripulación en la industria de la aviación de Pakistán

Received: February 14, 2020

Accepted: May 12, 2020

Written by:

Muhammad Hassan³²<https://orcid.org/0000-0002-9955-9378>**Ghulam Murtaza Maitlo**³³

Abstract

Aviation plays a fundamental role in the growth of trade, tourism, economy as well as sustainable development in Pakistan. The two main influential factors Crew Training and Safety Management impacting operations of Engineering Management was found on the basis of literature and analyzed. Primarily, the numerous organizations training methodologies to get their crew staff training was collected from both primary sources that's questionnaire instrument and secondary sources which is Literature. The reliability and validity of the instrument was tested with the help of Cronbach Alpha and the survey questionnaire was distributed to obtain primary data. The used Non-Probability Sampling technique analyzed thru Statistical Package for Social Sciences software. It was revealed that both the variables i-e Crew Training and Safety Management have a significant impact on improving aviation operational management. Therefore, the management should take remedial measures to work out on Crew Training and Safety Management factors that may augment aviation operational management according to latest National Aviation Policy 2019.

Key Words: Aviation Management, Engineering Management, Safety Management, Crew Training, National Aviation Policy 2019.

Introduction

For a very long while, flying has the significant job in monetary, exchange and the travel

Resumen

La aviación desempeña un papel fundamental en el crecimiento del comercio, el turismo, la economía y el desarrollo sostenible en Pakistán. Los dos factores principales que influyen en la formación de la tripulación y la gestión de la seguridad que afectan las operaciones de la gestión de ingeniería se encontraron en la literatura y se analizaron. Principalmente, las numerosas metodologías de capacitación de las organizaciones para capacitar al personal de su tripulación se obtuvieron tanto de fuentes primarias como el instrumento del cuestionario como de fuentes secundarias, que es Literatura. La fiabilidad y validez del instrumento se probó con la ayuda de Cronbach Alpha y se distribuyó el cuestionario de la encuesta para obtener datos primarios. La técnica de muestreo de no probabilidad utilizada se analizó a través del paquete estadístico para el software de ciencias sociales. Se reveló que las dos variables i-e Crew Training y Safety Management tienen un impacto significativo en la mejora de la gestión operativa de la aviación. Por lo tanto, la administración debe tomar medidas correctivas para resolver los factores de capacitación de la tripulación y gestión de la seguridad que pueden aumentar la gestión operativa de la aviación de acuerdo con la última Política Nacional de Aviación 2019.

Palabras clave: gestión de la aviación, gestión de la ingeniería, gestión de la seguridad, formación de la tripulación, política nacional de aviación 2019.

industry. The 4.1 billion up to a large portion of a World populace fly securely in 41.8 million

³² Business Administration Preston University Karachi, Pakistan.

³³ Phd. Professor Business Administration Preston University Karachi, Pakistan.

flights on the planet. The exponentially Passenger administration is expanded by 8.1% consistently which expanded income as well. The evaluated cost of Traveling through air is \$711 billion around six percent expanded (De Jager, 2013). According to (Gold, A. & Malhotra, 2001), urbanization has just refined exchange, travel, financial streams and remote direct venture. Still 33% of exchange and travel around \$5.9 trillion dollar, makes up practically 7.5% of the Gross Domestic Product of the World, as per International Air Transportation Agency. Development rate in the Air travel and travel has been related with low airfares and improvement in worldwide financial condition. Low passages have been the fundamental energizer in the income traveler kilometer demonstrated long haul middle level for a long time. In the environment of challenges in the world of supply chain, Purchasing and supply chain are critical, promising better cost control and resource utilization (Aksoy and Atilgan, 2003). According to (Johnston, 1997), Operational Management is an endorsed and competitive business tool where production may take lead in having competitive advantage by adding outside suppliers in the loop. The supervision teams deal with strategic issues about to keep some activities "not-outsourced". Strategic decisions of management were dependent upon cost analysis (Gregorich & Wilhelm, 1993). Restructuring decisions were also based on different dimensions of Operational Management. Cost Analysis with the amalgamation of core competencies were extremely required in order to maintain control and to cope with all changes at market place. The supervision teams have been dealing with strategic issues about to keep some activities "not-outsourced". Strategic decisions of management were dependent upon cost analysis (Bartlett & Goshal 1996). Restructuring decisions were also based on different dimensions of Operational Management). According to (Johnston. 1997), Cost Analysis with the amalgamation of core competencies were extremely required in order to maintain control and to cope with all changes at market place. Flying is a complex and essential industry, regardless of the way that the flying structure can't absolutely get rid of hazards and related threats, an authoritative target is reliable to discard flying machine incidents as well as real setbacks. Because there is no affirmation that human activities or systems created by people will be completely freed from operational mix-ups and their results, security must be an incredible component of the flight system, in which risks must be consistently diminished.

According to (Salas & Prince, 1999), there are many theoretical explanations and arguments depicting Crew Training and safety management system linked to aviation industry). This paper centers on addressing the following questions:

1. What is the impact of crew training on improvement of operational management in Aviation industry of Pakistan?
2. What is the impact of safety management on improvement of operational management in Aviation industry of Pakistan?

The main purpose is to analyze the impact of safety management on operational improvement in Aviation industry of Pakistan. Secondly, it is also imperative to analyze the impact of crew training and safety management system to improve operational management in Aviation industry

Literature Review

Organization always operate in the changing environment in order to survive and compete in the market and therefore requires a continuous adaptive system and strategy in place. (Gregorich & Wilhelm, 1993). According to Gold & Segars (2001) Organizations are strongly affected and influenced by the external environment as much as they are affected by the internal environment which in turn effects the internal and external environment of the organization.

The environment may consist economic, social political, environmental, technological factors. The environment offers key resources that withstand the company and lead to change and competition. The relationship between the stakeholders and the other factors of the organizational environment are something that is beyond the control of the organization (Means & Gordon, 1997). As such, organizations that do not adapt their operations to the changing environment are likely to be wiped out. Since globalization and competition is becoming an intensified factor of businesses, the organization needs to have the ability to cope up with change so to stand strong in changing environment (Wexley & Latham, 1991). The system concept to deal with the complex organizational environment seems to be obsoleted, as it fails to manage the organizational complexities with effective tools and strategies.

According to Goldstein (1993), the internal factors of the organization are considered as the main analysis factors for organization and thus developing the models and theories based on the

closed organizational environment. Though the internal factors in itself considers the external factors that effects the organization stance in the market, it is therefore, wise for organization to consider the internal and external factors both for the successful survival of organization in the market (Salas & Cannon-Bowers, 1999). Since Open system has the correlation with the external and internal factor and change in one external factors effects the internal environment, it is deemed as less appropriate, especially in the case, where the focus of the organization is to redeem energy to deal with the issues in hand internally, and for that, the closed system is better for organizations. Gronhaug & Nordhaug (1992) and Andersen & Bove (2000) stated that Linking the quick changing innovation of Aviation industry, is becoming a majoring and ability advancement of work force will be given high significance. In this way, the entire worth chain of the Aviation division, including administrative body, air terminals, flying clubs, flying/ground schools, carriers/administrators, AMOs, MROs, ground handlers, airplane makers and human asset, will be synchronized for the development of safe air travel and the national economy on the loose. According to De Jager (2013), there is a need to build up the residential carrier benefits in accordance with worldwide guidelines of security and operational and administration productivity. The thriving populace development rate puts gigantic weight on the aircraft business to improve their administrations and maintenance gainfulness to guarantee their endurance. Vigorous arrangement of every vital office and administrations is an essential prerequisite for the systematic development of the household carrier industry (Gronhaug &

Nordhaug, 1992). On a lucky shot, Pakistan is to left its dreary condition of peace, retrieve its dishonored image and recapture its situation as a significant visitor goal in South Asia, it is of most extreme significance that its residential aircraft industry develops in an efficient manner and is all around situated to meet the desires for nearby and outside travelers (Salas & Prince 1999).

Theoretical framework

The section evaluated the fundamental issues by explaining the core perceptions discovered from the existing works, categorized into following important parts:

- Safety Management
- Crew Training staff
- Operational Management

The important aim of this research lies on finding the ways of preventing the disastrous accidents at the same time proposing the possible conducts eliminate reasons leading to such incident/event. Thus, all above said variables were considered in the current study, relying on the enquiry participant's replies as well as info derived from the literature study and observations. Much of the vulnerabilities may be addressed on adherence of above-said variables as deemed appropriate by the airport management. Based on a methodology assumed in the current study, defenselessness can result distractions in airports over explicit paths. Based on these variables, practical and realistic proposals for upgrading were made for tactical conclusion producers to decrease susceptibility in airports.

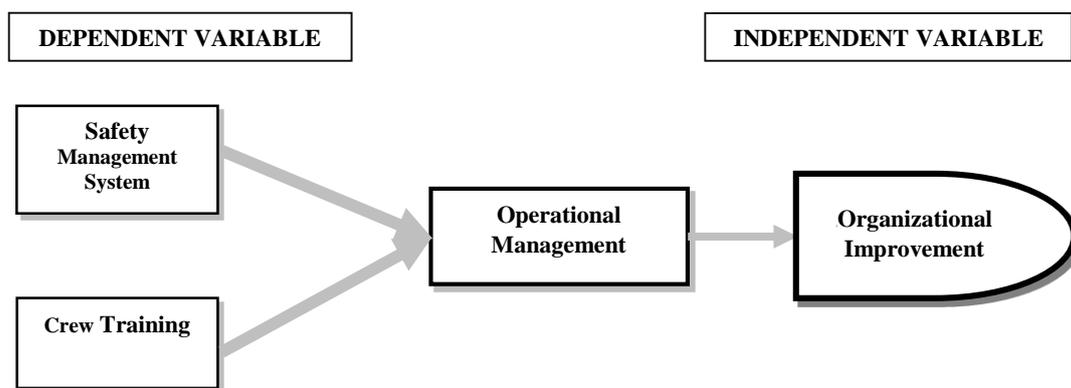


Figure 1. Conceptual Framework

Hypothesis-1: There is no significant impact of Crew Training to improve operational management in Aviation industry.

Hypothesis-2: There is no significant impact on Safety Management on Operational Improvement in Aviation Industry.

Research Methodology

In this research article the research is quantitative based and questionnaires were designed to understand the impact Crew Training and Safety Management System in Aviation Industry. The aircraft engineers, technicians at high level and low level both in different rank in working sectors / department have been surveyed. The working experience of Engineers and Technicians were more than 10 years has been targeted, in order to understand the impact of crew training and safety management system for the improvement of operations of aviation industry of Pakistan. Researcher used Non-Probability Purposive Sampling technique which provides substitute technique from sample size of 185 engineers AND technicians who have served at least 10 years in the aviation industry of Karachi. The reliability and validity of the instrument has been tested with the help of Cronbach Alpha. Questionnaire was distributed to aircraft engineers and technicians for obtain primary data. Statistical Package for Social Sciences (SPSS) software was utilized to analyze the data. Researcher has obtained the primary data with the collaborations of middle level management in different aviation departments e.g. Technical employees (Aircraft Pilots, Aircraft Engineers, Flight Engineers, Quality Assurance Inspectors and flight safety officer, etc in CAA. In Questionnaire 5 point Likert scale was used for collection of primary data.

Statistical Treatment of Data

The data gathered via questionnaire were coded, organized and processed using the Statistical Package for Social Sciences (SPSS). Correlation Analysis was used in order to analyze the association between two Independent variables and a Dependent variable. Statistical tool of Multiple Linear Regression (MLR) was applied for checking and analyzing the linear relationship and impact between the Independent and Dependent Variables

Reliability Analysis

The reliability has two aspect i.e means, stability and consistency homogeneity. The term mean stability refers to the consistency of the results under abrupt conditions despite of time and location while the consistency homogeneity refers to the item in the instrument measuring the construct (Flin & Fleming, 1996). A measure is the reliable to the degree that it supplies consistent result Cooper and to test the degree of the inter item consistency of an instrument (Taylor, 1998). Schindler, 2003. The reliability of the items in questionnaire is measured via Cronbach's alpha were 0.84, suggested that each instrument suggested a high degree of inter item reliability. This suggested there is a strong consistency of responses. The Cronbach's coefficient alpha is used.

Reliability Statistics

Cronbach Alpha: 0,84
Cronbach Alpha Based on Standardized Items 1
No of items: 33

Statistical Results

Statistical results are tabulated below

Correlation Analysis

Correlation Analysis is shown in the table 1 y 2

Table 1.
Correlation Analysis.

S No	Variables	Research tool	Crew Training	Operational Management
1	Crew Training	Pearson Correlation	1	.840**
		Sig. (2-tailed)	-	.000
		N	185	185
2	Operational Management	Pearson Correlation	.840**	1
		Sig. (2-tailed)	.000	-
		N	185	185

Correlation Analysis

Table 2.
Pearson Correlation.

		Safety Management System	Operational Management
Safety Management System	Pearson Correlation	1	.338**
	Sig. (2-tailed)	-	.000
	N	185	185
Operational Management	Pearson Correlation	.338**	1
	Sig. (2-tailed)	.000	
	N	185	185

** . Correlation is significant at the 0.01 level (2-tailed)

Regression Analysis

As observed in table 3 The regression analysis predicts the variation of the dependent variable due to the independent variable.

Table 3.
Predictors: (Constant), Crew training.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.840a	.705	.688	9.18974
a. Predictors: (Constant), Crew training				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.338a	.114	.112	1.352
a. Predictors: (Constant), Safety Management System				

Analysis of Variance (ANOVA)

independent variables on the dependent variables.

Table 4 and 5 shows the analysis of variance (ANOVA) shows the predictive behavior of the

Table 4.
Dependent Variable: Operational Management and b. Predictors: (Constant), Crew Training.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3630.075	1	3630.075	42.984	.000b
	Residual	1520.125	183	84.451	-	-
	Total	5150.200	184	-	-	
Dependent Variable: Operational Management						
Predictors: (Constant), Crew Training						

Table 5.
Dependent Variable: Operational Management and b. Predictors: (Constant), Safety Management System.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.871	1	3.871	6.303	.000b
	Residual	112.367	183	.614	-	-
	Total	116.238	184	-	-	
a. Dependent Variable: Operational Management						
b. Predictors: (Constant), Safety Management System						

Coefficient Table: The coefficient table shows Beta Value which depicts the nature and strength of relationship of Independent Variables with the

Dependent Variables separately. Following is the Table 6 of Coefficient.

Table 6.
Dependent Variable: Operational Management.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	10.421		1.266	.000
	Crew Training	2.495	.0381	.840	.000
a. Dependent Variable: Operational Management					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	3.108		5.608	.000
	Safety Management System	.299	.119	.251	.000
a. Dependent Variable: Operational Management					

As can be seen, the relationship can be measured positively or negatively.

The value of (R=33.8%) shows that the employees of aviation industry of Pakistan are not fully aware about importance of safety management system. It is worth mentioning that safety management system variable is not being ensured in true letter and spirit as it deserves to be. Moreover, the "P" value (.000) depicts the rejection of Null hypothesis which is obvious that effective Safety Management System has always impact on operational management. Further probe revealed that the more work out to make effective safety management system will result in augmenting operational management of the industry. According to Sunindijo, (2015), total quality management practices has devised the approaches for the safety management in the aviation industry which incorporates the proactive, responsible approach, for the aviation industry to implement in order to improve the safety measures and eliminate the maximum risks that causes the safety management system fail. Also, since the safety management systems are the huge part of the operational efficiency, it has been discussed, that the strategic safety management and the integral health management can improve the Safety management systems in the industry thus improving the overall operations. Also, Bluff (2003), emphasized that the safety management system strategy under the strategic safety management should be made the part of the corporate strategy of the aviation airlines so that it can be focused and monitored as the integral part of the organization stability in

the market. The value of (R=84%) shows that the management of aviation industry of Pakistan is fully aware about importance of crew training. As per response given by the respondents, it revealed that crew training variable is also being ensured in true letter and spirit. Moreover, the "P" value (.000) depicts the rejection of Null hypothesis which is obvious that effective introducing new Crew Training Techniques have always impact on augmenting operational management. According to Bent & Chan (2010), the crew training plays a vital role in elevating the performance of the aviation and also improves the satisfaction of the customer. Liou et al. (2008) further added that the ability of the aviation teams to train the crew greatly effects the experience of the customer s which in turn enhances the value and adaptability of the customer towards the airline. In addition, the cabin crew training has been found an important factor in reducing the frequency of the accidents that occur due to operational failures or the mishaps (Bent & Chan, 2010). Liou et al. (2008), said, that the effectiveness of the crew can reduce the accidents ad also can manage the turbulent situation efficiently. Qing chi (2015) suggested the three factors important for the flight safety. These include the staff, funds and the technology. thus, it depicts the importance of human and the trained crew in the safety of the flights, which in turns makes the part of the effective operational management. Moreover, though the technology has improved but it has not surpassed the human

efficiency level, and thus implicit that the lack of training of the staff personals and the absence of trained staff on the flight can add high risk in the operational failure. Though it has been developed that the solution to the aviation risk is the proactivity of the staff and not the reactivity, which depicts the importance of the training however, no such model on the proactively and reactivity of the staff has been developed yet (Liou et al., 2008). Further probe revealed that the more work out is needed to be emphasized to introduce new crew training techniques which would apparently be observed in augmenting operational management of aviation industry. This may include the adaption of the total quality management model and the implementation of the strategic safety management strategies into the system. Also, emphasizing the training of the crew and the implementation of the training strategies in the aviation would result in the enhancement of the overall performance of the crew, thus leading to less accidents, effective handling and customer satisfaction.

Conclusion and Recommendations

With all the investigation and acquisition made it is determined that operational management is an vital aspect for the achievement of the aviation industry in Pakistan. The efficiency of operation affirms the safety and stability of the air flights which in turn reduces the hurdles, system crashes, and accidents. Such factor of safety management has become a crucial part of the aviation industry and is success. Hence the results in the investigation outline the importance of the crew training that can enhance the operations in the aviation industry. It is due to the efficient handling of the incidents occurring in the flight and also the proactive approach and techniques to deal with the on hand situation (salas, 2010). Since crew members are the core of the aviation performance, their training has been found an importance and central part of the aviation industry in Pakistan. Moreover, the safety measures, though not implemented fully and effectively in the aviation industry, yet depicts a important part of the operation planning and effectiveness, and thus outlines its cruciality, implementation and planning in the aviation industry (Annarelli&Nonino 2016). All in all, both of the factors i-e crew training and the strategy management has found to have direct positive relation with the operational management and thus has been considered as important factor in improving the operational performance of the industry. Having that said, the model of total quality management, strategic safety management and crew training can be

adopted to enhance the performance and viability of the operational management in aviation industry (Stolzer, Halford & Goglia, 2015).

References

- Aksoy, S., Atilgan, E. & Akinci, S. (2003). Airline Services Marketing by domestic and foreign firms: differences from the customers' viewpoint. *Journal of Air Transport Management*, 9, 343-351
- Andersen, V. & Bove, T. (2000). A feasibility study of the use of incidents and accident reports to evaluate effects of Team Resource Management in Air Traffic Control. *Safety science, European Management Journal* 35, 87-94.
- Bartlett, C.A and Goshal, S. (1996), Release the entrepreneurial hostages from your corporate hierarchy, *Strategy & Leadership*, Vol. 24 No.4, pp.36-42.
- De Jager, J.W. (2012). Domestic Airline service expectations in South Africa and Italy. *International Journal of Business Policy and Economics*, 5(1), 185-198
- De Jager, J.W., van Zyl, D. (2013). Airline service quality in South Africa and Malaysia- An international customer expectations approach. *Journal of Economics and Behavioral Studies*, 5 (11), 752-761
- De Jager, J.W., van Zyl, D. (2013). Airline service quality in South Africa and Malaysia- An international customer expectations approach. *Journal of Economics and Behavioral Studies*, 5 (11), 752-761
- Flin, R., Mearns, K., Gordon, R. & Fleming, M. (1996). Risk perception by offshore workers on UK oil and gas platforms. *Safety Science*, 22, 131-145.
- Gold, A. H., Malhotra, A., & Segars, A. H. (2001), Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185-214
- Goldstein, I.L. (1993). Training in organizations. Belmont, CA: Wadsworth, *Journal of Enterprise Information Management*, 3 (9), 556-772
- Gregorich, S. E., & Wilhelm, J. A. (1993). Crew resource management training assessment. In E. L. Wiener & B. G. Kanki & R. L. Helmreich (Eds.), *Cockpit Resource Management*. San Diego: Academic Press, pp 173-196.
- Gronhaug, K., & Nordhaug, O. (1992), Strategy and competence in firms, *European Management Journal*, 10(4), 438-444.
- Johnston, N. (1997). Teaching human factors for airline operations. In G. J. F. Hunt (Ed.), *Designing instruction for human factors training in aviation*. Aldershot: Avebury, pp 127-160

- Mearns, K., Flin, R., Fleming, M., & Gordon, R. (1997). Human and Organisational Factors in Offshore Safety (OTH 543). Suffolk: HSE Books. *Journal of Economics and Behavioral Studies*, 2 (8), 865-978
- Mearns, K., Flin, R., Gordon, G. & Fleming, M. (1998). Measuring safety culture in the offshore oil industry. *Work and Stress* 12 (3), 238-254.
- Salas, E., Fowlkes, J. E., Stout, R. J., Milanovich, D. M. & Prince, C. (1999). Does CRM training improve teamwork skills in the cockpit? Two evaluation studies. *Human Factors*, 41(2), 326-343.
- Salas, E., Prince, C., Bowers, C. A., Stout, R. J., Oser, R. L. & Cannon-Bowers, J. A. (1999). A methodology for enhancing crew resource management training. *Human Factors*, 41(1), 161-172.
- Taylor, J.C. (1998) Evaluating the effects of Maintenance Resource Management (MRM) interventions in Airline safety. Report presented to the FAA. Washington: FAA, *European Management Journal*, 40 (4), 438-454
- Wexley, K.N. & Latham, G.P. (1991). Developing and training resource management in organizations. New York: Harper Collins, *International Journal of Quality and Service Sciences*, 5(1), 233-323