MEASURING SERVICE QUALITY IN ONLINE ENVIRONMENTS – AN EMPIRICAL STUDY

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Abstract:

Purpose:
The purpose of this study is to measure service quality in online environments which includes functionality of website, order fulfillment, order accuracy, interactive fairness and attitude towards online service providers. The determinants are represented by process quality, outcome quality, recovery quality and attitude which is based on new thinking and designing of service quality measures and addresses challenges of integrating service quality measures.

Design/Methodology/Approach:
A survey data of 235 online food ordering customers' were used to test the research model using Structural Equation Model (SEM). Statistical tools were employed for demographic variables to find demographic factors that influence on general buying behavior towards online food providers.

Findings:
Results reveal that there is a significant positive relationship between process quality (functionality), outcome qualities (order fulfillment, order accuracy), interactive fairness (recovery quality) and Attitude towards Online food service providers.

Furthermore the study has attempted to make detailed analysis on demographic factors and general buying behavior towards Online food service providers, which has not been much focused in earlier research and the analysis reveals that there is significant association among demographic variable age and frequency of purchase, marital status and occasion of purchase. MANOVA has been used to analyze interaction effects between age, monthly income of the respondents, amount spent on OFD and occasion of purchase and it has been found that there is significant interaction effect between age and occasion of purchase.

Finally the study has found that there is a need for websites to appeal to universal consumers’ speaking other languages, a new construct was measured in this study. The marketing strategies can be formulated based on segmenting the market on age, frequency of purchase and occasion of purchase. Overall, the study provides valuable insight for carrying out online food services successfully.

Research limitations:
The study has been conducted among the population of Chennai; tier II city in India, the findings may have changes based on culture, education and other factors prevailing in other parts of the world.
Implications:

The study confirms that there is need for appealing to universal consumers’ speaking other language, because food being not only psychological need according to Maslow’s theory, consumers’ always look for trying different item with different taste and consistency, hence the description of food item and the language related to description and ordering of food can be in other languages which will enable variety seeking consumers’ to try new items.

Originality /value:

The research adds value to scales used to measure service quality for online food providers and the food industry being evergreen with growing demand online food providers are looking for new ways to bring in more consumers’ and the suggestion and findings given in this study may help them to formulate their marketing strategies and carrying their business in the path of success.

Key Words: Functionality, Order Fulfillment, Order Accuracy, Interactive Fairness, Process Quality, Outcome Quality, Recovery Quality, Attitude, and OFD.

Paper type: The research is descriptive in nature and the respondents are consumers’ who have experience in ordering online food.

Introduction:

Technology has become the biggest driver in human lives and every business is penetrated through advancement in technology. From enhancing customer service to offering efficient service, hotels leverage on implementation of technology that will have impact on customer engagement with technology. Smart devices that are used as part of today's business operations keep consumer’s connected wirelessly. These devices avoid unnecessary human intervention and increase efficiency, providing best service experiences.

SSTs as a technological interface enables customers to get service done without service employee involvement (Meuter et al 2005). There is digital transformation taking place in the food industry and this has made business in the food industry to change its approach to technology, people and process that has impact on business performance and deliver value to customers.

Digital applications in the food industry have changed the way business has been looked into in the Indian society. Use of self service technologies for planning food to be ordered, choosing food items from given menu, finding preferable food delivery platform, order filling, request refills, customize their orders, making payment online have all become order of the day and this has not only induced change in life style but also provide alternate way of earning for people who are crazy to ride in their two wheelers.

The research questions that have been investigated by this study are as follows:

1. Is there a positive association between age and frequency of purchase?
2. Is there positive association between marital status and occasion of purchase?
3. Does the variables age, monthly income of respondent, amount spent on OFD and occasion of purchase have statistically significant interaction effects?
4. How is process quality consisting of functionality related to recovery quality consisting of interactive fairness?
5. How is recovery quality consisting of Interactive Fairness related to outcome quality consisting of order fulfillment?
6. How is outcome quality consisting of order fulfillment related to outcome quality consisting of order accuracy?

7. How is process quality consisting of functionality related to outcome quality consisting of order fulfillment?

8. How is recovery quality consisting of interactive fairness related to outcome quality consisting of order accuracy?

9. How is process quality consisting of functionality related to outcome quality consisting of order accuracy?

10. How is outcome quality consisting of order accuracy related to attitude towards OFD?

11. How is outcome quality consisting of order functionality related to attitude towards OFD?

12. How is recovery quality consisting of interactive fairness related to Attitude towards OFD?

13. How is process quality consisting of functionality related to Attitude towards OFD?

The research gap identified from existing review of literature is:

1. The casual relationship between outcome quality consisting of order fulfillment and order accuracy is related to process quality consisting of functionality?

2. The casual relationship between recovery qualities consisting of interactive fairness is related to process quality consisting of functionality?

3. Is there a casual relationship between process quality, recovery quality and outcome quality with attitude towards Online service providers?

Therefore this current study focuses on process quality consisting of – functionality of website – is critical as customers can interact with online food providers only through electronic devices. It also highlights on outcome quality consisting of – order fulfillment and order accuracy with recovery quality consisting of interactive fairness – and this plays an important role in online food delivery as consumers’ tend to assess service quality right from placing the order till completion of delivery. Another important factor to be looked upon is recovery quality consisting of interactive fairness which is related with outcome quality consisting of order fulfillment and order accuracy and with process quality consisting of functionality. The other factor to be looked upon is attitude towards OFD based on process quality, recovery quality and outcome quality as this determines the customer satisfaction with online service providers and would lead to loyalty towards online service providers.

2. Review of Literature

The variables and their relationship is being discussed in the following section

2.1. Process Quality:

When core service is delivered, the process quality needs to be assessed, according to (Gronroos 1994), the consumption of service is considered as “process consumption”, as production is part of service consumption. The service is being considered as a process rather than a unit of output which is based on application of skill and competencies for the benefit of consumers. The consumers are linked to the process, because without them no service can take place. Moreover in service exchange processes both providers and receivers need to take mutual responsibility as they are directly engaged in this process (Morgan, Cronin and Severn 1995). Consumer’s initially evaluate their experience in e-retailing website against five process quality dimension namely privacy, website design, information, ease of use and functionality.
All other dimensions namely privacy, web design, information, ease of use has been researched extensively in previous studies, this study has included new constructs which look at the functionality aspect of a website not only form technical point of view but also from ease of use, which makes customers to enjoy quality outcome in OFD.

2.1.1. Functionality in OFD:

Functionality basically refers to a range of operations that can be carried out in OFD platform, this again relates to quick page loads where the consumer need not wait for loading of the page, the links that get connected to consumers’ for order placement should not have dead – end. Besides, there should be accurate execution of command and the website should have appeal to a universal audience including disabled and those who speak other languages. According to (Kim & Lee 2004; Novak et al 2002) system functionality is judged by consumers’ from the point of view of ability to complete the transaction in a user friendly and easy way. The components related to easy ordering, easy payment and easy cancellation indicates the degree to which consumers’ believe that the use of a website involves little or no effort.

E-tail quality is measured from the beginning of the transaction to the end of transaction, right from information search the process continues with website navigation, ordering, interaction, delivery and satisfaction with the ordered product (Wolfinger and Gilly 2003). The concept of quality is related to both online in placing the orders and also offline in order accuracy, order condition and order fulfillment.

H1: Process quality consisting of functionality has positive impact on recovery quality consisting of interactive fairness

H2: Process quality consisting of functionality has positive impact on Outcome Quality consisting of order fulfillment

H3: Process quality consisting of functionality has positive impact on Outcome Quality consisting of Order Accuracy

H4: Process quality consisting of functionality has a positive impact on attitude towards OFD.

2.2 Outcome Quality:

In OFD the Self- Service Technologies (SSTs) allow consumers’ to ‘produce a service independent of direct service employee involvement’ (Curran, Meuter and surprenant 2003, p.209). By applying SSTs in OFD platforms, the opportunity for service providers to get in touch with the consumers’ gets reduced, which determines emotional state (Freidman and Currall 2003) and detect service failures (Pujari 2004). The dimensions related to outcome quality which deals with order fulfillment and order accuracy have influence on consumers’ level of satisfaction towards fulfilling the requirement based on service provider’s involvement in offering the service effectively.

2.2.1 Order Fulfillment:

This dimension focuses on analyzing how needs are fulfilled through offline support like order fulfillment and order accuracy (Wolfinbarger and Gilly) 2003. Delivery of the right product within the time frame promised with accurate product information displayed on the website enables consumers’ to receive what they expected to receive. When OFD platforms are working towards building trust they should be concerned about order fulfillment (Reynolds, 2000). Receiving the product in expected time frame, getting the exact product customers’ ordered and receiving the product in promised condition affect the e-satisfaction level towards OFD (Collier and Bienstock 2006).

H5: Outcome Quality consisting of Order Fulfillment has direct and positive relationship with Outcome quality consisting of order accuracy
H6: Outcome Quality consisting of Order Fulfillment has direct and positive relationship with Attitude towards OFD

2.1.2. Order Accuracy:

This dimension refers to an error free ordering process which will receive a high level of quality evaluation from its consumers’ (Wolfinbarger and Gilly (2003). In order to increase productivity, to enhance customer relationships and to extend marketing there is a need to improve order accuracy (Kimes 2011). Order accuracy is one of the important dimensions related to satisfaction, loyalty and trust on OFD platforms. When consumers’ are not served with what they have ordered it creates an annoyed situation and they switch over to other OFD platforms and getting back such customers require more effort as it will affect the reputation of OFD platforms.

H7: Outcome Quality consisting of Order Accuracy has direct and positive relationship with Attitude towards OFD.

3. Recovery Quality

In OFD this dimension relates to organizations policies and procedure in dealing with the orders placed through online and this deals with how the service and production system gets integrated in providing customers excellent experience in the process of service delivery. This can be assessed by analyzing organization and its system. The variables related to this dimension are grouped under “Recovery Quality”, and analyzed by interactive fairness. Retaining existing consumers’, bringing in new consumers’ will not only enable business to grow but also build reputation, loyalty and profitability, to ensure all these the OFD platforms need to concentrate on quality recovery and ensure that interactivity, procedure and outcome are carried out with fairness that the consumers’ have trust towards OFD platforms.

3.1. Interactive Fairness

This refers to the ability of the consumers’ to locate and interact with technical support of a website and may include assistance by way of telephone –based. According to (Liacona et al 2002) towards his findings on WebQual, it has been stated that when there is interactive fairness it will persuade consumers to revisit the site again. Website design will also influence interactivity of consumers’ and this leads to website interface and online processing (Yoo&Donthu 2001, SiteQual), hence there is a need to analyze the interactive fairness of OFD platforms.

H8: Recovery Quality consisting of Interactive Fairness has direct and positive relationship with Outcome Quality consisting of Order Fulfillment

H9: Recovery Quality consisting of Interactive Fairness has direct and positive relationship with Outcome Quality consisting of Order Accuracy

H10: Recovery Quality consisting of Interactive Fairness has direct and positive relationship with Attitude towards OFD.

4. Attitude towards OFD:

Attitude plays an important role in purchase decisions, the consumers’ intention to select/ consume food item, recommend to endorse it to others are greatly influenced by his/her attitude (Oliver, 1997). Consumers’ positive attitude towards food directly or indirectly affects their forthcoming purchase and positive WOM intentions (Gupta and Sanjnani 2019). Attitude towards online shopping is the strongest factor that influences attitude towards intention to shop online Limayem et al; (2000). The authors’ (Kuo and Yen,
2009; Rezaei et al 2016c) in their study found that a person who holds a favorable attitude towards an action will be more inclined to perform particular behavior.

Proposed Model: The following model depicts relationship between antecedents namely recovery quality, outcome quality, process quality and Attitude towards OFD

![Proposed Model Diagram]

- Functionality - Func
- Interactive Fairness - IF
- Order Fulfillment - OF
- Order Accuracy - OA

Relationships:
- H1: Functionality 
- H2: Interactive Fairness 
- H3: Order Fulfillment 
- H4: Order Accuracy 
- H5: 
- H6: 
- H7: 
- H8: 
- H9: 
- H10:

Recovery Quality
- Process Quality
- Attitude towards OFD

H10

H7

H9

H8

H7

H2

H3

H4

H5
The challenge of integrating service quality measures across both virtual and physical channels has been focused in this study and efforts have been made by a new way of thinking on defining and measuring E-Service quality. Along with the previous scales that have been used by early researchers in this field new constructs have been used under dimension functionality which is part of measuring process quality. Though process quality covers dimension related to privacy, design, ease of use, information and functionality, all other constructs have been already used in previous research studies, but the scales related to functionality (quick page loads, links that don’t dead-end, accurate execution of customer commands and ability to appeal to universal audience (including disabled and those who speak other language) has been newly used in this study. Under Outcome Quality the dimension Order Fulfillment and Order Accuracy has been taken for analysis, under recovery quality interactive fairness has been taken for analysis and attitude towards all these dimensions are measured.

Around 16 constructs have been used in this study to analyze functionality, Order fulfillment, Order accuracy, interactive fairness and attitude towards Online Food Delivery. 5 point scale of strongly agree to strongly disagree is used to measure constructs. Process quality consisting functionality was measured using two items, Outcome quality consisting of order fulfillment was measured with five items, order accuracy was measured with each three items, recovery quality consisting of interactive fairness was measured using two items and attitude towards OFD was measured with four items. As food is a basic need for humans the population taken for this study is heterogeneous group, it should be mentioned that the population were able to represent their experience with Online Food Delivery platform with their purchase and usage experience of online platforms.

Table 1

<table>
<thead>
<tr>
<th>Quality dimension items for Online Food Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Quality:</td>
</tr>
<tr>
<td>Functionality</td>
</tr>
<tr>
<td>Appeal to universal consumers’ speaking other languages</td>
</tr>
<tr>
<td>Website can be linked quickly</td>
</tr>
<tr>
<td>Joel Collier and Carol Bienstock; 2006</td>
</tr>
</tbody>
</table>

OUTCOME QUALITY (OQ)

OQ1: Order Fulfillment
- Product represented adequately
- Offering are described truthfully
- Product delivered was right
- Informs to customers on completion of transaction
- Product was delivered on time

Wolfinbarger & Gilly 2003
Jin and Park 2006;
Caruna & Ewing 2010

OQ2: Order Accuracy
- Order delivery is as promised
- Item ordered is sent out promptly

Caruna & Ewing 2010
Web accurately inform the delivery

RQ: Interactive Fairness
Help available from website on problem faced with
Inquiries are answered promptly
Jurgita Zemblyte 2015

ATT:
Attitude
Purchasing food through OFD is wise
Purchasing food through OFD is rewarding
Purchasing food through OFD is sensible
Purchasing food through OFD is good

3.1. Data Collection

The data for this study was collected using social media like Whatsapp, Telegram by sharing the link with respondents in the group and through direct mail, the responses were collected and tested to find out if the data can be accepted or rejected. Among 248 responses received, due to insufficient data around 13 questionnaires were rejected and the final sample size taken for the study was 235 which were considered usable responses for analysis purpose.

4. Data Analysis:

4.1. Demographic Profile of Respondents

Table 2 represents the profile of respondents in terms of not only principal- demographic profile but also relates to other demographic variables which have not been much concentrated in earlier research studies. These findings of demographic variables will help the online food delivery providers to devise their marketing strategy efficiently because Chennai being one of the Tier II City in India with dense population will enable the marketers to make future predictions of the market. The sample population has more of males (57.9%) compared to females (42.1%), the age of respondents has been spread across with largest category from 21 to 25 years (40.9%) and the next largest category above 30 years (30.2%), with regard to education level of respondents it (43.8%) Master’s Degree, (31.5%) Bachelor’s Degree, (13.6%) Professional Degree, (7.2%) Doctorate and (3.8%) Diploma holders. Of the total respondents, singles were (63.9%), married (34%) and others (2.1%). Based on the type of family respondents living as a Nuclear family (68.9%), joint family (31.1%). Of the respondents occupation (41.7%) are professionals and (31.9%) are students. Based on family size it is found that around (66%) are (2-4 Nos.) and this may be as most of the respondents belong to nuclear families. Monthly income of respondents shows that (37.9%) have monthly income of more than Rs.20, 000/.

The table below provides details about the demographic profile of the respondents who have experience in using OFD platform for ordering food.

Table 2: Demographic Profile of Respondents

<table>
<thead>
<tr>
<th>Socio-demographic</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>136 (57.9%)</td>
</tr>
<tr>
<td>Female</td>
<td>99 (42.1%)</td>
</tr>
</tbody>
</table>
Table 3: General Buying Behavior towards OFD %

<table>
<thead>
<tr>
<th>Items Ordered through OFD</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snacks</td>
<td>48 (20.4%)</td>
</tr>
<tr>
<td>Chat items</td>
<td>25 (10.6%)</td>
</tr>
<tr>
<td>Breakfast</td>
<td>10 (4.3%)</td>
</tr>
<tr>
<td>Lunch</td>
<td>63 (26.8%)</td>
</tr>
</tbody>
</table>
Dinner 89 (37.9%)

Internet Experience:
Under 2 Years 32 (13.7%)
More than 2 – 4 Years 47 (20.0%)
More than 4 -6 Years 33 (14.0%)
More than 6 Years 123 (52.3%)

Hours spend for ordering Food:
Less than 1 hour 217 (92.3%)
More than 1-2 hours 12 (5.1%)
More than 2-3 hours 04 (1.7%)
More than 3 hours 02 (0.9%)

Mode of ordering:
Over Mobile/ Tablet 212 (90.2%)
Website (Desktop/Laptop) 10 (4.3%)
Telephone (Direct Contact) 12 (5.1%)
Other mode 1 (0.4%)

Occasion of Purchase:
Celebrations 52 (22.1%)
Picnic/ Outing 08 (3.5%)
Weekend 59 (25.1%)
Enjoy with friends 29 (12.3%)
Occasionally 52 (22.1%)
Normal Days 29 (12.3%)
Festival Season 06 (2.6%)

Purchase Frequency:
Daily 18 (7.7%)
Once in a week 36 (15.3%)
Once in 15 Days 43 (18.3%)
Once in a month 46 (19.6%)
Occasionally 92 (39.1%)

Amount spent in last purchase order
Rs.1 to Rs 100 14 (6%)
Rs.101 toRs.200 31 (13.2%)
Rs.201 to Rs.300 56 (23.8%)
Rs.301 to Rs.400 42 (17.9%)
Rs.401 to Rs.500 36 (15.3%)
Rs.500 & Above 56 (23.8%)

4.2: General buying behavior of respondents towards OFD

Table 3 reveals the general buying behavior of respondents towards Online food providers and this gives an idea about the most demanded items that is being ordered through OFD and also the ability of consumers’
to adapt to technology. The restaurants in Chennai offer different items based on the culture, eating habits of Indians and there is a mix of population from both north and south of India, but still, due to age, health consciousness, lack of time among busy schedule, time of placing order and ability to purchase the type of food items being ordered differs. On analysis it reveals that most of the orders are made for dinner (37.9%) followed by lunch (26.8%) and the reason behind these may be due to Indian culture because mostly the working people find time to spend with their family members during nights and they may have the habit of ordering during nights as the whole family enjoys dinner, and as most of the respondents are professionals (41.7%) and they have a busy schedule for the day and they may prefer to have the lunch ordered.

Experience in using internet plays a vital role in placing orders through OFD platform because the consumers’ need to know the technology and get adapted to technology which will contribute to more growth of hotel industry, among the respondents it has been found that around (52.3%) have more than 6 years of internet experience and (20%) have more than 2 to 4 years of using internet experience, these reveals that the respondents’ are easily able to adapt to the technology and there are young users who prefer using internet to meet their daily needs.

Number of hours spent in ordering food gives how far the respondents’ show interest in navigating through website in finding the food and in placing the order, this also reveals the ability of the respondents’ to complete the transaction related to placing order in an efficient manner, among the respondents’ (92.3%) spend less than one hour in placing order through online and this implies the respondents’ ability to understand the technology and the ease of placing orders.

Mode of ordering helps marketers to find out the how best they can reach potential consumers’ and the analysis regarding mode of purchase reveals that (90.2%) of respondents place order through mobile/Tablet and the reason may be more number of users who are using mobile phone and finding use of mobile phone/tablet to complete transaction easily and quickly.

Occasion of purchase helps marketer to have an idea about the right time during which more of promotion may be needed and this also helps them to improve their revenue. Among different occasions given for purchase of food through OFD (25.1%) of respondents’ go for placing order for food during weekends, because weekends is usually the time the individuals spent with their family, (22.1%) of respondents’ place order for food during celebrations like birthday party and when they want to have enjoyment with their friends. The marketers can carry out their promotional activities during celebrations like birthday, wedding day, etc, and also go for promotional activities at times when individuals enjoy with friends like parties etc.

Purchase frequency helps firms to formulate their marketing strategy, the analysis shows that (39.1%) of respondents’ place order for food occasionally and this more or less seems to be like impulse buying where the order for food is based on the convenience and their intention to fulfill their need then and there.

The amount spent on last purchase in OFD reveals respondents’ preference to place order through OFD and (23.8%) are willing to spend more than Rs.500/- and Rs.201 to Rs.300/-, which implies that food industry have an ever growing demand and consumers’ look for more variety and are willing to spend time and money to have good food.

### 4.3: Test using statistical tools:

The demographic variables and general buying behavior towards OFD provide important insights regarding how these variables are associated with each other and which particular group of respondents needs to be focused upon. The statistical tools Chi-square and MANOVA were used to find the significant association significant interaction effect between different variables related to demographic and general buying behavior towards OFD.

Chi-Square Test:

Hypothesis: There is association between Age and Frequency of purchase.

Table 3: Association between Age and Frequency of purchase through OFD Platform
Value | df | Significance
--- | --- | ---
Pearson Chi-Square | 21.544 | 12 | .043
Likelihood Ratio | 23.237 | 12 | .026
Linear-by-Linear Association | 6.498 | 1 | .011
No. of valid cases | 235 |  |

Interpretation: The analysis reveals that there is an association between age and frequency of purchase as p value is less than .05, and this association reveals that the promotional strategies related to OFD platforms can be based on age, because people belonging to different age groups may differ in their purchase frequency based on their lifestyle.

Table 4: Association between Marital Status and Occasion of purchase

Hypothesis: There is Association between Marital Status and Occasion of Purchase

<table>
<thead>
<tr>
<th>Value</th>
<th>df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>29.098</td>
<td>12</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>35.101</td>
<td>12</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>3.142</td>
<td>1</td>
</tr>
<tr>
<td>No. of valid cases</td>
<td>235</td>
<td></td>
</tr>
</tbody>
</table>

Interpretation: Through this analysis it can be found that there is an association between Marital Status and Occasion of purchase as p value is less than .05, and this association may be due to Indian culture where more importance is given to Birthday, Wedding day, First new born arrival in a family, etc. Hence, marketers can formulate their marketing strategies during months of wedding seasons, holidays etc.

MANOVA (Multivariate Analysis of Variance) on Age, Monthly Income, Occasion of purchase through OFD and Amount spent for OFD during last purchase. The primary aim of this analysis is to know significant interaction effects between ages, monthly income, Occasion of purchase through OFD and amount spent for OFD.

Hypothesis: There is a statistically significant interaction effect between Age and Occasion of purchase through OFD.

Table 5: MANOVA between Age and Occasion of purchase through OFD Platform

<table>
<thead>
<tr>
<th>Effect</th>
<th>Wilks’ Lambda</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age*Occasion</td>
<td>.791</td>
<td>1.736</td>
<td>30.000</td>
<td>418.000</td>
<td>.010</td>
</tr>
</tbody>
</table>

Interpretation: From the above table it can be inferred that there is a statistically significant interaction effect between age and Occasion of purchase through OFD on the combined dependent variable (Amount spent on last purchase for OFD and Monthly income of the respondents).
4.4: Test for Confirmatory factor analysis

Confirmatory factor analysis is being carried out to test the constructs: unidimensionality, reliability, convergent validity and discriminant validity (Wiertz, deRuyter et al 2004; Anderson and Gerbing, 1988; Steenkamp & Van Trijp, 1991). The overall model fit provides necessary and sufficient information to determine the unidimensionality of the set of items. For the model a good fit of data was obtained, indicating unidimensionality. The goodness of fit statistics for the model \( \chi^2 = 113.606; \text{Chi/df} = 1.403; \text{CFI} = 0.988; \text{RMSEA} = 0.041; \ p = 0.010 \). Composite reliability was used in assessing constructs reliability (Joreskog, 1971). The composite value recommended has a cut off value of 0.60 (Nunnaly&Bernstein, 1994). Convergent validity is assessed in the study to test the magnitude of indicators coefficient and their significance (Cf. Anderson and Gerbing, 1988). In this study all loaded items have substantial and significant loading which is more than 0.07 in relation to concerned constructs. Based on degree of freedom, Chi square test is assumed to test the unity between the constructs and it is assumed to be significant at (0.000). Assessment on correlation matrix reveals that there is no correlation within two standard errors at the value 1.0. Average variance was extracted with the application of (Fronell and Larcker’s), which reveals the average variance extracted cross squared correlation between the constructs. The presence of discriminant validity is confirmed.

Function and Reliability analysis: (Five dimensions of OFD)

<table>
<thead>
<tr>
<th>Items</th>
<th>FUNC Explained</th>
<th>OF</th>
<th>OA</th>
<th>IF</th>
<th>ATT</th>
<th>KMO Total variance</th>
<th>Cronbach’s α</th>
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<tbody>
<tr>
<td>Func1</td>
<td>0.756</td>
<td>0.944</td>
<td>66.209</td>
<td>0.766</td>
<td></td>
<td></td>
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<tr>
<td>Func2</td>
<td>0.618</td>
<td></td>
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<tr>
<td>OF1</td>
<td>0.774</td>
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<td>OF2</td>
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<tr>
<td>OF3</td>
<td>0.765</td>
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<tr>
<td>OF4</td>
<td>0.744</td>
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<tr>
<td>OF5</td>
<td>0.739</td>
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<td>OA2</td>
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</tr>
<tr>
<td>OA3</td>
<td>0.741</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>IF1</td>
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<td>0.725</td>
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</tr>
<tr>
<td>IF2</td>
<td></td>
<td>0.700</td>
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</tr>
<tr>
<td>ATT1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ATT2</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>ATT3</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT4</td>
<td></td>
<td></td>
<td>0.781</td>
<td>0.886</td>
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</tr>
</tbody>
</table>

Note: Func – Functionality; OF – Order Fulfillment; OA – Order Accuracy; IF- Interactive Fairness; ATT - Attitude
To test the hypothesized relationship depicted in the model structural equation model was used. (Anderson & Gerbing) has suggested a two-step approach and this approach was performed in this study. Critical assessment of scales was made in the first step. Second, the estimation of the structured model and the testing of specific hypotheses were carried out.

A path model was estimated in order to test the observed hypothesis. To generate Maximum likelihood estimates for the path coefficients the study used AMOS 26. The good fit indices of the data: $\chi^2 = 113.606; df=81; \text{Chi}/df = 1.403; \text{RMSEA} = .041; \text{cfit} = .988; p=.010$. The significance test for the structural model parameters are used as the basis for accepting or rejecting the hypothesis proposed. Hypothesis 1 reveals that there is a significant positive relationship between functionality of process quality and interactive Fairness of recovery quality (standard path coefficient $= 0.703; t = 7.459$). Hypothesis 2: The study also found a significant positive relationship between interactive fairness and order fulfillment (standard path coefficient $= 0.793; t = 8.021$). Hypothesis 3 found a significant positive relationship was found between order fulfillment and order accuracy (standard path coefficient $= .886; t = 8.219$). Hypothesis 4 found a significant positive relationship between functionality and order fulfillment (standard path coefficient $= 0.723; t = 7.699$). Hypothesis 5 found a significant positive relationship between interactive Fairness and order accuracy (standard path coefficient $= 0.751; t = 7.732$). Hypothesis 6, there was a significant positive relationship between functionality and order accuracy (standard path coefficient $= 0.767; t = 7.905$). Hypothesis 7 found a significant positive relationship between order accuracy and attitude ($= 0.575; t = 6.815$). Hypothesis 8 reveals a significant positive relationship between order fulfillment and attitude (standard path coefficient $= 0.579; t = 6.928$). Hypothesis 9 states that there is significant positive relationship between interactive fairness and attitude (standard path coefficient $= 0.531; t = 6.338$) and Hypothesis 10 found that there is significant positive relationship between functionality and attitude (standard path coefficient $= 0.523; t = 6.516$).

**Final conceptual Model**

$\chi^2 = 113.606$

$df=81$

$p=.010$

Normed Chisquare $= 1.403$

RMSEA $= .041$
The table below gives relationship among process quality, outcome quality, recovery quality and attitude

<table>
<thead>
<tr>
<th>Path</th>
<th>Unstandardized Coefficient</th>
<th>S.E</th>
<th>Standardized Coefficient</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
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<td>7.757</td>
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<tr>
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<td>0.960</td>
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<td>0.908</td>
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<tr>
<td>IF – OA</td>
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<td>.097</td>
<td>0.725</td>
<td>7.732</td>
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<tr>
<td>Func- OA</td>
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<td>.097</td>
<td>0.872</td>
<td>7.905</td>
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</tr>
<tr>
<td>OA- ATT</td>
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<td>.084</td>
<td>0.648</td>
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<tr>
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<tr>
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<tr>
<td>Func – ATT</td>
<td>0.523</td>
<td>.080</td>
<td>0.683</td>
<td>6.516</td>
<td>***</td>
</tr>
</tbody>
</table>

**Theoretical Implication and further research direction:**

An important contribution of this study is incorporating simultaneously the different types of quality as antecedents of process quality, outcome quality and recovery quality. Process quality consisting of functionality, outcome quality consisting of order fulfillment and order accuracy and recovery quality consisting of interactive fairness are integrated to have a complete conceptualization of E-S-QUAL of OFD website. This study confirms that there is need for online food website to redesign the content so that website would appeal to universal consumers’ speaking other languages because Chennai as tier II city have mix of people with different culture, speaking different language and looking for food item based on their eating habits in home town which will lead to increase in customers’ looking for variety of items and improve their ability to understand and process the information content given in the website as they are familiar with their mother tongue.

The website needs to ensure ease of use by focusing on quick page loads, avoiding links with dead –end and being linked quickly.
As the study focuses on delivering service taking into account E–S-QUAL (Electronic Service Quality) it cannot be generalized for use in other service sectors. As such, similar research in other service sectors is needed.

Furthermore, the use of self-reported scales to measure variables may lead to the possibility of bias of results. Qualitative studies can be carried to verify the findings amongst the regular online food order customers.

Managerial Implication:
While carrying out business in cyber space consumers’ cannot touch, taste, smell or see the way in which food is cooked, packed and delivered. Rather, they form an attitude about the quality of food by relying on the picture and description given about the food item in the web page. Hence, to maximize the degree of quality related to process, outcome and recovery there is a need for clear and understandable information. More over the width and depth of offering should be given with complete information along with reasonable explanation. In addition to enable customer to visualize the offer, clear picture image of the offer need to be given in the website (Coivumaki (2001), along with the word description

Moreover, the study confirms that there is need for appealing to universal consumers’ speaking other language, because food being not only psychological need according to Maslow’s theory, consumers’ always look for trying different item with different taste and consistency, hence the description of food item and the language related to description and ordering of food can be in other languages which will enable variety seeking consumers’ to try new items.

Easy and convenient for ordering, more restaurant options are the main factors that consumers’ look for in online service providers, so online food providers need to ensure that the website facilitates time saving and offers variety from different restaurants.

Next, online food providers need to focus upon recovery quality which is based on interactive fairness, the website should ensure that consumers’ can have easy access to the site when they are faced with any problem either at the time of ordering or during online payment. The enquiries need to be answered promptly and completion of the transaction should be informed. Taking such measures will improve trust with online food providers.

Conclusion: In this study, an attempt has been made to integrate E-S-QUAL taking four different dimensions process quality, outcome quality, recovery quality and attitude. New constructs related to functionality of websites have been used under process quality. Outcome quality was measured by using constructs related to order fulfillment and order accuracy taken from previous research studies. Recovery quality was measured using constructs related to interactive fairness.

The research of empirical study provides support for the positive relationship between functionality and interactive fairness. Interactive fairness and order fulfillment, order fulfillment and order accuracy, functionality and order fulfillment, interactive fairness and order accuracy, functionality and order accuracy, attitude and functionality, order accuracy, order fulfillment and interactive fairness.

The important findings of this study are summarized as follows:

Functionality has a positive impact on interactive fairness which is consistent with the study of Parasuraman, Zeithamal, Malhotra 2005; Pee et al 2012.

Interactive fairness has a positive impact on order fulfillment which is consistent with study of Wolfibarger and Gilly 2003.
Order fulfillment has a positive impact on order accuracy which is consistent with Caruna and Ewing 2010.

Interactive fairness has a positive impact on order accuracy which is consistent with the study of Collier and Beinstock 2006.

Functionality has a positive impact on order accuracy which is consistent with study of Liao and Cheung 2010.

Attitude has a positive impact on order fulfillment, order accuracy, functionality of website and interactive fairness of website which is consistent with study of

Regarding findings related to demographic profile of the respondents

Age has a positive association with frequency of purchase, Marital status has positive association with occasion of purchase. MANOVA was carried out for finding statistically significant interaction effects between age, monthly income, amount spent on online food purchase and occasion of purchase and it was found that there is statistically significant interaction between age and occasion of purchase. Finally, it can be stated that age, marital status has strong influence on frequency of purchase and occasion of purchase. Besides process quality, outcome quality and recovery quality are essentials that an online food provider should ensure for success of business.

References:


