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**STUDYING THE PERCEPTIONS OF IN-FLIGHT CATERING
EMPLOYEES TOWARDS FOOD SAFETY TRAINING PROGRAMS**

Extract of Master Thesis

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— **Studying the Perceptions of In-Flight Catering Employees towards Food Safety
Training Programs** —

STUDYING THE PERCEPTIONS OF IN-FLIGHT CATERING EMPLOYEES TOWARDS FOOD SAFETY TRAINING PROGRAMS

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Abstract

This research aims to explore in-flight catering employees' perceptions towards food safety training programs. In order to achieve this objective, a total of 405 questionnaires were distributed; only 373 forms (92%) were returned and were valid to analysis. However, the obtained results indicated that some of the employees haven't received nor discussed any food safety training but most of them have attend a mandatory food safety and Hazard Analysis of Critical Control Points (HACCPs) training. Moreover, the results cleared that the gained knowledge about perceived risk of foodborne illness were suitable. Also, there were many factors which affect the employees' commitment to food safety and HACCP practicing or apply what they have learned in their real workplace.

Based upon the findings, some recommendations were suggested to improve employees' perceptions towards food safety training programs at In-flight catering.

Keywords:- In-flight catering, Employees training, Food safety and HACCP.

دراسة إنطباعات العاملين بخدمات تموين الطائرات

نحو برامج تدريب سلامة الغذاء

المخلص

تسعى شركات تموين الطائرات دائما الى تقديم وجبات صحية وخالية من اى مسببات مرضية ولذلك تقوم هذه الشركات بتدريب العاملين لديها على سلامة الغذاء. تسعى هذه الورقة البحثية إلى دراسة توجهات العاملين نحو البرامج التدريبية على سلامة الغذاء المقدمة لهم ومدى جودتها ومدى مقدرتهم على تطبيق ماتعلموه بهذه البرامج التدريبية والمعوقات التى تواجههم اثناء التطبيق. اعتمدت الدراسة الميدانية علي أسلوب الإستقصاء علي عينة عشوائية من العاملين بشركات تموين الطائرات ومشرفيهم ومديريهم بالمطارات المصرية المختلفة ،حيث تم توزيع ٤٠٥ من بينها ٣٧٣ من مجموع ما تم توزيعه بنسبة ٩٢٪ كانت صالحة للتحليل الإحصائى ، وقد توصلت الدراسة إلى مجموعة من النتائج أهمها أن غالبية المتدربين تلقوا تدريبا اساسيا على أنظمة سلامة الغذاء ولديهم وعى كافي بأهميتها للعمل ؛ ولكن بالرغم من ذلك لم يكن التزامهم بتطبيق اجراءات سلامة الأغذية واتباعهم لتعليمات سلامة الغذاء على النحو المطلوب، وتوصلت الدراسة انه يجب تصميم برامج تدريبية مرتبطة بطبيعة العمل بهذا المجال تهدف الى تحسين سلوك وثقافات العاملين ناحية تطبيق اجراءات سلامة الغذاء بشكل سليم بالاضافة الى دراسة مشاكل بيئة العمل وتحسينها بشكل دورى ورفع مستوى الالتزام الادارى ناحية التدريب بشكل عام.

الكلمات الداله: تموين الطائرات، سلامة الغذاء، HACCP.

Introduction:

Airline catering is the business of providing food prepared and packaged for service by an airplane crew during a flight. Flight kitchen production is a typical form of mass catering, but has some unique features. Providing safe and high quality food is an important point for both the in-flight catering and airline companies; so most of these companies are betting on the human element and trying to raise the efficiency of their workers (Clayton and Griffith, 2004). Furthermore, food safety and HACCP training became an urgent need for all catering establishment. Training in-flight catering employees on food safety provides them with the needed knowledge and skills to prevent any potential food risks or food illness outbreaks (Hatakka, 2000; Zayed, 2013).

Research aim:

This study aims to explore in-flight catering employees' perceptions towards food safety training programs in terms of training courses type, quality of learning process, training outcomes and to identify the barriers which may affect their practicing in real workplace.

Research questions:

1. Did in-flight catering employees receive any food safety training before starting their in-flight catering career?
2. What are food safety training courses which in-flight catering employees have received after joining their current work?
3. What are factors which may affect employee's food safety practicing at in-flight catering companies?

Limitations of the Study

A number of limitations should be acknowledged here as reference for future research.

- Time limitation

The field study was conducted over a period of 5 months, from May till October 2017.

▪ Place limitation

The survey was limited to ten working In-flight catering units (five In-flight catering companies) at Egypt's airports.

Review of Literature

An Overview of In-Flight Catering Industry

In-flight catering refers to that part of the food service industry that is concerned with the provision of meals and beverages for each passenger during a flight; this service is typical of long haul flights (Jones, 2004). To review the important of this industry as a labor market Zayed (2013) agreed with Hatakka (2000) that in-flight catering has a lot of employment opportunities because it considered as a multi-faced segment of the food services. There is a role for all types of food business within the segment of catering. In addition, they mentioned that airline catering is a typical form of mass catering, but has some unique features which are distinct from food preparation in restaurants and hotels.

An Overview of In-Flight Catering Training

Staff training at in-flight catering is vital in many ways; because it increases productivity of employees by providing them with professional knowledge, experienced skills and valid thoughts. Staff training also motivates and inspires workers by providing employees all needed information in work such as: food safety, hygiene, HACCP, food handling and processing good practices or job related techniques (Hatakka, 2000).

Food Safety and hygiene Training at In-Flight Catering

Food safety is very important issue due to the complication of flight catering production procedures in both catering firm kitchen or in onboard galleys which increase the microbiological risks connected with this type of food service specially in the rush periods (Abdelhakim, 2016) . Because human error is one of

the largest driving forces behind food borne illness outbreaks, so food safety training for in-flight catering employees considered as a major requirement which will ensure a lasting and growing benefit for their business. The ability to maintain a high standard of hygiene is a critical element in preventing contamination by food handlers. Food handlers should have ongoing training and instruction in the importance of personal hygiene. No doubt, providing safety and hygienic meals is improving their catering companies' image (Wallace, 2009; Baines and Seaman, 2012 and Anandappa, 2013).

a) Aim and Foundational objectives of Food safety training programs

Edwards (2013) agreed with Seaman and Eves (2009) that a basic level of hygiene awareness must be providing for all food handlers before they start work or in their early six months. According to the Food safety Hygiene (England) Regulations (2013) food safety training courses have been developed addressing the specific food safety needs of the catering and hospitality sector as below:

- **Level 1 and 2:** Award in Food Safety which provides fundamental food hygiene knowledge for all food handlers
- **Level 3:** Award in Supervising Food Safety in Catering – designed for those working at a supervisory level. Again, this is a sector specific food safety qualification tailored for the catering environment
- **Level 4:** Award in Implementing Food Safety Management Procedures for owners and managers of small and medium-sized catering and hospitality businesses.

According to Wallace (2013) food safety training programs should provide employees with the base knowledge necessary to perform a successful awareness and practicing in food safety; it should give them the opportunity to:

- 1- Identify the importance of food safety.

- 2- Maintain and assure high standards of personal hygiene procedures in term of (uniform, hand-washing and hairnet).
- 3- Demonstrate correct hygiene practicing in case of illness.
- 4- Avoid unhygienic food handling procedures.
- 5- How to prevent food contamination.
- 6- Outline Micro-organisms and bacteria growth reasons.
- 7- Identify food Hazards (biological, physical, chemical or food allergen).
- 8- Identify Temperature dangerous zone and how to record the temperature as required.
- 9- Know potentially hazardous foods.
- 10- Identify Food safety management requirements.
- 11- Know the good handling practices (from purchasing to serving onboard).
- 12- Apply required heat and cooking treatment.
- 13- Deal with auditors and customers food safety complaints and comments.
- 14- Implement the HACCP-based procedures.

Hazard Analysis and Critical Control Point System (HACCP) training program

HACCP is an effective system because it is designed to provide the information flow for preventive and corrective actions and can easily be established on the production lines of all kinds of foods (Wallace, 2009). Yiannas (2009) indicated that HACCP is carried out by people. If the people are not properly experienced and trained then the results of HACCP System is likely to be ineffective and unsound. Also, the author pointed to the people who need to be involved like senior management, the HACCP Team, CCPs monitors, supervisors and food handlers' operators.

According to the Food Hygiene (England) Regulations (2006), legislation requires all businesses producing food to have a documented food safety management system in place based on HACCP principles. Separate courses are also run on HACCP as below:

- **Level 1:** Mandatory Certificates in HACCP for all food handlers which provide fundamental HACCP knowledge.
- **Level 2:** Intermediate Certificates in HACCP Principles and Practice is for training of managers and supervisors in hazard analysis principles and their applications and legal requirements
- **Level 3:** Advanced HACCP in Practice Certificate is for managers, supervisors and owners of food businesses to prepare and implement a HACCP plan.

Yüksel (2007) indicated that HACCP training programs should provide employees with the base knowledge necessary to perform a successful good manufacturing practicing; it should give them the opportunity to:

- 1- Know importance of HACCP (terms and definitions)
- 2- Understand the requirements of (HACCP) standard and their exact relation with industrial hygiene or food and product safety
- 3- Discuss the seven core HACCP Principles for managing risks associated with food and beverage safety
- 4- Develop and setting a HACCP team
- 5- Develop and implement a HACCP plan
- 6- Master the HACCP auditing techniques
- 7- Demonstrate registration and documentation

Noe (2013) and Edwards (2013) indicated that the transfer of training is very important issue which links individual change to an organization's requirements. Therefore, Lim (2006) has shown that factors such as supervisor support, supervisor

sanctions, peer support and aids of the job setting in which training will be used, have a significant influence on trainees' motivation to transfer training to the actual environment. In addition, previous researches referred to some environmental factors such as corporate culture, organizational structure, job design, performance appraisal systems, team work problems, work pressure in rush hours, workplace equipment problems, follow up shortage, employees resistance to change and lack of commitment to training may affect employees to implement what they have learned. If the above mentioned problems exist in the firm, employee performance will be decreased and these barriers may prevent employees from practicing good food safety. These barriers may affect their commitment to HACCP implementation (Wallace, 2011).

Research Methodology

The researchers relied on the analytical descriptive method by reviewing the theoretical studies related to the research variables; so, the field surveys were conducted in order to investigate the study's objectives. The first objective is exploring if In-flight catering employees have received needed and proper food safety training. The second objective is identifying employees' perceptions about food safety training programs quality. The third one is exploring the barriers which may face the employees after completion of the training and prevent them from apply what they have learned in their real workplace. The objectives were gleaned through an employees' questionnaire form which conducted on some of in-flight catering companies at Egypt airports. A number of 405 forms were distributed and only 373 forms (92%) were returned and were valid to analysis. The researchers used the scale of the responses to analysis the questionnaire as shown in Table (1).

Table 1: The measure of the responses to the questionnaire

Agreement Scale	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
No.	1	2	3	4	5
Range	1: 1.80	1.81: 2.60	2.61: 3.40	3.41: 4.20	4.21: 5

Results and Discussion

Data Analysis

Before performing any statistical analysis, the data was checked and reviewed for the following: omitting any invalid data, checking responses for unusual data, checking for missing data. Validity was performed using expert panels to determine content validity. Descriptive statistics including frequencies were calculated for all variables as appropriate. Descriptive statistics were applied in this study to analyze the data gathered from the questionnaire by using SPSS program version 22.

Table 2: Respondents' participation in food safety training programs before joining current job

Answer	Frequency	Percent (%)	Rank.
Yes (please specify ...)	48	12.86	2
No	325	87.14	1
Total	373	100.0	

Note: The percentages were calculated based on a total of 373 respondents

From table (2) the results clearly stated that the highest number of respondents (87.14%) didn't participate in food safety courses before starting work comparing to (12.86%) of them

participated in food safety training courses which included basic food safety, personal hygiene and kitchen sanitation. The results indicated that employees came to in-flight catering career with no previous food safety knowledge which may affect their practicing. This result is in agreement with what has been stated by Pajot (2011) that training is very important for in-flight catering employees to provide them with what to do and how to do.

Table 3: Respondents experience at their current work.

Answer	Frequency	Percent (%)	Rank.
Less than 3 months	2	.53	3
3- 12 months	5	1.34	2
More than 1 year	366	98.12	1
Total	373	100.0	

Data presented in table (3) clearly indicated that the vast majority of respondents (98.12%) have been working more than one year at their current in-flight catering work. While, about (1.34%) of them have only from 3 to 12 months at in-flight catering career. In other hand, the minority of respondents have less than three months at in-flight catering career with ratio of (.53%). These results are dissimilar to what has been stated by Hatakka (2000) that catering facilities have a high employees turn-over which prevent the catering facilities from provide them with the required food safety training.

Table 4: Respondents' participation in food safety training programs after joining current work

Answer	Frequency	Percent (%)	Rank.
Yes	310	83.11	1
No	63	16.89	2
Total	373	100.0	

From table (4) the results clearly stated that the highest number of respondents (83.11%) participated in food safety courses after starting work comparing to (16.89%) of them didn't participate in any food safety training courses. This result is in agreement with what has been reported by Seaman and Eves (2009) that all food handlers should be trained on food safety after receiving their work. Also, they added that food safety training is important issue for both employees and catering facility. Food safety training provides them with the needed information to prevent any cross contamination and to avoid any foodborne matters. In addition, food safety issues is very important for catering facilities as well, it increases customer satisfaction about food quality and prevent any complaints which may affect their business and image.

Table 5: Name and level of food safety programs which respondents have been received

Attributes	Frequency	Perc. (%)
Food safety hygiene and sanitation	Level 1	310
	Level 2	310
	Level 3	0
	Level 4	0

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HACCP	Level 1	310	100.0
	Level 2	0	0
	Level 3	0	0
Food safety Diploma		113	36.45
Other training program (please specify		0	0

From table (5) the results clearly showed that, all respondents (100%) have received food safety hygiene and sanitation “level 1 and level 2”. Also, all respondents received HACCP training “level 1” with ratio (100%). This result is in agreement with what has been reported by Wallace (2013) that all food handlers should receive mandatory food safety training after joining their work. Finally, about (36.45%) of all respondents attended a food safety training program called “food safety diploma” after the first two levels in food safety training. Respondents’ perceptions about most important knowledges and skills

The researchers asked the respondents about the most important knowledge and skills which they have been acquired after completion of food safety training courses. First, it was unclear for some of them to identify the difference between knowledge and skills. Then, the tabulated data in Table (8) stated the majority of respondent responses about the question.

Table 6: Respondents' perceptions about most important acquired knowledges and skills

Most important food safety training programs Knowledge and Skills outcomes
<p><u>Most important knowledge the respondents gained</u></p> <ul style="list-style-type: none">- Identify importance of personal hygiene practicing.- Explain safe food handling and processing procedures.<ul style="list-style-type: none">- Explain importance of cross-contamination prevention.<ul style="list-style-type: none">- Demonstrate food Hazards.- The reasons aids in Bacteria growth increasing.<ul style="list-style-type: none">- Identify temperature dangerous zone.- Identify high and low hazardous foods. <p><u>Most important skills the respondents gained</u></p> <ul style="list-style-type: none">- Cleaning and sanitizing- Demonstrate correct hand washing procedures.- Demonstrate correct hair-net and uniform wearing.

The results in table (6) indicated that the trainees have a penalty of knowledge about food safety and its importance to their in-flight catering facility. In contrast, most of them in general didn't have the enough knowledge about HACCP system.

Table7: Respondents’ perceptions towards Training Subject content

No	Statements		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	ST.D
A	Training Subject content								
1	The topics were covered in sufficient detail	N	17	95	147	33	18	2.81	.91
		%	5.5	30.6	47.4	10.6	5.8		
2	The content was relevant to your job	N	77	90	50	60	33	2.60	1.33
		%	24.8	29.0	16.2	19.4	10.6		
3	The course was easy to understand	N	109	36	61	59	45	2.66	1.48
		&	35.2	11.6	19.7	19.0	14.5		
								2.70	

The results in table (7) stated that the majority of the respondents disagreed on 1 out of 3 statements; this statement was “The content was relevant to your job” with mean average (2.60). This result is in agreement with what has been reported by Mortimore and Wallace (2013). Meanwhile, the rest of statements (2 out of 3) have got neutral response “neither agree nor disagree” from majority of respondents; these statements were “The topics were covered in sufficient detail” (2.81) and “The course was easy to understand” with (2.66) mean average.

Table 8: Respondents' perceptions towards Instructor overall performance

No	Statements						Mean	ST.D	
		poor	fair	Neutral	Good	excellent			
Instructor overall performance									
1	Knowledge of subject matter "food safety"	N	12	44	77	110	67	3.57	1.09
		%	3.9	14.2	24.8	35.5	21.6		
2	Delivery Skills "Ability to communicate, answering questions, etc."	N	18	87	101	60	44	3.08	1.13
		%	5.8	28.1	32.6	19.4	14.2		
3	Maintain a helpful and friendly attitude.	N	10	33	112	88	67	3.55	1.04
		%	3.2	10.6	36.1	28.4	21.6		
4	Ability to use training aids (Presentation, Audio, Visual, Role plays, Simulations etc.)	N	19	88	99	74	30	3.03	1.08
		%	6.1	28.4	31.9	23.9	9.7		
5	Ability to State training objectives.	N	42	123	69	65	11	2.61	1.07
		%	13.5	39.7	22.3	21.0	3.5		
6	Ability for linking knowledge with practical workplace environment.	N	114	84	81	23	8	2.12	1.07
		%	36.8	27.1	26.1	7.4	2.6		

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7	The ratio of presentation to group discussion	N	89	66	86	49	20	2.50	1.24
		%	28.7	21.3	27.7	15.8	6.5		
								2.81	

From the tabulated data in table (8) concerning “instructor overall performance”, the results indicated that the majority of the respondents opinions were fair on 2 out of 7 statements; these statements were “Ability for linking knowledge with practical workplace environment” (2.12) and “The ratio of presentation to discussion” (2.50). This result is in agreement with what has been reported by Kirkpatrick (2006) Meanwhile, 3 out of 7 statements have got neutral response from majority of respondents; these statements were “Ability to State training objectives” (2.61), “Ability to use training aids (Presentation, Audio, Visual, Role plays, Simulations etc.)” with (3.03) and “Delivery Skills “Ability to communicate, answering questions, etc.” (3.08). furthermore, the rest of statements 2 out of 7 have got good response; these statements were “Maintain a helpful and friendly attitude” (3.55) and “Knowledge of subject matter [food safety]” (3.57). This result is in agreement with what has been reported by Wallace (2011).

Table 9: Respondents overall perceptions towards learning outcomes

No	Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	ST.D	
D	Learning Process Outcomes								
1	Knowledge gained out of training was sufficient	N	8	33	89	100	80	3.68	1.05
		%	2.6	10.6	28.7	32.3	25.8		

2	Skills and attitudes gained out of training were appropriate	N	93	74	71	41	31	2.49	1.31
		%	30.0	23.9	22.9	13.2	10.0		
3	Overall quality of training programs was lived up to your expectations	N	21	88	94	61	46	3.07	1.16
		%	6.8	28.4	30.3	19.7	14.8		
							3.08		

From the tabulated data in table (9) concerning “Respondents’ overall perceptions towards learning process outcomes”, it could be notice that the majority of the respondents disagreed on 1 out of 3 statements; this statement was “Skills and attitudes gained out of training.” with mean average (2.49). This result is in agreement with what has been reported by Clayton, and Griffith (2004). In contrast, the majority of the respondents agreed with the statement “Knowledge gained out of training was sufficient” (3.68). This result is in agreement with what has been reported by Zayed (2013). Meanwhile, the statement “Overall quality of training programs was lived up to your expectations” has got a neutral response from the majority of the respondents with (3.07) mean average

Table 10: Ability to transfer training to real work

Attributes	Frequency	Percent %	Rank.
Yes	72	23.2	2
No	238	76.8	1
Total	310	100.0	-

The results in table (10) showed that about 23.2% of respondents feel that they could apply what they have learned to real workplace, while the majority of them feel that they couldn't

transfer their new knowledge and skills to their real workplace. These results agreed with Mancini (2012), Motarjemi and Lielieveld (2014) that while organizations may take a time to prepare an employee for training and budget for them a lot of money to attend a learning course, most employees still can't transfer what they have learned to their real workplace.

Table (11): Food safety implementation barriers

No	Statements		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	STD
A Food safety and HACCAP application after training									
1	I didn't take a suitable training	N	29	73	13	89	34	3.11	1.3
		%	12.2	30.7	5.5	37.4	14.3		
2	I haven't found time.	N	39	78	9	51	61	3.07	1.4
		%	16.4	32.8	3.8	21.4	25.6		
3	There no enough management support (e.g. fair reward system, appropriate, follow up encouragement , etc.)	N	24	29	27	83	75	3.66	1.3
		%	10.1	12.2	11.3	34.9	31.5		
4	It wasn't practical for my real workplace or situation.	N	21	60	33	53	71	3.41	1.4
		%	8.8	25.3	13.9	22.2	29.8		

Continue Table (11):

No	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	STD	
A Food safety and HACCAP application after training									
5	Workplace environment is not suitable (equipment problems, etc.)	N	9	19	8	98	104	4.13	1.06
		%	3.8	8.0	3.4	41.2	43.7		
6	I wasn't eager or interested in training	N	84	106	9	21	18	2.09	1.2
		%	35.3	44.5	3.8	8.8	7.6		
7	I wasn't eager in apply what I have learned "resistance to change"	N	38	46	21	88	45	3.24	1.4
		%	16.0	19.3	8.8	37.0	18.9		
							3.23		

From the tabulated data in table (11) concerning "Transfer of Training Barriers regarding to (Food safety and HACCAP training program)", it could be notice that the majority of the respondents disagreed on 1 out of 7 statements; this statement was "I wasn't eager or interested in training" with mean average (2.09). This result is in agreement with what has been reported by Wallace (2009) that food handlers find training as a gift to enrich their knowledge and to improve their career in the future. In contrast, the majority of the respondents agreed on 3 out of 7 statements; these statements "It wasn't practical for my real workplace or situation" (3.41), "There no enough management support (e.g. Fair reward system, appropriate Encouragement, etc.)" (3.66) and "Workplace environment is not suitable

(equipment problems, lack of supervision or encouragement, etc.)” (4.13). This result is in agreement with what has been reported by Carol and Laura (2005), Hillsman (2007), Barrett et al. (2008) and Edwards (2013) Meanwhile, the rest of statements 3 out of 7 has got a neutral response from the majority of the respondents; these statements were “I haven’t found the time” with (3.07) mean average, “I didn’t take a suitable training” (3.11) and “I wasn't eager in apply what I have learned [resistance to change]” (3.24).

Summary of the Results

The current research aims to study the perceptions of in-flight catering employees towards the provided food safety training programs. The results of the research showed that the provided food safety from in-flight catering facilities was acceptable. This may be due to the fact that the majority of employees have received a mandatory level after joining their work on food safety and HACCP. Also, the results showed that the acquired knowledge from the provided training were at suitable level but it wasn’t relevant to their real work daily situations. This may reflected the fact that food safety instructors are professionals in area of knowledge. In addition, this cleared that food safety training at in-flight catering should be improved to match the nature of these food provision facilities. On the other side, the results showed that the majority of trainees couldn’t implement what they have been learned in their real work place which may affect their practicing level. The findings in this research have highlighted the barriers which may face the employees and prevent them to apply good food safety practices such as:

- There was no suitable management support.
- The training wasn’t effective to their real situations.
- There were some workplace environment problems.

Recommendations

Based on the results obtained, some recommendations could be suggested as follows:

- 1) Providing all in-flight catering employees with basic food safety training before joining their work.
- 2) Creating behavior-based food safety training programs.
- 3) Designing a food safety training program relevant to in-flight catering facilities work nature.
- 4) Designing a time-table follow-up plans to assess food safety training programs progress and employees performance after training.
- 5) Studying the problems of work environment periodically and put a strategic plan to remove these obstacles with follow up schedule.
- 6) In-flight catering senior management and stakeholders should support and committed to training by linking the training with the organization development strategy.
- 7) Selecting certified food safety trainer or food safety training provider according to standard criteria with a proper practical experience in the field of in-flight catering.

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