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A Study on Cooking Skills of Gastronomy and Culinary Arts Students: The Case of Turkish Republic of Northern Cyprus*

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Abstract

Cooking skills of chefs depends on knowledge about cooking process, confidence related with the training or experience and basic safety rules that should be followed during the preparation and cooking process. In this context the basic cooking skills of the gastronomy students in universities have been investigated. A questionnaire, has been designed based on the main areas known to be affected by cooking skills programs. The data has been gathered from 339 students from the gastronomy departments of universities in Turkish Republic of Northern Cyprus (TRNC) by using convenience sampling method. The aim is to reveal whether there is relationship between the demographics and cooking skills. It is popular strategy for promoting healthy eating in studies aimed at improving cooking skills. In order to analyse the data, t-test and ANOVA variance tests have been used. The results show that only class level that the students attend at the universities are affecting the cooking skills and there is relation between demographics and basic safety rules that students have.

Keywords: Gastronomy, Cooking Skills, Food Safety Rules, Turkish Republic of Northern Cyprus (TRNC).

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1. Introduction

Cooking skills have been researched in the context of healthy eating habits for many different countries. Cooking techniques are still debated, especially in relation to their relationship to eating better. The ability to employ technical procedures in practical operations, as well as visual and analytical skills and expertise organizing and cooking food from scratch (fresh or raw), using prepared food, or both, are necessary for these capabilities (Kent, 1993). Cooking skills among young people, especially among students, have declined recently. In addition to eating more convenience foods, individuals eat more veggies and fruits when they prepare their own meals. This was frequently explained by a lack of culinary skills (Mechling, 2008).

Food planning programs are frequently used to increase low-income persons' reliance on food planning, adherence to specific food training, and consumption of a wider variety of foods (Hartmann, Dohle, & Siegrist, 2013). Food training programs are frequently used to increase low-income communities' access to meal, trust in food planning, and use of specific food training (Engler-Stringer, 2010). Additionally, the task appears to have been delegated to a number of television-based mediators, including chefs or well-known chefs, health departments with an accounting policy, and even partially nutritionists or food scientists (Trubek, 2012).

In this context, the aim of this research is to refer the cooking skills and basic safety rules knowledge of students that are attending to a department related with the gastronomy at the universities in Turkish Republic of Northern Cyprus (TRNC). The importance of this research is in revealing the current skills of students to presume the future chefs' cooking skills that affect the future situation of gastronomy sector. There are certain limitations to this study. Time and cost constraints have also regarded as limiting variables during the investigation. The data gathering technique utilized limits the reliability and validity of the data examined for the study. It is one of the assumptions that the data collection method follows scientific guidelines and that the study participants provided original and correct responses to the questions

2. Literature Review

2.1. Definition of Gastronomy

Originally reserved for the nobility, gastronomy has since been included into the "peasant food" that is characteristic of regional and local cuisine (Richards, 2002). Not only is it challenging to define gastronomy, but the phrase has also grown incredibly ambiguous through time, much like "culture." Gastronomy plays a particularly vital role, not only because food is essential to traveler consciousness but also because it has a significant impact on how identities are formed in postmodernist society. Due to the changing living civilization around it, gastronomy is changing and evolving (Scarpato, 2003).

Gastronomy has also been described as the primary driving force behind many cultures and as a crucial component of sustaining and enhancing tourism. A force for preserving, enhancing, and promoting culture could be found in gastronomy. In search of the highest level of a qualitative cultural experience, the heritage tourism sector frequently relies heavily on food (Van Westering, 1999). Gastronomy is most frequently thought of as being limited to the art of cooking and enjoying good food, however this is only one aspect of this discipline. Others have noted that gastronomy is an experiment in the fusion of culture and food. Anyone who works in the food industry closely is frequently involved in tasting, preparing, anticipating, experimenting, researching, learning, and writing about food (Rojas et al., 2020). The name "gastronomy"

derives from the Greek word gastros, which literally means "stomach," "depth of understanding," or "law." On the other hand, "culinaria" is a term used in the sense of gastronomy to describe the national or regional meals, as well as the food preparation techniques that give rise to the national or regional culinary traditions (Kivela and Crotts, 2006). Most definitions of gastronomy refer to it as the art or science of delicious food. In a sense, its concentration on the arts and sciences translates as knowledge and experience that are closely related to the term's etymology. The term "gastronomy" was first used in antiquity. The Italian Greek author Archestratus possibly published the first book on food and wine in the Mediterranean region in the fourth millennium BC; gastronomy is one of the book's titles (Wilkins & Hill, 1994).

While nomos refers to a law or legislation, gastro refers to the stomach and eventually the entire digestive tract, starting at the mouth. In addition, gastronomy refers to laws or norms governing foods and beverages. From this vantage point, the framework of gastronomy can be broadened to include assistance or recommendations for what to eat (and drink), how much, when, and where to eat it. Such recommendations or counsel promote the development of knowledge and skills of foods and beverages inherent linguistic ambiguities and contemporary culinary awareness. (This, 2013). Furthermore, gastronomy is a cultural and culinary endeavor that places a particular focus on haute cuisine. The word encompasses food preparation techniques, nutritional information, health benefits, and the utilization of flavor in human food consumption (Kowalczyk & Derek, 2020).

2.2. Relation Between the Cooking Skills and Eating Habits

In fact, schools themselves may become advocates of nutritional conservation, and the environmental benefits of encouraging balanced food options in education can be applied to eating habits outside of college. Nutrition education, in combination with the delivery of nutritional literacy in school environments, had the potential to inspire children to make healthier consumer decisions (Bell and Swinburn, 2004). Berries and vegetables weren't the main foods mentioned when asked what "excellent options" pupils eat at home. Several food items were mentioned by different pupils on a variety of occasions, including "chocolate," "fried chicken," "since poultry is nutritious for you," and "crisps," "as they are derived from potatoes" (Caraher, 1999). A balanced diet can be hindered by exposure to the formation of such talents. There is some proof that a variety of culinary classes that operate in a healthy setting can affect dietary behavior in the short term (Sheppard, 2006). Studies have unequivocally shown that food preferences and cooking abilities are related. This has shown that maintaining a varied, nutritious diet is still challenging for many residents at all levels, but it is especially important for those who are unable to eat (Oliver, 2000).

confidence in packaged goods that suggest unintended underconsumption of oils, salts, and sweets on the part of consumers—exactly the nutrients that nutrition campaigners are most concerned about. Additionally, eating fast food without the necessary cooking abilities reduces awareness of a balanced diet (Lock, 2010). Comfort food has a number of challenges, including the variety of food options offered by the food service and retail sectors. But those are not the only challenges. The growth of cooking abilities depends on the skills picked up at home, in school, and through self-directed learning from cookbooks, periodicals, or television cooking shows. They are being grown under threat. First, a growing traditional family suggests that parents are not cooking fresh ingredients, probably due to work obligations (Hartmann et al., 2013).

Cooking skills are developing. The study revealed that there is some flexibility once the word "cooking" refers to what has been said. The para-skilling of cooking skills is a concern shared by many researchers.

Research and primary data show that there is still a growing reliance on previously prepared food when it comes to arranging family dinners. Patented consumer goods are speeding up the preparation process for anyone who can eat, such as sauce mixes in foil bags, bottles, and pots (Gutjar, 2015). Such labor-saving products lessen the requirement for cooking food from fresh ingredients. Of course, they offer individuals with little training the chance to prepare a meal (Dawson, 2013). Surprisingly, some might not want to or be able to make meals from scratch given the continuous crisis and the risk that they will lose their jobs. As a result, these difficulties could further diminish one's capacity for cooking, as competency can be negatively impacted by lack of practice (Blake, 2003). Cooking knowledge and skills can give customers insight into how a simple meal has been prepared, which can be helpful in determining the safer choice when it comes to convenience foods. In actuality, the ability to cook allows the consumer to create a variety of dishes with a single food source, which raises food prices (Lautenschlager, 2007).

2.3. Some Essential Skills of Gastronomy Students

Culinary professionals should also be referred to as traditional auditory experts because they use their hands when working. They are both designers and qualified professionals with a clear understanding of the intended outcome of their final product. Such a study's primary goal is to outline the parameters for the architecture of uncertainty in the field of culinary knowledge. Customers' perceptions of difficulty are influenced by the quantity of ingredients and level of skill needed to prepare a beverage. (Pierguidi et al, 2019) organizations for higher education at schools that provide undergraduate instruction in the field of hospitality, hotels, and restaurants at the time when awareness and skills need to be strengthened with practical training (Blanck, 2007).

The extent to which students successfully perform the role of self-catering depends on the student's ability as well as the skills acquired prior to living independently, living conditions, and, most importantly, the student's willingness to adapt food preparation and cleaning (Verhoef, 2001). According to some studies, the topic of pupils struggling with food during transformation encompasses a spectrum of ability rates, competences, behaviors, and excitement as well as various attempts to establish productive eating habits (Teng, 2015). A strong interest in health is considered simultaneously with the phenomenon of reduced abilities or trust. Cooking knowledge is not frequently used in today's health education programs. They are actually viewed as being outdated and perhaps even not more suitable in a high-tech setting (Lavelle, 2016).

Instead of simply being "learn what" information, it is called "learn how." Cooking abilities are far from being outdated and worthless, and it can even be argued that having them might inspire others when they are faced with a bewildering array of prepared delicacies (Yantz, 2010). It should concentrate on the food system in classrooms while experimenting with fresher, more inventive approaches to teaching fundamental culinary skills. Local chefs visiting elementary schools to teach about flavor and how food tastes differently has even been replicated by Academie Culinaire de France and a local newspaper. One of the hidden meanings—though not necessarily related to food—was that eating is enjoyable for the taste buds (Hersch, 2014).

Human eating habits are determined by cooking skills and techniques, which in turn determine the type and amount of preparation to be employed (Lang, 2001). At this time, the relevance of cooking to health education may have become more apparent due to the real application of food knowledge in daily life rather than just awareness. Disparities in health status cannot be made up for by not being able to cook (Granberg, 2017). trainees in the culinary arts. This required the preparation of food, the use of tools like syphons,

and techniques like cutting and molding choux. Additionally, there are some subcets like teamwork, time management, and heating or cooling. Keeping equipment and surroundings clean is one of the fundamental rules for ensuring safety in places where food is produced (Patah, 2009). Several hypotheses have been developed and are included below, taking into account the literature as a whole;

H1: There is significant difference between gender and cooking skills of the students.

H2: There is significant difference between gender and basic safety rules students have.

H3: There is significant difference between nationality and cooking skills of the students.

H4: There is significant difference between nationality and basic safety rules students have.

H5: There is significant difference between household and cooking skills of the students.

H6: There is significant difference between household and basic safety rules students have.

H7: There is significant difference between class and cooking skills of the students.

H8: There is significant difference between class and basic safety rules students have.

3. Methodology

3.1. Sample and Procedure

This study has been conducted at the universities which has department of gastronomy in Turkish Republic of North Cyprus (TRNC). In the 2018-2019 academic year, it has been determined that there are 706 students in total, according to the information received from the universities providing education in the field of gastronomy in the TRNC. The samples to be taken from the population were determined by using the convenience sampling method, which is one of the non-probability sampling methods. In this method, it is aimed to include everyone who wants to be involved in the research in the data collection process and sample (Altunışık et al., 2012: 142). The number of subjects to be included in the sample is determined at the 5% certainty level, that is, at least 95 of them are chosen to represent the characteristics of the universe when the sample mass is selected 100 times (Altunışık et al., 2012: 137). In this context, the number of subjects who represent the universe at 95% confidence level has been determined as at least 250 (Ural & Kılıç, 2006: 49). The sample consists 339 students, who attend in various universities in TRNC. However, in this study questionnaire survey method is used to collect data and to test the hypotheses. Questionnaire form contains two measurements related to research variables and demographics. The questionnaires were conducted over a five–month period from November 2018 to March 2019.

3.2. Measuring Instrument

The measurements, which have been used in the questionnaire form, are adapted from questionnaires used in the previous studies in the literature. The 10 variables of "Cooking Skills" and 4 variables of "Basic Food Safety Rules" measures are adapted from Barton et al. (2011). All measures have been adapted to Turkish by the English Language Lecturers who have doctorate degree and the questionnaire has been pre-tested by using a sample of 40 students to test the validity of these measures. After pilot study, some meaning corrections have been done to ensure meaning equivalence. For answers to the statements of survey, a likert-type metric, that is, expressions with five intervals has been used. Anchored such; "1- strongly disagree, 2- disagree, 3- undecided, 4- agree, 5-strongly agree". In additon to the "Cooking Skills" measurement there are also 6 demographics.

3.3. Statistical Methods

A number of statistical methods has been used in the analysis of research data. The analysis of the data has been carried out using the "SPSS 20.0 for Windows" package program. In order to determine the main factors that form the basis of the set of variables used in the context of the research and to determine the extent to which each of these factors explain each variable (Altunışık, et al., 2012) and to test the construct validity factor analysis has been applied. Sample adequacy and validity of factor analysis were evaluated with the Kaiser Meyer-Olkin test. In order to evaluate the reliability (internal consistency) levels of the scales (Ural & Kılıç, 2006), the cronbach alpha values of each scale have been calculated. To determine whether there are significant differences between the demographics and variables T-Test and Anova have been used.

4. Research Findings

4.1. Demografic Findings

Table 1. Demografic Finding

Genderr	**n: 339**	**100%**	**University**	**n: 339**	**100%**
Male	186	54,9	EUL1	189	55,8
Female	153	45,1	EMU2	93	27,4
			CIU3	51	15,0
			FIU4	6	1,8
Household	**n: 339**	**100%**	**Class**	**n: 339**	**100%**
Alone	9	2,7	1st class	90	26,5
With 1 person	24	7,1	2nd class	177	52,2
With 2 people	60	17,7	3rd class	24	7,1
With 3 people	84	24,8	4th class	48	14,2
With 4 people	162	47,8			
Nationality	**n: 339**	**100%**			
TR	234	69,0			
TRNC	105	31,0			

Total number of participants are %100 (n=339) answered to the survey %54.9 (n=186), of participants states that are man, %45.1 (n=153) of them stated that are women. %2.7 (n=9) of the participants state that they are living alone, %7.1 (n=24) of them that live with 1 person, %17.7 (n=60) of them stated that they living with 2 people, %24.8 (n=84) of them stated that they are 3 people and majority of people %47.8 (n=162) of them stated that they are living 4 people. Majority in gastronomy students from TR % 69.0 (n=234) %31.0 (n=105) of them stated that they are from TRNC. Majority of the student study % 55.8 (n=189) of European University of Lefke, % 27.4 (n=93) of them stated that they are Eastern Mediterranean University. %15,0 (n=51) of them stated that they are student in Cyprus International University, %1.8 (n=6) of them stated that they are Final International University, % 26.5 (n=90) of the participants state that they are 1st class, % 52.2 (n=177) most students of taking 2nd class, %7.1 (n=24) of them stated that they are 3rd class, %14.2(n=48) of them stated that they are 4th class (Table 1).

Table 2. Findings of Basic Food Safety Rules Participants Have

Do you wash fruit and vegetables that don't need to be peeled before eating them?	**n: 339**	**100%**
Always	285	84.1
Often	30	8.8
Sometimes	24	7.1
Do you check that food is piping hot when re-heating?	**n: 339**	**100%**
Always	171	50.4
Often	135	39.8
Sometimes	18	5.3
Rarely	15	4.4
Do you follow the instructions for storage on packaged foods?	**n: 339**	**100%**
Always	126	37.2
Often	105	31.0
Sometimes	63	18.6
Rarely	27	8.0
Never	18	5.3
Do you eat food past its 'use by' date?	**n: 339**	**100%**
Sometimes	6	1.8
Rarely	33	9.7
Never	300	88.5

Table 2 shows that most of the students 285 (84.1%) states that "they always wash fruit or vegetables before eating", 30 (8.8 %) of them stated that "they often", 24 (7.1%) of them stated that "they sometimes wash fruit or vegetables". For the re-heating the foods, 171, (50.4%) most of the participants state that "they always check that food is piping hot when re-heating", 135 (39.8%) of them stated that they "Often", 18 (5.3%) of them stated that they are "Sometimes", 15 (4.4%) of them stated that they "Rarely". For the storage foods, 126 (37.2%) most of the participants state that "they always store the food according to the instructions", 105 (31.0%) of them stated that "they often", 63 (18.6%) of them that stated that they "Sometimes", 27 (8.0%) of them stated that they "Rarely, 18 (5.3%) of them stated that "they never follow storage instruction for packaged foods". For the expiration date 6 (1.8%) of the participants state that "they eat expired food sometimes", 33 (9.7%) of them stated that "they eat expired food rarely", 300 (88,5%) of them stated that "they eat expired food never".

4.2. Factor Analysis and Reliability

Table 3 shows that, since the KMO value of the cooking skills scale is 0.743 and the Barlett's test p value is 0.000, it has been decided that the sample is sufficient and factor analysis can be applied to the scale (Eroğlu, 2009).

Table 3. KMO and Bartlett's Test Findings

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0,743
Bartlett's Test of Sphericity	0,000

Table 4 shows the explanatory factor analysis of the cooking skills scale, it is seen that all factor values loaded on the scale expressions are above 0.50 and the reliability of the scale (0.747) shows adequate level of reliability in the field of social sciences. In addition, as a result of the explanatory factor analysis performed, it has been determined that the statements in the scale have been explained in two dimensions (portion knowledge & confidence).

Table 4. Factor and Reliability Analysis

Factor	Phrases	Factor Loadings		% of Var.	Reli. (α)
Portion Knowledge	I have knowledge about how many servings of fruits or vegetables do three tablespoons of full carrots provide.	0,796		37,728	**0,705**
	I have knowledge about how many portions of fruit or vegetables do one small raspberry yoghurt provide.	0,786			
	I have knowledge about how many portions of fruit or vegetables do one medium-sized apple provide.	0,772			
	I have knowledge about how many portions of fruit or vegetables does a medium glass of unsweetened orange juice provide.	0,757			
	I have knowledge about how many portions of fruit or vegetables do a thin slice of tomato provide.	0,755			
	I have knowledge about how many portions of fruit or vegetables does a glass of lemonade provide.	0,756			
Confidence	I am confident do I feel about being able to cook from basic ingredients.		0,782	18,700	**0,844**
	I am confident do I feel about following a simple recipe.		0,744		
	I am confident do I feel about tasting foods that you have not eaten before.		0,616		
	I am confident do I feel about preparing and cooking new foods and recipes.		0,527		
Total				**53,427**	**0,747**

After the factor analysis applied, before the expressions in each dimension are named within the scope of the literature, the reliability of the determined dimensions should be expressed numerically (Durmuş et al., 2013). For this reason, the reliability of the 2 dimensions that emerged as a result of the explanatory factor analysis has been determined by looking at the Cronbach alpha values (1st dimension: 0.705, 2nd dimension: 0.844), and it has been seen that these values have adequate reliability values in the field of social sciences. The dimensions of the destination experience scale for which validity and reliability analyzes have been made are named as 1. Dimension: Portion Knowledge 2. Dimension: Confidence in the light of the relevant literature and in line with the original scale. The overall reliability of the cooking skills is 0.747. This value shows that the internal consistency of the scale is adequate. However, as a result of the factor analysis applied, the total variance of the 10 statements in the scale has been explained at the rate of 53.427% (Table 4). It is acceptable for the variance specific to the variables to be between 0,50 and 0,70 (Alpar, 2013).

Compare Analysis

In the Kolmogorov-Smirnov test, skewness and kurtosis values were checked and it has been observed that these values are around zero and in the range of +2 and -2 (George & Mallery, 2003). Accordingly, it can be thought that normality is achieved (Tabachnick & Fidell, 2007). As the data set is normally distributed, T-Test and Anova have been used to determine whether there are significant differences between the demographics and research variables / basic food safety rules that the participants provide in the study. While characteristics with two groups such as gender and marital status are measured with the T-Test, variables with three or more characteristics such as age and income are measured with the Anova test.

Table 5. Independent Samples T-test of Gender and Research Variables (Confidence – Portion Knowledge)

Variable	Gender	n	Mean	Std. Deviation	t	p
Confidence	Male	186	1,63	0,61	0,167	0,868
	Female	153	1,62	0,54		
Portion Knowledge	Male	186	2,48	0,96	-0,523	0,601
	Female	153	2,53	0,86		

Tablo 5 shows that the participants' gender variables have been compared to their response about the dimensions of cooking skills. There is no significant difference between the gender and the dimensions of cooking skills, despite male (M:1.63, SD:0.61) attaining higher scores than female (M:1.62, SD:0.54) in terms of confidence and female (M:2.53, SD:0.86) attaining higher scores than male (M:2.48, SD:0.96) in terms of portion knowledge The hypothesis "**there is significant difference between gender and cooking skills of the students"** has been rejected**.**

Table 6. Independent Samples T-test of Gender and Basic Food Safety Rules Participants Have

Variable	Gender	n	Mean	Std. Deviation	t	p
Do you eat food past its 'use by' date?	Male	186	4,79	0,48	-4,413	**0,000**
	Female	153	4,96	0,19		
Do you follow the instructions for storage on packaged foods?	Male	186	2,17	1,22	0,794	**0,428**
	Female	153	2,07	1,06		
Do you check that food is piping hot when re-heating?	Male	186	1,58	0,68	-1,478	**0,150**
	Female	153	1,70	0,87		
Do you wash fruit and vegetables that don't need to be peeled before eating them?	Male	186	1,27	0,60	1,587	**0,108**
	Female	153	1,17	0,51		

Tablo 6 shows that the participants' gender have been compared to their response about the basic food safety rules. There is no significant difference between the gender and "following the instructions for storage on packaged foods" ($p>0.05$)**, "**checking that food is piping hot when re-heating" ($p>0.05$)**,** and "washing fruit and vegetables that don't need to be peeled before eating them" ($p>0.05$)**,** but there is a significant difference between the gender and "eating food past its 'use by' date" ($p<0.05$)**,** In this context female (M:4.96, SD:0.19) attaining higher scores than male (M:4.79, SD:0.48). The hypothesis "**there is significant difference between gender and basic safety rules students have"** has been accepted**.**

Table 7. Independent Samples T-test of Nationality and Research Variables (Confidence – Portion Knowledge)

Variable	Nationality	n	Mean	Std. Deviation	t	p
Confidence	TR	234	1,62	0,57	-0,154	**0,877**
	TRNC	105	1,63	0,59		
Portion Knowledge	TR	234	2,54	0,99	1,254	**0,211**
	TRNC	105	2,42	0,73		

Tablo 7 shows that the participants' nationality variables have been compared to their response about the dimensions of cooking skills. There is no significant difference between the nationality and the dimensions of cooking skills, despite participants from TRNC (M:1.63, SD:0.59) attaining higher scores than participants from TR (M:1.62, SD:0.57) in terms of confidence and participants from TR (M:2.54, SD:0.99) attaining higher scores than participants from TRNC (M:2.42, SD:0.73) in terms of portion knowledge. The hypothesis "**there is significant difference between nationality and cooking skills of the students"** has been rejected**.**

Table 8. Independent Samples T-test of Nationality and Basic Food Safety Rules Participants Have

Variable	Nationality	n	Mean	Std. Deviation	t	p
Do you eat food past its 'use by' date?	TR	234	4,85	0,38	-576	**0,565**
	TRNC	105	4,88	0,39		
Do you follow the instructions for storage on packaged foods?	TR	234	2,21	1,21	2,199	**0,029**
	TRNC	105	1,94	0,98		
Do you check that food is piping hot when re-heating?	TR	234	1,58	0,74	-1,601	**0,111**
	TRNC	105	1,74	0,84		
Do you wash fruit and vegetables that don't need to be peeled before eating them?	TR	234	1,23	0,57	0,034	**0,973**
	TRNC	105	1,22	0,54		

Tablo 8 shows that the participants' nationality have been compared to their response about the basic food safety rules. There is no significant difference between the nationality and eating food past its 'use by' date ($p>0.05$)**,** checking that food is piping hot when re-heating ($p>0.05$)**,** and washing fruit and vegetables that don't need to be peeled before eating them ($p>0.05$)**,** but there is a significant difference between the nationality and following the instructions for storage on packaged foods ($p<0.05$)**,** In this context participants from TR (M:2.21, SD:1.21) attaining higher scores than participants from TRNC (M:1.94, SD:0.98). The hypothesis "**there is significant difference between nationality and basic safety rules students have"** has been rejected**.**

Table 9. One-Way Anova of Household and Research Variables (Confidence – Portion Knowledge)

		Sum of Squares	df	Mean Square	F	p
Confidence	Between Groups	1,079	4	0,270	0,790	**0,532**
	Within Groups	114,089	334	0,342		
	Total	115,168	338			
Portion Knowledge	Between Groups	5,416	4	1,354	1,608	**0,172**
	Within Groups	281,149	334	0,842		
	Total	286,565	338			

In Table 9, the differences between the research variables and the household status of the participants have been examined by using One-Way Anova test. As a result of the analysis, a significant difference has been not found between the household status of the participants and the research variables (confidence & portion knowledge)($p>0.05$). The hypothesis "**there is significant difference between household and cooking skills of the students"** has been rejected**.**

Table 10. One-Way Anova of Household and Basic Safety Rules Participants Have

		Sum of Squares	df	Mean Square	F	p
Do you eat food past its 'use by' date?	Between Groups	1,640	4	0,410	2,774	**0,027**
	Within Groups	49,356	334	0,148		
	Total	51,027	338			
Do you follow the instructions for storage on packaged foods?	Between Groups	22,065	4	5,516	4,275	**0,002**
	Within Groups	430,961	334	1,290		
	Total	453,027	338			
Do you check that food is piping hot when re-heating?	Between Groups	4,884	4	1,221	2,044	**0,088**
	Within Groups	199,487	334	0,597		
	Total	204,372	338			
Do you wash fruit and vegetables that don't need to be peeled before eating them?	Between Groups	1,132	4	0,283	0,884	**0,474**
	Within Groups	106,921	334	0,320		
	Total	108,053	338			

In Table 10, the differences between the household and the basic safety rules have been examined by using One-Way Anova test. As a result of the analysis, a significant difference has been found between the household and **"eating food past its 'use by' date", "following the instructions for storage on packaged foods"** ($p<0.05$). Since there is a significant difference, Tukey test results are given in Table 11. The hypothesis "**there is significant difference between household and basic safety rules students have"** has been accepted**.**

Table 11. Tukey Test of Household and Basic Safety Rules Participants Have

Variable	(I) Household	(J) Household	Mean Difference (I-J)	Std. Deviation	p	95 % Cl	
						Lower Bound	Upper Bound
Do you eat food past its 'use by' date?	4	alone	**-09259**	,13169	,345	-,4538	,2686
		1	**,03241**	,08900	,625	-,1983	,2631
		2	**,00741**	,06500	,154	-,1520	,1668
		3	**,15741***	,05170	0,021	,0156	,2992
Do you follow the instructions for storage on packaged foods?	3	alone	**,50000**	,39841	,719	-1,1410	,9929
		1	**,00000**	,26291	1,000	-1,2555	,1074
		2	**,45000**	,192200	,134	-,5949	,3468
		4	**,57470***	,152273	,002	-,9930	-,1552

A statistically-significant difference in basic safety rules these are "eating food past its 'use by' date", "following the instructions for storage on packaged foods" according to household status" has been found ($p < 0.05$). A Tukey post-hoc test has revealed significant differences between participants who live with 4 and participants who live with 3 ($p < 0.05$) in terms of **"eating food past its 'use by' date"** and significant differences between participants who live with 3 and participants who live with 4 ($p < 0.05$) in terms of "**following the instructions for storage on packaged foods"** (Table 11).

Table 12. One-Way Anova of Class and Research Variables (Confidence – Portion Knowledge)

		Sum of Squares	df	Mean Square	F	p
Confidence	Between Groups	6.598	3	2.199	6.786	**.000**
	Within Groups	108.570	335	.324		
	Total	115.168	338			
Portion Knowledge	Between Groups	7.066	3	2.355	2.823	**.051**
	Within Groups	279.499	335	.834		
	Total	286.565	338			

In Table 12, the differences between the research variables and the class have been examined by using One-Way Anova test. As a result of the analysis, a significant difference has been found between class and confidence ($p<0.05$). Since there is a significant difference, Tukey test results are given in Table 13. The hypothesis "**there is significant difference between class and cooking skills of the students"** has been accepted**.**

Table 13. Tukey Test of Class and Confidence

Variable	(I) Class	(J) Class	Mean Difference (I-J)	Std. Deviation	p	95 % Confidence Interval	
						Lower Bound	Upper Bound
Confidence	1st grade	**2nd**	**.20664***	**.07370**	**.027**	**.0163**	**,3969**
		3rd	.12083	.13079	.792	-.2169	,4585
		4th	**.44896***	**.10175**	**.000**	**.1862**	**,7117**

A statistically-significant difference in class according to confidence has been found ($p < 0.05$). A Tukey post-hoc test has revealed significant differences between participants who are attending in 1st grade and the participants who are attending 2nd and 4th ($p < 0.05$) in terms of confidence (Table 13).

Table 14. One-Way Anova of Class and Basic Safety Rules Participants Have

		Sum of Squares	df	Mean Square	F	p
Do you eat food past its 'use by' date?	Between Groups	.899	3	.300	2.002	.113
	Within Groups	50.128	335	.150		
	Total	51.027	338			
Do you follow the instructions for storage on packaged foods?	Between Groups	4.433	3	1.478	1.103	.348
	Within Groups	448.594	335	1.339		
	Total	453.027	338			
Do you check that food is piping hot when re-heating?	Between Groups	12.324	3	4.108	7.166	.000
	Within Groups	192.048	335	.573		
	Total	204.372	338			
Do you wash fruit and vegetables that don't need to be peeled before eating them?	Between Groups	1.473	3	.491	1.543	.203
	Within Groups	106.580	335	.318		
	Total	108.053	338			

In Table 14, the differences between the class and the basic safety rules have been examined by using One-Way Anova test. As a result of the analysis, a significant difference has been found between class and **"checking that food is piping hot when re-heating"** ($p<0.05$). Since there is a significant difference, Tukey test results are given in Table 15. The hypothesis "**there is significant difference between class and basic safety rules students have"** has been accepted**.**

Table 15. Tukey Test of Class and Checking That Food Is Piping Hot When Re-Heating

Variable	(I) Class	(J) Class	Mean Difference (I-J)	Std. Deviation	p	95 % Confidence Interval	
						Lower Bound	Upper Bound
Do you check that food is piping hot when re-heating?	3	1	,51667*	,17394	,017	,0675	,9658
		2	,72458*	,16470	,000	,2993	1,1498
		4	,68750*	,18929	,002	,1988	1,1762

A statistically-significant difference in basic safety rules that is are " **checking that food is piping hot when re-heating** " according to class status has been found ($p < 0.05$). A Tukey post-hoc test has revealed significant differences between participants who are attending in 3rd grade and others (1st, 2nd, 3rd) ($p < 0.05$) in terms of **checking that food is piping hot when re-heating** (Table 15).

5. Conclusion and Discussion

The interest in gastronomy today is growing every day. By demonstrating their culinary skills, talented chefs are bringing forth new trends, flavors, and cooking techniques. Chefs' ability to prepare food depends on their familiarity with the cooking process, their level of assurance as a result of their education or experience, and their observance of fundamental safety precautions during the prepping and cooking phases. In this study, it is attempted to determine whether there is a relationship between the demographics of gastronomy students and their knowledge of basic safety procedures and cooking techniques. The results of the study indicate that there is a correlation between culinary abilities and demographics in this situation. Class is the only demographic that has an impact on cooking abilities. Class and confidence have been found to differ significantly. There are noticeable confidence gaps between students in 1st grade and those in 2nd and 4th grades, according to the results of the study (Table 13). The outcome demonstrates the value and efficacy of teaching future cooks for the industry according to the gastronomy training syllabus. According to Tull (2008), taking part in teenage food preparation activities and learning culinary skills through cooking lessons can lead to more wholesome eating habits.

The study's second goal is to gauge students' familiarity with fundamental safety guidelines and determine whether or not this knowledge correlates with their demographics. With this objective in mind, examination of the data set demonstrates that there is a gender difference in "eating food past its 'use by' date," with females scoring higher than males in this context. However, the finding is validated by the study by Zieli'nska et al. (2020). Women are hesitant to use products that have beyond their expiration dates. However, males never look at the expiration dates. Another study reveals that 84% of customers throw away food at least occasionally after the expiration date. (Neff et al., 2019). The nationality of the participants and their compliance with the rules for storage on packaged foods also significantly differ in this context, with individuals from TR receiving higher marks than participants from TRNC. The household and "consuming food past its "use by" date," "following the directions for storage on packaged foods," have been found to differ significantly. Results also showed significant variations in eating food after its "use by" date and in adhering to the directions for storing packaged foods between individuals who live with 4 and participants who live with 3, as well as between participants who live with 3 and participants who live with 4 (Table 11). It is important to take into account this information while teaching nutrition to culinary arts students because failing to store food properly in the right way might have costly consequences for the business. Additionally, they must exercise caution when properly washing fruits and vegetables in the dishwasher. According to scientific findings, there is a considerable difference between class and "checking that food is piping hot when re-heating," which has been identified in studies about re-heating. Results also show that 3rd-graders check that their meal is piping hot before re-heating, compared to students in the 1st, 2nd, 3rd grades (Table 15). According to Verhoef (2001), the degree to which students can effectively perform the role of self-catering depends on both the student's ability and the skills they have learnt.

Gender distribution is the study's other significant finding. 54.9% of the participants in this study are men, and 45.1% are women. It demonstrates that the distribution of participants across genders has been equalized. But historically, there haven't been many qualified kitchens with female chefs. To be a successful cook, women chefs have discovered that occupational preparation is absolutely vital. They placed a high importance on the various learning strategies we suggested, including observational learning, practice-based learning, and trial-and-error learning. In contrast, they showed very little understanding of mistakes made

during contests and claimed that women are less permitted to make mistakes when learning. A noteworthy finding that helps explain why women rarely win food prizes or take risks. The most frequently cited barriers by female cooks may include masculinity, undervaluing their abilities, a lack of tools for networking or making decisions, and work-life balance. As a result, even though they expressed discontent with some elements, women chefs must have confidence in themselves, be dependable, committed, and progress whenever dealing with the workplace culture or traditions that are now in place. With more women working in restaurant kitchens and new technologies like open-kitchen appearing, it is anticipated that progress would quicken. According to Harris and Giuffe's (2010) survey, there are 17.5% of female chefs working in the business annually. According to a gender study of professional cooks in Taiwan, 68.4% of chefs are women and 31.6% are men (Lin et al., 2019). According to these research, we may conclude that a person's decision to pursue a career in the culinary arts depends on the society in which they reside and on how that society perceives them.

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