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Research About Moleculer Cuisine Application As An Innovation Example In Istanbul Restaurants

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Abstract

Restaurants should meet the desires and needs of its customers in the best way. They can compete with other restaurants and play a role in the forefront in this competition by innovating and submitting the current products with different tastes or services. Applications of molecular cuisine at this point, play an important tool in this process by new preparation, cooking and presentation methods. The aim of this work was to carry out to the potential contribution to the movement of molecular cuisine of the tourism industry. The responses given by professionals working in restaurants, where use molecular cuisine, and customers thoughts about molecular cuisine applications and molecular cuisine adoption status. The results obtained from 2 to 13 February 2015 in Istanbul. Data collected from semi -structured interviews. The results show that, the application of molecular cuisine, make a significant contribution to the development of Turkish tourism businesses, and also welcomed by the customers.

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Keywords: Innovation, restaurants, molecular gastronomy

1. Introduction

Today, living standards, increasing of education and income, changes in the social life have led people to differentiate the products they prefer. This behavior can be seen more on some products which have low costs and frequently purchasing by customers. Consumers tend to look for the different products that they are buying often,

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can easily reach at the market and have low costs. Consumers are seeking to different products and so, businesses have had to develop their production process, management mechanisms and their relations with their customers in order to meet the needs of the customers. They have attempted to make improvements in the methods and processes to meet the expectations of consumers (Akın 2001: 19; Riel, 2005: 493). This situation also applies to restaurant businesses.

Restaurant businesses meet the nutritional needs of people, on the other hand aim to meet the needs of customers' socialization with other people. Customers go to the restaurants not only to satisfy their nutritional requirements, but also to socialize, to be in a different environment and to try new tastes that are not prepared at their homes. This situation makes it imperative for the restaurant business to make changes to attract customers for their products. Besides, both in our country and worldwide, restaurant industry is developing fast and making innovation in processes and services they produce to increase customers' loyalty and to compete with other restaurants. In recent years, one of the new applications used by restaurant businesses to come to the forefront of the competition is Molecular Cuisine application. Thus, restaurants offer different experiences to the customers as well. The basis of molecular cuisine is gastronomy. In molecular cuisine foods are preparing, cooking and servicing out of the traditional methods. This application is used by restaurants as an important method of product differentiation (This, 2011: 141).

In recent years molecular cuisine applications have been using as a new method in the world and Turkey. Day by day, new companies involve in this application with a greater number. Therefore, this study was carried out to put chefs and customers opinions about molecular cuisine applications in restaurants and adoption of molecular gastronomy in tourism industry according to the results.

2. Literature: Innovation and Its' Features

Today, in an increasingly competitive environment, scientists, researchers and practitioners emphasize the necessity and importance of innovation in order to take advantage of sustainable competition. In this purpose, they focus on improved products, processes, techniques or procedures, and they change their managerial systems continuously (Oerlemans, Buys and Pretorius , 2001). The processes related to the innovations made by the company, meet consumers' needs and demands which changes daily and allows the companies to increase the product quality and decrease costs (Riel, 2005; 493).

In the literature, several definitions have been made for innovation: Jorda and Teece (1992: 76) define innovation as searching new processes, products, organizational structure and methods to discover, develop, improve, adopt and commercialize, Kotler Armstrong, Saunders and Wong (1999: 603) define innovation as new ideas that customer perceived and are defined as the development of products and technologies to market. For Harrison and Enz (2005: 287) and Elçi and Karataylı (2008: 1) in an innovation, a completely new product or a new feature of an existing product take place on the market, new production, methods and processes begins, the necessary resources for business operations implement and businesses reorganize.

Innovation may transform an idea to an application, process, or to the product (Ottenbacher and Gnoth, 2005: 206). Therefore, innovation is not just a concept with tangible products and businesses; it also applies to intagible businesses such as restaurants where services are offering. Restaurant businesses operate primarily related to innovation because they want to be forefront in the competition with other restaurant businesses and they want to improve their image in the market in a positive way. However, restaurants need to develop technologies to adapt to the changing conditions of the restaurant business, to meet consumer needs and desires and to provide better service (Riel, 2005: 493).

Despite innovation process has some advantages like coming forefront in competition, improving quality, having fully satisfied customers, sometimes some restrictions may occur because the innovation process has a complex, risky and hard structure. The deficiency of top managers' support and motivation for innovative culture, employees

long adoption process, the difficulty of finding and protecting new innovative ideas (Oke, Burke ve Myers, 2004: 38- 40), diversity of customer requirements and expectations and the resistance of the employees to innovation are some examples of this complex and risky structure of innovation. On the other hand, failures on project management, inadequate resources, time pressure and competitive challenges are the other difficulties of innovative applications (Wong and Pang, 2003: 30). Therefore, innovation is also indispensable for a restaurant where too much product diversity is and the customers not only satisfy their nutritional needs but also have good time and socialize. So, customers welcome new experiences like different presentation of products or tasting food and beverages beyond the traditional tastes offered them in the restaurants. In this case, customers prefer these restaurants that they had different experience there and innovative products affect to company's image and profitability positively.

3. A New Practice in Restaurants: Molecular Cuisine Applications

Service businesses have to find and develop new or better services and provide new or better service delivery technologies (Riel, 2005: 493) which referred to service innovation. Kandampully and Duddy define service innovation as the procedures to provide additional value to the products (1999: 54), and Oke, Burke and Myers (2007: 738) identify service innovation, on the other hand, as new developments in the activities carried out in order to make customers more attracted to the products. Service innovation is developing a new or different product and offering it to customers. While service innovation is creating, the company may present a totally new product or may make some changes to a current product to increase customers' appreciation.

Restaurant businesses have five aims to achieve while using innovation. These aims are; not losing existing customers, gaining new customers, maximizing profits, competing with other restaurants and keeping their presence in the industry. One of the innovative approaches is also implemented in recent years called Molecular Cuisine Application.

Molecular cuisine is based on the application of molecular gastronomy. The most important feature of the molecular gastronomy is using technology to influence the molecular structure of the material and providing new materials that are not intended to be combined together. In other words, in molecular gastronomy, changes have been making in the food and beverage form and taste by using physics and chemistry applications in the laboratory (eg, to add liquid nitrogen and enzymes in foods and beverages, such as laser process) (This, 2011: 140-141). Therefore, taste and flavor of food and beverages reach to the highest level and can be presented in different applications by creating new flavors and images (Crimea, 2009: 9). The application of molecular cuisine, which is related to the molecular gastronomy movement, offers to customers different structures of food and beverage with different flavors and images.

Different practices relating to the application of molecular cuisine is concerned and these applications are summarized as follows (Kırım, 2006);

- **Spherification:** In this application, liquid products are located in a wrapping material formed spherical given spherical shape and subsequently put into liquid materials. These fluid-filled balls explode when being bitten. Liquid ingredients and flavor spreads into the mouth.
- **Improving the Aroma of Food:** This application is attempted to be added to food or drink unusually diverse tastes. A classic example is adding chocolate and vanilla flavors to pasta.
- **Serving Food in Unusual Temperatures:** In this way, the main purpose is surprising the customers. Form of food and drink are serving in an exceeded temperature. For example, a traditionally cold eaten ice cream is serving hot with the same shape or a vegetable side dish next to a meat is serving as foam form.
- **Vacuuming Method:** In this application, meats cook in plastic bags at very low temperatures (Sosa Vide Technique) and very long periods. Thus, water remains constant and the meat does not lose its nutritional value and flavor.

4. Aim Of Research

The aim of this research is to clarify the possible effects of molecular kitchen in tourism industry. During the research period, we depend on the opinions of professionals, who make application on molecular kitchens in restaurants besides the customers who tried and approved these applications.

5. Method of Research

The molecular kitchen applications has started to be used in the recent years, therefore it has been tasted by a few customers. It has been hardly possible to reach to a sample which is dependable and acceptable. On the other hand, we think that it is difficult to obtain detailed information on molecular kitchen applications, with previously prepared surveys, due to a recent lack of usages of these applications. This study is based on specific research with partially maintained interview method to clarify the opinions of restaurant supervisors and the customers. This interview method is used in their natural environment with supervisors and the customers detaily about molecular kitchen applications.

In order to realize this aim, a general survey form is prepared to obtain the opinions of supervisors and the customers of the restaurants which based on subjects which are needed to be focused on. The base of this study is evaluated by the companies which have molecular kitchen applications in restaurants in Istanbul.

To find out these restaurants in Istanbul, the data of Ministry of Culture and Tourism was used. Besides this data we used these restaurants' internet sites whether or not if they have molecular kitchen applications. As a result we found out that there are only 5 restaurants which have used these methods, in Istanbul.

For the application part of our study, we contacted with through these restaurants by phone. Only one restaurant accepted to participate in our study and it has been performed at the restaurant on dates February 2 - 13, 2015.

6. Interpretations

In our research, the survey was done with three professionals who have been working in the restaurant. Two of them were cooks and one of them was an assistant cook who was using molecular kitchen applications. One of these cooks was trained in molecular kitchen applications at the culinary college, during his undergrad degree whereas the other cook and the assistant cook were trained in courses related with molecular kitchen applications. Cooks and the assistant cook, who were participated in this survey, mentioned the learning, knowing and the usages of these applications added validity on their professional careers.

First cook mentioned that “Due to our knowledge on molecular kitchen, we can prepare different kinds of meals and beverages with better sights and tastes than the regular ones. Therefore, a lot of restaurants want to hire us with better wages. We use our knowledge and experiences on molecular kitchen than the ordinary kitchen techniques, to serve our customers."

Interviewed kitchen professionals were agreed on the benefits and the advantages of the molecular kitchen to the restaurant.

Assistant cook mentioned that “Due to the benefits of molecular kitchen, we serve the meals and the beverages in a different style with more concentrated taste to our customers better than the original style and the taste of these meals and the beverages. This attacks the customers positively and increases the income of our restaurant. Customers who tasted our molecular products promote our restaurant."

Interviewed cooks and the assistant cook also mentioned that molecular kitchen will have positive effects on tourism industry. They also mentioned that by serving various forms molecular kitchen samples to customers will

enrich the traditional Turkish cuisine. Also, it will help the promotion of our country to foreign tourists and will lead the increase of tourism income of our country. They told us that, for these benefits molecular kitchen need to be used more widely in the country.

During the study period; interviews was held with five customers who tried the food and/or beverages which prepared due to molecular kitchen application procedures. We found out that customers usually liked molecular kitchen applications. Customers especially liked and excited about the form changes of foods. The third participant of our study mentioned that “I tried a product first time, which is prepared in a molecular kitchen. It was exciting to see my order of fruit juice in small balls in a glass, instead of liquid as usual. Explosion of those small balls in my mouth and reaching to the fruit juice was pleasing and a different try. I could not believe how the taste of fruit juice could remain same and sight is such changed."

Interviewed customers in our study, declared different opinions about the changed tastes of the foods. Some customers liked the changed tastes of the foods while some others did not please about it. Fifth participant of our study mentioned that “the sauce of the meal that I ordered was in a foam shape instead of liquid where I never met previously and I liked it a lot. Sweet aroma of the meal in its taste and the smell was that I never tried previously. I tried a meat meal with such a different shape and taste first time in my life and I liked it. "Fourth customer that tried the same meal mentioned that” the meal on my plate was seemed different and attractive. But, the meat was salty and the smell was containing sugar and vanilla, which was not the smell I was familiar with and I could not finish my meal."

All of the customers those participated in our study mentioned that they will explain these different experiences, to their friends. Two participants also mentioned that they took the pictures of these different food and beverages and they will share these pictures with their friends. On the other hand, participants mentioned that they want to see the food and beverages of the molecular kitchen applications in the restaurant menus more often and if the prices can be more affordable, they can be able to order more of these food and beverages.

7. Conclusion and Concerns

The restaurants; those want to increase their income and profit by offering to their customers low priced products and at the same time to become popular in the tough competition of tourism industry, the most important method for those restaurants is to offer new products to their customers. Whenever the restaurants offer new products to their customers permanently, not just the restaurant will improve but at the same time tourism industry will gain benefits of this, because restaurants are one of the most important divisions of tourism industry.

Molecular Kitchen Applications are one of the new approaches of restaurant industry that offered to customers. By making differences on the taste and forms of traditional food and beverages, restaurants offer new taste and forms to their customers and try to become more attractive. This new application draws attention by preparing new products through the companies and offering different experience to their customers, in our country and the worldwide, in the last years.

Below mentioned conclusions are obtained through the professionals working on the applications of molecular kitchen and also the customers. We focused on their opinions related to the molecular kitchen applications and how they liked it. Finally, we want to clarify the possible effects of molecular kitchen on tourism industry.

Related to the data that obtained by us in our study, we concluded that Molecular Kitchen is a new process in our country, applied by a very few restaurants, known and preferred by a very few customers. This conclusion possibly; because of the need of special equipments, trained cooks on this application and less requests by customers and also for the high prices of the products. On the other hand, the customers those tried the food and/or beverages of

molecular kitchen mentioned that they liked the products, will offer to their friends and will order more and often, while the prices of these products becomes more affordable.

According to these conclusions, we think that companies are not sufficient for the production of the application on molecular kitchen; they are not related to this process and do not make sufficient promotion.

Due to our conclusion, customers like molecular kitchen products but companies cannot response the pleasure of customers. In order to eliminate this problem, the managements of restaurants can direct their supervisors and cooks to take classes on molecular kitchen, so they will have more knowledgeable employees on this application and improve production process.

On the other hand, companies can prepare table cards as promotion materials for molecular products and they can use social media, to increase their sales. By the increase of sales, production cost and the products prices will decrease. Therefore, molecular kitchen applications will be applied by more restaurants.

Cooks and assistant cook mentioned that molecular food and beverages are attractive to the customers. They will increase the sales and the income of the restaurant and promote the company. Also, professionals mentioned that molecular kitchen will add a new perspective to traditional Turkish cuisine.

We can declare that whenever the molecular kitchens applied at the touristic regions of the country, domestic and foreign tourists will be informed about the traditional Turkish cuisine with a new perspective and the tourism income will income increase as a result.

Interwieved customers approved the molecular kitchen applications and found it exciting. New appearance of food and beverages were attractive but some customers did not approve the new taste. Molecular kitchen applications are new in our country so these conclusions are not surprising. In order to wave this problem, we can offer the supervisors of the restaurants to concentrate on the forms of the production of food and beverages and to inform the customers about the new aromatic tastes of these foods.

In general, molecular kitchen is a new application which preferred by customers and would be requested in the future. Therefore, professionals and academicians need to concentrate on this application to promote the restaurant industry as well as Turkish tourism.

As mentioned in the method of the study, this study is realized in a company in Istanbul which has molecular kitchen applications with a limited number of customers. Therefore we cannot generalize the study. In the future new studies need to be made in the region or country, with which have molecular kitchen applications, then conclusions would be generalized.

References

Afuah, A. (2003), *Innovation Management, Strategies, Implementations and Profits*, Second Edition, Oxford University Press.

Akın, H. B. (2001), *Yeni Ekonomi: Strateji, Rekabet, Teknoloji Yönetimi*, Çizgi Kitabevi Yayınları, Ankara.

Alonso, D.A., O'Neill, M., Liu, Y. and O'Shea, M. (2013). "Factors Driving Consumer Restaurant Choice: An Expletory Study From The Southeastern United States", *Journal of Hospitality Marketing & Management*, 22: 547-567.

Barbar, R. and This, H. (2012), "Molecular Gastronomy in Lebanon", *Journal of Culinary Science & Technology*, 10 (4): 277-293.

Edwards-Stuart R. (2012), "Molecular Gastronomy in the UK", *Journal of Culinary Science & Technology*, 10 (2): 97-105.

Elçi, Ş. ve Karataylı, İ. (2008), *İnovasyon Rehberi: Kârlılık ve Rekabetin Elkitabı*, Technopolis Group Türkiye

Güzel, G. (2009), *Gastronomi ve İnavasyon*, (URL: http://acikarsiv.atilim.edu.tr/browse/25/), (05.07.2013)

Harrison, J.S. and Enz C.A. (2005), *Hospitality Strategic Management Concepts and Cases*, John Wiley & Sons, Inc.

Jorde, T. and Teece, D. (1992), Innovation, Cooperation and Antitrust, T. Jorde ve D. Teece (der.), Antitrust, Innovation and Competitiveness içinde, Oxford University Press, New York, s. 47-81.

Kandampully, J. and Duddy, R. (1999), "Competitive Advantage Through Anticipation, Innovation and Relationships", *Management Decision,* 37 (1): 51–56.

Kırım, A. (2009), *Hayatın Tarifi Kitabı. Hürriyet'teki Yemek Yazılarım 1.Kitap: Teknikler, Tarifler, Malzemeler,* Sistem Yayıncılık, İstanbul.

Kırım, A. (2006), *Mutfakta İnovasyon ve Sihirbazlık*, (URL: http:// hurarsiv. hurriyet.com.tr/goster/ haber.aspx?id=5464061&yazarid=123), (Erişim Tarihi: 05.07.2013).

Kotler, P. Armstrong, G., Saunders, J. and Wong, V., (1999), *Marketing Management*, Prentice Hall International Inc.

Kültür ve Turizm Bakanlığı. (2012). İşletme ve Yarım Belgeli Tesis İstatistikleri. http://yigm.kulturturizm.gov.tr/TR,9860/turizm-belgeli-tesisler.html. (16.07.2013).

Oerlemans, L.A.G., Buys, A. J., and Pretorius, M. W. (2001), Research Design for the South African Innovation Survey 2001, Working Paper 01.02, The Netherlands: Eindhoven Centre for Innovation Studies.

Oke, A., Burke, G. and Myers, A. (2007), "Innovation Types and Performance in Growing UK SMEs*", International Journal of Operations & Production Management,* 27 (7): 735-753.

Ottenbacher, M. and Gnoth, J. (2005), "How to Develop Successful Hospitality Innovation", *Cornell Hotel and Restaurant Administration Quarterly*, 46 (2): 205- 222.

Riel, A. C. R. V, (2005), "Introduction to the Special Issue on Service Innovation Management", *Managing Service Quality,* 15 (6): 493-495.

Risbo J., Ole, G. M., Bom, M. F., David, E. J. and Reade, B. (2013). "Culinary Science in Denmark: Molecular Gastronomy and Beyond", *Journal of Culinary Science & Technology*, 11 (2): 111-130.

This H. (2011), "Molecular Gastronomy in France", *Journal of Culinary Science & Technology*, 9(3): 140-149.

Valverdei J., Roisin, B., Mark, T. P. (2011), "Molecular Gastronomy in Ireland", *Journal of Culinary Science & Technology*, 9 (4): 205-211.

Wong, C. S. and Pang, W. L. (2003), "Barriers to Creativity in the Hotel Industry- Perspectives of Managers and Supervisors", *International Journal of Contemporary Hospitality Management,* 15 (1): 29- 37.