CHAPTER 3

RESEARCH METHODOLOGY

3.0   Introduction

Briefly, this chapter will illustrate the methodology of the study. The research hypotheses are firstly presented, it followed by measurement of constructs, which explained the items for each of the constructs in details. Then, sampling techniques and data collection procedures will be discussed. Lastly, data analysis techniques, such as Pearson correlation analysis, factor analysis, reliability test, multiple regression analysis and structural equation modeling will be discussed.

3.1   Research hypotheses

Based on the discussion in Chapter 2, 13 hypotheses have been developed to examine the relationships between the variables. The followings are the 13 hypotheses:

H1: Perceived convenience will positively influence attitude towards online grocery shopping.

H2: Perceived convenience will positively influence future online grocery buying intention.

H3: Perceived information accessibility will positively influence attitude towards online grocery shopping.

H4: Perceived information accessibility will positively influence future online grocery buying intention.

H5: Perceived order accessibility will positively influence attitude towards online grocery shopping.

H6: Perceived order accessibility will positively influence future online grocery buying intention.

H7: Perceived risk will negatively influence attitude towards online grocery shopping.

H8: Perceived risk will negatively influence future online grocery buying intention.

H9: Perceived enjoyment will positively influence attitude towards online grocery shopping.

H10: Perceived enjoyment will positively influence future online grocery buying intention.

H11: Social factors will positively influence attitude towards online grocery shopping.

H12: Social factors will positively influence future online grocery buying intention.

H13: Attitude towards online grocery shopping will positively affect future online grocery buying intention.

3.2   Measurement of constructs

In general, the questionnaire items were developed based on previous research such as Hansen, T., 2005; Davis et al., 1989; Heikkila, J., Kallio, J., Saarinen, T., Tuunainen, V. K., 1999; among others. According to Lucas, H. C. (1991), with the existing and well-developed questionnaire, the questionnaire items had been tested to ensure the validity and reliability of the items. In additional, existing questionnaire items allowed researchers to identify and specify the nature of changes and the differences of previous research with the different group of respondents.

In this study, multi-item scales were developed to measure consumer's perception of perceived convenience, perceived information accessibility, perceived order accessibility, perceived risk, perceived enjoyment, social factors, attitudes towards online grocery shopping and future online grocery buying intention. Each of items was weighted with seven-point Likert scale from strongly disagree (1) to strongly agree (7).

3.2.1 Measuring the perceived convenience construct

Perceived convenience can be defined as the degree to which an advantages or benefits is perceived by consumers as being better than the idea. In measuring perceived convenience, the items basically adopted from numerous writers, which were Verhoef, P.C. and Langerak, F. (2001); Aylott, R. and Mitchell, V-W. (1998) and Cassill et.al (1997). All items had been tested with good reliability. The items in Table 3.1 were intended to evaluate consumer's perception on the benefits and advantages when purchase via online grocery stores.

Table 3.1   Items to measure the perceived convenience

Measuring	Author	α	Original Statement	Modified Statement
Perceived Convenience	Verhoef, P.C. and Langerak, F. (2001)	0.86 – 0.89	• Using electronic shopping of groceries saves much time • Shopping groceries via the internet is favourable as it makes me less dependent on open hours • There is a lot of money to save buying groceries via the internet	• Exactly the same • Shopping groceries via internet is favourable as it makes me less dependent of opening hours of store • Exactly the same
	Davis et al. (1989)		• Using online grocery shopping can improve my efficiency and effectiveness in purchasing groceries • Using online groceries shopping can make my grocery shopping easier	• Exactly the same • Exactly the same

3.2.2 Measuring the perceived Information accessibility construct

Perceived information accessibility is concerned about the ability for consumers to search for information. Hasen, T. (2005) mentioned that the items for perceived information accessibility basically adopted by reviewing previous studies that have attempted to measure related construct such as perceived complexity. The items are shown in Table 3.2:

Table 3.2   Items to measure the perceived information accessibility

Measuring	Author	α	Original Statement	Modified Statement
Perceived Information Accessibility	Hansen, T. (2005)	>0.65	• Electronic shopping of groceries is complex because I cannot feel and see the products	• Exactly the same
			• It is easy to compare the quality of groceries via the internet	• Exactly the same
			• It is easy to get a lot of information of the groceries which I would like to buy	• Exactly the same
			• It is easy to find the product I would like to purchase	• Exactly the same
	Davis et al. (1989)		• My interaction with the processes of online grocery shopping might be clear and understandable.	• Exactly the same

3.2.3 Measuring the perceived order accessibility construct

Perceived order accessibility can be defined as the consumer's perception on the easiness to make order via virtual stores. All the items were derived from the study of Hansen, T. (2005) and Davis et al. (1989). The items are shown in Table 3.3:

Table 3.3   Items to measure the perceived order accessibility

Measuring	Author	α	Original Statement	Modified Statement
Perceived Order Accessibility	Hansen, T. (2005)	>0.65	• It is hard to find the products I want when shopping groceries via the internet • With electronic shopping of groceries it is difficult to order products • It is difficult to receive groceries purchased via the internet and to have them home delivered	• Exactly the same • Exactly the same • Exactly the same
	Davis et al. (1989)		• It is easy for me to follow the procedures when ordering the groceries online • It is easy for me to choose the suitable slot based on my availability time when groceries delivered to my home	• Exactly the same • Exactly the same

3.2.4 Measuring the perceived risk construct

Perceived Risk considered as consumer's perception on potential harm or losses when purchasing products and services via online. The study from Belanger, F.,

Hiller, J.S. and Smith, W.J. (2002) and McKnight, D. H. et al. (2002) were measuring the items of perceived risk in online grocery buying where the items are negative attributes. All the items had been tested with good reliability. The items are shown in Table 3.4:

Table 3.4   Items to measure the perceived risk

Measuring	Author	α	Original Statement	Modified Statement
Perceived Risk	Belanger et al. (2002) and McKnight, D. H. et al. (2002), Lim, N., (2003)	0.82	• Security around payment on the Internet is not good enough	• Exactly the same
			• Return and exchange opportunities are not as good on the internet as the supermarket/non-internet shop	• Exactly the same
			• A risk when buying groceries via the Internet is receiving low quality products or incorrect items	• Exactly the same
			• There are too many untrustworthy online store	• Exactly the same
	Kurnia, S. and Johnston, R.B. (1999)		• I am concerned about the privacy of my information provided when using online grocery shopping	• Exactly the same

3.2.5 Measuring the perceived enjoyment construct

Perceived enjoyment is defined as the degree of consumer's perceived to be fun, interesting and enjoyable when purchase via online. The items of perceived enjoyment were derived from the numerous of research such as Beatty, S. E.

and Ferrell, M. E. (1998); Alba, J. et al. (1997) and among others. The items are shown in Table 3.5:

Table 3.5   Items to measure the perceived enjoyment

Measuring	Author	α	Original Statement	Modified Statement
Perceived Enjoyment	Moon, J. W. and Kim, Y. G. (2001)	>0.7	• I have fun when interacting with the website • Using the website to purchase products provides me with a lot of enjoyment • I think that purchasing products from the website is interesting • It is fun when discover new products launch in the online grocery website • It is fun when I can participate on the competition organized by online grocery website	• Exactly the same • Using the website to purchase groceries provides me with a lot of enjoyment • I think that purchasing groceries from the website is interesting • Exactly the same • Exactly the same

3.2.6 Measuring the Social factors construct

Social factors are the changes of consumer attitude intentionally and unintentionally when they are influenced by others. The items of social factor construct generally measured from the Theory of Reasoned Action (Azjen and Fishbein, 1975) and Thompson, K. E., Haziris, N. and Alekos, P. J. (1994) where a person's behavioural intention (BI) was affected by subjective norm (SN). The items are shown in Table 3.6:

Table 3.6   Items to measure the social factors

Measuring	Author	α	Original Statement	Modified Statement
Social Factors	Azjen and Fishbein (1975), Azjen (1985)	0.79	• I will use online grocery shopping if the service is widely used by people in my community • I will adopt online grocery shopping if my boss uses it. • I will adopt online grocery shopping if my friends / relatives use it.	• Exactly the same • Exactly the same • Exactly the same
	Thompson, K. E. et al. (1994)		• Members of my family think that it is a good idea to buy groceries via internet • Most of my friends and acquaintances think that shopping groceries via the internet is a good idea	• Exactly the same • Exactly the same

3.2.7 Measuring the attitude towards online grocery shopping construct

Consumer buying behaviour basically based on individual attitudes on the basis of their belief (perceptions and knowledge) on online grocery shopping. The items were adopted from Verhoef, P. C. and Langerak, F. (2001); Stylianou, A. C., Robbins, S. S. and Jackson, P. (2003); Liao, Z. and Cheung, M. T. (2001); Monsuwe, T. P. y., Dellaert, B. G. C., Royter, K. de (2004). All the items had been determined and become potential drivers influenced the consumer's attitude towards online shopping. The items are shown in Table 3.7:

Table 3.7   Items to measure the attitude towards online grocery shopping

Measuring	Author	α	Original Statement	Modified Statement
Attitude towards online grocery shopping	Stylianou, A. C. et al. (2003), Liao and Cheung (2001), Monsuwe, T. P. y. et al. (2004)	0.88	• Electronic shopping of groceries is attractive to me in my daily life • Buying groceries via the Internet is well suited to the way in which I normally shop for groceries • Online grocery shopping matches the needs of members of my household	• Exactly the same • Exactly the same • Exactly the same
			• Using online grocery shopping is beneficial to me • Using online grocery shopping in purchase groceries is good idea	• Exactly the same • Exactly the same

3.2.8 Measuring the future online grocery buying intention construct

Future online grocery buying intention are derived from buying intention where examine consumer's buying preference on particular shopping channels. The items generally adopted from Verhoef, P. C. and Langerak, F. (2001). All the items had been tested with good reliability. The items are shown in Table 3.8:

Table 3.8   Items to measure the future online grocery buying intention

Measuring	Author	α	Original Statement	Modified Statement
Future online grocery buying intention	Verhoef , P. C. and Langerak, F. (2001)	0.88	• Given a chance, I intend to purchase through online grocery in future • Given a chance, I predict that I should use online grocery website in future	• Exactly the same • Exactly the same
			• How likely is it that over the next years you will shop for groceries via the Internet? • How large a part of your grocery shopping do you think you will carry out via the Internet over the next year? • How frequently you will shop for groceries via the internet in future?	• Exactly the same • Exactly the same • Exactly the same

3.3   Research instrument

To achieve the objectives of this study, a survey via structured questionnaire was used to collect the primary data and explore the consumer's future purchase intention in online grocery shopping in Malaysia. The questionnaire with predominantly closed-ended questions where the researchers can make the comparison with the answers obtained from previous study. To ensure confidentiality and anonymity, the survey form was attached with a cover letter explaining the purpose of the study (Bryman, A. & Bell, E. 2003). Since Malaysia is multi-racial country, the survey was prepared using two languages, i.e. Bahasa

Melayu and English. Appendix 1 is showing the original English version and the translated Bahasa Melayu version.

According to Blaxter, L., Hughes, C. and Tight, M. (1996) and Bryman, A. and Bell, E. (2003), the principles of questionnaire development is short, unambiguous questions; no leading questions; simple and straight forward questions and answers; predominantly closed-ended questions to encourage speedy completion and provide neutral question to avoid erroneous answers when respondents are unsure with the answers.

The structure of survey questionnaires were divided into three sections which included Section A, individual internet usage; Section B, attitudes and opinion in online grocery buying and Section C, respondent's profile. Section A was identified individual internet usage, online buying experiences and product and service preferences. Section B was the main questionnaires which measured all the items for each of the constructs. Seven-point Likert scale from strongly disagree (1) to strongly disagree (7) was used to measure each of the items. This section investigated perceived convenience, perceived information accessibility, perceived order accessibility, perceived risk, perceive enjoyment, social factors, attitude towards online grocery shopping and future online grocery buying intention. Last section of the questionnaires was captured respondent's demographic profiles (e.g. gender, age, income, race, education, marital status, occupation and etc.).

3.4   Sampling techniques

The targeted population of this study was Malaysian citizens who currently stayed in Klang Valley in Malaysia. The targeted respondents were from any consumers either with or without experience of online grocery shopping. The targeted respondents are required to have certain level of maturity and understanding since the study is conducted by self-administered survey questionnaires.

In view of large population in Malaysia, the convenience sampling technique was used to approach the respondents. Convenience sampling, a non-probability sampling, was one of the most commonly used techniques and enabled to obtain quick and timely feedback from targeted respondents (Fink, A. 1995). Quota sampling was also used to select research respondents for this study. The quota sampling used in this study was an attempt to represent the Malaysian context.

A total of 300 sample size was targeted. The questionnaires were distributed to the targeted respondents on a convenience basis and according to the sampling quota which was 150 Malay respondents (50%), 90 Chinese respondents (30%) and 60 Indian respondents (20%) respectively. To ensure the number of respondents is sufficient for the analysis required by the proposed research framework, the population of Indian respondent was preset at 20%, which is slightly higher than actual percentage of the composition in the Malaysian

population. In general, the distribution of sample size was slightly same with Malaysia population.

3.5   Data collection procedures

Survey questionnaire was mainly distributed to Klang Valley area which located at Penisular Malaysia. These questionnaires were distributed randomly to the respondents in the University of Malaya, office areas or through friends, colleagues and family members network. A total of 370 questionnaires were distributed and only 312 questionnaires were returned. More specifically, 200 questionnaires were distributed in the class and department office of the University of Malaya, 100 questionnaires were distributed through friends, colleagues and family members and 70 questionnaires were distributed in the office areas, Klang Valley. A total of 175 questionnaires were returned from the University of Malaya, 87 questionnaires were returned from friends, colleagues and family members and 50 questionnaires were returned from office areas respectively.

The data presented in this paper were collected by using self administered questionnaire. For distribution questionnaire self administered approach, the respondents will be provided one set of printed questionnaire and pen and requested to complete and return it on the spot o a voluntary basis. Personal contact with respondents increases the response rate where the researchers can

explain the purpose of study and clarify certain items in the questionnaire. However, for those respondents who are willing to participate in the study but not enough time to complete it immediately are asked to leave their name and contact number so that the questionnaire can be collected on their selected time.

Briefly, this survey had more female respondents (70%) than male respondents, (30%) because women were played a main role in household. The sample comprised approximately 50% Malay, 30% Chinese and 20% Indian which followed the race distribution in Penisular Malaysia. In terms of age, approximately 58% were between 21 to 30 and 31% in between 31 to 40. For education background of respondents, approximately 65% of respondents reported had achieved degree and postgraduate level. In terms of monthly income, 37% of respondents had monthly income range from RM1,501 to RM3,000 and 38% of respondents had monthly income range from Rm3,001 to RM5,000 respectively. Overall, the sample size of population was young, high educated and middle to high income group. The detail demography of sample will be presented in Chapter 4.

3.6   Data analysis techniques

Each of the survey form received was screened for incomplete responses or other errors. The questionnaires that were incorrectly answered would be

discarded from analysis. At this situation, total completed set of questionnaire with answers was 302 sample sizes (n=302).

The SPSS (Statistical Package for the Social Sciences) version 17 was used to analyse the data. The completed questionnaires collected were entered into SPSS manually. Data transformation was applied on some of the variables so that the data could be grouped together for statistical analysis.

A three-step item purification procedure was accomplished on each of multi-item scales. Firstly, Pearson Correlation Analysis had been conducted to test the covariation or the relationship between the independent variables, mediating variables and dependent variables on each of hypotheses. Each item was computed to test for the inter-item and item-to-total correlations. The correlation coefficient has a range of possible values from -1 to +1 where the value specified the perfect positive or negative relationship. The sign (+ or -) indicates the directions (Coakes, S. J., Steed, L., Ong, C., 2010). In this study, the level of significance was set at 5%. All items should have a significant correlation coefficient at the 0.05 level.

Secondly, an exploratory factor analysis was conducted on each of the constructs. Factor analysis basically is a data reduction technique where it used to reduce a large number of variables to a smaller set of underlying factors (Coakes, S. J. et al., 2010). An exploratory factor analysis summarise the

structure of a set of variables. The factors or constructs determined by using an eigenvalue of 1.0 as the cut-off point.

Then, cronbach's alpha was used to measure the reliability of each construct in the questionnaire. Based on Nunnaly, J. O. (1978), 'Corrected Item-Total Correlation' was used to measure convergent validity of each item within a construct.

Multiple regressions were used to test the relationship between one dependent variable and a couple of independent variables (Pallant, J. 2001). Multiple regression were based on correlation but it will describe more sophisticated examination of the relationship among a set of variables. The purpose of this analysis is to explore the factors that influence the attitude towards online grocery buying and the factors that influence the consumer's future online grocery buying. Multiple regression analysis also identified each of the independent variables that significant or insignificant to dependent variables.

Furthermore, structural equation modeling (SEM) was used to analyse the data. Based on the suggestion of Hair, J., Anderson, R. E., Tatham, R. L., and Black, W. C. (1998), there had three reasons to use SEM where SEM is a multivariate technique that allowed the simultaneous estimation of multiple equations. SEM was used to test a structural theory since factor analysis and regression analysis was conducted. He also mentioned that SEM becomes a popular method in the

social sciences. A SEM analysis was perform using Amos version 16 where sketch the model in a user-friendly drawing environment. Amos then translates the drawing to a written programme and performs the necessary calculation (Niels J. B., 2008).