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The Impact of Airport Staff Communication Types and Nonverbal Communication Factors on Passenger Satisfaction after the Pandemic

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Abstract

Purpose: The purpose is to investigate the types of communication between aviation industry workers and passengers according to environmental changes following the COVID-19 pandemic. This study analyzes the impact of verbal and non-verbal communication styles of airport staff, especially those working at airline check-in counters, on passenger satisfaction. **Research Design:** The research design focuses on the impact of verbal communication styles and non-verbal communication factors of airline check-in counter staff, who represent the initial point of contact with passengers among airport staff, on passenger satisfaction. The survey period for sample collection was from July 1 to July 30, 2023, and the study was conducted targeting passengers boarding aircraft through Incheon Airport and Gimpo Airport. **Result:** First, it is important for airport staff to recognize all passengers, especially corporate customers, as corporate customers rather than simply as individuals boarding an airplane. Second, as the importance of non-verbal expressions increases due to the impact of COVID-19, physical and verbal responses are necessary. Third, it is important to check which language the passenger understands. **Conclusions:** Since communication through nonverbal expressions has become more important since COVID-19, airport employees need to recognize the importance of nonverbal communication. This awareness can serve as a foundation for building trust between airport staff and passengers.

Keywords: Communication Types, Nonverbal Communication Factors, Passenger Satisfaction

JEL Classification Code: L15, L86, M31.

1. Introduction

Even after COVID-19 pandemic, Air transport industry still face challenges. According to the United Nations World Tourism Organization, the number of international tourists in 2022 decreased by 72% compared to 2019. In response to the post-COVID-19 environment, airlines have strengthened safety measures, including compliance with

protocols such as social distancing, and wearing masks when in contact with passengers and employees. For safety reasons, cabin crew have minimized contact with passengers and limited or suspended in-flight customer service. In airport services, communication between airport staff and passengers, such as kiosks and smart check-in, is gradually expanding from face-to-face methods to non-face-to-face methods. Airports and airlines are providing convenience to

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passengers in non-verbal ways by incorporating technology into their services to respond to the changing internal and external environment following the pandemic. Despite the growing academic interest in interpersonal communication, existing research has focused on verbal communication, a form of communication, and research on the service communication style of airline and airport workers has also focused on verbal communication. There has been a focus on style (Park & Lee, 2019). This study resolves the limitations of existing research by analyzing the impact of airport workers' verbal and non-verbal forms of communication on passenger satisfaction depending on the changing environment. This study is expected to serve as an opportunity to measure and improve passenger satisfaction according to the language type of airport staff.

2. Theoretical Background

2.1. Verbal and Nonverbal Communication of Employees.

Language communication and non-verbal communication are used as methods of transmitting information. The interview between the employees and the passengers is the most basic of the transaction, and the basis of all conversation is communication. Szasz and Hollender (1956) classified human communication into three types, mutual participation, activity-passivity, and guidance-cooperation. Ben (1980) divided communication types into affiliation and control. Affiliation type is a passenger-centered cooperative, empathetic, and friendly can be integrated into cooperative styles, and airport staff centered, controlled, and task oriented can be grouped into controlled styles. Park and Lee (2019) in previous studies, the most used style of communication style used by the airport staff are typically cooperative and controlling. Non-verbal communication as nonverbal stimuli induced by people or the environment with a potential message value in communication situations. The meaning of nonverbal communication as a method expressed by airport staff using time, space, and gestures as symbols, and defined nonverbal communication as anything intentional or unintentional behavior. Kim (2006) investigated the effect of service provision as a nonverbal communication on customer satisfaction and customer behavioral intentions. As a result, the boundary between physical language and customer satisfaction was the highest with 0.316. Next, spatial behavior (0.131) and staff language (0.122). On the other hand, appearance did not have a significant effect on customer satisfaction. Hong (2007) divided the study into encounter type (fast food) and relation type (airport). It was found that nonverbal communications including spatial

language and staff language had a positive effect on satisfaction levels. Min (2021) studied the effect of nonverbal communication on customer satisfaction and loyalty in hotels. As a result of the study, it was found that all factors of nonverbal communication had a significant effect on customer satisfaction. Combining the previous studies, nonverbal communication has a significant influence directly or indirectly on customer satisfaction and the attributes of information sources.

2.2. Passenger Satisfaction

John (2010) also defined passenger satisfaction as an attitude determined by whether passenger expectation for airport service was met or not. In a study done on the relationship between passenger satisfaction and repurchase intention Hellier et al. (2003) stated that satisfaction is the overall degree of satisfaction or enjoyment perceived by customers about the service provider's service performance results to meet their needs and expectations. Lim et al. (2012) defined the positive emotional state obtained through the service as satisfaction, overall satisfaction after use, and satisfaction with problem solving. Parasuraman et al. (1985) presented 10 dimensions that consumers use to perceive quality to measure passenger satisfaction with airport service: reliability, responsiveness, skills and capabilities, accessibility, courtesy, airport staff communication, credit, safety, consumer understanding, and appearance. These 10 dimensions were refined and reclassified into 5 dimensions; sequel (comprehensive service quality measurement scale) was developed as a tool to measure customer satisfaction.

3. Research Model and Hypothesis

3.1. Research Model

This study's model is composed of three research concepts: communication types of airline check-in counter staff, who are the first point of contact with passengers among all airport employees, nonverbal communication factors, and passenger satisfaction. Additionally, this research aims to confirm the impact analysis of airport staff's communication types and nonverbal communication factors on passenger satisfaction.

3.2. Research Hypothesis

H1: Passenger centered communication of airport staff will have a positive+ Effect on passenger satisfaction.

H2: Airport staff centered communication will have a negative – Effect on passenger satisfaction.

H3: Physical language of airport staff will have a positive + Effect on passenger satisfaction.

H4: Spatial behavior of airport staff will have a positive + Effect on passenger satisfaction.

3.3. Operational Definition in Measurement and Variables

In this study, the measurement variables from previous studies were used, and the measurement variables that can best measure the concept based on possible previous studies were used. In this study, to identify the factors affecting passenger satisfaction, the questionnaires were composed of three categories related to the airport staff's communication types and nonverbal communication types, passenger satisfaction, and the questionnaires were measured using a Likert 5-point scale.

3.3.1. Communication Types

The communication type of airport staff consisted of a total of 10 questions by revising and supplementing the 'passenger-centered' and 'airport staff-centered' questions presented in previous studies by Lee and Lee (2016), Lee (2021). Items were scored on a 5-point Likert scale, with 1 point for 'Not at all', 3 points for 'Normal', and 5 points for 'Very much so'.

3.3.2. Nonverbal Communication Elements

The elements of non-verbal communication were body language and spatial behavior, and the contents discussed in previous studies by Park and Lee (2019), and Lee and Cha (2016) were modified and supplemented with a total of 12 items to suit the purpose of this study. The questions were scored on a 5-point Likert scale, with 1 point for 'Not at all', 3 points for 'Normal', and 5 points for 'Very much so'.

3.3.3. Passenger Satisfaction

The four items of airport staff satisfaction, communication style satisfaction, airport staff attitude, and overall airport staff satisfaction presented in previous studies were modified and supplemented according to the purpose of this study.

The questions were scored on a 5-point Likert scale, with 1 point for 'not at all', 3 points for 'normally', and 5 points for 'very much so'.

3.3.4. Demographic Basic Characteristics

The questions of demographic characteristics consisted of gender, marital status, age, educational background, occupation, and monthly average income.

Table 1: Questionnaire Design

Variable	Factors	Number Series
Airport Staff Communication Type	Passenger-Centered, Airport Staff-Centered	10
Nonverbal Communication Types	Language Of Physics, Spatial Behavior	12
Passenger Satisfaction	Passenger Satisfaction	4
Demographic Basic Characteristics	Gender, Marital Status, Age, Educational Background, Occupation, And Monthly Average Income.	6
	Total	38

4. Empirical Analysis

4.1. Collection and Analysis of Data

This study is to investigate the effect of airport staff's communication types and nonverbal communication types and the effect on passenger satisfaction. The survey period for sample collection was conducted from July 1 to July 30, 2023. the survey was conducted on passengers who boarded an aircraft through Incheon and Gimpo airports. As a sampling method, the non-probability sampling method, which extracts members of the sample from the population based on the subjective judgements of the researcher, and the questionnaire was written by a self-administration method. A total of 250 questionnaires were distributed, of which 245 were recovered and 222 questionnaires, a valid sample, were used finally. The survey was used to evaluate the hypotheses of this study and prepared based on previous studies related to this subject. In addition, the questionnaires prepared through the previous study was modified and supplemented with the expert advice in accordance with this study, only the contents consistent with this study were used.

4.2. Typical Characteristics of Respondents

The purpose of this study, a survey was conducted, and the number of samples used was 222. a frequency analysis was conducted to identify the demographics of respondents, and the results of the analysis are as follows. Gender, 43.2% male, 56.2% female. 27% married, 73% single. Age, 42.4% were in their 20's, 30's with 36.5%, and 40's with 16.7%. Educational, university graduates at 78.8%, followed by high school graduates at 13.5% and graduate students at

7.7%. Occupation, office workers at 32.4%, college students and job seeking students with 29.7%, and entrepreneurs with 18%. Average monthly income, 50.6% were from 2 to 4 million won, 27.5% to 2 million or less, and 21.6% at 4 million or more.

Table 2: Demographic Characteristic

Sort	Frequency	(%) percentage
Male	96	43.2
Female	126	56.8
Married	60	27.0
Single	162	73.0
Under 20's	10	4.5
20's	94	42.4
30's	81	36.5
Over 40's	37	16.7
High school graduates and below	30	13.5
College and university graduate	175	78.8
Graduate school or higher	17	7.7
College student/job-hunting student	66	29.7
Homemaker	20	9.0
Office worker	72	32.4
Business operator	40	18.0
Etc.	24	10.8
Below two million won	61	27.5
Two ~ four million won	113	50.9
Over four million won	48	21.6

4.3. Typical Characteristics of Respondents

4.3.1. Validity and Reliability

In this study, the exploratory factor analysis was performed to increase the efficacy of data analysis and to verify the validity of the composition of the research tool. This is to check the accuracy of the specific concepts and properties measured by the researcher can be reflected in accordance with the purpose of this study through data. Factor extraction was based on a factor of less than 40 for each item, and the factor extraction model performed principal component factor analysis using the orthogonal rotation method to simplify the respondents' perception. In addition, to simplify the factor structure, factor maximization was performed through the Varimax method among orthogonal rotation methods. To verify the reliability of the questionnaires, Cronbach's coefficient was calculated to confirm the internal consistency between the items. <table_3> is an exploratory analysis and reliability of 10

items of communication types of airport staff. As a result, airport staff uses professional expression in the process of talking to me, airport staff are formal and work oriented, 2 items in the questionnaire had low commonalities and did not fit the meaning of this questionnaire, so they were deleted, and 2 sub factors composed of 9 items were extracted. The value of KMO which verifies the suitability of the sample of this factor analysis was 0.885, which was investigated as suitable for variable selection for factor analysis. Bartlett's sphericity test, which indicates if the factor analysis model is appropriate, was 956.938, and the probability of significance was 0.000. this indicates that the factor analysis model is suitable and common factors exist. At this time, the total variance explanatory power was investigated as 64.612%. As a result of reliability analysis to verify the extracted factors, the factors of passenger-oriented and airport-staff-oriented, were 0.906 and 0.617, indicating internal consistency (Kim & Kang, 2023).

Table.4 is the result of the exploratory factor analysis and reliability analysis for 12 items of nonverbal communications. As a result of the factor analysis " airport staff uses gestures appropriately to easily explain boarding procedures", "airport staff kept a reasonable distance from me while working", "it makes me feel like I am in a hurry, "the airport staff leaves plenty of time to handle my boarding tasks", the four items in the questionnaire were because they had low commonality and did not fit the meaning of this survey, and were then reduced to a total of 8 items. Two sub factors were extracted, and each factor was defined as factor 1 body language, and factor 2 spatial behavior.

The KMO value which verifies the suitability of the sample for the factor analysis was 0.907 and was found to be suitable. Bartlett's sphericity test value, which indicates if the factor analysis model is appropriate, was 1185.800 and the significant probability was 0.000 which indicates the study is suitable and common factors exist. At the time, the total variance explanatory power was investigated as 74.509%. As a result of reliability analysis to verify the reliability of extracted factors of body language, and spatial behavior showed 0.898 and 0.858 respectively, indicating internal consistency (Park & Kang, 2022).

Table 3: Verification of Validity and Reliability of Linguistic Communication Types

Measurements	Factor1 (Passenger -centered)	Factor 2 (Airport Staff-centered)
The airport staff is kind to me.	.878	-.056
Airport staff listen sincerely to my trivial questions and opinions.	.878	-.109
The airport staff	.843	-.083

will check from time to time to see if I understand the explanation well.		
Airport staff create an atmosphere where you can talk comfortably.	.837	-.172
The airport staff seems to help me travel comfortably.	.773	.169
Airport officials do nothing but talk about boarding.	-.132	.717
Airport staff lead the conversation.	.262	.672
The airport staff treats me in a slightly stiff and authoritative manner.	-.498	.587
Eigen value	4.217	1.598
Unique value (%)	46.856	17.758
Accumulation	46.856	64.613
Cronbach's α	.906	.617

KMO = .885, bartlett=956.938, df=36, sig= .000

Table 4: Result of the Exploratory Factor analysis and Reliability analysis

Measurements	Factor1 (Language of physics)	Factor1 (Spatial behavior)
The airport worker greets me with smile.	.818	.217
The attitude of the airport staff makes me feel comfortable.	.781	.319
The airport staff explains with proper eye contact.	.776	.348
The airport staff listens to me and nods.	.756	.405
The airport staff listen to my questions well.	.695	.461
The airport staff's workshop is well organized.	.278	.874
The area around the airport staff is well organized.	.342	.851
The airport staff were taking into consideration. The convenience of passengers.	.527	.647
Eigen value	3.407	2.553
Unique value (%)	42.593	31.916
Accumulation	42.593	74.509
Cronbach's α	.898	.858

KMO = .907, bartlett test= 1185.800, df=28, sig = .0

Table. 5 Is an explanatory factor analysis and reliability analysis for passenger satisfaction. The KMO value which verifies the suitability of the sample for this factor analysis is 0.870, which indicates a suitable study. Bartlett's sphericity test is 946.840, the significant probability is 0.000, indicating the factor analysis model is suitable and co factors exist. Currently, a total dispersion explanatory power is 88.028%. As a result of reliability analysis to verify the extracted factors, which was found to be 0.954 in the passenger satisfaction factor, indicating internal consistency.

Table 5: Validity and Reliability of Passenger Satisfaction

Measurements	Factor1 (Spatial behavior)
Measurements	Passenger satisfaction
I am satisfied with the way the airport staff treat me.	.955
I am satisfied with the overall work and environment of airport staff.	.937
I am satisfied with the communication style of the airport staff.	.936
I am satisfied with the work of the airport staff.	.924
Eigen value	3.521
Unique value (%)	88.028
Accumulation	88.028
Cronbach's α	.955

KMO = .870, bartlett test=946.840, df= 6, sig= .000

Table. 6 analyzed the correlation among airport staffs' communication types (passenger centered, airport staff centered), and nonverbal communication factors, body language, and spatial behavior related to passenger satisfaction. As a result of the analysis, the one showing the highest correlation was physical language and passenger centered communication, $r=0.819$, and the lowest correlation was the airport staff centered communication and spatial behavior, $r=-0.372$. the correlation coefficient showed a significant correlation in the range of -0.372 , -0.819 . it was found that there was a statistically significant correlation among the factors of verbal communication type, passenger centered, or airport staff centered, nonverbal communication, body language, spatial behavior.

Table 6: Correlation between Measurement Factors

	Airport staff communication type		Nonverbal communication types		5
	1	2	3	4	
1. Passenger centered	1				
2. Airport staff centered	-.525**	1			
3. Language of physics	.819**	-.494**	1		

4. Spatial behavior	.663**	-.372**	.763**	1	
5. Passenger satisfaction.	.797**	-.495**	.807**	.662**	1

**p<.01

4.3.2. Confirmatory Factor Analysis (CFA)

The confirmatory factor analysis was performed to evaluate the validity of the measurement method of this study. The validity of the measurement model was evaluated as $\chi^2/df=2.061$, CFI =0.952, Tli=0.943, rmsea=0 (See the Table 7). In general chi square is obtained by dividing the chi square value by degrees of freedom, if it is less than 3, the model is acceptable. If the CFI and TLI are 0.9 or more, the model is judged to be excellent, and if the RMSEA value is less than 0.10, then the model is acceptable. It is judged as a level model, and since all the criteria are met, the factor analysis fit of the measurement model was judged to be acceptable. In table_8, the factor load was statistically significant in the items except for the airport employee centered type, and it can be said that the conceptual validity has been secure.

Table 7: Confirmatory Factor Analysis

Sorts	Statistics	Reference value
χ^2	329.829	
Df	160	
χ^2/df	2.061	3 Below, Good
CFI	.952	0.9 Over, Superb
TLI	.943	0.9 Over, Superb
RMSEA	.069	0.10 Below, Average

Table 8: Confirmatory Factor Analysis

	B	S. e	β	C.r	p
Passenger-centered1	1		.877		
Passenger-centered2	.957	.055	.856	17.286	<.001
Passenger-centered3	.950	.059	.825	16.118	<.001
Passenger-centered4	1.098	.068	.824	16.085	<.001
Passenger-centered5	.893	.071	.708	12.516	<.001
Airport staff-centered1	1		.314		
Airport staff-centered2	.242	.191	.087	1.266	.206
Airport staff-centered2	2.902	1.169	1.005	2.481	.013
Language of physics1	1		.830		
Language of physics2	1.018	.068	.833	15.018	<.001
Language of physics3	.956	.069	.787	13.782	<.001
Language of physics4	.923	.067	.785	13.747	<.001

Language of physics5	.995	.075	.769	13.341	<.001
Spatial behavior1	1		.810		
Spatial behavior2	.891	.064	.855	14.027	<.001
Spatial behavior3	.886	.067	.808	13.140	<.001
Passenger-satisfaction1	1		.892		
Passenger-satisfaction2	1.021	.048	.914	21.406	<.001
Passenger-satisfaction3	1.078	.046	.945	23.389	<.001
Passenger-satisfaction4	1.038	.048	.918	21.649	<.001

4.4. Structural Equation Model Verification

4.4.1. Verification of Model Fit Criteria

Table. 9 shows a structural equation model analysis using Amos to verify the relational structure between airport staff's communication types and nonverbal communication types, passenger satisfaction. First, the results of the validation of the fit for the model shows that the incremental fit indices CFI=0.965 and TLI=0.958 were above 0.9, the standard values and RMSEA=0.066, which is lower than the standard values of 0.1, thus satisfying the model fit criteria.

Table 9: Confirmatory Factor Analysis

Sorts	Statistics	Reference value
χ^2	253.005	
Df	.129	
χ^2/df	1.961	3 Below, Good
CFI	.965	0.9 Over, Superb
TLI	.958	0.9 Over, Superb
RMSEA	.066	0.10 Below, Average

4.4.2. Path Coefficient of the Model

Looking at the path coefficients of the model as shown in table 11, hypothesis 1 the path from passenger centered type to passenger satisfaction (b=0.375, p,0.01, cr=3.1227). Hypothesis 3, body language, the passenger satisfaction (b=0.593, p,0.001, cr=3.4580), which verifies that the passenger centered type among the communication types and body language increases the passenger satisfaction (Kang & Lee, 2021; Kim & Kang, 2022).

Table 10: Path Coefficient of the Model

	B	S. e	β	C.r	p
Passenger-centered to Passenger Satisfaction	.392	.121	.375	3.227	.001
Language of physics to	.674	.195	.593	3.458	<.001

Passenger Satisfaction					
Spatial behavior to Passenger Satisfaction	-.098	.132	-.076	-.738	.461

4. Conclusion

This study investigated the impact of airline staff communication styles and nonverbal communication on passenger satisfaction. The research model consisted of a structural equation with airline staff's communication style and nonverbal communication as independent variables and passenger satisfaction, which is influenced by these variables, as the dependent variable. Assessing a research hypothesis, the frequency and effective reliability of the data were analyzed using IBM SPSS version 26.0. First, exploratory factor analysis and confirmatory factor analysis were conducted to analyze the validity of the measurement tool.

The present author then analyzed the structural relationship between airline staff's communication style, non-verbal communication factors, and passenger satisfaction. For calculation purposes, structural equation path coefficients were calculated, and their significance was verified. Additionally, we conducted a bootstrap study to determine the significance of the indirect effect. As a result of model estimation, among the communication types of airline staff, only 'passenger-centered' and 'body language' had a significant effect on passenger satisfaction. Hypotheses 1 and 3 were accepted as positive influences, but 'aviation staff focus' and 'spatial behavior' were not significant. Hypotheses 2 and 4 were rejected.

According to the structural equation model results, passenger-centered communication style and non-verbal communication 'body language' were found to have a significant impact on passenger satisfaction. As the results show, non-verbal communication has the same importance as verbal communication. From a practical perspective on this study, first, it is important for airport workers to recognize all passengers as customers of the company, that is, the airline, rather than simply as passengers boarding an aircraft. Second, airport workers must listen carefully to all passenger needs and respond physically and verbally. With nonverbal expressions becoming more important due to the impact of COVID-19, airport staff's facial expressions, gaze, and posture can affect passenger satisfaction.

Thirdly, it is necessary to check which language the passenger understands. For example, the first people a passenger meets at the airport are likely to be airline or airport staff, so it is important to emphasize smiles and greetings. Additionally, it is important to use appropriate gaze and explanations when talking to passengers, and it is

necessary to respond appropriately to passenger requests. On the other hand, airport staff must be aware of the importance of nonverbal communication, as communication through nonverbal expressions has become more important when passengers wear masks to enhance safety due to COVID-19.

This passenger-centered appropriate communication method can be a measure to reduce the possibility of misunderstanding between airport staff and passengers and can be the basis for creating an airport work environment that can increase trust. However, this study has several limitations. First, because there was a lack of research on non-verbal factors and passenger satisfaction among airport staff's communication types, comparison through empirical research was limited. Second, this study should consider the characteristics and environment of the airport but is limited to only spatial characteristics. Thirdly, this may be a limiting opinion as the contact time between airline staff and passengers is shorter than for flight attendants. However, this study will provide an opportunity to increase passenger satisfaction by improving airport staff's verbal and non-verbal service language for better communication with passengers.

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