

Decoding Visitors' Perceptions towards Service Quality At a Smart Restaurant in Bhubaneswar, Odisha

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Abstract:

In today's hyper-competitive marketplace, the quality of products and services have become the core differentiator between the companies when it comes to gaining and sustaining competitive advantage over others. Within this ambit of services sector, the hospitality industry has become dominant as it contributes towards the generation of revenues at one hand and also supports a nation by creating job opportunities through its various segments and operational facets. Due to such importance of the sector, we need to carefully design, assess, and if require take various precautionary measures to ensure a seamless high quality service delivery network. In this regard, a study was conducted at a robotic restaurant known as 'Robochef' at Bhubaneswar, in the state of Odisha, India where they have employed two indigenously developed humanoids to serve the customers. This robot restaurant is believed to be the first operational robot operated eatery in the whole eastern part of the nation which makes it a very distinctive experience for the visitors and currently attracting many customers. As it's a unique & emerging concept, it definitely calls for further deliberations because it's a general notion that machines cannot replace the humans in terms of emotional connections. A total of 128 visitors were interviewed by using the famous SERVQUAL scale. In our study, we have tried to capture their general demographic profiles, visit intentions, perception & expectation scores regarding the different variables, price sensitivity, satisfaction scores, behavioural aspects, and suggestions for further improvements etc. Some recommendations are made for improving the current state of operations based on the findings and the suggestions of the customers.

Keywords: Humanoids, Robots, Smart Restaurant, Service Quality.

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Introduction: The end of cold war between the superpowers and subsequent period of globalization has brought revolutionary changes in the business scenario worldwide and paved way towards the true implementation of the concept of industry 4.0 (Osawa et al., 2017). This fourth industrial

revolution advocates about adaptation of smart & hybrid technologies in business processes such as artificial intelligence, block chain technologies, cloud computing, cognitive computing, cyber-physical systems, internet of things, machine learning etc. that can revolutionize the way

businesses are done (Lasi et al. 2014; Marr 2016; Hermann et al. 2016). The structures and functions of various industries are getting hugely affected and benefitted with the adaptation and implementation of these technologies through unmatched contributions in productivity, efficiency, efficacy, quality, cost-effectiveness, and customer satisfaction in a sustainable manner (Tussyadiah & Park 2018; Wirtz et al. 2018).

When it comes to the tourism & hospitality sector, the concepts of robotics & automation has recently gained appreciation across the globe and they have been deployed in various stages of the service delivery chain such as reception, hosting, serving the needs and wants, participating in the preparation of the food & beverages and taking care of the laundry services etc. (Guardian 2015; Hilton, 2016). Globally, from Japan in the East to USA in the West, the use of robotics in the hospitality processes have vastly adopted and improved in recent era with set ups of Bionic bars that use robots as bar men for preparing varieties of drinks as desired by the customers or even robot chefs at places like the Huis Ten Bosch amusement park in Nagasaki, Japan where they are preparing different delicious dishes as part of the automation process (Gloden 2014; Biswas 2017). In other places like Iceland, they have successfully employed the robots & drones in the local food delivery system that can work in an uninterrupted manner for 24X7 (Naylor 2019). Coming to India, the concept of robotic restaurant was first started in the city of Chennai in 2017 when a city based Chinese & Thai themed restaurant christened as Robot started to use robots for serving the customers (Arakali 2018). The menu items at the restaurant are displayed in ipads that are attached to the tables and once the customers enters their preferences, the KOTs will be sent to the kitchen directly for preparation of food & beverage. Once the food & beverage became ready, they are delivered to the customers with the help of the robots in trays fixed to their arms. Magnetic strips have been laid across the restaurant which helps the

robots in their operations across different corners of the restaurant. This unique experience has created a buzz across the country and set a new trend that instigated another person to open a similar restaurant in Bengaluru (Biswas 2017). Thus, this can be considered as the best case scenario for synergy between the use of artificial intelligence and hospitality sector in order to enhance efficiency in the hospitality sector in general and dining experience in particular. But, like every coin has two sides to it, the abundant use of technologies in services often creates its own set of controversies like the socially driven issues like unemployment rate and psychological issues like missing of personalized touch in the service delivery process arises (News 18 2019). In this regard, we need to have more careful assessment of the views & interpretations of the customers availing these new technology driven avenues which are often considered to be the future and take necessary measures to streamline the operations so that a seamless and sustainable service delivery network can be created.

Literature Review: In this era of globalization when the entire world is considered as the flat world economy the importance of services sector has grown eminence in providing jobs, inputs and public services in almost all nations (Shandilya et al. 2018; Samal et al. 2018). But the challenge remain with the intangibility attribute of the services sector that makes it difficult for the service providers to differentiate their offerings from that of others (Namin 2017). If we discuss the concept of total customer satisfaction in restaurant business into focus, not only just the food & beverage and the service, but the total experience that often affects the customer's views & understandings (Tripathi & Dave 2016). Therefore, the phenomena called quality in services become the one and only major factor that can become helpful for the service providers to offer and build their brand values in a sustainable manner (Kim et al. 2010; Boonlertvanich, 2011). Through many studies conducted over the years, we can derive a strong

relationship between the quality of services, customer satisfaction, and their loyalty level that gives us necessary impetus regarding service quality in this hypercompetitive times (Qin & Prybutok 2009; Al-Tit 2015; Izogo & Ogba, 2015; Keshavarz et al. 2016; Samal et al 2018; Nguyen et al. 2018). Definition wise, the concept of service quality is often referred as the confirmation to the desired standards and can be explained as the difference between the expectations and perception scores of the customers before and after availing the services entities. (Sharkey et al 2007; Ha & Jang 2009; Barber & Scarcelli, 2010). In order to map the difference between the expectation and perception scores, many researchers have tried to develop measuring parameters over the years amongst which the SERVQUAL scale developed by Parsuraman, Zeithamal and Berry in 1985 has emerged as the most trust worthy and valid model (Sasser et al., 1978; Grönroos, 1984; Parsuraman, et al 1985 & 1988; Coddington, & Moore, 1987; Haywood, 1988; Brogowicz, et al. 1990; Dabholkar, et al., 1996; Evans & Lindsay, 1999; Zhu, et al., 2002; Landrum, et al., 2008, Lee, D. 2016). Due to the applicability and popularity of the SERVQUAL scale, it has been chosen for our study.

About Robochef – The Robotic Restaurant in Bhubaneswar, Odisha, India: Hugely inspired by this growing and unique trend of robotic restaurants, a young and aspiring civil engineer turned restaurateur has started the first robotic restaurant in the eastern part of India at Bhubaneswar, in Odisha in October 2019 where two humanoids named Champa and Chameli are employed to serve the customers. These robots are totally Indian made and uses the innovative technique of SLAM (Simultaneous Localization and Mapping) that doesn't require any specific guided path or environment modifications for their operations. Rather they take help of their installed radars to roam around. As per the mentioned details, they possess 17 different types of sensors in them that help them in sensing the environment,

heat, smoke, etc. and guide them for identifying, greeting, and welcoming the guests in to the restaurant.

Each of those humanoids cost around Rs.5.5 lakhs and can work nonstop upto 8 hours per single charge and can take the load of around 20 kilos at a time. The process of charging is wireless and within 30 minutes they can get fully charged. Another dimension of installing the local Odia dialect into them has become an attraction as they use of native Odia language while greeting & serving the visitors and aptly uses the popularly use the jargon of "Apana Mane Khusi Ta?" that translates into Are you happy? The robots also possess night vision capabilities that enable them to operate in dark (Suffian, 2019; TOI, 2019; ND TV 2019).

Objectives of the Study: The key objectives of the study can be listed as below.

1. To classify the demographic details of the customers visiting the restaurant.
2. To assess the various factors affecting their selection process.
3. To analyze the Gap scores between the expectation and perception levels of the customers.
4. To assess the satisfaction scores amongst the customers.
5. To judge the price sensitivity of the customers.
6. To evaluate the attitudinal loyalty of the customers.

Methodology: We have selected the Robochef restaurant situated in the patia area of the capital city of Bhubaneswar, in Odisha, India for our study. A SERVQUAL based questionnaire was prepared for the study after thorough deliberation of available literatures. Seven point likert scales were used to derive data across the five dimensions of the RATER comprising of Reliability, Assurance, Tangibility, Empathy and Responsiveness variables across 22 parameters in total. A total of 128 numbers of interviews were conducted amongst the customers visiting the restaurant vide non-probability convenience sampling. Only 15 years of age and above groups were consulted for the study.

The descriptive statistics of this study is given below.

Findings and Interpretations:

Table 1: Demographic Profiling

Parameters	Demographic Profiles	No s	Percent age
Gender (Single Coding Possible)	Male	89	69.53
	Female	39	30.47
Area (Single Coding Possible)	Urban	109	85.16
	Rural	19	14.84
Age (Single Coding Possible)	15 to 20	15	11.72
	21 to 25	27	21.09
	26 to 30	29	22.66
	31 to 35	37	28.91
	36 to 40	13	10.16
	More than 40 Years	8	6.25
Religion (Single Coding Possible)	Hindu	68	53.13
	Muslim	27	21.09
	Sikhs	19	14.84
	Christian	11	8.59
	Others	3	2.34
Family Structure (Single Coding Possible)	Joint Family	93	72.66
	Nuclear	35	27.34
Monthly Household Income (Single Coding Possible)	Less than Rs.30000	8	6.25
	Rs. 30001 – 40000	13	10.16
	Rs. 40001 – 50000	21	16.41
	Rs. 50001 – 60000	26	20.31
	Rs. 60001 – 70000	31	24.22
	More than Rs. 70000	29	22.66
Current Place of Leaving (Single Coding Possible)	At Home	65	50.78
	At Boarding (Mess)	24	18.75
	At Hostel	39	30.47
Diet Preference (Single Coding Possible)	Vegetarian	29	22.66
	Mix	99	77.34
Marital Status	Unmarried	56	43.75

(Single Coding Possible)	Married and without Children	17	13.28
	Married with Children	45	35.16
	Widowed / Divorced / Separated	7	5.47
	Older Couple Staying Alone	3	2.34
	Students	39	30.47
Profession (Single Coding Possible)	Working Executives	28	21.88
	Professionals	23	17.97
	Business (Shop Owners / Petty Traders)	19	14.84
	Industrialists	9	7.03
	Others	6	4.69
	Housewives	4	3.13
	Frequency of Visiting a Restaurant (Single Coding Possible)	At least once a week	29
More than once a week	49	38.28	
More than once a month	34	26.56	
At least once a month	16	12.50	
Timings of visit to a restaurant (Multiple Coding Possible)	Breakfast Time	28	21.88
	Lunch Time	71	55.47
	Evening Snacks Time	49	38.28
	Dinner Time	95	74.22
Average Amount Spent on dining at Restaurants in Rs. (Single Coding Possible)	Less than Rs. 500	15	11.72
	Rs. 501 to Rs. 1000	32	25.00
	Rs. 1001 to Rs. 2000	47	36.72
	Rs. 2001 to Rs. 3000	23	17.97
	More than Rs. 3000	11	8.59

Source: Primary Data

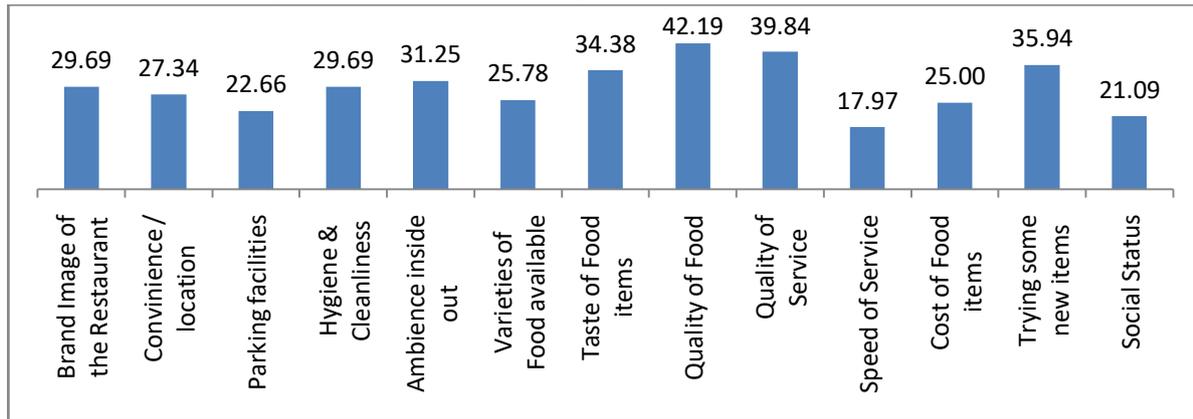
The Table 1 above yields the demographic profiles of the respondents across different variables.

- ✓ 69.53% of the respondents were males whereas 30.47% were females.

- ✓ Around 85.16% of the respondents were from the urban areas whereas only 14.84% belonged to the rural areas from the nearby places.
- ✓ Age wise, around 28.91% of people visiting the restaurant belonged to the age group of 31 to 35 years followed by 22.66% in the age group of 26 to 30 years, 21.09% belonged to 21 to 25 years, 11.72% belonged to 15 to 20 years, 10.16% percent belonged to 36 to 40 years and only 6.25% were in the age group of more than 40 years from which we can derive that the restaurant is majorly visited by younger mass.
- ✓ Religion wise more than half of the visitors, i.e. 53.13% to be precise belonged to Hinduism followed by 21.09% who were Muslims, 14.84% Sikhs, 8.59% Christians and only 2.34% belonged to other religious faiths.
- ✓ When asked about their family structures, majority of the population, i.e. around 72.66% said they leave in joint families where as only 27.34% was staying in nuclear families.
- ✓ When the data regarding monthly household incomes (MHIs) were captured, around 24.22% were in the income group of Rs. 60,001/- to Rs. 70,000/- per month followed by 22.66% percent in the income group of more than Rs. 70,000/- per month, 20.31% in the income group of Rs. 50,001/- to Rs.60,000/- per month, 16.41% in the group of Rs. 40,001/- to Rs. 50,000/- per month, 10.16% in the group of Rs. 30,001/- to Rs. 40,000/- and 6.25% who belonged to the income group of less than Rs. 30,000/- per month.
- ✓ In current residential status parameters, around 50.78% of the respondents were staying at home followed by 30.47% who resided in various hostels and 18.75% in private accommodations (Mess).
- ✓ When data regarding their diet preferences were asked, 77.34% found to be non-vegetarian whereas only 22.66% were vegetarian.
- ✓ Around 43.75% of the respondents were unmarried followed by 35.16% who were married with children, 13.28% were married without children and 5.47 percent were either widowed or divorced or separated and 2.34% were older couples who used to stay along.
- ✓ When the data regarding their professions were captured, 30.47% were students, where as 21.88% were working executives, 17.97% were professionals, 14.84% were petty traders, 7.03% were industrialists, 3.13% were housewives, and 4.69% were into other activities.
- ✓ When question regarding the frequency of visiting a restaurant was asked, 38.28% of the respondents were found to be visiting the restaurants more than once a week followed by 26.56% who visits restaurants more than once a month, 22.66% who visit at least once a week, and 12.50% who visit at least once a month.
- ✓ When asked about the preferred timing of visiting a restaurant, the dinner timings came up in top with 74.22% followed by 55.47% for lunch, 38.28% for the evening snacks and 21.88% for the morning breakfast. In this question multiple coding was allowed as a person can visit a restaurant at different timings based on his/her needs.
- ✓ When the issue of average spending per visit at restaurants was raised, around 36.72% responded towards spending between Rs.1001/- to Rs.2000/- per visit followed by 25% percent who spent between Rs. 501/- to Rs. 1000/- per visit, 17.97% who spent between Rs.2001/- to Rs.3000/- in a visit, 11.72% spending less than Rs.500/- in a visit and only 8.59% who usually spend more than Rs.3000/- per visit.

Reasons affecting the selection of a Restaurant

Figure 1: Factors Affecting the Selection of a Restaurant

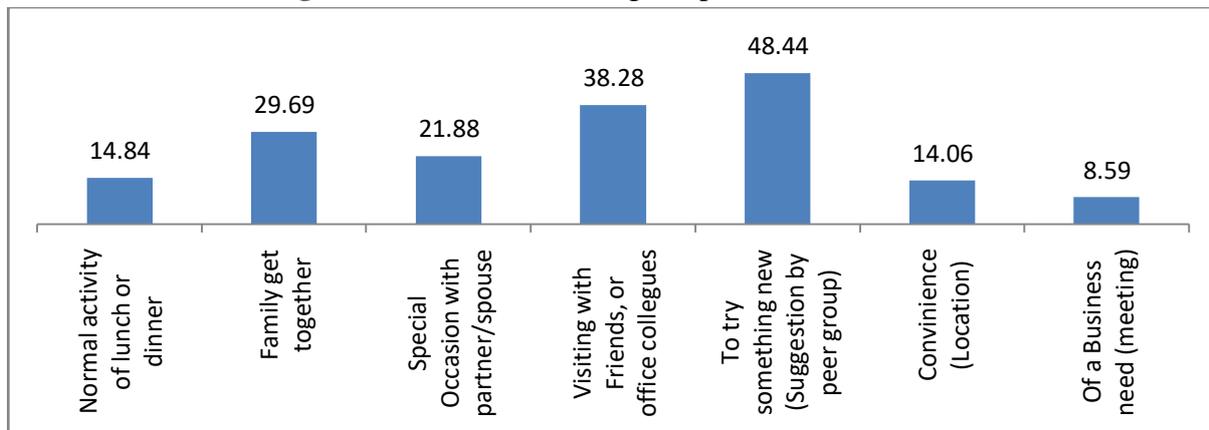


Source: Primary Data

When asked about the reasons that affect the choices towards selecting a restaurant, comparatively more emphasis was given on food quality followed by other factors like quality of service, desire to taste new items, taste of the food, ambience, cleanliness, brand image, convenience in location, varieties of options available, and others.

Reasons for visiting the particular restaurant (Robochef)

Figure2: Reasons for visiting the particular restaurant



Source: Primary Data

When they were specifically asked to list down the reasons that instigated them to visit the particular restaurant of robochef, maximum respondent stated the reason of curiosity to be the biggest factor followed by others like outings with friends, family get together, celebration of special occasion with partner/spouse etc.

The SERVQUAL Statements (Expectations Vs Perceptions)

Table 2: The GAP Analysis

Parameter	Quality Statements	Mean Expectations	Mean Perception	Gap Analysis
Tangibility Avg = 5.67 Avg. P =	Updated & modern equipments	5.82	5.11	0.71
	Ambience (Clean & Comfortable environment)	5.76	5.06	0.70
	Neat appearance of the employees including the robots.	5.54	4.88	0.66
	Materials associated with the services (such as Menus) are	5.57	4.92	0.65

4.99 Gap = 0.68	visually appealing.			
Reliability Avg E =5.53 Avg. P = 4.61 Gap = 0.92	Services provided at the promised time	5.86	4.88	0.98
	Sincere interest shown by the staffs in solving any problem	5.64	4.22	1.42
	Services at the restaurant are performed correctly from the beginning.	5.34	4.54	0.8
	Professional and competent behaviour shown by the staffs	5.68	4.69	0.99
	Error free and accurate billing procedures	5.15	4.74	0.41
Responsive Avg E =5.62 Avg. P = 4.88 Gap = 0.74	Services at the Restaurant are offered promptly	5.22	4.86	0.36
	Employees are always ready and willing to help the customers	5.86	4.98	0.88
	Employees are never too busy to respond to the needs of their customers.	5.68	4.99	0.69
	Less waiting time	5.72	4.69	1.03
Assurance Avg E =5.7	Courteous and friendly behaviour shown by the staffs	5.88	4.98	0.9
	Feelings of safety during transactions	5.64	4.34	1.3
	Customers are treated with	5.83	4.66	1.1

8	dignity and respect			7
Avg. P = 4.60 Gap = 1.18	The staffs possess adequate knowledge to answer all queries / questions raised by the customers	5.75	4.42	1.33
	Collection of Feedbacks	5.53	4.51	1.02
Empathy Avg E =5.49 Avg. P = 4.53 Gap = 0.96	Individual/personal attention is given to the customers	5.28	4.34	0.94
	The hotel operates conveniently to cater all its customers	5.62	4.78	0.84
	The employees have their Customers' best interests at heart while offering the services	5.62	4.73	0.89
	Employees of the hotel understand the specific/special needs of the customers and act in a caring manner	5.38	4.28	1.1

Source: Primary Data

When the responses of the target population were assessed using the SERVQUAL scale, minimum gap score was obtained for the tangibility variable followed by others like responsiveness, reliability, empathy and assurance. At an overall level, relatively lower gap scores were obtained as the concept of robotic restaurant is relatively new to the market and the customers were also not sure about their expectations.

Overall Satisfaction Score

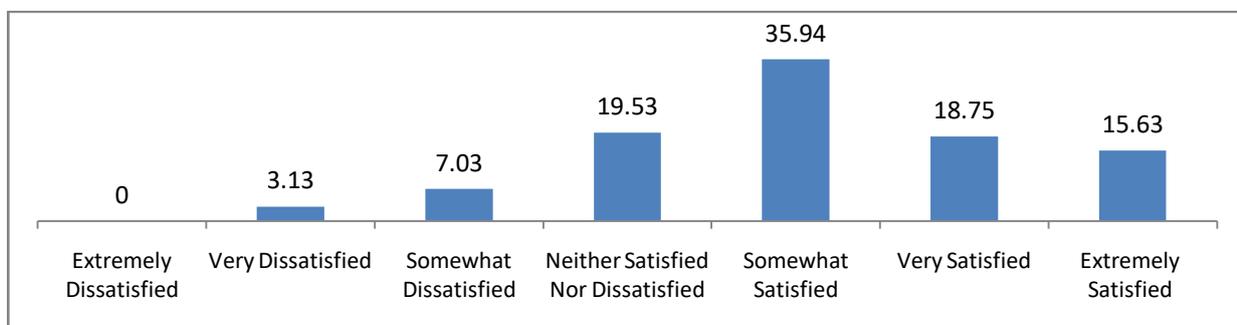


Figure3:Satisfaction score

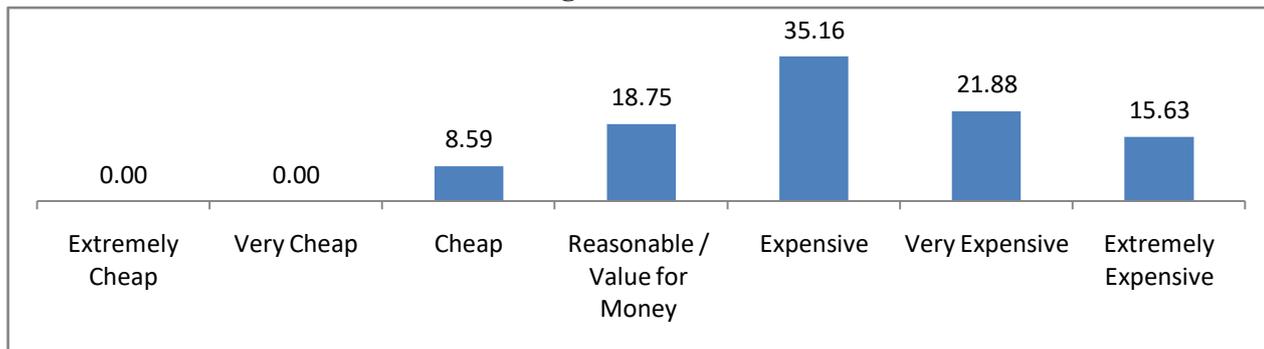
Source: Primary Data

When the satisfaction scores were captured, around 15.63% were extremely satisfied followed by 18.75% who were very satisfied and 35.94% were somewhat satisfied with the restaurant and its

services. 19.53% were not sure about their feedbacks and around 10.16% mentioned their dissatisfaction scores.

Feedbacks regarding Pricing

Figure4:Satisfaction score



When the feedbacks towards the pricing of food at the restaurants were captured, majority of them believed it to be in the higher side with 35.16% depicting the pricing as expensive, 21.88 percent mentioned it as very expensive and 15.63% responded as extremely expensive. 18.75% were

not sure about the pricing and only around 8.59% found it to be lower than the average prevailing in the market.

Attitudinal Loyalty

Table 3: The Loyalty Matrix

Attitudinal Loyalty Statements	Entirely Disagree	Mostly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Mostly Agree	Entirely Agree
I consider this restaurant's services as good.	0.00	2.50	5.00	13.75	26.25	32.50	20.00
The services at this restaurant are better than those of others.	1.25	2.50	6.25	16.25	36.25	20.00	17.50
I will say positive things about this restaurant & definitely recommend to everyone.	0.00	3.75	7.50	16.25	40.00	18.75	13.75
I like being associated with this restaurant.	1.25	2.50	5.00	18.75	42.50	18.75	11.25
I will definitely consider this restaurant as my first choice for all my dining needs in future.	3.75	6.25	5.00	23.75	37.50	13.75	10.00
I will definitely maintain a long-term relationship with this restaurant.	6.25	6.25	10.00	20.00	33.75	16.25	7.50
I am willing to put in extra effort to visit this	7.50	6.25	11.25	16.25	27.50	23.75	7.50

restaurant.							
I am prepared to pay more for the high quality of services at the restaurant.	6.25	10.00	3.75	20.00	30.00	25.00	5.00

Source: Primary Data

When we tried to further moderate the respondents for capturing their loyalty intentions, it aptly reflected their satisfaction scores as they were somewhat ready to avail the services at the restaurant on a regular basis as well as ready to recommend it amongst their peer groups.

Way forward: In a developing economy like India, radical thinking and innovative approaches for the business are needed as they provide alternative and sustainable competitive advantages for the business. Though, this robotic theme restaurant concept is relatively new to the market, it can create revolution in the future if properly implemented and assessed. In this regard, our study can provide the necessary insights for the prospective restaurateurs in this regard.

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