

ENVIRONMENTAL FACTORS THAT INFLUENCE CULINARY CREATIVITY FROM THE PERSPECTIVES OF TURKISH CUISINE PROFESSIONALS

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Abstract

This study explores environmental factors that influence the culinary creativity of Turkish cuisine. Although Turkish food culture is known for its richness and diversity in terms of ingredients and cooking techniques, the assumption is that environmental factors cause some recognition and representation issues internationally. For this reason, a quantitative questionnaire study was carried out and aimed to understand perceptions of chefs (hotel and restaurant chefs) and academicians (instructor chefs and academicians) towards factors that influence culinary creativity in Turkey. The exploratory factor analysis revealed six environmental factors that impact the culinary creativity of Turkish cuisine. These are (1) politics and economics, (2) education, (3) culture, (4) media and globalization, (5) technology, science, and design, (6) tourism. According to the study results, while the highest scores were given to educational factors by the participants, the media and globalization's impact was found to be the least concerned factors. The results demonstrate the significant differences are between participants' job specifications, genders, and education degrees. Moreover, this study suggests that cuisine is a designed phenomenon since it includes unique ingredients, cooking techniques and skills, flavors principles, and particular stakeholders. Thus, the proper management of these elements will provide cuisine a competitive advantage in the culinary industry. Chefs are the primary actors representing a cuisine in the international culinary industry and differentiate it from its competitors with their creative approaches.

Keywords: Creativity; Culinary Creativity; Culinary Arts; Gastronomy.

FATORES AMBIENTAIS QUE INFLUENCIAM A CRIATIVIDADE CULINÁRIA SOB A PERSPECTIVA DE PROFISSIONAIS DA COZINHA TURCA

Resumo

Este estudo explora os fatores ambientais que influenciam a criatividade culinária da culinária turca. Embora a cultura alimentar turca seja conhecida por sua riqueza e diversidade em termos de ingredientes e técnicas de cozimento, o pressuposto é que fatores ambientais causam alguns problemas de reconhecimento e representação internacional. Por esse motivo, foi realizado um estudo de questionário quantitativo com o objetivo de compreender as percepções de chefs (chefs de hotéis e restaurantes) e acadêmicos (chefs instrutores e acadêmicos) sobre os fatores que influenciam a criatividade culinária na Turquia. A análise fatorial exploratória revelou seis fatores ambientais que impactam a criatividade culinária da cozinha Turca. São eles (1) política e economia, (2) educação, (3) cultura, (4) mídia e globalização, (5) tecnologia, ciência e design, (6) turismo. De acordo com os resultados do estudo, enquanto as pontuações mais altas foram atribuídas aos fatores educacionais pelos participantes, a mídia e o impacto da globalização foram considerados os fatores menos preocupados. Os resultados demonstram que as diferenças significativas estão entre as especificações de trabalho dos participantes, gêneros e graus de escolaridade. Além disso, este estudo sugere que a culinária é um fenômeno projetado, pois inclui ingredientes únicos, técnicas e habilidades culinárias, princípios de sabores e partes interessadas específicas. Assim, a gestão adequada destes elementos proporcionará à gastronomia um diferencial competitivo no setor culinário. Os chefs são os principais atores que representam uma culinária na indústria culinária internacional e a diferenciam de seus concorrentes com suas abordagens criativas.

Palavras-chave: Criatividade; Criatividade culinária; Artes culinárias; Gastronomia.

FACTORES AMBIENTALES QUE INFLUYEN EN LA CREATIVIDAD CULINARIA DESDE LA PERSPECTIVA DE LOS PROFESIONALES DE LA COCINA TURCA

Resumen

Este estudio explora los factores ambientales que influyen en la creatividad culinaria de la cocina turca. Aunque la cultura gastronómica turca es conocida por su riqueza y diversidad en cuanto a ingredientes y técnicas culinarias, se supone que los factores ambientales causan algunos problemas de reconocimiento y representación a nivel internacional. Por esta razón, se llevó a cabo un estudio cuantitativo mediante un cuestionario con el objetivo de conocer las percepciones de los chefs (cocineros de hoteles y restaurantes) y de los académicos (cocineros instructores y académicos) sobre los factores que influyen en la creatividad culinaria en Turquía. El análisis factorial exploratorio reveló seis factores ambientales que influyen en la creatividad culinaria de la cocina turca. Se trata de (1) la política y la economía, (2) la educación, (3) la cultura, (4) los medios de comunicación y la globalización, (5) la tecnología, la ciencia y el diseño, (6) el turismo. Según los resultados del estudio, mientras que las puntuaciones más altas fueron otorgadas a los factores educativos por los participantes, el impacto de los medios de comunicación y la globalización resultaron ser los factores menos preocupantes. Los resultados demuestran que hay diferencias significativas entre las especificaciones de los puestos de trabajo, los géneros y los grados de educación de los participantes. Además, este estudio sugiere que la cocina es un fenómeno diseñado ya que incluye ingredientes únicos, técnicas y habilidades culinarias, principios de sabores y actores particulares. Así, la gestión adecuada de estos elementos proporcionará a la cocina una ventaja competitiva en la industria culinaria. Los chefs son los principales actores que representan a una cocina en la industria culinaria internacional y la diferencian de sus competidores con sus enfoques creativos.

Palabras clave: Creatividad; Creatividad culinaria; Artes culinarias; Gastronomía.

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1 INTRODUCTION

In the evolution of Turkish culinary culture, the fact that it has witnessed diverse civilizations throughout its history and covered vast geography has provided a broad field of study and interest to scholars. The general discourse about Turkish cuisine is its richness, diversity, and importance compared to world cuisines (e.g., Aktaş & Özdemir, 2007; Ertaş & Gezmen-Karadağ, 2013; Karaosmanoğlu, 2007; Aymankuy & Sarıoğlu, 2007; Talas, 2005).

However, the studies conducted on Turkish cuisine commonly involve tourism studies (e.g., Aktaş, Aksu & Çizel, 2007; Aydın, Erdoğan & Baloğlu, 2020; Okumuş, Okumuş & McKercher, 2007; Yayla, Yayla & Konuk, 2018), and food culture and its historical development (e.g., Batu & Batu, 2018; Cekal, 2014; Düzgün & Özkaya, 2015; Önçel, 2015).

Recently few scholars study Turkish cuisine from the service design perspective (Gürcan & Özcan, 2014), product innovation (Erdem, Doğdubay & Sarıoğlu, 2012), creativity (Seçilmiş, Kodaş & Kodaş, 2017), and success factors of Turkish chefs (Bekar & Driver, 2017; Eren & Güldemir, 2017).

Cuisine usually refers to a region such as French, Italian, Chinese cuisine, providing distinctiveness and significance through cooking styles, techniques, and ingredient choices (Civittello, 2008), and is "both a structure and an action, a set of principles as well as practices" (Ferguson, 2004). According to Civittello (2008), it was not cuisine, as the first humans ate to survive and had no control over their food sources.

The cuisine is a designed phenomenon. A cuisine includes basic and unique ingredients, specific cooking skills and techniques, an acceptable range of dishes, and diverse flavor principles for its formation and differentiation (Rozin & Rozin, 1981).

The cuisine is about production, and its orders are mainly instrumental; its application is site-specific, involving the producer and consumer in the process (Ferguson, 1998), its techniques and ingredients can be analyzed empirically (Ferguson, 2004). As a result, it enriches life and produces aesthetic pleasure (Rozin, 2006), while at the same time, it transforms the physical, natural, uncooked, and unprocessed into a social actor (Ferguson, 2004). The cornerstone of cuisine is the food itself, and critical skills for cuisine include choosing ingredients, understanding their properties, and knowing the use of ingredients (Hornig, Hu & Lin, 2011).

Every country, city, village has its food culture, but it is their cuisine that will compete in the competitive culinary industry. Furthermore, for these cuisines to differ from their counterparts, they need to be creative, offer creative products, inspire other cuisines or chefs with their creative approaches, and contribute to the

culinary world. In the last two decades, creativity has started to become a critical topic either in the development or understanding of the nature of gastronomy and the culinary arts.

Creativity has always been thought to be a part of literature, music, or fine arts. Even though culinary art has not been considered a kind of visual, musical, and fine art and the cooks and chefs may not be accepted as creative people such as poets, painters, and composers, creativity has become a criterion to determine diversity among cuisine or chefs.

Recently, scholars have started to study the relations between the chefs' creative processes and their performances (Hornig & Hu, 2008, 2009; Hornig & Lee, 2009; Peng, Lin & Baum, 2012; Roque et al., 2018); the creativity and occupational satisfaction of chefs in the hospitality and tourism industry (Robinson & Beesley, 2010; Bouty & Gomez, 2013; Tongchaiprasit & Ariyabuddhiphongs, 2016) the education of the chefs and the creativity of the performances (Peng, Lin, & Baum, 2012); and the culinary innovation process and creativity (Stierand, Dörfler & MacBryde, 2014; Stierand & Dörfler, 2016; Presenza et al., 2017).

However, the studies related to Turkish cuisine generally focused on the food and beverage establishments' role in the tourism industry. In recent years, innovation and culinary creativity defined as two essential elements in the development of gastronomy tourism, and a strategy was conducted by the Turkish culture and tourism ministry (Kültür ve Turizm Bakanlığı, 2019).

Turkish cuisine could be a competitive world cuisine with its powerful resources and tools due to its ingredients, cooking techniques, and chefs. However, it experiences problems caused by environmental factors in managing, processing, and sharing these resources. The actors who will reveal the recognition of Turkish cuisine in the first place are the chefs.

This study aimed to discover the roles of environmental factors, which was defined as under the six titled as politics and economics, education, media and globalization, tourism, culture, science, technology, and design in the development of culinary creativity by comparing chefs' and academicians' perspectives from different professions of gastronomy in Turkey.

2 THEORETICAL REVIEW

2.1 Creativity and Environmental Factors

Researchers have defined creativity in different ways and from diverse perspectives. Runco and Jaeger (2012, p.92) propose the standard definition of creativity, which has been accepted and most used by scholars, as "creativity requires both originality and

effectiveness" by following back to the early definition of Stein (1953).

Based on the standard definition, creativity is original (novel, unexpected) and useful (appropriate, effective) act or process, idea, product, insights, restructurings, inventions or, artistic objects which can change the existing domain, judged by experts, and accepted by society (Amabile, 1983; Vernon, 1989; Csikszentmihalyi, 1996; Sternberg & Lubart, 1998; Mumford, 2003).

Rhodes (1961) proposed a functional classification of creativity called the 4P's of creativity: person, process, product, and press/environment. The complex nature of creativity becomes understandable with the guidance of the 4P model. Person refers to the diverse characteristics of an individual who creates; the process is the event and activities related to a creative act; the product is associated with only the production of the creative act; and finally, press/environment contains the physical or social extrinsic factors that influence the creativity.

Over the years, research in the field of creativity has been started to concentrate on the influence of the environment on creative behavior in addition to characteristic features of individuals, their processes, and end-products. MacKinnon (1978) identified this research area as living conditions, social, cultural, political, and working environments that facilitate or hinder creativity.

According to Isaksen et al (2001), the external environment refers to any circumstance or situation outside an organization, such as the external market, global financial conditions, government, the media, the larger political and social systems, and technological and scientific advances, that can affect the organization's and community's efficiency. Similarly, Soliman (2005) says that environmental conditions inhibit or potentiate creativity based on the relationship between individuals and environments.

As a result, even if individuals are creative or have the potential to be creative, environmental factors can either support or block those individuals, their processes, and their products. Creativity is understood when societies, organizations, and experts accept the value of a person, process, or product. Therefore, environmental factors such as social, cultural, politics, education, media, universal and national economic conditions, technological and scientific developments that affect the development of societies and the structure of organizations directly affect creativity.

2.2 Culinary Creativity

The early use of the term "culinary creativity" in the culinary literature comes from Ferguson (1998),

explaining that gastronomy began in France in the 19th century and that modern culinary creativity is restaurant-centered.

Svejenova, Mazza and Planellas (2007) explore entrepreneurship in international gastronomy and explained culinary creativity as combining concepts and techniques operating through the organization and generating a continuous flow of new ideas. Bouty and Gomez (2013) describe the creativity in the culinary context as the idea generation by the head chefs, the production of the dishes by the kitchen team, and naming the product to express the emotions and gastronomic experiences of the head chef.

Moreover, Slavich, Cappetta and Salvemini (2014) state that creativity stems from the inspiration of chefs, as well as from the modifications of existing recipes and the production of radical new creations. The studies mentioned above focused on organizational work in the kitchen shows that culinary creativity can occur when chefs are inspired by constantly generating new ideas, refining, and modifying classical and traditional cuisines while maintaining quality and consistency in these processes to meet customers' expectations in the competitive culinary industry.

Another field where researchers study culinary creativity is chefs' creation processes and products. Horng and Hu (2008) explore culinary creativity based on the modified version of Wallas' classic 1926 model of the creative process, which forms a cycle: preparation of the idea, idea incubation, idea development, and verification of the culinary product. Later, Horng and Hu (2009) in a new study searched the relationship between the culinary chefs' expertise and creative process, including their performances on the culinary product.

Tongchaiprasit and Ariyabuddhiphongs (2016) define culinary creativity as using the blends to harmoniously create dishes that look nice, taste delicious, and meet the customers' dreams. Consequently, culinary creativity from a process perspective is about exploration and the generation of many alternative ideas; the intuition of the chefs supports these processes, and at the same time, the products to be obtained must be correctly prepared and delicious.

In the culinary industry environment, creativity can be affected by different environmental factors. There have been several studies on the factors that influence the process of creativity in the culinary industry. For example, Horng and Lee (2009) study the physical, social, cultural, and educational environment effects on culinary creativity development. Likewise, Zopiatis (2010) explains the balance between the chef's artistic culinary creativity and management of science and technology. Peng, Lin and Baum (2013) refer to the importance of education and training on the development of culinary creativity.

Traditional Turkish cuisine, which is very rich and diverse, offers chefs a wide range of materials and techniques. The number of institutions providing associate, undergraduate, and graduate education in gastronomy and culinary arts departments in Turkey has exceeded 100. This situation causes thousands of candidate chefs to be introduced into the gastronomy sector every year. It has also begun to raise awareness in chefs who are strictly connected to their traditions and cultures, who do not have an academic education but have years of experience.

Karaosmanoğlu (2007) reflects the importance of culinary creativity in terms of modernization, globalization, and standardization in the development of tourism industry while Erdem, Doğdubay, and Saroğlu (2012) indicate that food and beverage establishments should recreate their basic strategies to make differences in their services and for complete long-term successful organizations, they should be innovative.

They also concluded that the combination of creativity and innovation is the process of transforming new ideas. In order for Turkish cuisine, which is strong in terms of person, product, and process, to compete in the international culinary industry, it is necessary to determine the environmental factors affecting every component of Turkish cuisine initially.

Therefore, two research questions were determined to understand the environmental factors affecting Turkish cuisine's creativity.

(RQ1) What are the perceptions of chefs and academicians towards environmental factors that affect Turkish cuisine's culinary creativity?

(RQ2) Are there any differences among the participants' professions?

3 METHODOLOGY

3.1 Questionnaire Design

The purpose of this study was to investigate environmental factors that influence culinary creativity in Turkish cuisine. Studies identified various environmental factors, namely, physical, social, cultural, and educational environment (Hornig & Lee, 2009); political, economic, social, and technological factors (PEST model) (Peng, Lin & Baum, 2013); or creative climate, work demand, creative self-efficacy, and creative role identity as exogenous factors of the creative culinary process (Leung & Lin, 2018).

To measure the culinary professionals' perceptions towards external factors, a five-point Likert scale (from strongly disagree to strongly agree) questionnaire was designed into two sections: demographic information (gender, age, range job specification, experience, educational status) and six

environmental factors (the culture, education, technology, science and design, politics and economics, tourism, and media and globalization).

The questionnaire with a total of 32 items including five items for politics and economics and creativity relation (Tröhler, 2014); six items for culture and creativity relation (Harzing & Hofstede, 1996; Li at al., 2013), six items for tourism and creativity relation (Hu, 2010a; Pepler & Solomou, 2011); five items for education and creativity relation (Shephard 2008; Harrington 2004; Hegarty & Antun, 2008) and six items for technology and science and creativity relation (Kim, Im, & Slater, 2013; Wilson & Brown, 2013) and five items for media and globalization (Lin & Baum, 2016; Pang, 2017), respectively were identified and modified based on the scaled and validated studies from the literature.

3.2 Sampling and Data Collection

To collect the data, a focus group was defined as chefs (hotel, restaurant), academicians (instructor chefs and lecturers), and the questionnaire was sent online to the chefs of Turkish cuisine (168 chefs) and academicians (74 academicians) involved in gastronomy and culinary arts education in Turkey. Data were collected from 145 participants from two professions, that is, 100 chefs (59.52% respondent rate) and 45 (58.11% respondent rate) academicians.

This study employed a combination of purposive and snowball sampling. Lecturers and instructor chefs who work at the universities' gastronomy and culinary arts department were recruited via purposive sampling. Restaurant and hotel chefs were identified through snowball sampling.

The contact information was obtained through universities' websites and social or professional networks. The participants received an online link to the questionnaire where the purpose of the research was explained, and the data was collected from July 18 to October 23 in 2018. The confidentiality of participants' answers was assured.

3.3 Data Analysis

For the analysis of the quantitative data from the survey questionnaire, SPSS 23.0 was used. Descriptive statistics were calculated for all variables. Exploratory factor analysis (EFA) was used to identify factors that best explained the model's dimensions (the macro-environmental factors).

According to Byrne (2010), EFA is the early phase of scale development when a new measure's structure is not identified. Thus, the objective of doing EFA in this study was to reduce the number of items and extract the factor structure of those items for culinary design

thinking phases using a principal component analysis with Varimax rotation.

Prior to factor analysis, Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy and Bartlett's test of sphericity were conducted to confirm if the distribution of values was adequate for conducting factor analysis.

In self-reported surveys and quantitative research, common method variance (CMV) or common method bias (CMB) is a common concern. The CMV means that any or more responses are obtained within the same scale as the covariance in the measured items (Hair et al., 2006). Podsakoff, MacKenzie, Lee, and Podsakoff (2003) suggest applying Herman's one-factor test to identify the presence of common method variance bias between variables of the study.

All the study items were entered into principal factor analysis without rotation in SPSS, and the first factor explained only 28.79% of the variance, which is lower than 50% of the covariance. Thus, the test indicates that method variance is not an issue in this study.

Differences between restaurant, hotel and instructor chefs and academicians in external factors perceptions were analyzed with non-parametric Kruskal-Wallis H-test with adjusted p-values and Mann-Whitney U-test as the variables were not normally distributed. The significance level of 0.05 was applied in all statistical tests. The respondent-related (gender, age, education, experience) variables were analyzed by Kruskal-Wallis H-test or Spearman's correlation coefficients with Bonferroni correction in case of pairwise comparisons or Mann-Whitney U-test.

4 RESULTS

4.1 Demographic profile

In total, 242 questionnaires were sent to all four participants groups, from which 145 completed and

4.2 Exploratory Factor Analysis

To explore the underlying dimensions of external factors that influence Turkish cuisine's culinary creativity, 32 items with six main titles were identified. EFA with principal component analysis method was used following with an orthogonal rotation which was performed using varimax with Kaiser normalization.

The sampling is adequate or sufficient if the value of Kaiser-Meyer-Olkin (KMO) is larger than 0.5 and also (Kaiser, 1974; Field, 2005). KMO value was 0.804 and, Bartlett's Test of Sphericity was found to be 1089.531, with significances lower than 0.001. Thus, the sample was considered adequate, and data were suitable for factor analysis (Hair et al., 2006).

valid questionnaires were returned. All the respondents were classified based on their business profile, and four different categories were titled as academicians (N=45), instructor chefs (N=29), hotel chefs (N=39), and restaurant chefs (N=32). The respondent sample contained many more males (69.7%) than females (30.3%), and nearly half of the respondents (45.5%) were aged 26–35 years, followed by respondents aged 36–45 years (30.3%). Respondents' demographic profile is summarized in Table 1.

Table 1. Sample demographics (n = 145).

Characteristics	Frequency	%
<i>Gender</i>		
Female	44	30.3
Male	101	69.7
<i>Age</i>		
18 - 25	16	11.0
26 - 35	66	45.5
36 - 45	44	30.3
46 - 60	17	11.7
Over 60	2	1.4
<i>Years in service</i>		
1 - 5	27	18.6
6 - 10	27	18.6
11 - 15	31	21.4
16 - 20	26	17.9
More than 21	34	23.4
<i>Education</i>		
Secondary school	4	2.8
High school	24	16.6
Associate degree	17	11.7
Bachelor's degree	46	31.7
Graduate degree	54	37.2
<i>Job Classification</i>		
Restaurant chef	32	22.1
Hotel chef	39	26.9
Instructor chef	29	20.0
Lecturer	45	31.0

Source: own elaboration.

Factor loadings were investigated, and solutions improved by deleting items that either loaded on several factors or had low loadings. Comrey and Lee (1992) suggest that loadings with a cut-off point of 0.71 are considered excellent; 0.63 loadings are very good; 0.55 loadings are good; 0.45 loadings are fair, and 0.32 loadings are poor.

Hair et al. (2006) also indicated that the factor loadings between 0.30 – 0.40 are minimally accepted; however, loadings above 0.50 are significant. According to Jung and Lee (2011), in a small number of sample cases, factor loadings can be considered meaningful if above a threshold of 0.35. Items with a 0.50 threshold and above with the factor were thought to describe the factor and its related scale the best.

Thus, those items would provide the best assessment for the particular case. Therefore, these items were dropped to improve the further analysis. As a result, from the orthogonal (varimax) rotated factor matrix, six factors with 21 variables were identified by the original 32 variables with loadings above 0.50 were accepted as eligible items in describing the factors. According to Nunnally (1967), the results of factor analysis should explain at least 60% of the total variance. A comparison of the data revealed six components of external factors that influence culinary creativity identified by the culinary professionals in this study had eigenvalues greater than 1.00, explaining a total of 63.607% of the variance. Component 1 was labeled political and economic factors comprised of four items that explained 28.79% of the variance.

Component 2 was labeled education comprised of four items that explained 9.27% of the variance. Component 3 was labeled media and globalization, comprised of three items that explained 7.27% of the variance. Component 4 was labeled culture consist of four items that explained 6.91% of the variance.

Component 5 was labeled technology, science, and design, comprised of three items that explained 6.05% of the variance. Finally, component 6 was labeled tourism, comprised of three items that explained 5.31% of the variance.

Cronbach alpha reliability of each indicator, composite reliability (CR), and average as an extended (AVE) model of reliability were studied. The results were evaluated based on the recommended values of 0.7 points in the case of composite reliability (Jöreskog, 1971) and 0.5 in AVE (Fornell and Larcker, 1981). Hair et al. (2006) also indicated that the generally agreed upon lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. The Cronbach alpha coefficients ranged from a high 0.782 (domain labeled as media and globalization) to a low 0.604 (domain labeled as tourism).

Table 2 shows the factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) values for the labeled factors, their items, and mean scores of the factors.

Table 2. Factor loadings, Cronbach's alpha, CR, AVE results, and Mean scores.

Items		Loadings	Cronbach's Alpha	CR	AVE	Mean
	Politics and Economics		0.744	0.841	0.576	3.98
Item13	Government subsidies for agriculture and stock-raising strengthen the creativity of the kitchen.	0.868				
Item9	Support of government strengthens culinary creativity.	0.862				
Item8	Government policies (gastro diplomacy, agriculture, and tourism) affect creativity in the kitchen.	0.700				
Item25	The diversity of agriculture and aquaculture makes culinary creativity strong.	0.564				
	Education		0.727	0.827	0.547	4.39
Item19	Courses about traditional cuisines enhance creativity in the kitchen.	0.811				
Item18	Proficiency in art (painting, sculpture, music, etc.) strengthens creativity in the kitchen.	0.787				
Item3	Gastronomy and culinary arts education enhance creativity.	0.716				
Item1	The theoretical and practical balance of academic culinary education strengthens culinary creativity.	0.631				
	Media and Globalization		0.782	0.874	0.700	3.93
Item28	Press and media affect kitchen creativity.	0.907				
Item29	Social media channels affect culinary creativity.	0.865				
Item27	With globalization, it is necessary to be creative in the kitchen to be involved in the growing competition in the restaurant world.	0.728				
	Culture		0.744	0.834	0.558	4.22
Item10	The creative products are mostly generated by culturally rich cuisines compared to the cuisines with low cultural diversity.	0.822				
Item32	The combination of local culture with foreign cultures has an impact on culinary creativity.	0.770				
Item23	Multicultural structure enhances culinary creativity.	0.727				
Item21	Culture awareness is a powerful tool in producing creative work in the kitchen.	0.660				
	Science, Technology, and Design		0.609	0.777	0.540	4.11
Item12	Chefs do not need to comprehend food science to be creative in the kitchen.	0.807				
Item14	Design education reinforces creativity in the kitchen.	0.757				
Item15	Technology should be used to be creative in the kitchen in the modern-day.	0.630				
	Tourism		0.604	0.784	0.549	4.21
Item7	Creativity is required in the kitchen for success in gastronomy tourism.	0.784				
Item20	Creativity ensures that chef candidates are successful in the industry.	0.746				
Item22	Creativity in tourism affects culinary creativity.	0.688				

Source: own elaboration.

4.3 Relationships Between Culinary Professionals and External Factors That Influence Turkish Cuisine Culinary Creativity

According to the demographic profile, the differences in the perceptions of the participants towards external factors that influence Turkish cuisine's creativity among the four different job specifications were examined, specifically restaurant chefs, hotel chefs, instructor chefs, and lecturers. All the results were summarized in Table 3 (see Appendix I).

All four occupational groups perceived educational factors as most important, followed by cultural factors. Restaurant chefs gave education (M = 4.23) and culture (N = 4.23) the greatest importance and the media and globalization (M = 3.90) the lowest. Hotel chefs gave education (M = 4.50) the greatest importance and the media and globalization (M = 4.00) the lowest. Instructor chefs perceived tourism (M = 4.16) and politics and economics (M = 3.78) to be the highest and lowest, respectively. Finally, lecturers put more emphasis on education (M = 4.53) and less on politics and economics (M = 3.88).

According to Kruskal Wallis H test, there were statistically difference in the mean scores of cultural factors $\chi^2(3) = 8.630$, $p = 0.035$, politics and economics factors $\chi^2(3) = 12.262$, $p = 0.007$, educational factors $\chi^2(3) = 10.374$, $p = 0.016$, technology science, and design factors $\chi^2(3) = 9.618$, $p = 0.022$, and finally tourism factors $\chi^2(3) = 8.115$, $p = 0.044$. No significant differences were revealed for media and globalization factors.

Moreover, the results of pairwise comparison showed that the differences occurred either between hotel chefs and instructor chefs (cultural, political, and technological factors) or between restaurant chefs and instructor chefs (educational, and tourism factors).

5 DISCUSSION

The study was conducted to examine the perspectives of Turkish chefs and academicians towards environmental factors that influence culinary creativity. The EFA results revealed a clear factor structure for each construct with high factor loadings (see Table 2).

Politics and economics; education; media and globalization; culture; technology, science, and design; tourism factors on culinary creativity were investigated among the chefs and the academicians participating in Turkish cuisine.

Political and economics factors. This study revealed that political and economic factors were the most important concerns of the chefs and academicians that impact Turkish cuisine creativity.

The items are mainly related to government policies and supportive strategies on culinary creativity, particularly issues related to resources and diversity protection. Government policies can catalyze or inhibit creativity (Kim & Yoon, 2015). Moreover et al. (2022) showed the positive results of the government's contributions to Brazil's international tourist promotion policies. The study revealed that the participants stay recessive about government policies, yet they agree that government support strengthens culinary creativity.

There are no particular government policies or regulations that aim to support Turkish cuisine's development. On the contrary, the agricultural policies enacted in recent years and the zoning of agricultural lands for housing or selling them to foreigners have made Turkey, which has very suitable for growing and producing crops due to its geographical conditions, dependent on foreign sources.

This situation causes the number of agricultural producers to decrease (Sevinç et al., 2019) and thus the loss of Turkish cuisine. However, agriculture and aquaculture diversity are critical building blocks that sustain and shape cuisines—founded on the preservation and development of agriculture and aquaculture, policies to protect the food diversity of the country and lead to the re-emergence of endemic products (Altieri, Funes -Monzonte & Petersen, 2011; Koohafkan & Altieri, 2011).

The current example of this in the world is New Nordic cuisine, which has changed the course of the gastronomic world today, creating diversity from its restrictions, and as this movement progressed, Scandinavian food, agriculture, and fishery ministries wanted to do their part to support creativity (Byrkjeflot, Pedersen & Svejenova, 2013).

The significant difference between hotel chefs and instructor chefs towards political and economic factors was observed in this study. This may be since the Ministry of Culture and Tourism included gastronomic tourism as an individual type of tourism in Turkey's Tourism Strategy 2023 and Action Plan 2007-2013 and allocated a long-term budget policy (Republic of Turkey Ministry of Culture and Tourism, 2021). The prominence of gastronomy tourism has built awareness, especially in hotel chefs, and provided new perspectives on gastronomy.

On the other hand, gastronomy and culinary arts departments require continuity in the budget and investment in equipment and materials. While public universities have limited budgets, private universities can invest more easily since they build their budgets.

In other words, the budgets allocated by the government to the gastronomy and culinary arts departments are insufficient. However, the hotel

industry's one of the most important sources of income and attraction is the dishes served to the customers. Thus, their kitchens are well established, and cost limitations are insignificant since they profit.

Educational factors. This study's results revealed that the second environmental factor that influences Turkish cuisine creativity was education. The educational items were about traditional cuisine education, the balance between theoretical and practical education, and proficiency in the art regarding gastronomy and culinary arts education. There was a significant difference between instructor chefs and restaurant chefs in education factors.

Even though the chefs of both groups are aware of the importance of education in culinary creativity, restaurant chefs give lower scores because they may think that experience is also essential in addition to education. However, according to Sternberg (2012), a person should thoroughly understand the field to take it further. A chef's or an apprentice's in-depth knowledge about their cuisine provides an advantage in producing creative ideas and solutions to advance a cuisine.

Fundamentally, culinary knowledge is about how an individual knows and understands the food today and is a noticeably broad subject. Food preparation, presentation, flavor combinations, and ethnic influences are the features of culinary knowledge (Baldwin, 2018).

However, culinary knowledge is higher than in those aspects. Culinary knowledge is beyond the kitchen and comprises written sources such as cookbooks, diaries, newspapers, official documents, inventories, and verbal and visual sources of countries and their people. To be aware of and informed on such a broad subject, it is necessary to reach the information systematically and accurately, and that can only be achieved through education in culinary arts.

Generally, participants of the study agreed that gastronomy and culinary arts education enhance Turkish cuisine creativity. In addition, however, as mentioned in the political and economic factors, there are problems and inadequacies in the support given to gastronomy and culinary arts education in Turkey. Sarıođlan (2014) concludes that the ministry of education in Turkey could not provide quantitative and qualitative adequacy in the science and education of gastronomy.

Moreover, there is no critical and creative thinking system in the traditional mentor system because there is a lack of standardization in gastronomy education in Turkey (Eren & Güldemir, 2017). This situation is in line with the work of Horng and Lee (2009) because culinary creativity could be either inspired or restricted by the education method.

Media and globalization factors. The third factor of this study was media and globalization. There was no statistically significant difference between the participants in this regard. The reason may be that the media and globalization do not contribute to and locate in their profession. However, the change in societies is reflected in the transformation of cultural identities, especially with the consolidation of globalization and the media (Chen & Zhang, 2010).

According to Carayannis and Gonzales (2003), globalization can be an essential tool of beneficial and sustainable economic integration in countries where creativity and innovation are effectively implemented, while in non-competitive countries, it can be a powerful trigger for poverty, inequality, marginalization, and economic disruption.

Likewise, the concept of creativity trying to achieve novel results may be influenced by the processing of information through the media (Healy, 2004). Moreover, reputations can be built, and career opportunities opened utilizing social media (Tang, Gu, & Whinston, 2012). Furthermore, Ergul, Johnson, Cetinkaya and Robertson (2011) suggest that incorporating social media can promote Turkish cuisine and culture.

Globalization and media issues reflect interactions with customers. According to Sabir et al. (2014), the restaurant world is in the age of globalization, and the development of the media is causing the culture and habits to narrow because people lean to fashionable food trends.

This situation causes the food to be standardized. The increasing competition in the restaurant world, which intends differentiation, with globalization protects food from standardization, and this can only be done with creative approaches.

There were no statistically significant differences in globalization and media factors in this study, and the participants remained recessive. However, Santos de Andrade et al. (2018) demonstrated in their study on the impact of social media from a consumer's perspective that experts play a critical role in encouraging consumers to recognize destinations. This may be that both subjects are very new both in the world and in Turkish cuisine. However, Batu and Batu (2018) stated that the culinary culture of Turkish gastronomy had been influenced by globalization.

Cultural factors. The fourth factor with four items concerned the perception of cultural influences on the culinary creativity in Turkish cuisine. The studies point out that culture and creativity have generally focused on multiculturalism, which is closely connected to traditions and knowledge regarding the culture (Harzing & Hofstede, 1996; Li et al., 2013) and gastronomy is a major aspect of intangible cultural existence (Souza, &

Furtado, 2022). People from different cultures may have different concepts and methodologies in their processes of culinary creativity.

A study on the effect of multiculturalism on creativity indicated that when people interest in foreign cultures and compare and combine the differences of foreign cultures with their home cultures, this can encourage creativity, namely, "multicultural experience increases creative performance" (Leung et al., 2008).

In fact, this may explain the reason for the significant difference between hotel chefs and instructor chefs. While hotel chefs think that cultural factors have a greater impact on culinary creativity, instructor chefs scored lower because not only Turkish culinary culture is taught in academic culinary training, but also cultures are taught in different cuisines, and by bringing these together, chef candidates are provided with both different perspectives and critical thinking. Thus, students have more information and data to produce creative results.

On the other hand, the grounded knowledge and beliefs of a culture, particularly its traditions, may also establish "perceptual and mental" barriers (Chiu & Kwan, 2010). This may be the reason why hotel kitchens in Turkey are grounded with ordinary and stereotyped information and offer very standard dishes. Despite this, Christofolletti (2022) asserted that tourism supports and improves cultural heritage, which is an integral part of individuals. However, based on our results, the multicultural environment, cultural interactions, and awareness can have a high impact on culinary creativity, and culture can be an element of the gastronomic identity.

Technology, science, and design factors. The fifth factor that influences Turkish cuisine creativity was the technological, scientific, and design factors. These three factors are intertwined, interdependent, and have tension with creativity.

When technology is used within the scope of people's demands, creativity can be developed in society, otherwise, when technology is left to its own, productivity is the ultimate goal, and there can be no creativity because there is no time to explore (Edwards, 2001). The most prominent examples of this in the kitchen industry are mass production and fast-food chains.

The knowledge of using developed and modern culinary technology equipment is one of the essential elements, along with creative thinking in developing innovative culinary applications in the kitchen (Hu, 2010b). In this study, the mean value of technology is lower when compared to science and design. The reason for this is that traditional Turkish cuisine is distant from technology. When this study's cultural factors are considered, chefs may consider the

negative effects of technology because generally, Turkish chefs are connected to their culture.

However, Oliveira et al. (2022) demonstrated in their studies that the innovation of various economic sectors is the most essential factor in providing consumer satisfaction.

Another aspect that emerged in this study is that chefs support food science. According to Penick (1996), creativity cannot happen by chance, and so there must be science teaching and knowledge to help develop creativity in a subject so that one can experiment, take risks, and ask critical questions. The balance between the arts of gastronomy and science also enhances culinary creativity. This study shows that chefs support food science more than technology.

A complex and ill-structured problem-solving approach of design requires creativity (Casakin, 2007). The relationship between food and design has come to the fore in recent years because well-known chefs' creative and innovative processes have been associated with the design process (Albeniz, 2018). Although there is no such work in Turkish cuisine, in this study, participants rated design issues higher than technology as well.

The significant difference towards technology, science, and design factors occurred between hotel chefs and instructor chefs as political and economic factors. This may be all about implementation because hotels allow chefs the best possible opportunities to accomplish their works. However, instructor chefs in the education kitchens struggle with limited opportunities. They cannot show the advanced food science techniques to their students in the kitchen by not taking advantage of what technology offers.

In other words, instructor chefs may be facing the absence of what these factors provide. In recent years, some gastronomy and culinary arts education institutions in Turkey have switched to an innovative education model, modular education, and have included food science and food design in their curricula. In addition, some graduate education programs have included food design education in their programs.

Tourism factor. The final factor revealed in the study is tourism and its effect on Turkish cuisine creativity. Tourism is one of the most critical drivers of economic growth in the field of culture and creativity. Also, it has a role for creative industries in the development of tourism and particularly in influencing the image of destinations (Richards, 2011). Additionally, tourism contributes significantly to economic growth and regional development (Jaquez et al., 2022).

Gastronomy is considered one of the creative industries and is a part of creative tourism activities. Richards and Raymond (2000) defined creative tourism

as "Tourism which offers visitors the opportunity to develop their creative potential through active participation in courses and learning experiences which are characteristic of the holiday destination where they are undertaken" (p.18). In recent years, the development in the creative tourism areas also has a notable impact on the growth of gastronomy or culinary tourism (Richards, 2011; Richards & Wilson, 2006).

Participants of the study agreed that creativity in tourism affects culinary creativity. Likewise, participants also agreed that culinary creativity was required for the success of gastronomy tourism. However, there is a significant difference between academicians and restaurant chefs.

Basically, the first reason for this may be that most of the academicians of the departments that provide gastronomy and culinary arts education in Turkey are based on tourism. This situation also shows why academic studies on gastronomy in Turkey are provided mainly by the field of tourism.

The reason why the scores of the restaurant chefs are lower than the other participants can be shown that Turkish gastronomy tourism is more hotel-oriented. This may indicate that restaurants, like hotels, need to be included in Turkey's scope of tourism support because the restaurant industry in Turkey is struggling with the sanctions that affect their sales, such as service hours and alcohol sales imposed by the state and municipalities. Despite the digitalized society and the impacts of the Covid-19 pandemic, tourism's presence is crucial to the formation of a new socialization process (Dachary, Burne & Amaiz, 2020).

6 CONCLUSION

This quantitative study analyzed environmental factors that influence the culinary creativity of Turkish cuisine by investigating perceptions of professional chefs and academicians who taught at gastronomy and culinary arts departments in Turkey to present a basis initiation for the realization of environmental factors on culinary creativity. According to the EFA results, Turkish cuisine's creativity is influenced by six macro-environmental factors: (1) politics and economics, (2) education, (3) media and globalization, (4) culture, (5) technology, science, and design, (6) tourism.

When the total mean scores of the factors are observed, the study shows that education is the first factor affecting culinary creativity. In particular, the theoretical and practical balance of academic culinary education has an essential contribution to culinary creativity development. Secondly, multiculturalism and diversity also have an impact on culinary creativity in Turkish cuisine. Likewise, the third factor that gains close scores with cultural factors is tourism. Fourthly,

the study reveals that technology, science, and design factors impact Turkish cuisine's creativity, especially participants who consider that food science has a higher impact. Politics and economics are the fifth factors that influence Turkish cuisine's culinary creativity; that is, governmental support or the developed strategies can play an essential role in developing gastronomic identity and, thus, culinary creativity. Lastly, media and globalization are the sixth factors that impact Turkish cuisine's creativity; specifically, social media has the highest impact compared to traditional media.

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Table 1. CRediT author statement

Term	Definition	Author 1	A.2	A.3	A.4	A.5
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims	Sedef Özgönül				
Methodology	Development or design of methodology; creation of models	Sedef Özgönül	Betül Öztürk			
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components	Sedef Özgönül				
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs	Sedef Özgönül				
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data	Sedef Özgönül	Betül Öztürk			
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection	Sedef Özgönül				
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools	Sedef Özgönül				
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse	Sedef Özgönül	Betül Öztürk			

Term	Definition	Author 1	A.2	A.3	A.4	A.5
Writing - Original Draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)	Sedef Özgönül				
Writing - Review & Editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre-or post-publication stages	Sedef Özgönül	Betül Öztürk			
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/ data presentation	Sedef Özgönül				
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team		Betül Öztürk			
Project administration	Management and coordination responsibility for the research activity planning and execution		Betül Öztürk			
Funding acquisition	Acquisition of the financial support for the project leading to this publication					

Source: adapted from Elsevier (2022, s/p), based upon Brand et al. (2015).

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