

# **Factors influencing online purchase intention: The case of health food consumers in Thailand**

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## ABSTRACT

The advent of the Internet, accompanied by the growth of related technologies, has created a significant impact on the lives of people around the globe. For marketers, one of the most significant impacts has been the emergence of virtual stores that sell products and services online. Consumers can now purchase goods and services virtually anywhere, 24 hours a day, 7 days a week, without geographical and temporal boundaries.

While many marketers acknowledge the importance of using the Internet in their marketing mixes, little research has empirically tested the critical factors that influence an individual's decision when buying products or services online. Based on the gaps found in the literature, this study was designed to investigate factors that encourage and discourage purchase intention of consumers when buying health foods online in Thailand. The study also examined the relative importance of such factors. Thus, the research problem investigated in this thesis is:

*What are the important factors influencing consumer's online purchase intention of health foods in Thailand?*

The specific objectives of this research were not only to identify and explore the relative importance of factors, but also to develop a model to investigate the factors influencing purchase intention of consumers when buying health foods online in Thailand. This research was designed in three stages covering both exploratory and explanatory research. The exploratory stage covering stage one and two, started by reviewing the existing literature relating to behaviors and attitudes when consumers buy products online. The Technology Acceptance Model (TAM) developed by Davis (1989) was selected as a theoretical framework to build a conceptual model for this study. In addition to the two original constructs in the TAM model, namely, perceived usefulness (POU) and perceived ease of use (EOU), the literature review suggested three additional constructs. These were perceived risk (PR), customer experience (CE), and product and company attributes (PCA). Four focus groups were conducted in stage two to gain consumer insights in order to understand, refine and develop the final model and hypotheses to be confirmed and tested in the explanatory research. Finally, the modified TAM model and eleven hypotheses were

proposed to explain and test the behavioral intention of health food consumers when buying health foods online in Thailand.

In the explanatory stage, which forms the major portion of this research, an online survey was conducted with responses from 786 consumers taken from the Cerebos customer database. All respondents had used both health foods and the Internet during the past 12 months. Exploratory factor analysis (EFA) was used to explore and test the suitability of data collected from the survey. Structural equation modeling (SEM) was chosen to confirm the measurement model in this study because it offered a mechanism to validate the relationships between constructs and indicators by using confirmatory factor analysis (CFA) and tested the relationships among constructs by using path analysis. All five constructs in the model exhibited high levels of reliability, validity and produced the final measurement and structural models. Nine out of eleven hypotheses were accepted and two were rejected. In addition, six propositions were also found in this study.

Similar to prior research, the results in this study indicated that perceived usefulness (POU) was a powerful determinant and the strongest predictor of behavioral intention. It was the only construct that showed a significant positive and direct effect on purchase intention with no indirect effect involvement. Customer experience (CE) was the second most important factor in this study. The customer experience itself, did not have any direct effect on purchase intention but demonstrated a significant positive and indirect effect on purchase intention. Perceived risk (PR) was the third most important factor in this study. Similar to customer experience, perceived risk did not have any direct effect but it demonstrated a significant negative and indirect effect on purchase intention. Perceived ease of use (EOU) and product and company attributes (PCA) were found to have little effect on behavioral intention in this study. Similarly to previous studies, the two original constructs in the TAM model, perceived usefulness (POU) and perceived ease of use (EOU), were found to be mediating factors of other constructs in influencing purchase intention (PI), in this study.

In summary, forty effective measurement items were identified and confirmed to be associated with fourteen factors under these five constructs in the structural model. *Variety of choices* was the most effective item of measurement for perceived

usefulness (POU), while *modern personality*, *product assurance*, *trusted company* and *simple order procedure* were found to be the most effective measurement items for customer experience (CE), perceived risk (PR), product and company attributes (PCA), and perceived ease of use (EOU), respectively. All of these factors demonstrated statistically significant high factor loadings on the relevant constructs.

The findings from this research provide useful information for corporate management, and marketers in prioritizing and allocating their resources in terms of manpower, investment, marketing effort, and time to improve the impact of these constructs, all of which will ultimately enhance the possibility of consumers buying health foods online. Results from this study are beneficial to Web developers in designing attractive and effective Web sites or homepages to draw consumer's attention when buying products online. Cost of using the Internet should be reduced to make it more competitive and affordable to wider population. In addition, these findings are also useful to the Thai government in designing and drafting an Internet policy to enhance the scope and development of e-commerce and online business in Thailand.

This dissertation concluded by identifying opportunities for future research. These were addressing the delimitations of scope, further testing and validation of the measurement scales, measurement of actual buying behavior, adding demographic and psychographics variables into the model, conducting longitudinal observation, and last but not least, the application of the modified TAM model to other consumer products in the Thai context.



## CERTIFICATION OF DISSERTATION

I certify that the ideas, results, analysis and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that this work is original and has not been previously submitted for any other award.



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Signature of Candidate

April 23, 2004  
Date

### ENDORSEMENT

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Signature of Supervisor

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Date

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Date

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Lastly, I hope that this thesis will contribute and accelerate the successful development of e-commerce and online businesses in Thailand.

# Table of Content

ABSTRACT	I
CERTIFICATION OF DISSERTATION	IV
ACKNOWLEDGEMENTS	VI
TABLE OF CONTENTS	VII
LIST OF APPENDICES	IX
LIST OF FIGURES	X
LIST OF TABLES	X
<u>Chapter 1</u> INTRODUCTION	1
1.1 Background to the research .....	1
1.2 Research problem and objectives .....	4
1.3 Justification for the research .....	4
1.3.1 Theoretical contributions.....	5
1.3.2 Practical contributions .....	6
1.4 Methodology.....	7
1.4.1 Stage 1: Exploratory research.....	8
1.4.2 Stage 2: Explanatory research.....	8
1.5 Outline of the thesis.....	9
1.6 Definitions.....	10
1.7 Delimitations of scope of the research.....	11
1.8 Conclusions.....	12
<u>Chapter 2</u> LITERATURE REVIEW	13
2.1 Introduction.....	13
2.2 Internet marketing.....	14
2.2.1 Background to the Internet.....	15
2.2.2 Internet marketing elements.....	19
2.3 Research into theory and factors influencing purchase behavior online	22
2.3.1 Theory of Internet marketing.....	22
2.3.2 Factors influencing purchase behavior online.....	37
2.4 Gaps in the literature.....	40
2.5 Preliminary model of online purchasing of health foods.....	41
2.5.1 Overview of the model.....	42
2.5.2 Preliminary model and hypotheses.....	43
2.6 Conclusions.....	50
<u>Chapter 3</u> EXPLORATORY RESEARCH	52
3.1 Introduction.....	52
3.2 Exploratory research.....	53
3.2.1 Focus groups .....	54
3.2.2 Justification for using focus groups.....	55
3.3 Methodology.....	59
3.3.1 Research objectives.....	60
3.3.2 Sampling strategy.....	60
3.3.3 Design screening questionnaires.....	67



3.3.4 Discussion guides .....	67
3.3.5 Conduct of focus group discussion.....	69
3.3.6 Limitations of focus groups.....	71
3.3.7 Ethical issues.....	72
3.3.8 Summary.....	73
3.4 Results.....	74
3.4.1 Overview of the four groups.....	74
3.4.2 Research objective 1: Identify factors influencing online purchase intention of health foods .....	77
3.4.3 Research objective 2: Explore the relative importance of factors that encourage or discourage consumers to buy online .....	101
3.5 Revision of research model.....	113
3.6 Conclusions.....	117
<b>Chapter 4 METHODOLOGY</b> .....	119
4.1 Introduction .....	119
4.2 Research design.....	121
4.3 Data collection method.....	121
4.4 Sample design.....	125
4.5 Operational definitions.....	127
4.6 Validity and reliability.....	130
4.7 Questionnaire design.....	130
4.7.1 Scale development.....	133
4.7.2 Questionnaire layout.....	134
4.8 Survey administration.....	137
4.9 Data preparation and analysis.....	140
4.9.1 Descriptive statistics.....	141
4.9.2 Hypotheses testing.....	141
4.10 Ethical considerations.....	143
4.11 Conclusions.....	144
<b>Chapter 5 DATA ANALYSIS</b> .....	145
5.1 Introduction.....	145
5.2 Data examination and screening.....	146
5.2.1 Data preparation .....	147
5.2.2 Response rate.....	147
5.2.3 Profile of respondents.....	148
5.2.4 Representativeness .....	150
5.3 Descriptive statistics.....	154
5.4 Exploratory analysis .....	159
5.4.1 Item analysis.....	159
5.4.2 Exploratory factor analysis .....	162
5.5 Structural equation modeling (SEM).....	171
5.5.1 Confirmatory factor analysis .....	176
5.5.2 Path analysis with latent variables.....	186
5.6 Conclusions.....	193
<b>Chapter 6 CONCLUSIONS AND IMPLICATIONS</b> .....	195
6.1 Introduction.....	195
6.2 Conclusions about research findings.....	198

6.2.1	Conclusions about research model.....	203
6.2.2	Conclusions about research problem.....	223
6.3	Implications of research findings.....	225
6.3.1	Theoretical implications.....	225
6.3.2	Managerial implications.....	227
6.4	Limitations and future research.....	230
6.4.1	Limitations of the study.....	231
6.4.2	Future research opportunities.....	233
6.5	Conclusions.....	235
REFERENCES		237
APPENDICES		
Appendix 2.1	Research on Internet profile survey.....	258
Appendix 3.1	Screening questionnaire.....	260
Appendix 3.2	Moderator discussion guide.....	262
Appendix 3.3	Focus group sessions.....	264
Appendix 3.4	Demographics analysis of respondents in the focus groups...	266
Appendix 4.1	Results from pretest data collection.....	274
Appendix 4.2	Online questionnaire (English version).....	285
Appendix 4.3	Online questionnaire (Thai version).....	296
Appendix 4.4	Validity, reliability and its assessment strategies.....	299
Appendix 4.5	Link between research questions and scale development....	302
Appendix 5.1	Demographics analysis.....	305
Appendix 5.2	Means and standard deviations of variables in the model....	307
Appendix 5.3	Item analysis on purchase intention (PI).....	308
Appendix 5.4	Item analysis on product and company attributes (PCA)....	310
Appendix 5.5	Item analysis on perceived risk (PR).....	312
Appendix 5.6	Item analysis on perceived ease of us (EOU).....	314
Appendix 5.7	Item analysis on perceived usefulness (POU).....	315
Appendix 5.8	Item analysis on customer experience (CE).....	316
Appendix 5.9	Pearson correlations of the 64 items.....	317
Appendix 5.10	Pearson correlations of items in product and company attributes (PCA).....	321
Appendix 5.11	Pearson correlation of items in perceived risk (PR).....	322
Appendix 5.12	Pearson correlation of items in perceived ease of use (EOU).....	323
Appendix 5.13	Pearson correlation of items in perceived usefulness (POU).....	324
Appendix 5.14	Pearson correlation of items in customer experience (CE)..	325
Appendix 5.15	Communalities analysis for product and company attributes (PCA).....	326
Appendix 5.16	Communalities analysis for perceived risk (PR).....	327
Appendix 5.17	Communalities analysis for perceived ease of use (EOU)..	329
Appendix 5.18	Communalities analysis for perceived usefulness (POU)..	330
Appendix 5.19	Communalities analysis for customer experience (CE)....	331
Appendix 5.20	Skewness, Kurtosis and Mardia's coefficient.....	332
Appendix 5.21	Mean, standard deviation, and the covariance matrix.....	334
Appendix 5.22	Variable names in the confirmatory factor analysis.....	336
Appendix 5.23	Correlation of composite variables.....	338

Appendix 5.24 Covariance matrix of latent variables...	339
Appendix 5.25 Skewness, Kurtosis and Mardia's coefficient of composite variables.....	340
Appendix 5.26 Reliability analysis – PCA.....	341
Appendix 5.27 Reliability analysis – PR.....	342
Appendix 5.28 Reliability analysis – EOU.....	343
Appendix 5.29 Reliability analysis – POU.....	344
Appendix 5.30 Reliability analysis – CE.....	345

#### LIST OF FIGURES

Figure 1.1 Outline of this thesis .....	10
Figure 2.1 Outline of the literature review.....	14
Figure 2.2 Technology Acceptance Model (TAM).....	42
Figure 2.3 Preliminary model of online health food purchase intention..	44
Figure 2.4 A conceptual framework for H1a and H1b hypotheses drawn from the preliminary model.....	45
Figure 2.5 A conceptual framework for H2a, H2b and H2c hypotheses drawn from the preliminary model.....	46
Figure 2.6 A conceptual framework for H3a and H3b hypotheses drawn from the preliminary model.....	48
Figure 2.7 A conceptual framework for H4a hypotheses drawn from the preliminary model.....	48
Figure 2.8 A conceptual framework for H5a, H5b and H5c hypotheses drawn from the preliminary model.....	50
Figure 3.1 Outline of the exploratory.....	53
Figure 3.2 Final modified TAM model.....	116
Figure 4.1 Outline of stage 2: Quantitative research.....	120
Figure 5.1 Outline of data analysis.....	146
Figure 5.2 Gender distribution.....	151
Figure 5.3 Age distribution.....	151
Figure 5.4 Marital status.....	152
Figure 5.5 Education distribution.....	152
Figure 5.6 Occupation classification.....	153
Figure 5.7 Model specification of this research.....	173
Figure 5.8 Modified model of product and company attributes (PCA)...	177
Figure 5.9 Modified model for perceived risk (PR).....	179
Figure 5.10 Modified model for perceived ease of use (EOU).....	180
Figure 5.11 Modified model for perceived usefulness (POU).....	181
Figure 5.12 Modified model for customer experience (CE).....	183
Figure 5.13 Proposed structural model.....	188
Figure 5.14 Modified structural model with factor loading.....	189
Figure 5.15 Final and complete nested model with factor loading.....	191
Figure 6.1 Outline of Chapter 6 .....	196

#### LIST OF TABLES

Table 2.1 Growth indicators of the Internet.....	16
Table 2.2 Internet user penetration in major countries.....	18
Table 2.3 Functions of Internet marketing found in different literatures..	20
Table 2.4 Summary of empirical findings on the Internet usage.....	24
Table 2.5 Theories cited in the literature.....	31

Table 2.6	Comparison of key theories .....	35
Table 2.7	Key factors found in the literature.....	38
Table 3.1	Advantages of using focus groups.....	57
Table 3.2	Drawbacks and strategies to overcome the focus groups.....	58
Table 3.3	Internet users penetration comparison.....	61
Table 3.4	Profile comparison of health food users and Internet users in Thailand.....	62
Table 3.5	The demographics of Internet users in the sampling frame.....	63
Table 3.6	Proposed focus groups for this research.....	66
Table 3.7	Moderator discussion guides and the research objectives.....	68
Table 3.8	Profile and usage of the Internet in older females group G1...	75
Table 3.9	Profile and usage of the Internet in older males group G2 .....	75
Table 3.10	Profile and usage of the Internet in younger females group G3.	76
Table 3.11	Profile and usage of the Internet in younger males group G4..	77
Table 3.12	Products and services searched for over the Internet.....	78
Table 3.13	Internet attributes on perceived ease of use (EOU).....	82
Table 3.14	Internet attributes on perceived usefulness (POU).....	85
Table 3.15	User attributes on perceived risk (PR).....	87
Table 3.16	User attributes on customer experience (CE).....	90
Table 3.17	Product and company attributes (PCA).....	93
Table 3.18	Relative importance of factors influencing online purchase of health foods in each group.....	102
Table 3.19	Average weighted score of each factor.....	103
Table 3.20	Attributes of each factor mentioned by all groups.....	104
Table 3.21	Comparison of factors and attributes found in this study with the results found in the literature.....	114
Table 4.1	Strengths, weaknesses and proposed strategies to overcome weaknesses in online survey.....	123
Table 4.2	Constructs and definitions used in this research.....	128
Table 4.3	Techniques used in this survey.....	138
Table 4.4	Administrative procedure used in this study.....	139
Table 5.1	Successful rate of valid respondents.....	148
Table 5.2	Profile of respondents in this survey.....	149
Table 5.3	Means and standard deviations of items measuring product and company attributes (PCA) in the model.....	154
Table 5.4	Means and standard deviations of items measuring perceived risk (PR) in the model.....	156
Table 5.5	Means and standard deviations of items measuring perceived ease of use (EOU).....	157
Table 5.6	Means and standard deviations of items measuring perceived Usefulness (POU).....	157
Table 5.7	Means and standard deviations of items measuring customer experience (CE).....	158
Table 5.8	Alpha coefficient of the item analysis.....	162
Table 5.9	Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO)..	163
Table 5.10	Factors loading matrix and communality for product and company attribute (PCA) .....	165
Table 5.11	Factors loading matrix and communality for perceived risk (PR).....	166
Table 5.12	Factors loading matrix and communality for perceived ease	

of use (EOU).....	167
Table 5.13 Factors loading matrix and communality for perceived usefulness (POU).....	168
Table 5.14 Factors loading matrix and communality for customer experience (CE).....	169
Table 5.15 Factors derived from exploratory factor analysis.....	170
Table 5.16 Steps of structural equation modeling used in this research....	172
Table 5.17 Goodness of fit indices and criteria used in this study.....	175
Table 5.18 Model fit indexes for perceived risk before deleting variables	178
Table 5.19 Model fit indexes for perceived ease of use before deleting variables.....	179
Table 5.20 Model fit indexes for perceived usefulness before deleting variables.....	181
Table 5.21 Model fit indexes for customer experience before deleting variables.....	182
Table 5.22 Summary of goodness-of-fit indexes from CFA.....	184
Table 5.23 Reliability analysis and construct reliability of constructs.....	184
Table 5.24 Comparison of factors extracted from exploratory factor analysis and confirmatory factor analysis .....	185
Table 5.25 Goodness-of-fit indexes of model modification.....	186
Table 5.26 Test of differences.....	190
Table 5.27 Relationships developed through path analysis.....	192
Table 6.1 Summary of results on factors influencing online purchase intention of health foods.....	201
Table 6.2 Summary of constructs, factors, factor loadings and their significant items of measurement from the final nested model	203
Table 6.3 Summary of support for hypotheses in this study.....	210
Table 6.4 Total effect on relationships between constructs of the nested model.....	211
Table 6.5 Propositions developed through path analysis in this study.....	216
Table 6.6 Summary of hypotheses and propositions found in this study.	220

# CHAPTER 1

## 1 INTRODUCTION

### 1.1 Background to the research

With the coming of the 21<sup>st</sup> century, we have entered an “e” generation era. The Internet has generated a tremendous level of excitement through its involvement with all kinds of businesses starting from eCommerce, eBusiness, eCRM, eSupply Chain, eMarketplace, ePayment, eEntertainment, eTicketing, eLearning, to eCitizen or eGovernment. The Internet has been widely used in many sales and marketing activities, from the collection of valuable data to the dissemination of information to different stakeholders, for example, information retrieval, product communication, sales tool, distribution channel, and as a customer support tool (Singh, Jayashankar & Singh 2001; Cales 2000; Sandberg 1998; Peterson, Balasubramanian & Bronnenberg 1997). The Internet has opened a window of opportunity to almost anyone because of its ability to make viable the conduct of business in cyberspace, or by connecting people worldwide without geographical limitations. Consumers can order goods and services virtually anywhere, 24 hours a day, 7 days a week without worrying about store hours, time zones, or traffic jams (Li & Gery 2000; Waldo 2000). The Internet has also provided new opportunities for marketers by offering them innovative ways to promote, communicate, and distribute products and information to their target consumers.

E-commerce has grown phenomenally in the past decade for a variety of reasons including changes in consumer lifestyles, technological advancements, increases in consumer income and education, and rapid financial development throughout the world. The use of the Internet as a shopping or purchasing vehicle has been growing at an impressive rate throughout the last decade. In 2001, Nielsen NetRatings and HarrisInteractive confirmed that 48.2 percent of the US adult population or 100.2 million people have already purchased products online (Nielsen NetRatings 2001). Total online sales were forecast by ActivMedia to be more than US\$ 1.2 trillion in 2002 (NUA 2001). The tremendous growth of online sales and the unique functions

of the Internet have drawn a great deal of attention from many companies rushing in to set up businesses over the Internet without knowing what factors actually motivate consumers to buy products or services online.

Many marketers agree that Internet marketing will definitely increase customer spending and loyalty to both online and offline products if it is executed properly. This is due largely to the Internet's significant advantage of two-way communication and its ability to transmit information quickly and inexpensively when compared to other traditional mass media using solely one-way communication (Warrington, Abgrab & Caldwell 2000; Waldo 2000). The simultaneous and rapid rate of consumer adoption of personal computers and network systems have encouraged and pressured marketers to provide Internet retailing sites. Some researchers in fact predict that the need for physical stores could be eliminated in roughly four decades and replaced with electronic retailing (Cope 1996).

While many marketers acknowledge the importance of using the Internet in their marketing mixes, only a handful of researchers [has](#) studied what factors encourage or discourage consumers when buying products or services online. Despite the increasing popularity of the Internet, most knowledge of Internet marketing is based on anecdotes and experiential evidence from television, radio, popular press or magazines (Waldo 2000; Bush & Bush 1998; Taylor 1996).

Similarly to western countries, many companies in Thailand are also rushing to establish an Internet presence despite a great deal of confusion about the actual impact of this new medium on their businesses. Previous studies have focused predominantly on Web advertising rather than the fundamental issues relating to why consumers make a decision to buy products on the Internet (Korgaonkar & Wolin 1999). These studies mainly investigated Internet user demographics, reasons for shopping online, respondent's preferred items when buying online, and satisfaction or dissatisfaction with online shopping (Teo 2001; Szymanski & Hise 2000; Ferle 2000; Phau & Poon 2000; Tan 1999; Kunz 1997; Fram & Grady 1995; Henrichs 1995; Mehta & Sivadas 1995). Hence, there is a gap in the literature surrounding factors influencing consumer's decision [when buying health foods online](#). This gap in particular has not been investigated adequately in the existing literature.

For this study, the researcher has intentionally selected health foods as the target product and several reasons justify this choice. Firstly, health foods are a fast growing industry worldwide, the usage of which has accelerated due to poor eating habits, lack of exercise, stressful lifestyles, polluted environments and the growing proportion of elderly people in many developed countries (Hilliam 1999; Wrinkler 1999; Hunter 1997). This trend is also applicable to Thailand. Secondly, health foods are a high involvement product, requiring consumers to conduct an extensive information search on product attributes and benefits before committing to a purchase decision (Mowen & Minor 1998; Bunnag 1997). This makes health foods a particularly good product to sell via the Internet. In addition, there is an increasing trend of consumers turning to the Web searching for information on health products. Currently, there are 15,000 – 25,000 health related Web sites available on the Internet (Zbar 2000). More consumers are now going to the Web to get health information (Holiday 2001; Woody 2000). As the number of Internet users access to the health information increases, the use of e-commerce in health care will also rise (Reuter News 2000). Lastly, the researcher is confident of successfully acquiring reliable and complete data necessary for this study as she is currently working as a top executive in this area. Hence, health foods should prove to be an appropriate choice for this study.

In summary, the benefits of using the Internet in marketing are enormous as they offer a huge opportunity for marketers to create innovative activities that have not previously been viable. However, marketers need to develop an insightful understanding of consumer behavior when purchasing products online. This information will help marketing managers to plan their marketing mixes and offers to better meet customer's requirements. By doing so, companies will establish, maintain or increase customer satisfaction, build strong brand loyalty and ultimately, provide consumers with a solid rationale for continuing to buy the same brand. This study is thus significant as it is a preliminary attempt to identify factors and their relative strength in influencing consumer decision making when buying health foods online. The research problem and objectives of this study are addressed next.



## **1.2 Research problem and objectives**

The purpose of this research was to identify factors influencing the purchase intention of consumers when buying health foods online. The research problem addressed in this thesis was:

*What are the important factors influencing consumer's online purchase intention of health foods in Thailand?*

The specific objectives of this research were to:

- Identify factors influencing consumer's online purchase intention of health foods in Thailand.
- Explore the relative importance of factors that encourage or discourage consumers from buying health foods online.
- Develop a model of factors influencing the online purchase intention of health foods by consumers in Thailand.

As this research problem has not previously been investigated in Thailand, the study began with a literature review of previous studies on related subjects, in order to develop a theoretical model for this study (chapter 2). This is closely followed by an exploratory study conducted to generate consumer insight and to refine and explore additional factors, attitudes and intentions toward the online purchase of health foods (chapter 3). Finally, a large quantitative online survey was conducted in order to empirically test and confirm the conceptualized model (chapters 4 and 5).

## **1.3 Justification for the research**

This research can be justified in terms of theoretical contributions to the literature and its practical contributions to virtual shopping in Thailand. Each of these contributions is discussed in turn.

### 1.3.1 Theoretical contributions

Although there are several generic studies on Internet shopping available in the literature using the Technology Acceptance Model (TAM) with particular emphasis on technological products, little research exists with respect to factors influencing consumer's purchase intention when buying consumer products or services online. This research is the first empirical study of factors influencing purchase intention of health foods on the Internet. The justification for theoretical contributions are summarized as follows:

**Gaps in the literature and a relatively uninvestigated topic.** The three theories used most frequently by researchers in technology adoption are the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB) and the Diffusion of Innovation Theory (Teo 2001; Goldsmith 2001; Venkatesh & Davis 2000; Jiang et al. 2000; Bellman, Lohse & Johnson 1999; Limayen Khalifa & Frini 2000; Vijayarathy & Jones 2000; Citrin et al. 2000; Bezjian-Avery & Calder 1998; Abels & Liebscher 1996; Taylor & Todd 1995). Most previous [researchers](#) used these theories by conducting empirical studies on factors related to the adoption of technological products such as different software, computers, spreadsheets, WWW, and e-mail. Generally, these prior empirical studies used convenience sampling methods and small sample sizes, such that their results cannot be generalized. Moreover, an extensive search of the literature failed to reveal any empirical study that deals directly with factors relating to online shopping behavior, especially in the area of health foods. This study thus contributes to the body of knowledge in this field.

**Lack of explanatory models.** The Internet is a new technology in Thailand, supported by the fact that less than two percent of the Thai population had used this system (NUA 2003). The large majority of Thais have not yet made any actual purchase on the Internet. Explanatory models were examined through the existing literature to search for a suitable model for explaining consumer's behavioral intention in buying products online. The Technology Acceptance Model (TAM) was chosen in this study due to its consistent ability to explain a substantial proportion of variances between behavioral intention and actual behaviors derived mainly from

research into the purchase of technologically related products (Adam, Nelson & Todd 1992; Mathieson 1991; Davis, Bagozzi & Warshaw 1989). This model seemed to be the best model capable of explaining the purchase intention of consumers when buying health foods online. There is currently no literature on consumer's purchase intention of health foods online. Therefore, this research will contribute to the body of knowledge in this field.

**Use of comprehensive research methodology by applying both qualitative and quantitative studies on the same topic.** Due to the lack of prior research in the area of online purchase intention of health foods in Thailand, a three-stage research design was proposed for this study. Stage one consisted of a literature review to explore and identify a suitable theoretical framework for this study. Stage two was an exploratory study using focus group discussions to gain consumer insight and understanding to further develop and refine the proposed model and hypotheses for this study. Finally, in stage three, a large-scale online survey was conducted to gather data to test the hypothesized model by using structural equation modeling (SEM). The research methodology used in this study will contribute to the body of research knowledge in Thailand.

### **1.3.2 Practical contributions**

In addition to the theoretical contributions addressed in the previous section, the findings of this research also impact many managerial applications in business. The main practical contributions can be summarized as follows:

- Firstly, this research provides useful information for corporate management to prioritize their resources in terms of human resources, investment, time, and budget allocation.
- Secondly, marketing managers are able to plan marketing mixes to cater to the online consumer's needs and increase consumer satisfaction by finding proper strategies and tactics to deal with the underpinning factors explored in this research.

- Thirdly, it provides useful input such that Web developers can design attractive and effective content and layout in Web sites and homepages to draw more business from consumers.
- Finally, government or policy makers can make use of this information to promote online businesses by improving the infrastructure and regulations regarding the Internet, coverage, fraud prevention, security and privacy issues in order to facilitate and encourage more consumer participation in buying and selling products online.

These practical contributions are explored in detail in section 6.3.2 and are justified on both theoretical and practical grounds as outlined above.

In summary, this study is justified on the basis that a scarcity of information exists on factors that might encourage or discourage consumer purchase intention when buying health foods online. The results proffered will contribute to the body of knowledge regarding the buying and selling of products on the Internet. Thus, this thesis will contribute to the online shopping literature both theoretically and practically.

#### **1.4 Methodology**

A two-stage methodology was applied in this research. A mixture of both qualitative and quantitative methods was used to provide the necessary research results for triangulation to improve internal validity and to achieve a better understanding of the subject (Perry 1998). The research methodology adopted in this research comprised the following stages:

- Stage 1: exploratory research covering the literature review and qualitative research using focus groups
- Stage 2: explanatory research using an online survey

A complete description of the two methods and justification for their use is given in chapters 2 and 4. This section provides an outline of each stage.

#### **1.4.1 Stage 1: Exploratory research**

Due to the limited knowledge existing on factors influencing consumer's purchase intention when buying products online, it is recommended that exploratory research be undertaken to build up a knowledge base of the possible factors related to this subject (Cooper & Schindler 2001; Zikmund 1997; Cooper & Emory 1995). A review of literature was thus carried out to identify possible factors and develop a preliminary model to depict factors influencing online purchase intention. After acquiring sufficient data, a conceptual model based on the Technology Acceptance Model (TAM) was proposed for this study. Following this, exploratory research was conducted through the use of four focus groups consisting of six to eleven respondents per group. Each group was selected to form a homogeneous group reflecting a range of the total study population (Kitzinger 1995). Age and gender were the main segmentation criteria while education was used as a minimum requirement for recruiting each respondent into the group. Interview questions for the focus groups were developed from the initial research question and objectives. In addition to this, results were taken from the literature review in order to both obtain relevant background information for a better understanding of issues and to help define the problem and develop hypotheses for subsequent testing (Churchill & Iacobucci 2002). The data gained from the focus groups was then used to refine and develop the final model and to generate possible questions for further research to be used in an online survey in the next stage.

#### **1.4.2 Stage 2: Explanatory research**

A questionnaire was developed based on both the literature and exploratory study. An online survey was sent to all respondents in the Cerebos customer database possessing an e-mail address. The design and development of the questionnaire followed structured steps adapted from Zikmund (1997) and Frazer and Lawley (2000). The survey was then dispatched to 3,862 respondents taken from the database. 1,077 returned mails or a 27.9 percent response rate was achieved from this online survey. Out of the 1,077 persons who completed the questionnaire, 786 respondents qualified as both users of health foods and the Internet during the past 12 months. All of these responses were transferred into SPSS for electronic storage

and statistical analysis. Finally, structural equation modeling (SEM) using LISREL software was employed to analyze data from the survey. This analytical technique has the ability to test a complex path model with integrated sophisticated relationships between many constructs (Hair et al. 1998; Kelloway 1998). This model was tested for both measurement and structural components with the results presented in chapter 5.

## **1.5 Outline of the thesis**

This thesis is structured into six chapters as shown in figure 1.1. Chapter 1 presents an overview of the issues arising from the growing importance of the Internet in business today, background to the research, research problem and objectives, its justification, methodology, terminology, and the delimitations of the study.

Chapter 2 provides a theoretical overview of research on factors influencing consumers in buying products online. Chapter 2 starts by examining the concept of Internet marketing including its background and current application in today's businesses and a discussion the Internet marketing elements, followed by a discussion of research into factors influencing purchase behavior online. Gaps in the literature are then identified and a preliminary model explaining factors influencing online purchase intention of health foods is developed from the literature. Finally, eleven hypotheses are proposed for testing in this study.

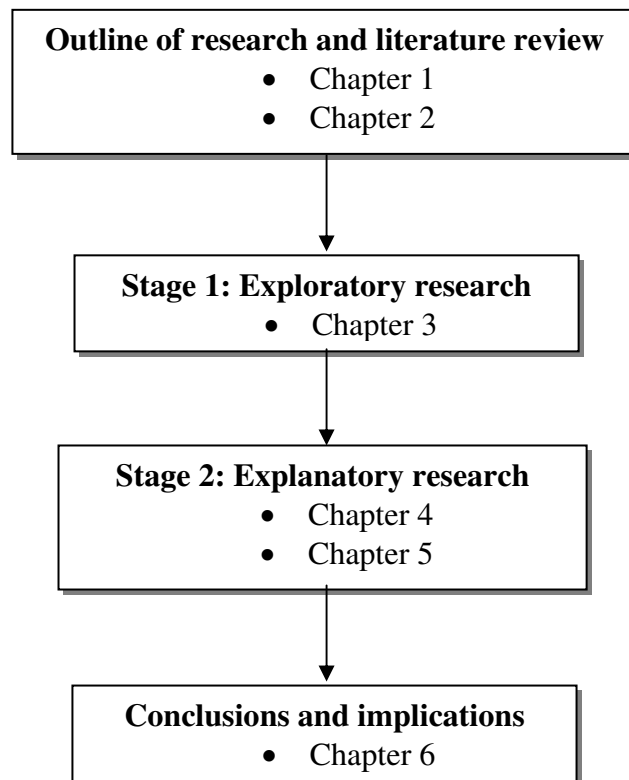
Chapter 3 describes the exploratory research using focus groups to get a better understanding and gain additional consumer insights in order to refine and explore factors, attitude, and intention in this area. The information collected from the literature review and qualitative research, were used to develop a final model and hypotheses for this study.

Chapter 4 describes and justifies the main methodology adopted for stage two of the research. Questionnaire development, data collection, and the method of survey administration are explained, substantiated, and discussed in detail.

Chapter 5 analyzes and presents results of the data collected in stage two of the research. Findings from the major research study are reported, together with the model and hypotheses testing.

Finally, chapter 6 evaluates the research findings from the previous chapter. A summary of each hypothesis is presented and conclusions are drawn in relation to theoretical and practical contributions. Limitations of the research are noted and opportunities for future research are suggested.

**Figure 1.1: Outline of this thesis**



*Source: developed by the author for this study*

## **1.6 Definitions**

The key terms used throughout the research are defined as follows:

**The Internet:** This term is used to describe computer networks capable of providing virtually instant access, organizing, communicating information and supporting transactions. The Internet is an efficient medium helping companies to interact and

craft messages and marketing activities on actual consumer responses 24 hours a day, 7 days a week, throughout world time zones (Li & Grey 2000; Waldo 2000; Levy 1996; Wilcox 1999; Berthon, Pitt & Watson 1996; Henrichs 1995).

**E-commerce:** This term is defined as the online exchange of value between companies and their partners, employees, or customers without geographical or time restrictions (Singh, Jayashankar & Singh 2001). In this study, this term refers to the activity of selling products online.

**Online purchase:** This term is used to describe a transaction carried out by consumers in order to search, select, and purchase products via the Internet.

**Health foods:** This term is used to describe oral products taken in the form of a solid, liquid, semisolid, capsule, and so on. They are taken in addition to a normal meal with specific purposes to prevent, maintain, or enhance physical and mental well being (FDA 1996).

**Health food consumers:** This term is used to describe current health food users who have taken health foods of any kind within the past 12 months.

**Internet users:** This term is used to describe current Internet users who have logged on to the Internet within the past 12 months.

## **1.7 Delimitations of scope of the research**

Due to the nature of this research, a number of delimitations of scope had to be set for the study. Firstly, this research was delimited to only Thai citizens, over 15 years of age, and current users of both Internet and health foods. The previous empirical studies on online purchase intention have been conducted in developed countries such as the United States (Teo 2001; Venkatesh & Davis 2000; Citrin et al. 2000; Chen & Wells 1999; Bellman, Lohse & Johnson 1999), Canada (Haubl & Trifts 2000), Singapore (Phau & Poon 2000; Tan 1999) and Taiwan (Chiou 2000). Nonetheless, no empirical investigations of this topic have been set in Thailand.



Secondly, the sample frame used in this study was taken from the Cerebos database, one of the biggest health food companies in Thailand. Any generalization of results from this study should be made with caution, especially when wanting to generalize across the entire population of Thailand.

## **1.8 Conclusions**

This chapter establishes foundations for this research. It has introduced the research problem and objectives, research justification, and outline of the thesis, definitions, and the delimitations of this study. Based on these research foundations, the researcher can now proceed to a literature review as reported in chapter two.

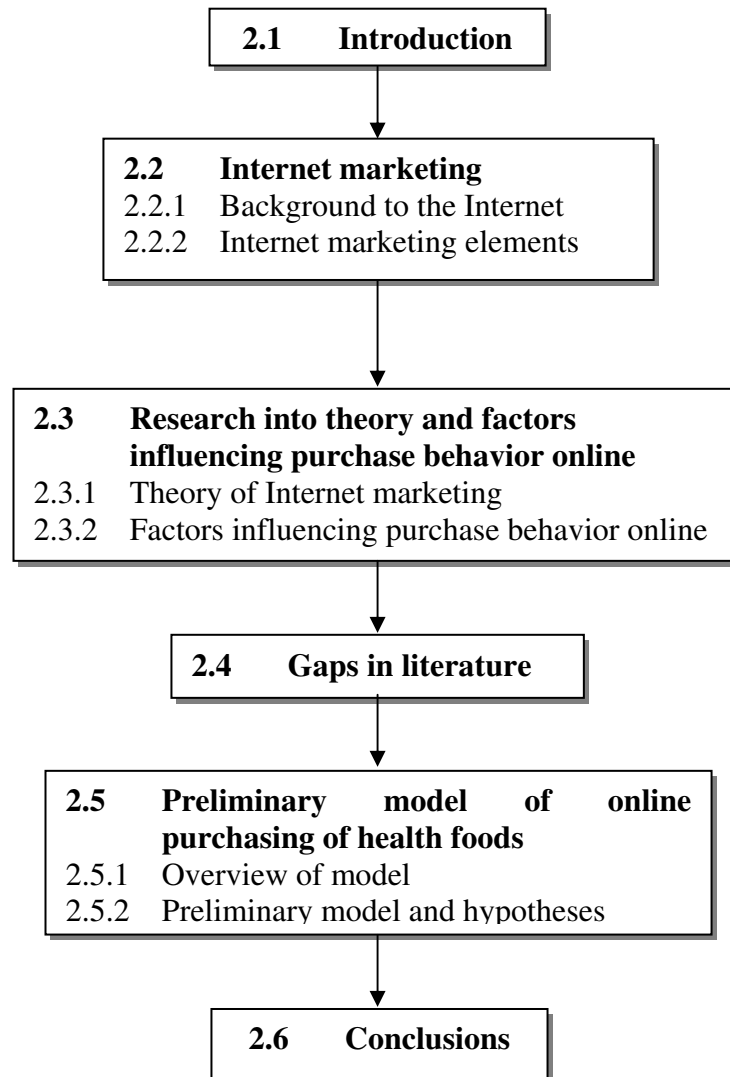
## **CHAPTER 2**

### **2 LITERATURE REVIEW**

#### **2.1 Introduction**

The purpose of this chapter is to review the relevant literature in order to identify gaps, thus enabling the researcher to build a conceptual model for testing and identifying the factors influencing consumer purchase intention when buying products online. The chapter is organized into six sections as shown in Figure 2.1. In section 2.2, the concept and background of Internet marketing is briefly reviewed. The research on factors influencing online purchase intention of consumers is described and discussed in detail in section 2.3. This is followed by section 2.4, which identifies gaps in the previous literature. A preliminary conceptual model for this study is developed in section 2.5 with the associated hypotheses developed based on supporting literature to be further tested in the main study. Finally, conclusions are presented in section 2.6.

**Figure 2.1: Outline of the literature review**



*Source: Developed for this research*

## **2.2 Internet marketing**

The Internet is a worldwide network of computers that allows individuals to access information and communication from distant sources. It is a new technology that has the highest adoption rate compared to other information technology tools (Strauss & Raymond 1999; Pallab 1996). The Internet creates endless market opportunities by offering a significant advantage of two-way communication, which is different from traditional mass marketing communication (Warrington, Abgrab & Caldwell 2000; Waldo 2000). In addition, it also drives new business processes, streamlines

marketing activities, and reduces overall costs. The Internet provides an opportunity for improving the efficiency and effectiveness of marketing activities, assists in building relationships, conducting research, and offers a channel for promotional support to customers. Despite the astonishing growth rate and increasing popularity of the Internet, many companies have failed to capture the opportunities it offers. It is useful to know and understand the development of the Internet, reasons for using it, and the dynamic changes of the Internet during the past decade, before looking at its implications. In the next section, the background to the Internet is examined, followed by Internet marketing elements in section 2.2.3. The section concludes with a discussion of the opportunity to use health foods as a pilot product for this study in section 2.2.3.

### **2.2.1 Background to the Internet**

The origin of the Internet can be traced back to an experiment of the United States' Department of Defense in the late 1960's, the objective of which was to create a decentralized communication network that could share computer resources at one university (Pallab 1996; Ellsworth & Ellsworth 1994). The explosion of the Internet came with the introduction of the World Wide Web graphical browser that transformed the plain text Internet to a user-friendly graphical environment, offering multimedia of text, pictures, and sound. In the early 1990's, Internet usage started to expand rapidly, especially among universities and schools. The growth was driven further by the lower price of computers, more powerful and cheaper telecommunication equipment, ease of use, and continuous improvement of the available content (Fraase 1994). The Internet reached a critical mass of 50 million users in a period of less than five years. As a comparison, radio took 38 years, television 13 years, and cable television 10 years to get more or less the same number of viewers (Waldo 2000).

**Growth indicators.** Despite the differences in usage, diffusion, and business potential from country to country, the Internet is quickly becoming one of the most powerful communication channels worldwide. Due to the many useful functions performed by the Internet, the worldwide number of Internet users has increased at an exponential rate, as has the amount of investment and advertising spent on this

new channel. The growth rate is so drastic that researcher's forecasts of the number of Internet users missed reality by more than 100 millions persons within one year (NUA 2001). Table 2.1 demonstrates forecasts from various research companies of the number of Internet users, advertising or investment spent on the Internet, and revenues generated from online sales.

**Table 2.1: Growth indicators of the Internet**

<b>Items</b>	<b>Amount</b>	<b>Year</b>	<b>Author (date)</b>
Online World Population (persons)	333 million	2000	NUA (2000)
	320 million	2002	Reuters News (2000)
	600 million	2002	NUA (2000)
	655 million	2002	ITU (2002)
	183 million	2003	IDC Research (1999)
	709 million	2004	eMarketer (2002)
	945 million	2004	Computer Industry Almanac (2002)
	977 million	2005	IDC Research (2002)
	1000 million	2005	NUA (2000)
	1174 million	2005	eTForecast (2002)
Total estimated online sales (US\$)	48.3 billion	2000	Forrester Research 2001
	210 billion	2001	Jaffray (1999)
	717 billion	2001	NUA (2001)
	327 billion	2002	Forrester Research (1999)
	1.2 trillion	2002	Activmedia (1999)
	1 trillion	2002	IDC Research (1999)
	162 billion	2003	eStats (1999)
	2.8 trillion	2004	IDC Research (1999)
	184 billion	2004	Forrester Research 1999
Total estimated online spending (US\$)	111 billion	1999	IDC Research (1999)
	23.7 billion	2000	Bellman, Lohse & Johnson (1999)
	1.3 trillion	2003	IDC Research (1999)
Advertising and Investment in Internet (US\$)	607 million	1998	Venture Economics (1999)
	5.5 billion	1999	Venture Economics (1999)
	3.8 billion	2001	Yankee Group (2000)
	23.5 billion	2001	ActivMedia (2000)
Estimated Online Healthcare (US\$)	200 millions	1999	Jupiter Communication (2000); Ledbetter (1999)
	10 billion	2004	Jupiter Communication (2000); Ledbetter (1999)

*Source: Developed for this research*

The discrepancy of the forecast numbers is mainly due to the different assumptions on the penetration rate of the Internet used in making these forecasts by each company. For example, the online world population in 2004 is forecast to be 709 million by eMarketer (2002) and 945 million by Computer Industry Almanac (2002). Nevertheless, the potential growth rate of the online population is so tremendous that

it is expected to get closer to one billion persons in 2005 (NUA 2000). Similarly, the amount of advertising investment on the Internet in 2001 forecast by ActivMedia (2000) was six times more than that estimated by the Yankee Group (2000). This information demonstrates a substantial growth potential of businesses on the Internet such that it is difficult for research agencies to predict a consensus future outcome.

Reasons for selecting health foods as a pilot product were discussed in chapter 1. The decision is well supported by report on trend of health care products on the Internet. The online health care market in the United States alone accounted for US\$ 200 million sales in 1999 and is expected to reach US\$ 10 billion in 2004 (Gandhi & Nguyen-Khoa 2001; Jupiter Communications 2000; Ledbetter 1999). There is an increasing trend of health care consumers using the Internet for health-related research through Web sites, newsgroups, and chat rooms because they get better price on a wider variety of products and gain access to useful health information. (Henkel 2000; Bloom & Iannacone 1999).

**Penetration rate.** The penetration rate of the Internet appears to be very high in most countries worldwide. Table 2.2 provides the penetration rate and number of Internet users in the major countries of North America, Europe and Asia Pacific, including Thailand. Most of these countries have a two-digit penetration rate starting from 28.4 percent in France, to 67.6 percent in Sweden, except for China and Thailand. Despite the popularity and multi-functions of the Internet in many countries around the world, the penetration rate of Internet users in Thailand is still very low; less than two percent of the total population. However, it is predicted that the number of Internet users in Thailand will grow drastically in the next few years from two percent in 2002, to almost five percent in 2003 (TFB 2000).

The astonishing growth rate of the Internet and its many benefits in terms of communication, distribution, information, and market transactions, are undoubtedly having a major impact on consumers, retailers, and manufacturers worldwide (Zeff & Aronson 1999).

**Table 2.2: Internet user penetration in major countries**

Country	Population (m persons)	Internet users (m persons)	Internet penetration (%)	Share of worldwide users (%)
<b>North America</b>				
Canada	31.9	16.841	52.8%	0.2%
United States	280.5	165.7	59.1%	29.3%
<b>Europe</b>				
France	59.76	17.0	28.4%	3.0%
Italy	57.7	19.25	33.4%	3.4%
Germany	83.2	32.1	38.6%	5.7%
Ireland	3.88	1.31	33.8%	0.2%
United Kingdom	59.8	34.3	57.4%	6.1%
Finland	5.2	2.69	51.7%	0.5%
Norway	4.5	2.68	59.6%	0.5%
Netherlands	16.0	9.73	60.8%	1.7%
Denmark	5.4	3.37	62.4%	0.6%
Sweden	8.9	6.02	67.6%	1.1%
<b>Asia Pacific</b>				
Japan	127.0	56.0	44.1%	9.9%
China	1300.0	45.8	3.5%	8.1%
New Zealand	3.9	2.06	52.8%	0.4%
Australia	19.2	10.6	55.2%	1.9%
Singapore	4.45	2.31	51.9%	0.4%
Hong Kong	7.3	4.35	59.6%	0.8%
<b>Thailand</b>	<b>62.3</b>	<b>1.2</b>	<b>1.9%</b>	<b>0.2%</b>

*Source: Developed for this research.*

1. Population data was taken from CIA factbook in the homepage of CIA, Jul 2000. ([www.odci.gov/cia/publications/factbook/flags/](http://www.odci.gov/cia/publications/factbook/flags/))
2. Internet users were taken from the homepage of Nielsen NetRating in NUA Internet Surveys (Mar 2003)

**Internet's functions.** The most popular function used by Internet users is sending e-mail. The number of e-mail messages sent worldwide in 2002 was 31 billion messages and it is expected to reach 60 billion e-mail messages worldwide by 2006 (Deloitte Touche Tohmatsu 2003). The Internet's traffic expansion is viewed in three different dimensions – more users, longer connect times and more applications (Sevcik 1999). Today, consumers use the Internet for comparison-shopping and to obtain product information. Multi-channel retailers are growing exponentially by blending their online selling with their stores, catalogs, and kiosks (Deloitte Touche Tohmatsu 2003).

The progress of e-commerce in Thailand is far behind other developed countries such as Singapore, Taiwan, Korea, and Malaysia due to high cost, language barriers, telecommunication infrastructure and low Internet penetration in Thailand (TFRC 2000). Thai companies wanting to conduct business online often face many problems, such as high transportation costs, high bank charges, high competition, and negative attitudes of online consumers (Bangkok Post, Jan 24, 2001). The low growth of the Internet has created tremendous pressure on the Thai government, in that it has to review the infrastructure, and set up additional funds to accelerate the growth of Internet usage in Thailand. The Thai Government plans to double usage of the Internet in 2004 by reducing connection costs and setting up free Internet access for every school, in all districts, throughout the country (ICT 2004). The new Thai Constitution states that government has to provide information infrastructure, which is universally available and accessible to all communities in Thailand (Bangkok Post, September 6, 2000).

### **2.2.2 Internet marketing elements**

Internet marketing is an interpersonal and interactive communication channel with a response driven model based on a pull strategy, unlike traditional mass communication, which uses a push strategy (Peterson, Balasubramanian & Bronnenberg 1997). Consumers have the fundamental ability to control content and capture information or delete any unwanted options, or request format of the presentation at the application level via their personal computer capability (Bezjian-Avery & Calder 1998). The Internet also has a special ability to remember and keep detailed records of all interactive customers such as past purchases, credit profiles, product and service preferences, and information searched for by each consumer. Despite the wide range of applications of the Internet, most online companies still base their business model on traditional marketing without asking the consumers what they want from using this medium (Wolf 1998; Nadilo 1998). This approach may not work well with the Internet.

Table 2.3 summarizes research on the applications and frequency of usage of Internet marketing in the literature. Based on 36 articles from 1996 to 2001, the most frequently cited functions mentioned most by researchers (19 times) are searching



for information and communicating with consumers or business partners, such as one-to-one, one-to-many, or many-to-many communication. Transactions are found to be the second most cited function (18 times) in the literature. These findings are well supported by a survey conducted by Mercer Management Consulting on 1,019 individuals in the United States, where 82 percent of consumers used the Internet to search for information, 75 percent for time-saving related benefits, and 49 percent used it to get lower priced products (Cales 2000). The second column of Table 2.3 identifies the author(s) and date of the study. The frequency of applications is marked in the third to tenth column and total frequency is in the eleventh column.

**Table 2.3: Functions of Internet marketing found in different literatures**

No.		Information	Communication	Transaction	Relationship Building	Reduce Cost	Recruitment	Market Research	NPD	Total in row
1	Levy (1996)		x	x						2
2	Spar & Bussgang (1996)	x	x	x						3
3	Abels & Liebscher (1996)	x	x							2
4	Quelch & Klein (1996)	x		x						2
5	Pallab (1996)		x	x		x		x		4
6	Cooke (1997)			x						1
7	Mulhern (1997)				x					1
8	McWilliam, Hammond & Diaz (1997)		x						x	2
9	Bakos (1997)					x				1
10	Peterson, Balasubramanian & Bronnenberg (1997)		x	x						2
11	Thomas (1998)	x	x	x		x		x		5
12	Stern & Weitz (1998)			x						1
13	Hooi-Im, Ying & Wilson (1998)					x				1
14	Balasubramanian (1998)	x	x	x		x				4
15	Bezjian & Calder (1998)	x	x	x						3
16	Rowley (1999)	x			x					2
17	Howcroft (1999)	x	x							2
18	Jiang et al. (2000)	x								1
19	Ashwin, Daley & Taylor (2000)					x				1
20	Warrington, Abgrab & Caldwell (2000)	x	x	x	x					4
21	Li & Gery (2000)	x	x							2
22	Cales (2000)			x	x					2
23	Waldo (2000)	x	x		x	x				4
24	Rodriguez-Ardura & Ryan (2000)		x							1

No.		Information	Communication	Transaction	Relationship Building	Reduce Cost	Recruitment	Market Research	NPD	Total in row
25	Haubl & Trifts (2000)	x		x						2
26	Szymanski & Hise (2000)	x		x	x					3
27	Ferle (2000)		x		x					2
28	Zbar (2000)	x	x							2
29	Ahmann (2000)	x								1
30	McHale (2000)	x		x	x					3
31	Morris-Lee (2000)		x		x					2
32	Dodson (2000)				x					1
33	Hoffman & Novak (2000)		x				x			2
34	Kumar (2001)	x		x		x	x			4
35	Singh, Jayashankar & Singh (2001)	x	x	x						3
36	Jochen & Wong (2001)			x		x				2
	<b>Total in column</b>	<b>19</b>	<b>19</b>	<b>18</b>	<b>10</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>80</b>

*Source: Developed for this research*

Based on these 36 articles, it can be seen that Internet marketing has been utilized in several applications, which include communication tools, information provision, distribution, transactions, new product launch, marketing research, reduce cost, building and retaining consumer loyalty, and recruitment of new consumers. Most of these activities are involved with communication, information sources and banking transactions.

There is one point that needs to be noted. Consumers may search for information online but buy from a shop offline. One study revealed that there were four times more people searching for information on home and garden products on the Internet than actually buying these products online (Cales 2000). The Internet works well for some products that can be instantly downloaded from the portal, such as software, music, information, and so on. Products frequently purchased through the Internet are often not the products traditionally found in regular retail stores (White & Cheng 1996). Apart from the characteristics and business processes of the Internet that gives limitations to online shoppers, consumer's attitudes and behavior toward the Internet also play a significant role in the success of online sales. Consumers engage in the shopping process for a variety of reasons depending on their leisure time and

experiences (Chetthamrongchai & Davies 2000). Convenience and rewards are often cited as two main factors for consumers to buy online (Goertz 1999).

In brief, the Internet has provided marketers with a new way of conducting promotion, communication and distribution of information and products. The interactive nature of the Internet makes and facilitates two-way dialogue with consumers and represents a significant opportunity to explore new sales activities. Consumer behavior using traditional channels may not be effectively applied to online sales. Knowledge of consumers' preferences, attitudes and their buying habits can help companies to better shape their offerings and sharpen their marketing activities to increase customer satisfaction and build strong brand loyalty. So far, there is no report of companies, which in real terms, have successful online businesses in Thailand, hence no one really knows the main factors motivating Thai consumers to buy or not to buy products and services online.

In summary, the benefits of using the Internet are enormous for both businesses and individuals. The Internet provides the opportunity to conduct two-way communication, distribute products and services, and conduct business transactions for both sellers and buyers. It also provides speed and quantity of information that none of the traditional media can do. Marketers need to understand consumer behavior and know the important factors that encourage or discourage consumers to buy online. This section has identified the worldwide growth and opportunities offered by the Internet. The penetration and number of Internet users in different countries, including Thailand, were discussed. In the next section, the behavior and factors that influence the online shopping process are discussed.

## **2.3 Research into theory and factors influencing purchase behavior online**

### **2.3.1 Theory of Internet marketing**

Many researchers have attempted to investigate factors influencing the online purchasing process over the past decade. Table 2.4 presents the empirical studies from different researchers regarding the reasons and factors that motivate people to shop online. Results from Table 2.4 clearly show that these researchers have used

different theories to investigate and examine Internet marketing and factors influencing online purchase. The first column in table 2.4 shows the author and theory used in each empirical study covering the years 1996 to 2001 together with theories used by different researchers. The second column in table 2.4 presents the research design and data collection technique utilized in each study, with seventeen descriptive, one exploratory and three experimental designs. The third column in table 2.4 demonstrates the sample size and response rate of each study. Most studies used a non-probability sampling method except the two studies done by Limayen, Khalifa and Frini (2000) and Miyazaki and Fernandez (2000). A large number of previous studies used university students, employees and Web users to study behavioral intention. They were convenience samples but may not be good representative samples for studying online purchase. The sample size varied from 50 to 10,180 persons depending on the method of data collection.

The fourth column summarizes the results of each study and the fifth column indicates their limitations. Most of these studies indicated that consumers use the Internet for many different purposes such as saving time, convenience, excitement, entertainment, or getting information (Szymanski & Hise 2000; Korgaonkar & Wolin 1999; Chen & Wells 1999; Bellman, Lohse & Johnson 1999). Results also indicated that consumers will buy online if the site design is not complicated and if it is quick and easy to access, easy to download, easy to cancel, easy to make payment, and easy to return unwanted goods (Novak, Hoffman & Yung 2000; Szymanski & Hise 2000; Limayen, Khalifa & Frini 2000; Abels & Liebscher 1996).

Product varieties, price, brand image, customer service, product warranties, and retailer reputation were also found to be important to consumer's decision to shop online (Phau & Poon 2000; Limayen, Khalifa & Frini 2000; Haubl & Trifts 2000; Tan 1999). Many studies also revealed that consumers perceived a higher financial, economic, and privacy risk when shopping online than when they shopped in more tradition ways (Vijayasathy & Jones 2000; Miyazaki & Fernandez 2000; Limayen, Khalifa & Frini 2000; Szymanski & Hise 2000; Novak, Hoffman & Yung 2000; Korgaonkar & Wolin 1999). Maddox (1998) also found that security is the main reason preventing consumers from purchasing products and services online.

**Table 2.4: Summary of empirical findings on the Internet usage**

Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
Abels & Liebscher 1996 <b>Diffusion of Innovation Theory</b>	Descriptive mail survey Non-probability students	366 students in USA 59% completed	<ul style="list-style-type: none"> <li>• <b>Accessibility</b> is a key factor influencing the adoption of the electronic network</li> <li>• <b>Experience and ease of use</b> relate significantly to the intensity of use</li> <li>• <b>Training</b> is critical for the successful use of the Internet</li> <li>• Factors influencing the adoption of the Internet and intensity of usage are different.</li> </ul>	Used small academic institutions
Bezjian-Avery & Calder 1998 <b>Theory of Reasoned Action</b>	Descriptive, using experiment research Non-probability consumers	96 persons who visited a restaurant in the USA	<ul style="list-style-type: none"> <li>• Users were less likely to purchase target products because they <b>spent less time to view the ads</b> in the interactive systems.</li> <li>• Interactive is not necessarily better than traditional advertisement because it <b>interrupts the process of persuasion.</b></li> </ul>	Small sample size
Bellman, Lohse & Johnson 1999 <b>Attitude and Behavior Theory</b>	Descriptive online survey Non-probability Web users	10, 180 Web users from 82 countries.	<ul style="list-style-type: none"> <li>• Web consumers shop online to <b>save time.</b></li> <li>• Web sites should be <b>convenient, customized,</b> and have <b>easy checkout process.</b></li> <li>• Demographics do not influence people buying online.</li> <li>• Consumer who buys online is a <b>follower.</b></li> </ul>	Self-selection and self-reporting were two limitations of this survey
Chen & Wells 1999 <b>Theory of Reasoned Action</b>	Descriptive self-administered questionnaires Non-probability Students	72 MBA students and 48 undergraduate students in USA	<ul style="list-style-type: none"> <li>• <b>Entertaining/amusing, informative and relevant</b> were dominant factors of users' evaluation.</li> <li>• <b>Intelligent, resourceful and knowledgeable</b> fit Web sites very well.</li> <li>• Organization is operationalized by 4 adjectives, such as, <b>not messy, not cumbersome, not confusing, and not irritating.</b></li> <li>• Key factors are <b>Entertainment, informativeness, and organization</b></li> <li>• Developed an Internet specific evaluative scale that can be used with any set of raters</li> </ul>	<ul style="list-style-type: none"> <li>• Used one set of rating dimension for all types of Web sites</li> <li>• Small sample size</li> </ul>

Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
Korgaonkar & Wolin 1999  <b>Uses and Gratification Theory</b>	Descriptive using face-to-face Interview  Non-probability Internet users	420 consumers in USA  95% completed	<ul style="list-style-type: none"> <li>• Heavier business users of the Web were more interested in shopping for <b>economic and convenience reasons</b>.</li> <li>• Those who purchased big-ticket items on the Web were more likely to accept the <b>privacy and security pitfalls, enjoy the information-rich environment and the convenience</b> of shopping.</li> <li>• They tend to be older, male, with higher income.</li> <li>• The frequency of online purchase correlated positively and significantly with <b>social escapism motivation, interactive control motivation, and economic motivation</b>.</li> </ul>	Bias towards younger and professional composition
Tan 1999  <b>Behavioral Theory</b>	Descriptive using experimental design on <b>Inkjet printer, watch, and blank video-cassette tape</b>  Non-probability Students	196 students in Singapore  91% completed	<ul style="list-style-type: none"> <li>• Consumers perceive Internet shopping to be of <b>higher risk</b> than in-store shopping</li> <li>• <b>Well- established online retailers</b> are preferred to new retailers.</li> <li>• <b>Less risk-averse consumers</b> are more likely to shop online.</li> <li>• <b>Brand image</b> can be used as a risk reliever.</li> <li>• Different products carry different degrees and type of risks</li> <li>• The most preferred risk reliever was <b>reference group appeal, followed by retailer reputation, brand image, and warranty</b></li> </ul>	<ul style="list-style-type: none"> <li>• Limited number of risk reliever's levels</li> <li>• Student sample which can not be generalized to population</li> </ul>
Ferle 2000  <b>Behavioral Theory</b>	Descriptive self-administered questionnaires  Non-probability Teenagers age 14-19 years old	189 students in USA	<ul style="list-style-type: none"> <li>• Internet has a potential to <b>function as an interpersonal source of information</b>.</li> <li>• Internet is an important medium when it comes to issues of <b>speed and confidentiality</b>, especially on health-related topics.</li> </ul>	Small samples with non-probability that cannot be generalized to the total population.

Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
Novak, Hoffman & Yung 2000  <b>Flow Theory</b>	Descriptive online survey  Non-probability Internet users	1,654 Internet users from GVU WWW user survey  29.1% completed	<ul style="list-style-type: none"> <li>• Smooth online shopping experience includes <b>customer support, easy ordering, easy to contact, easy to cancel, easy payment, easy returns, and quick.</b></li> <li>• <b>Reliability, security, and low prices</b> are not important factors for online experience.</li> <li>• Engaging consumers online will increase if company provides them with <b>excitement</b></li> <li>• Online purchase related strongly to <b>skill and control</b></li> <li>• <b>Information</b> improves the decision making process for consumers.</li> </ul>	<ul style="list-style-type: none"> <li>• It is not representative of the general population of Web users.</li> <li>• Self-selection and self-administrative</li> </ul>
Szymanski & Hise 2000  <b>Behavioral Theory</b>	Descriptive online survey  Non-probability Internet users who had purchased items online	2,108 shoppers from NFO panel of Internet users  48% completed	<ul style="list-style-type: none"> <li>• Factors influencing e-satisfaction are <b>shopping convenience, merchandising, site design, and security</b> on financial transactions.</li> <li>• Perception of the superior merchandising does not have impact on e-satisfaction.</li> <li>• <b>Financial security</b> is of most concern to consumers when buying online and it is not the primary predictor of e-satisfaction.</li> </ul>	<ul style="list-style-type: none"> <li>• Online consumers unwilling to respond to lengthy survey question longer than 40 items.</li> <li>• Sample may not represent the population in general</li> </ul>
Haubl & Trifts 2000  <b>Decision Making Theory</b>	Descriptive using experimental design on <b>backpacking tent and compact stereo system</b>  Non-probability Students	249 undergraduate business students in Canada	<ul style="list-style-type: none"> <li>• Online consumers like to access <b>a large number of products</b></li> <li>• Consumers use <b>interactive decision aids</b> to help them manage the product information to get better decisions with less effort.</li> <li>• The availability of <b>interactive decision aids</b> in online shopping environment help consumers identify products that match their personal preferences and lead to positive effects for consumers.</li> </ul>	<ul style="list-style-type: none"> <li>• The study focused on shopping behavior and ignored navigation behavior</li> <li>• Did not take into account the hierarchical decision process on selection of stores with common product offerings</li> <li>• This study used high-quality decision aids that may differ from real world system</li> </ul>

Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
Poon & Joseph 2000  NA	Descriptive using survey via electronic mail  Non-probability Owner or manager	224 small business companies from three Internet directories  30% completed	<ul style="list-style-type: none"> <li>Majority of products are often purchased without physical examination</li> <li><b>Search and low tangibility goods</b> have a natural advantage in Internet commerce</li> <li>Internet commerce demands a <b>holistic approach</b></li> <li>Product characteristics alone cannot determine Internet commerce benefit</li> </ul>	Small sample size on only one segment
Limayen, Khalifa & Frini 2000  Theory of Planned Behavior	Descriptive using longitudinal online survey (3 months period).  Random Consumers	6,110 persons from 4 Internet-Based directories.  23.1% completed in the first survey  50% of those in the first survey answered the second survey after 3 months	<ul style="list-style-type: none"> <li><b>Intention and behavioral control</b> are equally important for online shopping behavior.</li> <li><b>Attitude toward online shopping</b> has the strongest effect on the intention to shop online</li> <li><b>Innovative consumers</b> are more likely to be favorable toward online shopping.</li> <li>Perceived consequences significantly affect attitude and intention to shop online such as <b>cheaper price, security, time saving, improved customer service, and comparative shopping.</b></li> <li>Behavioral control and online shopping behaviors are: <ul style="list-style-type: none"> <li>➤ <b>Self-efficacy</b></li> <li>➤ <b>Site accessibility</b></li> <li>➤ <b>Loading speed</b></li> <li>➤ <b>Good product description</b></li> <li>➤ <b>Transaction efficiency</b></li> <li>➤ <b>Navigation efficiency</b></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Online shopping behavior was self-reported with one time access after 3 months</li> <li>Did not evaluate the breadth of the behavior (product variety)</li> </ul>
Vijayasathy & Jones 2000  Decomposed Theory of Planned Behavior	Descriptive using structured questionnaires in a shopping simulation  Non-probability students	201 undergraduate students in USA	<ul style="list-style-type: none"> <li>Internet shopping was <b>riskier, less reliable, and inferior</b> than print catalog shopping</li> <li>Consumer's attitudes and intentions to shop online are influenced by factors such as <b>product value, shopping experience, risk and service.</b></li> <li>There are concerns about <b>security for transactions and privacy</b> with respect to past purchases</li> </ul>	<ul style="list-style-type: none"> <li>Used laboratory data collection</li> <li>Homogeneous student samples were used for cost and convenience reasons</li> <li>The simulation provided a better and faster Internet connection</li> </ul>



Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
Miyazaki & Fernandez 2000  NA	Descriptive research using observation  Random Commercial Web sites in USA	381 companies' Web sites in USA	<ul style="list-style-type: none"> <li>• There is a positive relationship between the percentage of <b>privacy and security</b> related statements and consumers' online purchase probabilities.</li> <li>• The disclosure of online privacy practices was found to be 41.5% while 65.5% disclosed at least three security-related practices</li> </ul>	<ul style="list-style-type: none"> <li>• The rapid growth of this medium makes this research outdated soon.</li> <li>• The perceived risk is too limited.</li> </ul>
Citrin, Sprott, Silverman & Stem 2000  Diffusion of Innovation Theory	Descriptive using survey research  Non-probability Students	403 undergraduate students in USA	<ul style="list-style-type: none"> <li>• Higher levels of Internet usage and domain-specific <b>innovativeness</b> are more likely to lead to adoption of the Internet shopping</li> <li>• Increase in open-processing innovativeness and changes in the individual's open innovativeness do not effect the adoption of Internet for shopping</li> <li>• Domain-specific innovativeness is a moderator of the relationship between general <b>Internet usage and Internet shopping adoption</b></li> </ul>	Student population
Venkatesh & Davis 2000  Technology Acceptance Model: Longitudinal studies (TAM2)	Descriptive using survey research  Non-probability Internet users	50 persons per organizations over three time periods	<ul style="list-style-type: none"> <li>• Technology Acceptance Model Theory is better than Theory of Reasoned Action and Theory of Planned Behavior</li> <li>• <b>Perceived usefulness</b> was a strong determinant of intention to use, followed by perceived ease of use</li> <li>• <b>Intention to use, usefulness intention, ease of use intention, and ease of use usefulness</b> were well supported in the intention to use</li> <li>• <b>Perceived usefulness</b>, subjective norm, and intention were the most stable determinants</li> <li>• Model TAM 2 was strongly supported across four organizations and three points of measurement.</li> </ul>	<ul style="list-style-type: none"> <li>• Small sample size</li> <li>• Several constructs were measured with only two items resulting in instability of parameter estimates</li> <li>• The studies were longitudinal observational designs</li> <li>• Employed self-reported usage.</li> </ul>
Phau & Poon 2000  NA	Descriptive using survey research  Non-probability Students	183 respondents in Singapore	<ul style="list-style-type: none"> <li>• <b>Product and service type</b> classification are significantly influence the consumer choices to buy online</li> <li>• <b>Low outlay, frequently purchased, tangible or physical goods, and low differentiation potential</b> are unsuitable for selling through Internet</li> </ul>	<ul style="list-style-type: none"> <li>• Used convenience sample based on a quota</li> <li>• Image items were taken from previous research</li> <li>• Limitations from survey response task</li> </ul>

Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
			<ul style="list-style-type: none"> <li>The study advocate retailers to carry <b>familiar brands and specialty products</b></li> </ul> <p>Only a certain profile of goods are suitable for selling online in Singapore</p>	
Jiang, Hsu, Klein & Lin 2000 <b>Technology Acceptance Model</b>	Descriptive using online survey  Non-probability Students	335 completed questionnaires from USA, Hong Kong and France.	<ul style="list-style-type: none"> <li><b>Utilization of the Internet</b> is positively related to the <b>perceived near-term usefulness, long-term usefulness, prior experience</b> and facilitating conditions.</li> <li>The longer an individual has adopted the Internet, the more likely he/she will continue to surf on the Internet.</li> </ul>	<ul style="list-style-type: none"> <li>Conducted only in one segment of the Internet users.</li> <li>Tested adoption of the Internet rather than intention to shop online.</li> </ul>
Shim, Eastlick, Loz & Warrington 2001 <b>Theory of Planned Behavior</b>	Descriptive using survey research	684 persons	<ul style="list-style-type: none"> <li>An <b>intention to search</b> the Internet for product information leads to an intention to purchase through the same medium.</li> <li>Previous Internet <b>purchase experience</b>, perceived behavioral control, and attitude toward Internet shopping had indirect effects on intention to use the Internet to purchase</li> </ul>	<ul style="list-style-type: none"> <li>The study was cross-sectional</li> <li>The study investigated consumers' pre-purchase intention behaviors</li> <li>The theoretical model did not incorporate all relevant variables especially on other salient Internet attitudes.</li> </ul>
Teo 2001 <b>Technology Acceptance Model</b>	Descriptive study using focus groups, followed by online survey  Non-probability Internet users	1,378 persons  99% completed	<ul style="list-style-type: none"> <li>Males use the Internet for downloading and purchasing activities more than females</li> <li>Purchasing is likely to be carried out infrequently by respondents</li> <li>Educational level seems to have little effect on purchasing activities</li> <li><b>Perceived usefulness</b> is significantly associated with purchase activities</li> <li><b>Extrinsic motivation</b> tend to be associated with purchasing online</li> </ul>	<ul style="list-style-type: none"> <li>The usage measures were self-reported</li> <li>Sample bias and can not be generalized to population</li> </ul>

Authors/Theory	Research design /data collection /sample frame	Sample size/ response rate	Results of the study	Limitations
Goldsmith 2001  <b>Diffusion of Innovation Theory</b>	Descriptive using longitudinal survey research  Non-probability Students	117 persons  100% completed	<ul style="list-style-type: none"> <li>• <b>Internet innovativeness</b> was positively and significantly correlated with Net usage</li> <li>• The Internet behaviors are more a function of <b>innovative attitudes</b> and predispositions than they are of sheer usage</li> <li>• <b>Online buying behavior</b> was strongly related to likelihood of future online buying</li> <li>• <b>Internet innovators</b> had significantly higher mean scores on domain specific innovativeness scale, Net usage, online buying, future online buying, and music loading from Web.</li> <li>• Domain specific <b>innovativeness</b> scale is a reliable and valid means of studying Internet consumer innovativeness</li> </ul>	<ul style="list-style-type: none"> <li>• Sample can not be generalized to population</li> <li>• Only four types of behaviors were used in the study</li> </ul>

*Source: Developed for this research*

The most frequently used theories for studying behavioral intention in technological products were the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), the Diffusion of Innovation and the Theory of Reasoned Action (TRA) as shown in table 2.5. Most of these theories have been developed from the Theory of Reasoned Action originally proposed by Fishbein and Ajzen (1975).

**Table 2.5: Theories cited in the literature**

<b>Theory</b>	<b>Number of studies</b>	<b>Authors</b>
Technology Acceptance Model (TAM)	4	Teo 2001; Venkatesh & Davis 2000; Jiang et al. 2000; Bellman, Lohse, & Johnson 1999
Theory of Planned Behavior (TPB)	3	Shim et al. 2001; Limayen, Khalifa & Frini 2000; Vijayasathy & Jones 2000
Diffusion of Innovation Theory	3	Goldsmith 2001; Citrin et al. 2000; Abels & Liebscher 1996
Theory of Reasoned Action (TRA)	2	Chen & Well 1999; Bezjian-Avery & Calder 1998
Uses and Gratification Theory	1	Korgaonkar & Wolin 1999
Flow Theory	1	Novak, Hoffman & Yung 2000
Decision Making Theory	1	Haubl & Trifts 2000
Others	3	Ferle 2000; Szymanski & Hise 2000; Tan 1999

*Source: Developed for this research*

The Diffusion of Innovation Theory was focused more on the adoption of the Internet and the prediction of the rate of innovation adoption rather than focusing on purchasing or shopping online. As a result, the researcher will review only the other three frequently used theories namely, the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA) next in order to gain a better understanding on the relationships between belief, attitude, and behavioral intention of consumers when buying products online.

**Theory of Reasoned Action (TRA).** Consumers normally form attitudes that influence purchase intention to buy products online when they use the Internet. Therefore, Internet usage and attitudes towards products online are strong predictors of the intention to purchase products online (Salisbury et al. 2001; Eagly & Chaiken 1993). These attitudes and their influence on behaviors were first cited and developed in the Theory of Reasoned Action by Fishbein and Ajzen (1975). The

theory suggests that behavioral intention leads to behavior and also that it determines consumer's attitudes toward purchasing or using a brand by influencing the normative value or subjective norm (Fishbein & Ajzen 1975). In this theory, socially relevant human behaviors are under the control of the individual and the most direct powerful predictor of a behavior is the intention to engage in that behavior.

The Theory of Reasoned Action is based on the assumption that people make rational decisions based on the information available to them and their behavioral intention to perform or not perform a behavior is the immediate determinant of their actual behavior. This assumption has limitations in terms of generalization of results because it is difficult to exactly specify the expected behavior, target objective, and time frame in each situation. According to researchers, it is not necessary to have a relationship between any given external variable and actual behavior because external variables often change over time (Ajzen & Fishbein 1980). Hypothesizing that a given external variable is stable could harm the validity of the theory. Nevertheless, the advantage of the Theory of Reasoned Action is the inclusion of subjective norms that can play an important role in certain situations. The Theory of Reasoned Action has been shown to have strong predictive power of consumer's behavioral intention formation for a variety of consumer products such as fashion, beer, toothpaste, dog food, mineral water and facial tissue (Chung & Pysarchik 2000).

**Theory of Planned Behavior (TPB).** Ajzen (1985) extended the Theory of Reasoned Action (TRA) to account for other conditions, where individuals do not have complete control over their behaviors. Similar findings are also evident in the research of Liska (1984) and Shappard, Hartwick & Warshaw (1988), who argued that TRA does not adequately deal with behaviors that require resources, cooperation, or skills (Chiou 2000). In order to reduce these limitations, Ajzen incorporated an additional variable of perceived behavioral control into the model of reasoned action and called this new model, the Theory of Planned Behavior (TPB).

The Theory of Planned Behavior suggests that intentions and facilitating conditions are the direct antecedents of behavior and at the same time, behavior is also affected by habitual arousal. This extended model has a strong ability to predict behavior,

even though it suffers empirically from multi-collinearity among independent variables employed in the model. The Theory of Planned Behavior has been used in many studies, such as weight loss behavior, sexual behavior, waste-recycling behavior, student's class attendance, spreadsheet software, and information technology (Richard & Joop de Vries 2000; Harrison, Peter & Riemenschneider 1997; Taylor & Todd 1995; Mathieson 1991; Ajzen & Madden 1986; Shifter & Ajzen 1985). Nevertheless, the Theory of Planned Behavior lacks sufficient scale development for studying online shopping behavior.

**Technology Acceptance Model (TAM).** Davis (1989) further extended the TRA model by focusing on two primary factors affecting behavioral intention to use technology and called it the Technology Acceptance Model. The Technology Acceptance Model proposes that perceived usefulness and perceived ease of use influence users' intentions to utilize information technology (Davis 1989). The model hypothesizes that actual system usage is determined by consumer's intention to use, which in turn, is influenced by consumer's attitudes to use that system. Their attitude is affected by an individual's beliefs related to perceived usefulness and perceived ease of use of that system. The Technology Acceptance Model does not require detailed specification of the time frame or conditions under which a behavior must take place. Several authors have also concluded that constructs used in the Technology Acceptance Model provide significant benefits from a reduced set of measures over other models (Chau 1996; Szajna 1994).

The Technology Acceptance Model was found in some empirical studies to predict intentions fairly well and it was one of the most influential research models in studies of the determinants of information system acceptance (Straub & Limayem 1995; Mathieson 1991; Davis 1989). The robustness of the Technology Acceptance Model has been proven in numerous studies, laboratory experiments, organizational surveys, and field studies of microcomputers, software, spreadsheets, e-mail, and the World Wide Web (Fenech 1998; Szajna 1996; Venkatesh & Brown 1996; Taylor & Todd 1995; Igarria, Iivari & Maragahh 1995). More recently, the model was extended to include constructs such as gender (Gefen & Straub 1997), near-term and long-term perceived usefulness (Chau 1996), self-efficacy (Igarria & Iivari 1995), and situational involvement (Jackson, Chow & Leitch 1997). In addition, the

Technology Acceptance Model has been tested and proven in different countries such as the United States, Canada, Taiwan, China and Singapore (Phillips & Calantone, 1994).

A comparison of the strengths and weaknesses of these three theories is displayed in Table 2.6. The first and the second columns outline the concept and model of the theory, while the third and the fourth column, highlight the strengths and weaknesses of each theory in detail. The Theory of Reasoned Action has been used successfully in explaining many consumer behaviors but it does not take into account external variables. The Theory of Planned Behavior has been applied in situations where the underlying attitudes and beliefs may be too complex or not well understood. The Technology Acceptance Model is appropriate for situations where social pressure to adopt the target technology is not mandatory, which fits well with purchasing of products online.

TAM has been specially built for applications that deal with adoption of information technology and it is also easier to implement with less complications (Mathieson 1991; Davis, Bagozzi & Warshaw 1989). The measurement scales used in the Technology Acceptance Model of perceived ease of use and perceived usefulness have also repeatedly been proven to have both high reliability and validity (Adam, Nelson & Todd 1992). In addition, the Technology Acceptance Model (TAM) was found to be the most popular theory used by most researchers for studying the behavioral intention to use technological products from the literature review. According to records maintained up to January 2000, by the Scientific Information Social Science Institute, there were more than 424 journal citations over the past 10 years referring to the Technology Acceptance Model (TAM) from Davis or Davis et al. (Venkatesh & Davis 2000). Therefore, TAM is selected as a theoretical model in this research to study the behavioral intention to shop health foods online.

**Table 2.6: Comparison of key theories**

Key Theories /(Authors/Date)	Relationship	Strength	Weakness
<p><b>Theory of Reasoned Action (TRA)</b>  <i>“Behavior is preceded by intentions and the intentions are determined by the individual’s attitude toward the behavior and the individual’s subjective norms”</i></p> <p><b>(Fishbein &amp; Ajzen 1975)</b></p>	<p>Belief + Evaluation → Attitude</p> <p>Normative Belief + Motivation → Subjective norm</p> <p>Attitude + Subjective Norms → Behavioral Intention</p> <p>Behavioral Intention → Actual Behavior</p>	<ul style="list-style-type: none"> <li>• Strong predictive power of consumer’s behavioral intention that have been demonstrated with a wide variety of consumer products.</li> <li>• TRA is a well-researched theory designed to explain virtually any human behaviors.</li> </ul>	<ul style="list-style-type: none"> <li>• Consumers do not have complete control over their behavior in some conditions.</li> <li>• Direct effect of subjective norms on behavioral intention is difficult to isolate from the indirect effects of attitudes</li> <li>• Did not include personality characteristics, demographic, or social roles that influence behaviors</li> </ul>
<p><b>Theory of Planned Behavior (TPB)</b>  <i>“Perceived behavioral control regarding the availability of resources and opportunities for performing the behavior influences both intentions and behavior. Behavior is also affected by habit and arousal”</i></p> <p><b>(Ajzen 1985)</b></p>	<p>Belief + Evaluation → Attitude</p> <p>Normative Belief + Motivation → Subjective Norms</p> <p>Control Behavior + Perceived Facilitation → Perceived Behavioral Control</p> <p>Attitude + Subjective Norms + Perceived Behavioral → Behavioral Intention</p> <p>Behavioral Intention → Behavior</p>	<ul style="list-style-type: none"> <li>• A broader model compared to TRA</li> <li>• The theory has received substantial empirical support for predicting behavior in information systems and other domains</li> </ul>	<ul style="list-style-type: none"> <li>• Constructs are difficult to define and measure in the study.</li> <li>• The model suffers from multicollinearity among the independent variables</li> </ul>



Key Theories /(Authors/Date)	Relationship	Strength	Weakness
<p><b>Technology of Acceptance Model (TAM)</b>  <i>“Individual’s behavioral intention to use a system is determined by perceived usefulness and perceived ease of use. The effects of external variables on intention to use are mediated by perceived usefulness and perceived ease of use”</i></p> <p><b>(Davis 1989)</b></p>	<p>External variables → Perceived Usefulness and Perceived Ease of Use</p> <p>Perceived Usefulness + Perceived Ease of Use → Attitude</p> <p>Attitude → Behavioral Intention</p> <p>Behavioral Intention → Behavior</p>	<ul style="list-style-type: none"> <li>• Numerous empirical studies have found that TAM consistently explains a substantial proportion of the variance in usage intentions and behaviors with a variety of information technologies.</li> <li>• Direct effect of subjective norms on behavioral intention has yielded mixed results in the past. This theory used perceived usefulness and perceived ease of use to replace subjective norm.</li> <li>• TAM is a robust, powerful, and parsimonious model for predicting user acceptance of information technologies.</li> </ul>	<ul style="list-style-type: none"> <li>• Ignores some important theoretical constructs.</li> </ul>

*Source: Developed for this research*

In brief, the Technology Acceptance Model (TAM) is chosen as the theoretical basis to develop a conceptual model for testing behavioral intention in this research for the following reasons. Firstly, it has a solid theoretical foundation that provides a better prediction of attitudes than the Theory of Planned Behavior. Secondly, many subsequent empirical studies on the Technology Acceptance Model have numerous proven records to show that it has both reliability of the measures and validity of the constructs. Thirdly, the Technology Acceptance Model enjoys a rich base of academic acceptance. According to Rowley (2000), models must not only represent real world situations but they must also offer more insights with some predictive powers. Good and parsimonious models can be tested under several different conditions. Therefore, the Technology Acceptance Model seems to be a suitable model for developing a conceptual model to test the factors influencing online purchase of health foods in Thailand.

In summary, the preliminary theoretical model for testing factors influencing online purchase of health foods in this research is based on the Technology Acceptance Model. Prior empirical studies confirm that the Technology Acceptance Model consistently explains a substantial proportion of the variance in behavioral intention and actual behaviors of a variety of information technologies. The model is rated to be robust, powerful, and parsimonious. In the next section, a preliminary research model, unique to this study, will be proposed. In addition, constructs and scale measurements will be identified to measure the theoretical model of factors influencing online purchase of health foods.

### **2.3.2 Factors influencing purchase behavior online**

A list of key variables influencing online behavioral intention of consumers was identified from the literature review and summarized in table 2.7. The first column lists factors found in the literature while the second, third and fourth columns show the grouping of variables under each factor based on Internet attributes, user attributes and product attributes. The last column shows the name of author(s) and date of the studies. These factors will be tested in the focus group discussion to identify factors influencing online purchase intention of Thai consumers.

**Tables 2.7: Key factors found in the literature**

<b>Factors</b>	<b>The Internet attributes</b>	<b>Users attributes</b>	<b>Products attributes</b>	<b>Authors (date)</b>
Perceived ease of use	<ul style="list-style-type: none"> <li>• Site design</li> <li>• Site accessibility</li> <li>• Loading time</li> <li>• Easy check out process</li> <li>• Easy ordering and payment process</li> </ul>	<ul style="list-style-type: none"> <li>• Not messy</li> <li>• Not irritating</li> <li>• Not cumbersome</li> <li>• Not confusing</li> <li>• Difficulty Convenient</li> <li>• Speedy / quick</li> </ul>	<ul style="list-style-type: none"> <li>• Tangible or intangible goods</li> <li>• Physical or digital goods</li> <li>• Fast delivery</li> </ul>	Szymanski & Hise (2000), Limanyen, Khalifa & Frini (2000), Haubl & Trifts (2000), Ferle (2000), Novak, Hoffman & Yung (2000), Bellman, Lohse & Johnson (1999), Chen & Wells (1999), Abels & Liebscher (1996).
Perceived usefulness	<ul style="list-style-type: none"> <li>• Entertaining</li> <li>• Exciting</li> <li>• Informative</li> <li>• Resourceful</li> <li>• Intelligent</li> <li>• Knowledgeable</li> <li>• Interactive</li> </ul>	<ul style="list-style-type: none"> <li>• Saves time</li> <li>• Cool</li> <li>• Fun / enjoyable</li> <li>• Excitement</li> <li>• Entertainment</li> <li>• Companionship</li> <li>• Free / flexibility</li> <li>• Informative / resourceful / knowledgeable</li> <li>• Convenience</li> <li>• Comparative shopping</li> </ul>	<ul style="list-style-type: none"> <li>• Value for money</li> <li>• Experience goods</li> <li>• Differentiation / not available in traditional shop</li> <li>• Variety of choices</li> <li>• Cheaper price</li> <li>• Free samples</li> </ul>	Teo (2001), Szymanski & Hise (2000), Ferle (2000), Novak, Hoffman & Yung (2000), Limanyen, Khalifa & Frini (2000), Jiang et al. (2000), Venkatesh & Davis (2000), Bellman, Lohse & Johnson (1999).
Perceived risks	<ul style="list-style-type: none"> <li>• Privacy</li> <li>• Security</li> <li>• Confidentiality</li> <li>• Safety</li> <li>• Reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Financial risks</li> <li>• Economic risks</li> <li>• Risk taker or risk averse</li> <li>• Trendy</li> </ul>	<ul style="list-style-type: none"> <li>• Cash outlay</li> <li>• Warranty</li> <li>• Guarantee</li> <li>• Customer services</li> <li>• Supports</li> </ul>	Miyazaki & Fernandez (2000), Vijayasathy & Jones (2000), Szymanski & Hise (2000), Ferle (2000), Limanyen, Khalifa & Frini (2000), Tan (1999), Kogarondar & Wolin (1999).

<b>Factors</b>	<b>The Internet attributes</b>	<b>Users attributes</b>	<b>Products attributes</b>	<b>Authors (date)</b>
Consumer's experiences	<ul style="list-style-type: none"> <li>• Length of usage</li> <li>• Frequency of usage</li> </ul>	<ul style="list-style-type: none"> <li>• Attitudes</li> <li>• Education</li> <li>• Innovativeness</li> <li>• Skill and control</li> <li>• Purchase experiences</li> <li>• Demographics</li> </ul>	<ul style="list-style-type: none"> <li>• Familiarity</li> <li>• Experience with products</li> </ul>	Goldsmith (2001), Teo (2001), Vijayasathy & Jones (2000), Citrin et al. (2000), Novak, Hoffman & Yung (2000), Jiang et al. (2000), Phau & Poon (2000), Tan (1999).
Product and company information	<ul style="list-style-type: none"> <li>• Understanding</li> <li>• Descriptions</li> </ul>	<ul style="list-style-type: none"> <li>• Reference group</li> <li>• Loyalty</li> <li>• Trust</li> <li>• Experience with product</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness</li> <li>• Brand name</li> <li>• Company name</li> <li>• Reputation</li> <li>• Reliable</li> <li>• Special promotions</li> <li>• Popularity</li> <li>• Differentiation</li> </ul>	Phau & Poon (2000), Tan (1999).

*Source: Developed for this research*

## **2.4 Gaps in the literature**

The analysis of current literature relating to the Internet has highlighted five distinct gaps that additional research could attempt to fill. Firstly, as shown in earlier sections, most of the previous studies relating to the Internet have focused on usage, utilization, and adoption of the Internet rather than on studying the factors influencing online purchase of consumer products. Most of these studies focused on the adoption of technological products with very few conducted in the area of online shopping. Web shopping is different because it has more of a voluntary nature than most technology adoption. Jiang et al. (2000) proposed to investigate the influential factors that encourage or discourage people when shopping online. Similar research gaps were also found in the study of Haubl and Trifts (2000) and Goldsmith (2001).

Secondly, these empirical studies were also conducted with either students or Internet users, who may or may not have been involved with the products under study (Limayen, Khalifa & Frini 2000; Vijayarathy & Jones 2000; Jiang et al. 2000; Korgaonkar & Wolin 1999; Tan 1999) and the number of respondents was also very limited in each study.

Thirdly, Venkatesh and Davis (2000) proposed to extend factors influencing consumer's intention from perceived usefulness and perceived ease of use to cover level of user experience, risk associated, perception of retailer's reputation and consumer confidence. In addition, most of the previous studies either used students or small sample size (Citrin et al. 2000; Vijayarathy & Jones 2000; Ferle 2000; Jiang et al. 2000; Phau & Poon 2000; Venkatesh & Davis 2000; Chen & Wells 1999; Tan 1999; Bezjian-Avery & Calder 1998; Abels & Liebscher 1996).

Fourthly, the Technology Acceptance Model has been tested and proven in different countries such as the United States, Canada, Taiwan, Hong Kong, China and Singapore, but not in Thailand (Jiang et al. 2000; Phillips & Calantone 1994).

Finally, there have been no empirical studies focusing on the factors influencing consumer decision to buy health foods online in the literature.

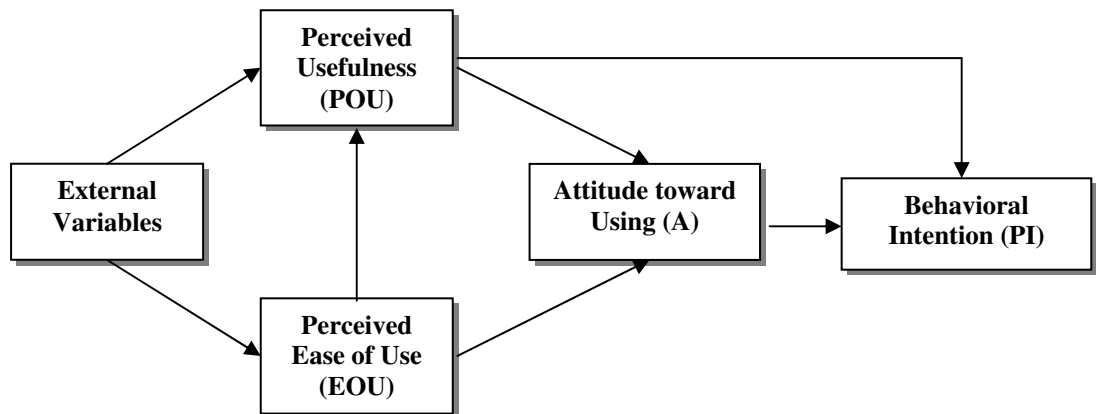
The knowledge about key motivational components which influence consumers' online shopping behavior found from this study would enhance and expand our ability to understand the complex phenomenon of doing business online. This is vital not only for firms selling goods and services on the Internet, it also important for software and Web developers hoping to build a solid consumer base for e-commerce in the near future.

In sum, the literature review indicates gaps in the research in terms of models, target group, sample size, and additional factors to better explain consumer's purchase intention in buying health foods online. This study is aimed at investigating the factors that encourage or discourage consumers to buy health foods online in Thailand. The preliminary research model used in this study has been developed from the Technology Acceptance Model by incorporating additional constructs on top of the two original constructs namely perceive usefulness and perceived ease of use. The findings will not only add to the literature but will also provide a basis for future studies on Internet marketing of other consumer products in Thailand. Although this study is focused on only one application of the Internet, the findings from this study may be generalized to other applications of the Internet as well. The preliminary model developed from the Technology Acceptance Model, its two original, and additional constructs are discussed and presented in the next section.

## **2.5 Preliminary model for online purchasing of health foods**

The Technology Acceptance Model was selected as a basic model in this study to build and develop a framework of the conceptual model for testing and investigating factors influencing consumers in buying health foods online. The study was aimed at capitalizing on the scales' validity and reliability of perceived usefulness (POU) and perceived ease of use (EOU) in the Technology Acceptance Model by adding other constructs in order to achieve better explanation and increase the predictive power of online consumer behavior in Thailand (Jiang et al. 2000; Gefen & Straub 2000; Igbaria, Parasumraman & Baroudi 1996; Taylor & Todd 1995). Figure 2.2 shows the general structure of the model.

**Figure 2.2: Technology Acceptance Model (TAM)**



*Source: Developed from Davis, Bagozzi & Warshaw (1989)*

### **2.5.1. Overview of the Model**

The Technology Acceptance Model has been used in different contexts with numerous supporting empirical studies. Although attitudes are constructs proposed in the original TAM, many researchers have eliminated these constructs from their models (Venkatesh & Brown 1996; Szajna 1994; Davis, Bagozzi & Warshaw 1989). There were three main reasons that accounted for the elimination of attitudes from the Technology Acceptance Model. Firstly, prior empirical studies showed a non-significant effect on behavioral intention (Davis, Bagozzi & Warshaw 1989). Perceived usefulness was found to be the major determinant of behavioral intention while attitudes illustrated a non-significant impact toward behavioral intention. Although perceived usefulness has an important influence on attitude formation, it is possible that attitudes might not play a strong role in predicting behavioral intention after an individual is exposed long enough to the technology. Secondly, why some researchers have chosen to take attitudes out of the Technology Acceptance Model might be in the interest of parsimony because the revised model has fewer indicators, which do not significantly lower its predictive capability (Mathieson 1991; Davis 1985). Thirdly, the Technology Acceptance Model relies on the premise that attitude factors are comprehensively included within the construct of perceived usefulness. People may use a technology even if they do not have positive attitudinal affect towards it as long as it is useful or provides productivity enhancement (Davis,

Bagozzi & Warshaw 1989). Therefore, attitudes are eliminated from the structural model proposed for this research.

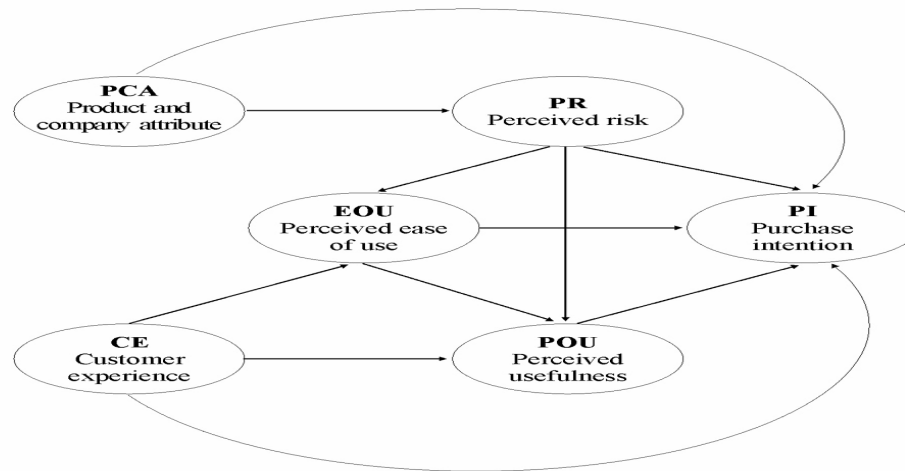
In the Technology Acceptance Model, perceived usefulness is the major determinant of behavioral intention and the effect of perceived ease of use on behavioral intention is largely indirect through the construct of perceived usefulness (Davis, Bagozzi & Warshaw 1989). Based on the literature review, three more constructs namely perceived risk (PR), customer experience (CE), and product and company attributes (PCA) have also been added into the Technology Acceptance Model to better explain the phenomenon of Internet shopping in Thailand (Goldsmith 2001; Shim et al. 2001; Phau & Poon 2000; Miyazaki & Fernandez 2000; Vijayasathy & Jones 2000; Limayen, Khalifa & Frini 2000; Haubl & Trifts 2000; Novak, Hoffman & Yung 2000; Tan 1999; Korangar & Wolins 1999; Abels & Liebscher 1996). Moreover, in practice, it is almost impossible to directly measure the purchase of health foods online in Thailand because of the low penetration of the Internet at this stage. Therefore, behavioral intention is used in this study to predict the actual behavior of respondents. There are many studies supporting that behavioral intention has a significant impact on usage and this variable can predict actual behavior in real world (Igbaria, Guimaraes & Davis 1995; Taylor and Todd 1995; Szajna 1994; Mathieson 1991). As a result, this study measures purchase intention as a predictor of actual purchase. A detailed explanation of the preliminary model, its constructs and hypotheses are next.

### **2.5.2 Preliminary model and hypotheses**

The conceptual model in this study maintains the relationship between perceived usefulness (POU) and perceived ease of use (EOU) but eliminates attitudes. Additional constructs such as perceived risk (PR), customer experience (CE), and product and company attributes (PCA) are added into the model. Figure 2.3 shows the preliminary model of online purchase intention of health foods developed for this study. The reason for maintaining two original constructs from the Technology Acceptance Model and adding three more constructs into the preliminary model of this study is discussed next.



**Figure 2.3: Preliminary model of online health food purchase intention**



*Source: Developed for this study*

The details and reasons for maintaining the original constructs and adding the three constructs into the preliminary model of this study can be summarized as follows:

**Product and company attributes (PCA).** In a study of antecedents and moderators of behavioral intention of 592 students from the United States and Taiwan, Chiou (2000) found that the effect of attitude on behavioral intention was strongly associated with the level of product knowledge. Consumers generally reach a buying decision quicker when they have enough product and company information especially among repeat purchasers (Davis 2000). The literature review in the previous section also indicates that product and company related factors were found in past empirical studies to be related to the purchase intention of consumer when buying products online (Phau & Poon 2000; Nowlis & McCabe 2000; Novak, Hoffman & Yung 2000; Tan 1999; Jarvenpaa & Todd 1997; Burke et al. 1992).

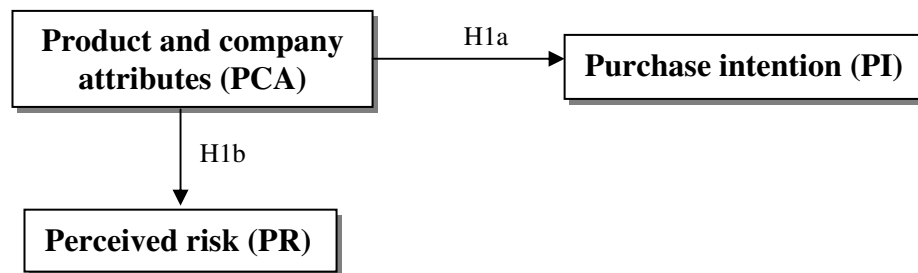
In the WVTM survey, the item "*looking for product information on the Internet*", was the most important predictor of online buying behavior (Bellman, Lohse, & Johnson 1999). In addition, the results of an Internet profile survey in Thailand (appendix 2.1) also confirmed that "*lack of touch and feel of the product*" was the most important reason for Thai Internet users to avoid buying products online.

Consumers have a higher tendency to purchase products for which they possess enough information. Therefore, product and company knowledge not only affects the intention to shop online but also impacts the perceived risk of that behavioral intention. Based on prior literature and findings from both local and overseas studies, this construct is strong enough to add value to the explanation of behavioral intention in this study. Product and company attributes are hypothesized to have a direct effect on purchase intention and perceived risk when buying health foods online.

**H1a:** Product and company attributes (PCA) will directly affect intention to buy health foods online (PI).

**H1b:** Product and company attributes (PCA) will directly affect perceived risk (PR).

**Figure 2.4: A conceptual framework for H1a and H1b hypotheses drawn from the preliminary model**



*Source: Developed for this research*

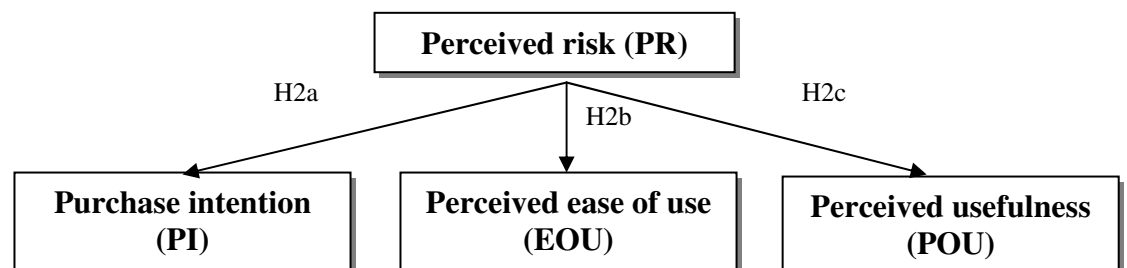
**Perceived risk (PR).** Consumers generally perceive a risk in almost all store purchase decisions (Cox 1967). A recent survey of 9,500 online shoppers revealed that 55 percent of online shoppers stopped the buying process prior to check out and 32 percent stopped at the point of sale mainly due to the fact that they did not want to give personal information and their credit card number (Shop.org. 2001). Liang and Huang (1998) found that online shopping intention depends on the degree of perceived risk. Consumers generally associate a higher level of risk with non-store purchase rather than store purchase (Akaah & Korgaonkar 1988). Unlike offline consumers, online consumers are concerned with risks involved in buying on the Web such as credit card, fraud and not receiving the right products after ordering (Bhatnagar, Sanjog & Rao 2000; Van der Heijden, Verhagen & Creemers 2001). It has also been recorded in the marketing literature that brand reputation, product

trials, and warranties are often used in marketing programs to reduce the risk perception of consumers (Boulding & Kirmani 1993; Innis & Unnava 1991; Shimp & Bearden 1982; Roselius 1971). The literature review in the previous section also indicated the risk involved in the online buying process (Koufaris & Hampton-Sosa 2002, Ferle 2000; Korgaonkar & Wolin 1999; Tan 1999). **Perceived risk was found in the previous studies to have effect on customer trust and the intention to buy online (Gefen 2002, Jarvenpaa & Tractinsky 1999).**

This finding is also applicable to Thai consumers when buying products online. A survey of Thai Internet profile conducted by the National Science and Technology Development Agency in August (2000) indicated that 33.8 percent of Thai respondents who used the Internet over the past 12 months, felt reluctant to give away their card number. Another 32.8 percent do not trust online merchants and 14.6 percent have many concerns related to the loss or damage of goods bought over the Internet. Detail is presented in appendix 2.1. Perceived risk affects consumer's attitudes and subsequently affects perceived usefulness when they shop online. Therefore, perceived risk (PR) is a suitable construct to be included in this model. Perceived risk (PR) is hypothesized to have a direct effect on purchase intention, perceived ease of use (EOU) and perceived usefulness (POU) when buying health foods online.

- H2a:** Perceived risk (PR) will directly affect the intention to buy health foods online (PI).
- H2b:** Perceived risk (PR) will directly affect perceived ease of use (EOU).
- H2c:** Perceived risk (PR) will directly affect perceived usefulness (POU).

**Figure 2.5: A conceptual framework for H2a, H2b and H2c hypotheses drawn from the preliminary model**



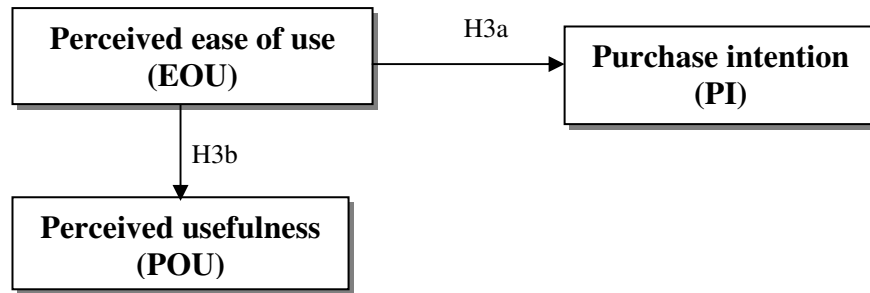
*Source: Developed for this research*

**Perceived ease of use (EOU).** This construct is taken from the original Technology Acceptance Model. Perceived ease of use is defined as the degree to which a person believes that using a particular system would be free of effort (Davis 1989). It has a strong influence on behavioral intention to adopt information technology. If a technology is perceived as too difficult to use, a person will choose an alternative option that is easier for him or her to perform. According to the previous research on the Technology Acceptance Model, perceived ease of use is found to have little or no direct effect on behavioral intention but its effect is largely an indirect mediating factor of perceived usefulness (Chau 1996; Igbaria, Guimaraes, & Davis 1995; Davis, Bagozzi, & Warshaw 1989). The researcher argues that this is not applicable for Thailand. Those studies were conducted in western countries where consumer behavior, culture and stage of Internet penetration are different from Thailand. The Internet is a highly user-friendly technology in western countries, such that it is not an issue for a consumer to go online. On the contrary, the Internet is a new medium in Thailand with a penetration rate of less than two percent. Perceived ease of use (EOU) should have a direct impact on the intention to use this technology, especially for Thai consumers to shop online. The results from an Internet profile survey among the Internet users in Thailand (appendix 2.1) confirmed that perceived ease of use had a strong effect on the intention of Thai people to shop online. Twenty three percent of Internet users do not shop online because the Internet is too complicated for them. In this study, perceived ease of use (EOU) is hypothesized to have a direct effect on behavioral intention (PI) and perceived usefulness (POU) in buying health foods online.

**H3a:** Perceived ease of use (EOU) will directly affect intention to buy health foods online (PI).

**H3b:** Perceived ease of use (EOU) will directly affect the perceived usefulness (POU).

**Figure 2.6: A conceptual framework for H3a and H3b hypotheses drawn from the preliminary model**

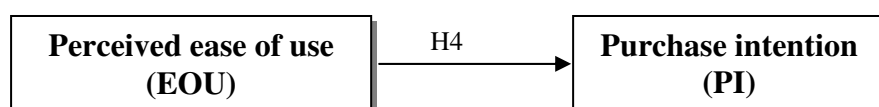


**Source: Developed for this research**

**Perceived usefulness (POU).** This construct is taken from the original Technology Acceptance Model. This factor is well documented and consistently proven in many empirical studies to have a high impact on the behavioral intention to adopt technological products (Davis, Bagozzi & Warshaw 1989). Perceived usefulness is defined as the degree to which a person believes that using a particular system would accelerate his or her personal growth and would enhance his or her job performance (Davis 1989). Perceived usefulness is the most important factor influencing behavioral intention especially when making an adoption decision. Perceived usefulness is generally associated with convenience and ease of use. Most of the prior studies on perceived usefulness focused mainly on the usage or adoption of information technology and the World Wide Web but not on the adoption to buy products online. This study was aimed at examining the impact of perceived usefulness on the purchase intention to buy health foods online. Perceived usefulness is hypothesized to have a direct effect on purchase intention when buying health foods online.

**H4:** Perceived usefulness (POU) will have a direct effect on the intention to buy health foods online (PI)

**Figure 2.7: A conceptual framework for H4a hypotheses drawn from the preliminary model**



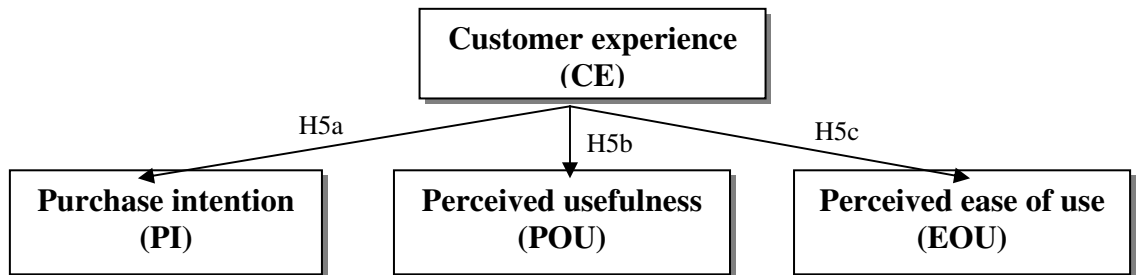
*Source: Developed for this research*

**Customer experience (CE).** A survey by Datamonitor of New York revealed that consumers gain more confidence when their Internet experiences and skills increase and subsequently spend more time and money online (Datamonitor 2000). This is in line with the findings of Liang and Huang (1998). In addition, the computer experience of users has been empirically found to link with greater technology acceptance in several studies in the past (Igarria, Livari & Maragahh 1995; Kraemer et al. 1993; Lee 1986). Igarria, Guimaraes and Davis (1995) tested the effects of computer experience within the framework of the modified Technology Acceptance Model and found that this construct has a direct, as well as an indirect effect on usage through the mediating factors of perceived usefulness and perceived ease of use. Purchase intention is found in the literature to be influenced by a consumer's lack of leisure time and level of their experience of the Internet (Bellman, Lohse & Johnson 1999).

The Internet is a new technology for the large majority of Thai people. The customer experience (CE) of computer and Internet technology should play a major role in predicting whether they will purchase online or not. Therefore, this variable is also included into the model. Based on previous studies, the researcher proposes to test the direct effect of customer experience on purchase intention in buying health foods online. Customer experience is hypothesized to have a direct effect on purchase intention, perceived usefulness and perceived ease of use when buying health foods online.

- H5a:** Customer experience (CE) will have a direct effect on the intention to buy health foods online (PI).
- H5b:** Customer experience (CE) will have a direct effect on perceived usefulness (POU).
- H5c:** Customer experience (CE) will have a direct effect on perceived ease of use (EOU).

**Figure 2.8: A conceptual framework for H5a, H5b and H5c hypotheses drawn from the preliminary model**



*Source: Developed for this research*

In summary, the preliminary model in this study was developed from the modified Technology Acceptance Model incorporating three additional constructs to better explain the variance in this study. The hypotheses were developed from the literature and were also based on actual surveys on Internet users conducted in Thailand during August 2000 by the National Science and Technology Development Institute. The proposed model is uniquely designed to fit with the behavior of Internet users in Thailand where culture, behavior, and stage of use of the Internet are different than in the United States.

## **2.6 Conclusions**

This chapter provides a context for understanding the background, usage factors and the importance of Internet marketing by reviewing previous literature. Most previous studies focused on the adoption of functions or technologies rather than on the adoption of online shopping. In addition, previous studies were conducted among students, who may not be purchasers in the real world. Gaps in the literature are identified in the areas of shopping online, broadening the target groups and products, increasing the sample size, and extending factors to cover level of user experience, associated risk, perceptions, retailers' reputation, and consumer confidence. There is no study that focuses on factors influencing consumer's purchase intention when buying health foods online in Thailand. The findings from this study will provide a good

theoretical foundation for further investigation or studies on Internet marketing in Thailand, a country in which there is limited empirical study on online shopping. Results from the literature review indicate that the Technology Acceptance Model (TAM) is suitable to use as a basis to build and develop a preliminary model for this study due to its solid theoretical foundation, high reliability and validity of constructs, and wide acceptance. Therefore, the preliminary research model used in this study is developed based on the Technology Acceptance Model by incorporating three additional constructs on top of the two original constructs namely perceived usefulness (POU) and perceived ease of use (EOU). Three additional constructs namely product and company attributes (PCA), perceived risk (PR), and customer experience (CE) are added in order to build a unique model for testing with Thai consumers. Relationships between constructs based on the literature review and result from a survey conducted with Internet users in Thailand, have been postulated into eleven hypotheses, which will be tested in this study.

This study adds important knowledge to the literature in the Thai context because the model is tested in a different environment. In addition, the researcher is testing this model with health food products that have not previously been researched. Despite the importance of health foods worldwide, there is no empirical study on the factors affecting consumer behavioral intention in buying health foods online. The findings of this study not only add knowledge to the literature in terms of testing the Technology Acceptance Model across cultures, but also offer a good theoretical foundation for further studies on the Internet in Thailand. The findings will also be useful for future marketing of health products on the Internet.

The exploratory research undertaken regarding the preliminary model based on the Technology Acceptance Model and its five constructs will be discussed in detail in chapter three.



## **CHAPTER 3**

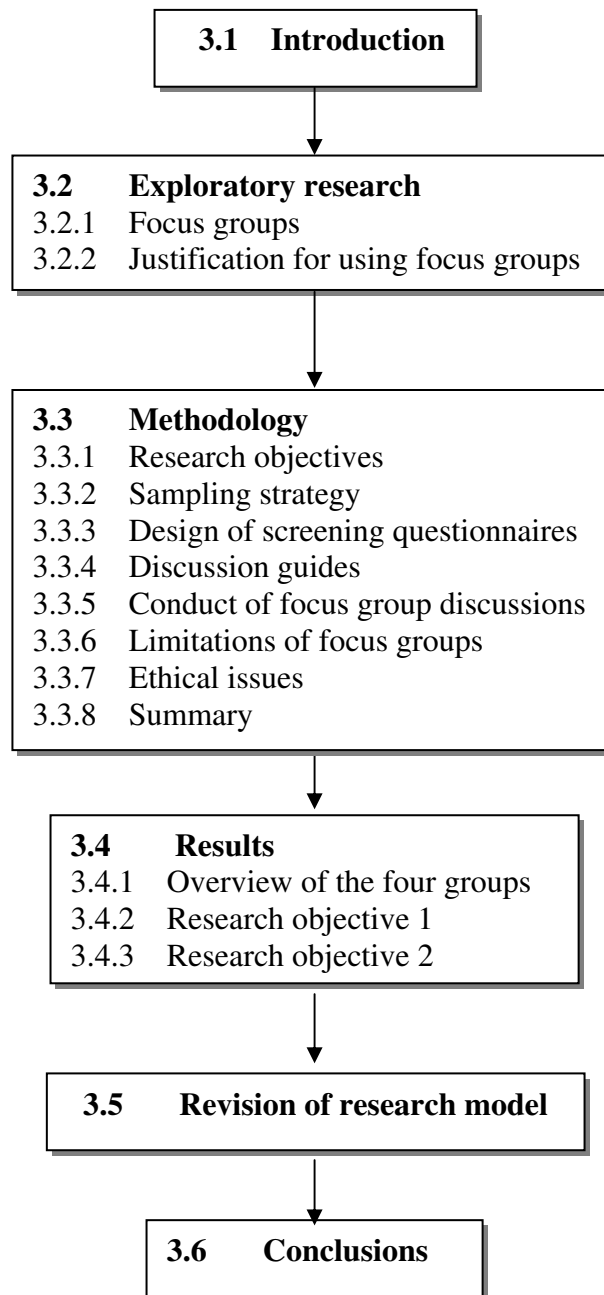
### **3 EXPLORATORY RESEARCH**

#### **3.1 Introduction**

The preliminary model and eleven hypotheses that will explain and test the factors influencing online purchasing of health foods in Thailand were developed in the previous chapter. The purpose of this chapter is to use exploratory research to further explore and refine the preliminary research model and hypotheses presented in chapter two. The results will also be used to assist in developing a questionnaire for the explanatory research described in chapter four.

The chapter is divided into six sections as shown in figure 3.1. It starts by justifying the use of exploratory research and for using focus groups in section 3.2. The research methodology for conducting the focus groups is discussed in section 3.3 covering research objectives, sampling strategy, screening questions, discussion guides, and detailed procedures for conducting the focus groups. Results from the focus groups are presented in section 3.4. In section 3.5, results of the focus groups are used to refine and revise the preliminary research model and hypotheses for further testing in the explanatory stage. Finally, conclusions are drawn in section 3.6 together with implications for next stage.

**Figure 3.1: Outline of the exploratory research**



*Source: Developed for this research*

### **3.2 Exploratory research**

The choice of an exploratory research design for this first stage of the study was influenced by the exploratory nature of the research objectives and the low degree of problem crystallization due to the newness of the subject for the Thai population involved in the study (Stevens et al. 2000; McPhail 1999). The topic of this study is

relatively new due to the low level of development of Internet technology in Thailand and the fact that there is little research on the online purchasing habits of Thai Internet users. Most of the theories and concepts used have been taken from empirical studies based on the attitudes and behaviors of consumers in the United States, where culture and consumer behavior may be different from that in Thailand.

Therefore, the researcher proposes to conduct exploratory research for stage one to explore and gain insights into consumer's perceptions, opinions, beliefs, and attitudes toward the online purchasing of health food products before going to the large scale quantitative research in stage two. This process will prevent the researchers from making costly mistakes in the latter quantitative research stage, which requires more expensive resources (Frazer & Lawley 2000). The exploratory research will provide a consumer insight by getting consumer's feelings on the topic of buying health foods online. Researchers can diagnose the problems of why consumers use or do not use the Internet as an alternative medium for buying health foods and they can further discover new ideas on how to prevent or convince consumers to buy health foods online (Zikmund 1999; McPhail 1999; Perry 1998).

Focus groups have been selected as the appropriate exploratory research technique for this study for a variety of reasons such as obtaining general background information, getting consumer insight, to refine and revise the preliminary model and to further refine hypotheses for testing in stage two of this study (Stewart & Shamdasani 1990). The justification for using focus groups is described next.

### **3.2.1 Focus groups**

A focus group discussion collects data through the interaction and discussion among respondents on a specific topic by combining individual interviews with respondent's observation of group interactions (Morgan 1996). It provides an unstructured, face-to-face, free-flowing discussion with a small group of people to obtain possible ideas or solutions (Zikmund 1999; Edmunds 1999; Aaker, Kumar & Day 1998; Morgan 1996) in this case relating to online shopping for health foods. Unlike individual in-depth interviews and projective techniques, focus groups provide group interaction that helps stimulate new thoughts and challenge thinking

from respondents (Aaker, Kumar & Day 1998), which is important for studying a new topic like online shopping in Thailand. In addition, focus groups are one of the most popular and widely used exploratory research tools in modern marketing research to assess communication and behavior relating to health (Stevens et al. 2000; Kitzinger 1995; Murray et al. 1994; Khan & Manderson 1992; Churchill 1987, Bartos 1986). The nature of group processes helps people to explore and clarify their views in ways that would not be accessible in the one to one interview (Kitzinger 1995). Therefore, focus groups were selected as an exploratory research technique for this study. Further justification for using focus groups is discussed next.

### **3.2.2 Justification for using focus groups**

In this study, focus groups were used to collect information on factors that encourage or discourage Thai Internet users in buying health foods online. There are three types of focus groups: exploratory, clinical, and experiential focus groups. Exploratory focus groups were selected for this research because they are relatively brief, less complex to analyze, easy to execute, inexpensive and suitable for studying this topic (Aaker, Kumar & Day 1998, Zikmund 1997).

Focus groups can help researchers tap into the many different forms of communication or experience of consumers about buying products generally and in this case buying products online. The moderator focused the group's attention on the Internet while respondents expressed their feelings, desires, opinions, and experiences related to the unstructured open-ended questions on the usage of the Internet and factors that motivate consumers to shop for health foods online. Based on the result, the researcher developed a list of variables or factors affecting consumer's decision when buying health foods online.

In brief, focus groups were useful in the initial stage of this research study in the field of Internet buying because they were able to bring out more ideas and issues on why consumers purchase health foods online and which products they purchase compared to individual in-depth interview due to the group interaction. This information often remains untapped by conventional data collection techniques. Consumers can compare and contrast their views regarding using the Internet, their

attitudes and experiences of buying health foods over the Internet, and what factors motivated or discouraged them from buying health foods online. Moreover, focus groups are popularly used in health behavior research, which fits very well with this study. Hence, the justification for using focus groups in this study is based on the following three rationales, the ability to collect information in the development phase, flexibility, and group interaction, as discussed next.

**Collection of information in the development phase.** In the previous chapter, the preliminary model and hypotheses of factors influencing the online purchasing of health foods in Thailand were formulated based on the literature review of research conducted in a western context. Focus groups are particularly useful in cases such as this where little is known about the [phenomenon under study why](#) Thai consumers buy or do not buy health foods on the Internet (Zikmund 1999; McPhail 1999; Morgan & Krueger 1993; Morgan 1988; Goldman 1962). Focus groups generally have a free-form design, which offers participants stimulation and generates ideas and comments [regarding factors that influencing their online purchase behavior](#). Group interaction can highlight cultural values, attitudes or group norms and generate critical comments on reasons for not buying products via the Internet (Aaker, Kumar & Day 1998; Kitzinger 1995; Morgan 1988).

Focus groups generate interactive communication among Thai consumers, who live in a high-context culture where communication is indirect and verbal response does not carry most of the information (Onkvisit & Shaw 1997). Therefore, focus groups are particularly useful for exploring the behavior, attitudes and opinions of Thai people not only in what they think about buying health products online, but also in how and why they think this way.

**Flexibility.** Focus groups are especially useful when the researcher is dealing with a new topic such as in this study. They will help to extract information and provide a high level of insight and understanding related to the topic of online shopping. Each respondent gives information on their opinions, usage patterns, attitudes, and experiences with the Internet and the factors that induce them to buy or not buy products online. Respondents in the focus groups can compare and contrast their

own experiences in using the Internet with other participants rather than waiting for the moderator to ask questions (Healy & Perry 1998; Morgan 1996).

**Group interaction.** Focus groups provide the ability to investigate complex behaviors and motivations from group interaction (Zikmund 1999; Aaker, Kumar & Day 1998; Carey & Smith 1994; Morgan & Krueger 1993). One participant's responses may provoke responses from others in the group, resulting in a synergistic effect not achieved in the usual interview situation (McDonald & Topper 1989; Basch 1987; Folch-Lyon & Trost 1981). The specific advantages of focus groups in this study are summarized in table 3.1.

**Table 3.1: Advantages of using focus groups**

<b>Criteria</b>	<b>Application to this study</b>
Synergism effect	Produces a wider range of information on experiences and perspectives of online shopping from participants' combined efforts.
Serendipity	Develops ideas on why and why not buy products online.
Snowballing effect	Triggers a chain of responses from other participants on influential factors that motivate or discourage them from purchasing health foods online.
Stimulation effect	Participants will express and expose a higher degree of their feelings on this topic that is quite new to Thai consumers.
Group and peer pressure	Clarifies and challenges thinking on the new topic of buying health foods online.
Spontaneity and candor response	Participants are not required to answer any given question, which will then generate more responses from those who know better on why they use online purchases for health foods and what they purchase.
Security of the respondents	Participants feel more comfortable when they have to answer sensitive questions regarding usage of the Internet knowing their feelings regarding language barrier, technical knowledge, and so on are not different from their peers.

*Source: Developed for this research*

In short, the focus group technique has several advantages in modern marketing research. Focus groups are relatively brief, easy to execute and set up, quickly analyzed, and inexpensive when compared to other qualitative research methods. Focus groups also have several limitations when compared to other exploratory techniques, however the benefits of using this technique in this case outweigh these

limitations (Stevens et al. 2000; Healy & Perry 1998). Some drawbacks of using focus groups are summarized in table 3.2.

**Table 3.2: Drawbacks and strategies to overcome the focus groups**

<b>Criteria</b>	<b>Application to this case</b>	<b>Strategy to overcome drawbacks</b>
Recruitment	Recruitment is the single most common source of failure encountered in focus group research. <ul style="list-style-type: none"> <li>• It is difficult to recruit the right candidates.</li> <li>• The number of respondent per group is important. Attendance levels should meet the requirements established in the research design.</li> </ul>	<ul style="list-style-type: none"> <li>• Respondents will be recruited from Cerebos database by using strict screening questionnaires during the recruitment process.</li> <li>• Number of respondents per group will be based on the theoretical numbers range from 6 to 12 persons as recommended by many researchers.</li> </ul>
Location	It is difficult to find a central location that fits everyone.	Cerebos regularly conducts focus groups almost every month. The focus group facility at Cerebos is well equipped and has proven to be suitable for respondents attending focus groups during the past several years.
Moderator	Strong moderator skills are necessary for conducting focus groups.	A professional and highly experienced researcher will be hired as a moderator for this study. The moderator has in-depth experience in conducting research in international companies such as Unilever, P&G, and Taylor Nelson Sofres.
Small number of participants and lack of randomization	Focus groups deal with small numbers of participants.	The purpose of this research is to explore, gain insights, and get additional information in order to revise the model and hypotheses and to generate information for developing questionnaires in stage 2 of this study. Since the research findings are not to be generalized to the total population, the size and randomization of respondents is not a serious issue providing the right candidates or qualified respondents are recruited based on the plan and research objectives.

*Source: Developed for this research*

The drawbacks of using focus groups are mainly related to the recruitment process, the location of the research facility, the moderator’s experiences, and the number of respondents used in the study. These weaknesses of using focus groups for the study of buying health foods online can be overcome by applying the strategies mentioned in the table 3.2. The researcher plans to overcome these weaknesses by using

Cerebos database for recruitment, conducting the interviews at the company's research facility, and employing a professional moderator for this study. Using an internal moderator who has extensive knowledge on the topic to conduct the focus groups may do more harm than good due to biases that tend to lead participants to support the moderator's own views (Edmunds 2001). The recommendation for using a professional moderator for this study is supported by many researchers because good moderation is one of the key factors for a successful focus group discussion (Healy & Perry 1998; Stewart & Shamdasani 1990). The advantages of using focus groups in this study outweigh the drawbacks of this technique. Therefore, focus groups were selected as a suitable and appropriate exploratory method for this study.

In summary, focus groups have been selected for this exploratory research to find more information about the factors influencing online purchases of health foods in Thailand. This method has been chosen based on its ability to gather insights from individuals and through group interaction especially in a new area like Internet marketing. Survey design, cost, flexibility, as well as ease of execution and analysis, were also important factors contributing to the selection of the focus group method. However, a rigorous framework and prior planning for the focus groups is required in order to ensure the quality of the outcome. Findings from this exploratory stage will be used to refine the research problem and possibly modify the initial research model and hypotheses developed in chapter two to make sure they apply to the Thai context. Finally, results from the focus groups can also be used to develop questionnaire for the larger scale quantitative research in stage two.

### **3.3 Methodology**

As mentioned in the previous section, focus groups, though useful, can suffer from problems of quality control, provide misleading results and waste a good deal of money if they are not properly planned. The key factors for success for conducting focus groups are in rigorous planning, such as clarifying the research objectives, recruiting the right participants, using effective moderation by selecting a qualified moderator using an appropriate discussion guide, and adopting proper analysis and interpretation of the findings (Healy & Perry 1998; Aaker, Kumar & Day 1998;



Krueger 1993; Payne 1976). This section reviews the key success factors for conducting focus groups in detail.

### **3.3.1 Research objectives**

The purposes of this exploratory research are to identify variables influencing the online purchasing of health foods and then to rank these factors in order of importance. It is vital to set clear research objectives for this study at the beginning to ensure that sufficient and appropriate information will be obtained for each of the research objectives (Stewart & Shamdasani 1990), which are summarized as follows:

**Objective 1:** Identify factors influencing consumer's online purchase intention of health foods in Thailand.

**Objective 2:** Explore the relative importance of factors that encourage or discourage consumers from buying health foods online.

After the research objectives have been clearly articulated, it is possible to move to the sample selection process and design of the moderator's guide (Stewart & Shamdasani 1990).

### **3.3.2 Sampling strategy**

**Population.** There is no data available of those who are users of both health foods and the Internet in Thailand. The researcher intends to use Cerebos database in this study because of the fact that Cerebos is the leading producer of health foods in Thailand. The target population is the entire group of objects of interest that is defined by the research objectives (Zikmund 1999; Burns & Bush 1995). There is a distinction between the population that a researcher is attempting to study and the population that is available for sampling (Grossnickle & Raskin 2001). According to the Brand's Asian Health Survey conducted by ACNielsen in May 2001, Brand's products, a range of health food products produced by Cerebos Thailand, is the clear market leader among health supplements and health foods in Thailand and also in

Asian markets such as Singapore, Malaysia, Taiwan, Hong Kong and China (ACNielsen , 2001).

The total number of Internet users in Thailand is estimated to be 1.2 million persons (Nielsen NetRating 2001), which represents 1.9 percent of the total population in Thailand. However, the researcher does not know how many of these 1.2 million Internet users also use health food products.

**Table 3.3: Internet users penetration comparison**

	Number of persons	Internet users (persons)	%
Total Thailand Population	62,300,000 (1)	1,200,000 (2)	1.9
Cerebos Database	151,615 (3)	3,872 (3)	2.6

- Source:*
1. Homepage of CIA (July 2000): [www.odci.gov/cia/publications/factbook/flags/](http://www.odci.gov/cia/publications/factbook/flags/)
  2. Homepage of Nielsen NetRating in NUA Internet Surveys (Mar 2001): [www.209.249.142.22/hot\\_off\\_the\\_net/](http://www.209.249.142.22/hot_off_the_net/)
  3. Cerebos database (June 2002)

Cerebos database contains 151,615 health food users of whom 3,872 persons or 2.6 percent also use the Internet. The penetration rate of Internet users in the Cerebos database is slightly higher than the total penetration rate of Internet users in Thailand due to the fact that health food users generally have higher social economic status and higher education levels (see details in table 3.3). Therefore, it is logical to get a higher penetration rate in Cerebos database when compared to the general population.

**Sampling frame.** The sampling frame is an available subset or list of population members used to obtain a sample, which in this case are the consumers listed in the company’s database that currently use health foods and also use the Internet (Aaker, Kumar & Day 1998; Alreck & Settle 1995; Sekaran 1992). The sample unit is a single member of the population, which in this study is the individual consumer who is currently using health foods and also using the Internet. Unfortunately, there is no data available for those who are users of both health foods and the Internet in Thailand. Therefore, it is justified for this research to use Cerebos database to represent subjects in this study.

**Table 3.4: Profile comparison of health food users and Internet users in Thailand**

Users	Age range with highest penetration	Reference
Health food users	26-30 year olds	TFRC 1999
	20-39 year olds	Brandstat 1998
Internet users	25-34 year olds	IDC 2000
	15-29 year olds	ACNielsen NetWatch 2001
	20-29 year olds	National Science and Technology Development Agency 2000
Internet users who used health foods	22-45 year olds	Cerebos database (June 2002)

*Source: Developed for this research*

From tables 3.3 and 3.4, the Cerebos database seems to be a relatively good source for obtaining a sampling frame for this study. This is due to the following reasons:

- Cerebos is the leader in the health food market in Thailand. The sample frame taken from Cerebos database is better at representing health food users than other databases available.
- The Internet penetration rate (table 3.3) between the Cerebos database and the general population and the age ranges of health food users and Internet users in Thailand are quite similar (see detail from table 3.4). Users of both health foods and the Internet groups are concentrated in similar age ranges.
  - The database is available for study. The researcher can gain access to reliable data for the study.
- There are no other sources of information on other health food users available for this study. It is difficult to obtain such data from other companies.

In summary, this research proposes to use the total Internet users (3, 872 persons) in the Cerebos database as a sampling frame for the focus groups in the exploratory stage one of this study.

**Sample selection method.** There are two methods for sample selection, namely probability and non-probability sampling (Zikmund 1999; Aaker, Kumar & Day 1998; Krueger 1988). Not all of the respondents from Cerebos database have

telephone numbers. The researcher has limited time to contact respondents. It will take a much longer time to recruit respondents by using the probability sampling method. As this is exploratory research that aims to generate insights rather than to project conclusions to the total population, it is acceptable to use a non-probability sampling method to select samples for the focus groups for this study (Krueger 1988) to save time and cost for recruitment. Judgment or purposive sampling will therefore be used because it allows the samples to be selected based on appropriate characteristics of the sample member such as Internet knowledge, usage behavior, or standard demographics (Zikmund 1999; McPhail 1999). As a general rule, participants were selected to reflect a range of the total study population, which in this case is the population of Internet users in Cerebos database (Kitzinger 1995).

The data from table 3.5 indicates that female consumers are using the Internet much more than males [in the context of Cerebos database](#). Therefore, gender should be considered as one segment of the focus groups. Gender differences in using the Internet have been found in the literature by many researchers through all lifestyle segments (Smith & Whitlark 2001; Bucy 2000). Women use the Internet as a communication medium while men use it in searching for information.

**Table 3.5: The demographics of Internet users in the sampling frame**

<b>Sex</b>	<b>% Internet users in Cerebos database</b>
Male	37%
Female	63%
<b>Age</b>	<b>% Internet users in Cerebos database</b>
<15	3%
15-21	17%
22-29	40%
30-45	32%
45+	8%
Total	100%

*Source: Developed for this research*

Age also seems to be good a demographic criteria for segmenting the focus groups in this study. Internet users are concentrated in the age groups of 22-29 and 30-45 year-olds, but are less so in the age groups of consumers <15, 15-21 and 45 years old and up. Due to the fact that the researcher is studying the perceptions, opinions, beliefs, and attitudes of consumers buying health foods online, respondents must not only be

Internet users, they must also be health food purchasers as well. As a result, consumers who are less than 15 years old or 15-21 years old will be excluded from this study because they generally do not have enough income to buy health foods on their own. They tend to be students who mostly use the Internet for educational purposes rather than for e-commerce. Consumers aged 45 years old and up will also be excluded from this study because they are not the main group of Internet users and also are not very familiar with the Internet due to the fact that the Internet is a new technological development in Thailand.

Participants should have enough knowledge to share and spark a chain of idea generation during the group discussions. Therefore, the researcher proposes that education level should be set from vocational up to university as a minimum requirement for selecting respondents for the groups. This is supported by information from a survey done by IDC (2000) who found that 66.8 percent of Internet users have education at vocational level and 13 percent of them have education at university level. Those who are heavy users of the Internet must have at least workable English communication skills, which are in line with the education levels specified. The researcher proposes to conduct four focus groups with the following segments:

- 22-29 year-olds males with educational level from vocational up to university
- 22-29 year-olds females with educational level from vocational up to university
- 30-45 year-olds, males with educational level from vocational up to university
- 30-45 year-olds, females with educational level from vocational up to university

Education is used as a minimum criterion for the recruitment because English language is a barrier in using the Internet especially when it comes to e-commerce. There are not many good Thai language Web sites when compared to English Web sites. In order to ensure that respondents have sufficient information to share during the discussion, the researcher proposes to screen only Internet users who have logged-on to the Internet in the past twelve months. This is the same criterion that

ACNielsen Thailand used for conducting their research survey on Internet users (ACNielsen NetWatch Oct' 2001).

In summary, the researcher proposes to segment respondents by age but select only those consumers who have an educational background from vocational training up to university level. Respondents, who are health food purchasers and Internet users in the past 12 months from the Cerebos database and who also possess the above criteria of each group, will be recruited by telephone. Those who refuse or who are unable to attend the research will be skipped and next person in the list will be contacted until the number of respondents in each group meets the quota.

**Number of groups.** As a general rule, three or four groups are sufficient unless there are distinct segments to cover in the study (Aaker, Kumar & Day 1998; Krueger 1988; Morgan 1988). Some researchers argue that the number of groups should be determined by the research goals while others comment that the number of groups is subject to practical constraints (Knodel 1993; Calder 1977). The information found in the latter groups is normally less insightful when compared with the earlier groups (Zeller 1993; Calder 1977). Some researchers propose to conduct as many groups as required until adequate answers to the research questions are obtained while others recommend that the number of groups should be equal to the number of different population subgroups required (Morgan 1988). Most researchers recommend having homogeneity within each group in order to capitalize on the group's shared experiences and ensure that they can get along well with each other and generate more insights during the discussion (Kitzinger 1995). In this study, the researcher proposes to run one group in each distinct segment of gender and age. Table 3.6 lists the four proposed focus groups (Healy & Perry 1998). This method will result in groups composed of one group for males and another for females in the age range of 22-29 year-olds, with the same set up being applied for consumers in the age range of 30-45 year-olds.

**Table 3.6: Proposed focus groups for this research**

No.	Number of Focus Groups	Demographics and Psychographics
1	1 group with 8 persons	<ul style="list-style-type: none"><li>• <i>Male</i></li><li>• <i>Age 22-29 years old</i></li><li>• Education from Vocational to University</li><li>• Used the Internet in the past 12 months</li><li>• User of health foods in the past 12 months</li></ul>
2	1 group with 8 persons	<ul style="list-style-type: none"><li>• <i>Female</i></li><li>• <i>Age 22-29 years old</i></li><li>• Education from Vocational to University</li><li>• Used the Internet in the past 12 months</li><li>• User of health foods in the past 12 months</li></ul>
3	1 group with 8 persons	<ul style="list-style-type: none"><li>• <i>Male</i></li><li>• <i>Age 30-45 years old</i></li><li>• Education from Vocational to University</li><li>• Used the Internet in the past 12 months</li><li>• User of health foods in the past 12 months</li></ul>
4	1 group with 8 persons	<ul style="list-style-type: none"><li>• <i>Female</i></li><li>• <i>Age 30-45 years old</i></li><li>• Education from Vocational to University</li><li>• Used the Internet in the past 12 months</li><li>• User of health foods in the past 12 months</li></ul>

*Source: Developed for this study*

The dynamics of discussion in smaller groups are noted to be different from those in larger groups (Morgan 1988). Four persons per group is the smallest recommended size for a focus group while the highest recommended number per group appears to be twelve persons (Morgan 1988). In this study, the researcher proposes to recruit 8 persons per group because the suitable size for a focus group ranges from 6 to 12 (Stewart & Shamdasani 1990). From the researcher's experience, some respondents may not show up despite several prior confirmations. Slight over-recruiting will help to avoid the situation of having too few respondents per group, which could deviate the discussion from its purpose. **The researcher will target up to 12 respondents per group.** In the case that all ten respondents do show up, the size of ten will still be acceptable for conducting an effective focus group discussion. As a result, the number of respondents per group is expected to be approximately eight persons, which is a manageable size for the moderator.

The length of each session will be controlled not to exceed 2 hours which is the optimum period recommended by many researchers (Malhotra et al. 1996; Morgan 1988; Payne 1976). Focus group sessions in excess of 2 hours run the risk of

obtaining inaccurate results due to fatigue of the participants which may cause them to give false or incomplete feedback in order to speed the process of completion.

In conclusion, four focus groups are proposed for this study. Age and gender are the main segmentation criteria while education is used as a minimum requirement for each respondent. All respondents must be purchasers of health foods and also users of the Internet during the past 12 months. The number of respondents is set at 6 to 10 persons per group and the length of each session will not exceed 2 hours.

### **3.3.3 Design screening questionnaires**

The screening questionnaire is one of the most important tools in focus group research (Edmund 2001). It enables the selection of eligible and appropriate candidates for the focus groups. The screening questionnaire generally consists of five to ten basic questions designed to identify qualified respondents to attend the groups (Edmund 2001). The questions are based on the research objectives and segmentation criteria used in the sample selection process. The screening questions designed for this study are presented in appendix 3.1.

### **3.3.4 Discussion guides**

Once the researcher defines the target group of the focus groups, the discussion guide has to be developed. The moderator's discussion guide is used as a detailed outline or a proposed framework for the moderator to lead the focus groups (Edmunds 2001). In this study, the discussion guide is used as an outline for the moderator to follow to ensure that all topics are covered and discussed based on the research objectives. The topics that needed to be discussed in the groups are as follows:

- Internet usage experiences
- Online shopping experiences
- Online buying of health foods experiences

The discussion guide proposed for this study is presented in appendix 3.2. Although ten to twelve questions are a norm for a two-hour focus group, this study proposes to use seven questions in the discussion guide (Krueger 1993). The rationale for using only seven questions is due to the fact that topics regarding the Internet are relatively



new to the participants. It is better to focus on fewer questions for in-depth discussions on each topic in order understand participant’s knowledge, attitudes and behaviors in using the Internet. All questions are open-ended, which will lead to a substantial amount of information from respondents. The discussion guide for this study is developed based on the research objectives stated in the previous section (Henderson 1995).

In this study, two experienced focus group moderators were asked to review the discussion guide to ensure that the research objectives were met (Healy & Perry 1998). Some slight changes were made to the discussion guide to improve respondent’s understanding and the discussion flow. Finally, a pre-test of the revised questionnaire was conducted with some respondents to check the accuracy and understanding of the discussion guide (Maynard-Tucker 2000). Table 3.7 shows the moderator’s discussion guide for each of the research questions in this study.

**Table 3.7: Moderator discussion guides and the research objectives**

Research Objectives	Moderator’s Interview Questions
<p><b>RQ1:</b> Identify factors influencing online purchase intention of health foods in terms of</p> <ul style="list-style-type: none"> <li>• Internet usage</li> <li>• Motivations</li> <li>• Concerns</li> <li>• Perceptions</li> <li>• Beliefs</li> <li>• Experiences</li> </ul>	<p><b>Internet usage</b></p> <ul style="list-style-type: none"> <li>• How long have you used the Internet? How often do you use the Internet?</li> <li>• Where do you normally use the Internet?</li> <li>• What types of products or services are you looking for on the Internet?</li> <li>• What are the factors encouraging you to use the Internet? Why?</li> </ul> <p><b>Online shopping experiences</b></p> <ul style="list-style-type: none"> <li>• What are the factors motivating you to shop online?</li> <li>• Why not buy from the other sources?</li> <li>• What types of products or services have you considered to shop online?</li> <li>• What are the positive aspects of shopping online?</li> <li>• If no, why not? Have you ever considered to shop online?</li> <li>• What factors would encourage you to shop online?</li> <li>• What are the potential problems that discourage you from shopping online?</li> </ul>

Research Objectives	Moderator's Interview Questions
	<p><b>Buying health foods online</b></p> <ul style="list-style-type: none"> <li>• Have you ever bought health foods online? What types?</li> <li>• If yes, why? If not, why not?</li> <li>• Which factors impacted your decision to buy health foods online most? Why</li> <li>• What are the positive impacts that encourage you to buy health foods online?</li> <li>• What are the potential problems that discourage you from buying health foods online?</li> <li>• Do you intend to buy health foods online in the future? What types?</li> <li>• If yes, why? If not, why not</li> </ul>
<p><b>RQ2:</b> Explore the relative importance of factors that encourage or discourage Thai health food users in buying health products online</p>	<p><b>Relative important of the factors</b></p> <ul style="list-style-type: none"> <li>• Can you rank, in order of importance, those factors you just mentioned to us? Why do you say so?</li> <li>• If health products will be sold by using the Internet, would you be interested in participating?</li> <li>• If yes, why? If not, why not?</li> <li>• Whom do you think will be interested in buying health foods online? Why?</li> <li>• What do you want the health food companies to do in order to improve your likelihood to buy online?</li> </ul>

*Source: Developed for this research*

### 3.3.5 Conduct of focus group discussion

All participants were requested to complete their demographic profiles on paper to save time for discussion of the main topics. They were provided with refreshments and snacks followed by a friendly and warm welcome. The moderator started by asking respondents to introduce themselves in an ice-breaking exercise before starting the group discussion. The objectives of the research and ground rules for the discussion were explained to the participants at the beginning of the session (Stewart & Shamdasani 1990). The moderator also informed the participants that there were no right or wrong answers and requested respondents to speak one at a time. The researcher sat with the moderator in all sessions, took notes, and taped the discussion for all groups.

The respondents in each group generally possessed different levels of knowledge and experiences in using the Internet. The moderator uses various techniques based on her prior experiences to conduct the group discussions such as:

**Maintaining control of group discussion.** The participants were encouraged to talk to each other and speak one at a time. The moderator exerted pressure to keep participants on track and politely interrupted their side conversations during the group discussion without discouraging them from giving their opinions and ideas. The female groups trended to have more side conversations than the male groups.

**Keeping the conversation on track.** It was quite obvious that some respondents had more knowledge and experience on this topic than others. The moderator attempted to ensure that nobody dominated the conversation. She promoted interaction among members in the group and stopped them whenever they tried to deviate from the discussion topics. In some stages, some participants seemed to be confused about the usage of the Internet and e-mail. The moderator explained and refocused respondents to stay on the discussion topic according to the discussion guide.

**Skillful probes to gain more insights.** The moderator used various probing techniques to promote discussion, especially with participants who gave only partial answers, lacked self-confidence, or talked aimlessly. Some probing questions used included the following statements:

- Explain to me.....
- Give me an example.....
- Do you have anything else you want to add?
- Describe what you mean.....
- I did not understand.....
- Tell me more.....

She avoided skipping over participants during the discussions and also avoided cutting off respondent's answers in the middle of their sentences.

The moderator concluded the session by checking the main points with the respondents and asking them for additional thoughts if points were missing from the discussion. A list of the various factors was also presented to respondents on paper and they were asked to add any additional factors or delete any factors they felt were not relevant. They were also asked to rank these factors in order of importance as a

confirmation before they left the room. Transportation costs and a gift were handed to all respondents at the end of the session. The moderator thanked all attendants for their active participation and valuable contribution to this study.

Debriefing sessions were conducted immediately after the focus group discussions regarding the accuracy of moderator notes, especially relating to respondents' major opinions and thoughts.

### **3.3.6 Limitations of focus groups**

The pros and cons of using focus groups have been discussed and justified in section 3.2. There are some limitations for using focus groups in this study, which are summarized next.

**Generalization.** Focus group methodology uses only a small number of respondents who are not generally selected through scientific sampling. When the sample size is small, the possibility exists that the group interview is significantly different from the rest of the marketplace. Therefore, results from focus groups cannot be generalized to the total population (Zikmund 1999). The research problems are relevant and applied to people all over Thailand but these focus groups were conducted only in Bangkok. The researcher could not conduct sessions in all geographic areas due to budget and time constraints. However, the researcher in this study was interested in generating and refining the hypotheses, rather than testing them. The findings from these focus groups will be confirmed with more rigorous quantitative research in stage two.

**Moderator.** The quality of focus group results is very much dependent on the skills of the moderator who conducts the sessions (Grossnickle & Raskin 2001; Festervand 1984). In fact, highly skilled moderators are difficult to find and not always affordable. The researcher in this study understood and tried to handle this limitation by hiring a highly professional moderator to conduct the focus groups in order to get quality information that met the research objectives of the study.

**Interpretation.** The result of focus groups could have some biases from personal interpretation (Grossnickle & Raskin 2001). It depends on the researcher's ability to capture information from the focus groups and interpret them meaningfully. There was a large amount of information collected from all four focus groups. The problems of interpretation, unspoken thoughts, and body language, are limitations of focus groups. Thai people, similar to those in many other Asian countries, come from a high-context culture such that words do not carry most of the information (Onkvisit & Shaw 1997). Some information is contained in nonverbal forms during the discussions. Therefore, judgmental interpretation was used on both the verbal and nonverbal parts of the discussion during the analysis (Knodel 1993). This creates questions regarding the validity of the results from this study (Easterby-Smith, Thorpe & Lowe 1991). However, the researcher sat with the moderator in all groups, taped all discussions, took notes, and watched facial expressions and body language to ensure that interpretation was correctly done for this study.

**Labor Intensive.** The focus group discussion is a labor intensive and expensive methodology, especially when it comes to analysis. The researcher understands the nature and limitations in using this technique. Substantial planning and preparation were done in advance to avoid the bottleneck of the focus groups.

### **3.3.7 Ethical issues**

Generally, there are three parties involved in focus groups: the moderator, the respondents, and the user or sponsor of the research (Zikmund 1997). The interactive discussion in the focus groups, which creates a synergistic effect, may lead to over disclosure of personal information (Carey & Smith 1994; Morgan & Krueger 1993). The participants in the focus groups reveal themselves to each other, not just the researcher. In addition, the intensity of the interaction and the impact of the group setting could create stresses on the respondents (Carey & Smith 1994; Morgan & Krueger 1993; Zeller 1993; Sussman et al. 1991). Next, some potential ethical concerns from the researcher and the respondents in this study are discussed.

**Rights and obligations of the respondents.** When the respondents provide willing consent to participate in the focus group, they should provide truthful answers. At

the same time, respondents have the right to privacy and freedom to choose whether they want to answer or speak out during the discussion (Zikmund 1997). The moderator in this study informed all respondents in each session of the following points:

- Purpose of the study
- The respondents' rights and obligations
- Description of what would be done with the notes and audio tapes after the group was finished
- Request not to share what others in the group say with outside individuals.

The subject in this study involves usage of the Internet and health food consumption. The discussion in this study does not involve any sensitive topics. There is nothing in the discussion that can seriously harm the respondents emotionally, even though they may over disclose their feelings on the subject of the online purchase of health foods due to the intensity of the group interaction. Nevertheless, the moderator informed all participants about these points at the beginning of each session.

**Rights and obligations of the researcher.** The researcher must maintain a research standard to ensure that results are accurate and objective. For example, the moderator must not use this research setting as a sales ploy to promote Internet usage or sell health food products (Zikmund 1997). The researcher in this study hired a professional moderator to conduct the group discussion. Therefore, these concerns were not relevant in this case.

In brief, the focus groups were carefully planned to ensure both accuracy and honesty in data collection and analysis. The researcher also preserved the privacy, confidentiality, and anonymity of the respondents who attended the focus groups.

### **3.3.8 Summary**

In summary, this section proposed using focus groups to explore the factors influencing online purchasing of health foods in Thailand. Focus groups were found to be an appropriate research technique for this study because focus groups encouraged participants to generate and explore attitudes, opinions, beliefs, and behaviors on the Internet especially when discussing the topic of shopping online for

health food products. Justifications for using focus groups together with pros and cons were discussed. A professional moderator was hired and a moderator's guide was prepared to ensure that all research objectives were met. Finally, the limitations and ethical issues of focus groups in this study were considered. The next section presents the analysis and interpretation of results in relation to the three research objectives.

### **3.4 Results**

The previous section described the methodology of focus groups. In this section, the information collected from all four focus groups is analyzed and interpreted in relation to the research objectives. The two research objectives and their findings are analyzed in three sections from 3.4.1-3.4.3. Comparison on gender within the same age segment will be conducted and comparison across age segments for all groups will be done to increase the relevancy of the information.

#### **3.4.1 Overview of the four groups**

Four focus groups were conducted. Three of the groups had between 6-8 participants, and the group comprised of older males had 11 persons. There were 32 participants in total, 15 females (47 percent) and 17 males (53 percent). Details of the focus group sessions are presented in appendix 3.3 and demographics of all respondents are in appendix 3.4. Respondents in all four groups had various skill levels in using the Internet. More than half of the respondents had more than 2 years experience in using the Internet. Eighteen out of thirty two respondents (56 percent) claimed that they logged on to the Internet at least once a day. Three of them (9 percent) used the Internet only 1-2 times per month.

The respondents in this study were segmented by gender and age into four groups. Profiles of respondents for each focus group are described in detail. Table 3.8 shows the profiles of older females aged 30-45 years who made up the first group (G1). The seating arrangement was set in an anticlockwise pattern based on frequency of Internet usage from the heaviest user of the Internet to the lightest for ease of note taking. There was only one single woman in the group while the rest were married.

Four of them were married with children and the remaining three women were married with no children.

It is notable that this older female group seemed to use the Internet with the least frequency and had the shortest length of the Internet usage experience. Slightly more than half of the respondents from group G1 had used the Internet for over 1 year. Reasons for using the Internet varied from searching for information to playing games. All respondents in this group accessed the Internet from home with the exception of one respondent who accessed at an Internet shop. None of them had ever bought anything online.

**Table 3.8: Profile and usage of the Internet in older females group G1**

Code	Sex	Age	Marital Status	Frequency of Internet use	Experience using the Internet
W1	F	37	married with children	> everyday	1-2 year
W2	F	39	married with children	everyday	> 2 years
W3	F	35	married with no children	everyday	1-2 year
W4	F	30	married with no children	1-2 times / week	> 2 year
W5	F	38	married with children	1-2 times / week	6 months - 1 year
W6	F	38	married with children	1-2 times / week	1-2 year
W7	F	30	married with no children	1-2 times / month	6 months – 1 year
W8	F	31	single	1-2 times / month	6 months – 1 year

*Source: Field data collected for this research*

The second group (G2) was comprised of males aged 30-45 years and is profiled in table 3.9. There were 11 persons in the group, which was slightly over recruited because the researcher used the confirmation rate in the first group as a benchmark for recruiting. However, the total number of respondents from group G2 is still lower than twelve persons, which is within the theoretical maximum limit for conducting a focus group (Morgan 1988).

**Table 3.9: Profile and usage of the Internet in older males group G2**

Code	Sex	Age	Marital Status	Frequency of Internet use	Experience using the Internet
M1	M	39	married with children	everyday	5 years
M2	M	35	married with children	everyday or more	2 years
M3	M	39	married with children	everyday or more	1-2 years
M4	M	40	married with no children	1-2 time / week	> 2 years
M5	M	37	single	everyday or more	> 2 years
M6	M	38	single	everyday	1-2 years
M7	M	33	married with no children	everyday	1-2 years



Code	Sex	Age	Marital Status	Frequency of Internet use	Experience using the Internet
M8	M	40	single	everyday	> 2 years
M9	M	32	single	1-2 times/week	> 2 years
M10	M	37	single	everyday	> 2 years
M11	M	40	married with children	1-2 times/week	> 2 years

*Source: Field data collected for this research*

The researcher intended to seat group G2 based on frequency of Internet usage similarly to group G1. However, the questionnaires filled in by the respondents when they arrived at the office were slightly different, for example M4 claimed that he used the Internet almost everyday during the recruitment process, but filled in the questionnaire upon arrival as 1-2 times per week. Respondent M10 said that he used the Internet several times per week, but filled in the questionnaire as everyday. Respondents from group G2 used the Internet both at home and in the office. Most of them used the Internet to support their work and for searching for information and products. There were two respondents who had purchased books over the Internet, although payment was made upon delivery.

The third group G3 comprised younger females aged 22-29 years and is profiled in table 3.10. There were 7 respondents in total. The researcher used experiences with the prior group in recruiting for the third group and managed to get 7 persons in the group, which is theoretically a suitable number of respondents (Stewart & Shamdasani 1990). All of them were single with the exception of one respondent who was married with one child. This group used the Internet at a much higher frequency than the group of older females in group G1. However, this frequency was still lower than the older males from group G2.

**Table 3.10: Profile and usage of the Internet in younger females group G3**

Code	Sex	Age	Marital Status	Frequency of Internet use	Experience in using the Internet
Y1	F	29	Single	everyday or more	> 2 years
Y2	F	22	Single	everyday	> 2 years
Y3	F	26	Single	everyday or more	1-2 years
Y4	F	25	Single	1-2 times / week	> 2 year
Y5	F	27	Married with children	1-2 times / week	6 months-1 year
Y6	F	22	Single	1-2 times / week	1-2 years
Y7	F	23	Single	1-2 times / month	1-2 years

*Source: Field data collected for this research*

Respondents in this group used the Internet at home, in the office or at university. Most of them used the Internet for studying, playing games, searching for information and sending e-mail. Only one respondent had ordered health foods over the Internet, although payment was made via post.

Younger males aged 22-29 years made up the fourth group, G4, and are profiled in table 3.11. They were the heaviest Internet users among the four groups. They also possessed the longest experience in using the Internet. Respondents in this group used the Internet at home, at university, and at the office. The Internet was used for searching for information, checking prices, booking tickets, and reading updated news. Half of the respondents have purchased products over the Internet. Two of them paid online by credit card while the other person paid cash upon delivery.

**Table 3.11: Profile and usage of the Internet in younger males group G4**

Code	Sex	Age	Marital Status	Frequency of Internet use	Experience using the Internet
H1	M	24	single	everyday or more	4 years
H2	M	25	single	everyday or more	> 2 years
H3	M	24	single	everyday	> 2 years
H4	M	21	single	1-2 times / week	6 months - 1 year
H5	M	24	single	1-2 times / week	> 2 years
H6	M	23	single	everyday	> 2 years

*Source: Field data collected for this research*

In summary, it is quite clear from the profiles of all four focus groups that younger respondents use the Internet more often than older ones. Four respondents in the younger aged groups G3 and G4 have bought products online compared with only two respondents from the older groups G2 and none from group G1. Males seemed to be more likely to buy online than females. Two males from group G2 and three males from group G4 have bought over the Internet while no females from group G1 and only one female from group G3 had bought products over the Internet.

### **3.4.2 Research Objective 1: Identify factors influencing consumer's online purchase intention of health foods**

This section investigates the first research objective of identifying factors influencing online purchasing of health foods. Group results will be addressed by segment starting with the first group (G1) and proceeding up to the last group (G4).

**Products and services searched over the Internet.** Almost all respondents used the Internet to acquire information. All of them searched for information on news, travel, general information, health related products and technology related products, and also used the Internet for communicating with friends. Women were more interested in searching for games, food, and music while men were more interested in technology products, electronic appliances, cameras, and watches. Women used the Internet to help them get health related products and information for looking after their family while men used it for getting information related to work and business. A female respondent from group G1 said, *“I use the Internet for searching for useful health information related to my family. I consult the Internet on how to look after my family and raise my kid. It provides a lot of useful information indeed”*. (W1) Male respondents said that they used the Internet for searching for information related to their work, such as information about competition, and for checking the prices of raw materials overseas. One male respondent from group G2 stated, *“I use it for searching for useful information about my work”*(M2). Another male respondent said, *“I use the Internet for finding and learning about new technology for communicating and for obtaining information about interesting products, such as watches, medicine, etc”*. (M10) Details of products and services searched for on the Internet are presented in table 3.12.

**Table 3.12: Products and services searched for over the Internet**

Products searched for over the Internet	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
News	X	X	X	X	4X
General information	X	X	X	X	4X
Travel	X		X	X	3X
Communication	X	X	X		3X
Health related products	X		X	X	3X
Technology products		X	X	X	3X
Games	X		X	X	3X
Education	X	X	X		2X
Finding a job			X	X	2X
Hotel			X	X	2X
Chat			X	X	2X
Food	X		X		2X
Music	X		X		2X
Mobile phones			X	X	2X
Electronic appliances		X		X	2X
Cameras, watches		X		X	2X
Health consultation	X				1X
Child consultation	X				1X

Products searched for over the Internet	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
Health information	X				1X
Web board			X		1X
Medicine		X			1X
Actors and actresses				X	1X
Raw materials		X			1X
Fashion		X			1X
Flowers	X				1X
Books			X		1X
Decorative items	X				1X
Beauty	X				1X
Tickets				X	1X
Competitive products		X			1X

Source: Field data collected from this research

**Single respondents.** Single respondents used the Internet for chatting and communicating with friends more than those who had a family. Both younger males and females who are single seemed to use the Internet for pleasure. Most of them enjoyed playing games on the Internet and chatting with friends. They were regular visitors to various Thai Web sites such as Pantip.com, Sanuk.com, and Hansa.com. One of the single females from group G3 said *“I like to send e-cards to my friends. I check out information on travel and hotel room rates for comparison, obtain updated news on beauty and fashion, and of-course, send e-mail”*. (Y2) A male respondent from group G4 said, *“I spend a few hours each day surfing for information, chatting with friends, and checking prices of different products so that I can talk with my friends when we see each other the next day”*. (H1)

**Male respondents.** Male respondents from both age groups used the Internet to search for news, general information, and technology products. They spent much time reading and searching for sports news because information on the Internet is faster. One of the respondents from G4 explained, *“I use the Internet to read the sports news because it is much faster than the newspaper”*. (H6) Male respondents also used the Internet for their business and work more than female respondents. An older male respondent from group G2 said, *“ I use it for searching for information related to my work, mostly e-mail”*. (M5) One of the respondents has frequently purchased electronic spare parts online because they are cheaper than buying from conventional outlets. Similarly to the female groups, males used the Internet at home, at work, at university, and at Internet cafés.

In summary, male respondents seemed to use the Internet for checking the news, especially sports related and for searching for information on technology products, cameras, and watches. They also used the Internet to get information on raw materials, book hotels and tickets, and find competitive products related to their work. Younger male respondents used the Internet to find job information, play games, chat with friends, and so on, while older male respondents used the Internet for communication and for finding items or information related to their work.

**Female respondents.** Female respondents also used the Internet for searching for news, information, and communication. However, they were more interested in the information that is useful for their personal or family life such as travel, games, food, education, health related products, music and chatting with friends. As stated by one married female respondent from group G1, “*I use it for searching for information related to health, beauty, news, and travel*”. (W7) Many female respondents used the Internet as a medium for consultation on health issues and for searching for information related to their family, such as buying a house, or topics on health care and childcare. A married female from group G1 said, “*I am in the process of buying a new house. I use the Internet for getting information from different housing projects. It is fast and provides a lot of information for making my decision. I can go and see the site after selecting the best options with my family. I also use it for searching for travel information for my holidays*”. (W3) Younger female respondents were more interested in technology products, finding job information, chatting with friends, and so on, while older female respondents used the Internet for getting information or consultation about health care, childcare, and flowers.

In summary, it is noticeable that respondents of different gender, age, and marital status used the Internet for different purposes. Younger respondents focused more on personal communication with friends and playing games while older respondents used the Internet for information related to work or business. Married respondents, especially females, used the Internet for getting information to look after their family and spouse, while single respondents were more interested in getting information on food, music, games, hotels, chatting with friends, and finding a job online.

**Purchasing experiences online.** None of the older female respondents from group G1 had ever bought anything online, however, most had heard of or knew of someone who had bought some products online. In the younger female group G3, only one out of seven respondents had bought health foods from the Internet. As a result, there was only one female who had experience buying products or services online. This indicates that female respondents are more cautious in using this new medium for doing actual transactions. Almost all of them used the Internet for getting information to support their decision. On the contrary, two out of eleven older male respondents from group G2 had experience in buying products or services online and three out of six, or half of the younger male respondents from group G4, had bought products or services online. It is quite clear that male respondents tended to be more advanced in terms of purchasing products online. The younger male respondents possessed the highest number of respondents who have bought online when compared to the other groups.

In summary, the factors of age, gender, and marital status seem to have an influential effect on the decision to buy products or services online. Younger respondents, especially males, had a tendency to shop online. Older respondents, especially females, were interested more in using the Internet to get information to support their decision, rather than conducting the actual transaction on the Internet.

**Factors influencing online purchase intention of health foods.** When it comes to factors encouraging or discouraging respondents from buying over the Internet, respondents gave different comments that can be classified under three categories:

- Factors that are related to the attributes and/or characteristics of the Internet, such as perceived ease of use and perceived usefulness.
- User attributes that are composed of perceived risk and customer experience. This involves financial risk, economic risk, and so on.
- Product attributes that refer to product and company information.

All respondents were asked to rank five factors in order of importance, based on their own judgment. The most important factor was given a weight of 5. The second most important factor was weighed as 4 and so on. The analysis starts from Internet

attributes, followed by user attributes, and product attributes. Results from the focus groups are discussed next.

**Internet attributes: perceived ease of use.** Factors related to perceived ease of use and perceived usefulness mentioned by respondents when they made the decision to buy online are listed as part of Internet attributes. Details are presented in table 3.13. Attributes mentioned by all groups are bold.

**Table 3.13: Internet attributes on perceived ease of use (EOU)**

Perceived ease of use	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
<b>Easy to download</b>	X	X	X	X	4X
<b>Short download time</b>	X	X	X	X	4X
<b>Not too lengthy text</b>	X	X	X	X	4X
<b>Not complicated</b>	X	X	X	X	4X
Design of Web sites	X	X		X	3X
Provide picture and details	X	X		X	3X
Delivery time	X		X	X	3X
Not annoying	X	X	X		3X
Quick process		X	X	X	3X
Easy to read or understand	X	X			2X
Accessibility	X	X			2X
Quick access	X				1X
Not difficult to use	X				1X
Interactive			X		1X
Not boring		X			1X
Don't have to drill down layers		X			1X
Not waste time				X	1X
Not confusing	X				1X

*Source: Field data collected from this research*

**Older females group G1.** Respondents said that ease of use was one of the most important factors that encouraged or discouraged them from buying health foods and other products online. It must be easy, have a short download time and have text that is not too lengthy to read. Web sites should provide clear pictures and details of the products. One of the respondents said, *“I think it should be easy to read and draw the user’s attention by having interesting pictures and clear details of the information”*. (W5) The layout and graphics must not be too confusing and should be easy to understand. They also admitted that they gave up and moved to other Web sites if it took too long or too much effort for them to get into the content. As told by a 38 year-old respondent, *“It must be easy to access and not confusing. Design is important because the font used in the text should be easily read and the content*

*should not be too long. I am impatient. I always give up and move to another page if the information is too long and takes a long time to download.” (W6)*

**Older males group G2.** Many respondents from this group said that the Web site must be easy and must not take too long to download. It should not be too complicated, or require many steps to get to the content. Accessibility and design of the Web site, especially the pictures and text, must be clear and easy to read. Respondents did not want to waste a lot of time to download the text or drill down many layers before finding the information. They also suggested that important messages in the Web site should be highlighted to catch attention. One older male respondent said, *“The Web site must be easy to use, and not too complicated or have too many steps to operate. Important text should be highlighted and we should not have to drill down many layers. At present, some sections take too long to download the information. The process should be quicker”.* (M4) One respondent also emphasized, *“I do not like anything complicated. It must be fast and not take a long time or have to open too many pages before getting the right information”.* (M5)

**Younger females group G3.** Most of the respondents in this group gave similar reasons to the first two groups. They felt that the information should be easy and fast to download, and that the content should not be too lengthy. Young female respondents focused more on the quick process of delivery and the interactive communication functions of the Internet. They want to get the product or service from the Internet right away. They felt irritated in waiting for product delivery. As one of the respondents said, *“I do not like to wait a long time for the delivery. If we buy a product, we want to have it right away”.* (Y4) This could be the reason for them not shopping online, as they may have to wait for delivery, anywhere from a week to several months. Younger female respondents expected that communication with company on the Web must be interactive otherwise they would prefer to go and buy from traditional outlets. As mentioned by one female respondent, *“The Web site should have a quick process that can be interacted with the customer. They should respond our request in a short time so that we know that someone is always taking care of the operation. Content must not be too lengthy and not take a long time to download. If it takes too long time, I would prefer to call the company or ask sales consultant in the shop”.* (Y6)



**Younger males group G4.** This group rated perceived ease of use as the most important factor for them to buy health foods online. They were happy with the process of buying books or airline tickets over the Internet and would consider buying health foods online if the company can organize a similar process. One respondent stated, *“I use the Internet because it is quick and easy to use. You do not have to wait until tomorrow to get the response. I bought books and airline tickets from the Internet. You can buy tickets, select the seating and get the code immediately. A messenger can then go, pick up the ticket, and pay for it. I like this system. It is really convenient”*. (H2) Similarly to respondents in other groups, the younger male respondents did not like lengthy content that took a long download time. One male respondent said, *“ I hate show download time. Information should not be too lengthy, which requires a lot of time to read. It must not be too complicated, otherwise people will give up”*. (H3) Most of the respondents in this group said that the Web design, pictures and details of information provided on the Web were important as it eased the searching process and helped them reach the buying decision quicker. One respondent commented, *“Design of the Web site is important. It must be attractive, easy to use, and provide details of information that urges our decision”*. (H6)

In summary, most respondents said that the Web site must be easy to download with a short download time, have content that is not too lengthy, and have a process that is not too complicated. Females were more worried about the delivery time after placing orders, while males were more worried about the process of communication. The design of Web sites was important for most of the respondents, as were pictures and detailed information on the products. Older respondents from both the male and female groups said that they wanted easily read styles. This could be due to eyesight capabilities due to age of the respondents. Younger respondents were more interested in the process efficiency and interactivity of the Web sites.

**Internet attributes: perceived usefulness (POU).** Perceived usefulness was not an important factor for any group when compared with other factors. Details of the analysis results on perceived usefulness are presented in table 3.14. Attributes mentioned by all groups are bold.

**Table 3.14: Internet attributes on perceived usefulness (POU)**

Perceived usefulness	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
<b>Fun</b>	X	X	X	X	4X
<b>Entertaining</b>	X	X	X	X	4X
<b>Informative</b>	X	X	X	X	4X
<b>Convenient</b>	X	X	X	X	4X
<b>Save time and money</b>	X	X	X	X	4X
Fast		X	X	X	3X
Have a variety of information		X	X	X	3X
Cheaper		X	X	X	3X
Enjoyable	X			X	2X
Larger assortments	X			X	2X
Unique		X		X	2X
Freedom			X		1X
Lots of information	X				1X
Ability to link with other page	X				1X
Education		X			1X
Get discount				X	1X

*Source: Field data collected from this research*

**Older females group G1.** The respondents in this group agreed that the Internet was informative and provided a large assortment of products to choose from. The Internet was considered to be convenient, and also saved time and money. One respondent stated, *“I think buying over the Internet is convenient and can save time in traveling to the shop.”* (W5) Older female respondents considered the process of buying products online as fun, enjoyable and entertaining. *“The company should offer some games to draw attention and make it fun and entertaining for regular users to visit the site.”* (W8)

**Older males group G2.** Older male respondents said that they used the Internet because it was informative, fast, and helped them search for information. Most of them felt that the Internet was a powerful new tool that provided access to a large bank of knowledge. They were advanced in terms of using the Internet when compared to the first group. Older male respondents accepted that online purchasing was a convenient process to save time traveling to conventional stores. *“I think buying over the Internet is convenient and can save time.”* (M5) However, they still had concerns on the order and delivery process. They claimed that the Internet was good for buying books as the titles of the books were fixed and consumers would not get incorrect or poor quality products.

**Younger females group G3.** Respondents said that they used the Internet because it was fun, enjoyable, informative, fast, and connected them to a wider network to keep them updated. *“I think it keeps me up to date. I feel freer, especially when chatting on the Internet. I do not have to disclose myself. You have more fun when they do not know who you are. I can communicate and discuss a wider and deeper range of subjects without feeling embarrassment”* (Y2) One of them said that it was cheaper to make a long distance call via the Internet than by fixed lines. They felt they had more freedom, saved money from traveling to buy the products, and also got cheaper prices. As one of the respondents said, *“The Internet is useful if we buy products from different locations, such as ordering products from other provinces. It saves time in traveling to the shop and sometimes they also offer cheaper prices”*. (Y5) Younger female respondents felt that products sold on the Internet should be cheaper than products sold in conventional outlets.

**Younger males group G4.** Respondents said that they used the Internet because it was fast, convenient, not limited by distance, and saved time and money. This was similar to respondents in other groups. They could get a response right away without wasting time waiting for the answer. *“It is fast and convenient. We are not limited by distance and time. You get real time information”*. (H1) They sometimes asked for assistance in a Web board and the answer would come in 2 minutes. They found the online purchasing process to be fun, enjoyable, and entertaining as respondents in the first three groups did. This is the reason why half of the respondents from this group had made an online purchase. Price was one of the key factors mentioned by many respondents for making the decision to buy online. One of the respondents, who makes regular online purchases said, *“I buy second hand computer parts from the Internet because it is much cheaper than buying in the computer shop. It saves me a lot of time. I do not have to travel to the shop”*. (H3)

In summary, respondents agreed that the process of buying online was fun, entertaining, informative, convenient, and also saved time and money. Respondents in some groups also emphasized the fast process, variety of product information available on the Internet, and the possibility of getting cheaper products over the Internet. Male respondents and younger female respondents emphasized that the

process must be fast, the price must be cheaper, and the information on the products must be abundant in order to draw consumers to buy online.

**User attributes: perceived risk.** Perceived risk was one of the top three most important factors in all groups. It was rated as the most important factor in the group of older male respondents. Details on the analysis results of perceived risk are presented in table 3.15. Attributes mentioned by all groups are bold.

**Table 3.15: User attributes on perceived risk (PR)**

Perceived risk	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
<b>Afraid of loosing credit card</b>	X	X	X	X	4X
<b>Afraid of being cheated</b>	X	X	X	X	4X
<b>Safety</b>	X	X	X	X	4X
<b>No warrantly</b>	X	X	X	X	4X
Product not as good as expected	X	X		X	3X
Difficult to return goods	X		X	X	3X
Defective products	X		X	X	3X
Payment system		X	X	X	3X
Over charge	X		X		2X
Do not get the right product			X	X	2X
Not confident		X	X		2X
Not dare to buy		X	X		2X
Did not receive goods	X				1X
Goods missing	X				1X
Lose money	X				1X
Do not dare to give credit card info.	X				1X
Risky			X		1X
Products nearly expired			X		1X
Fake or second hand products			X		1X
No guarantee			X		1X
Delay of delivery			X		1X
Afraid of stranger's delivery			X		1X
Transportation		X			1X
Collect money upon delivery		X			1X

*Source: Field data collected from this research*

**Older females group G1.** Respondents rated this factor as the second most important after product and company information. Many respondents from this group were afraid that the product might not be as good as expected or seen on the Internet and that they could not return or exchange the product if it was found to be defective, broken or of substandard quality. *“I am just afraid that the product quality may not be as good as expected. It will be difficult to return the defective product because we have already paid the money through credit card. I prefer to check the*

*price on the Internet and buy in the shop where we can touch it and test it". (W1)* Some respondents mentioned credit card fraud and being afraid of being cheated by the sellers. One of the respondents said, *"Credit card security is the most important factors that makes me hesitate to buy anything on the Internet. I do not know if it is really safe. I am afraid that they will charge me more than what I have to pay. Payment should be done upon delivery". (W4)* Another respondent stated, *"I am interested in shopping online but still afraid of losing the credit card. One of their employees or other people may hack into the Internet and steal my credit card. I am not sure whether it is worth the money and if I can trust them or not. I really hesitate. What will happen if they steal my credit card?"(W6)* Security of the credit card seemed to be the biggest concern for all female respondents in this group.

**Older males group G2.** Similarly to the female respondents from the first group, male respondents rated perceived risk as the second most important factor for them to buy online. The male respondents in this group were clearly afraid of using their credit cards on the Internet. They would consider buying product online if the company collected payment upon delivery. *"Someone could steal our credit card. It is difficult to sue them. The company has already charged the money. We will not get it back. Money should be collected upon delivery. I ordered a book over the Internet with Chulalongkorn bookstore, but they collected the money upon delivery. This is good and safe". (M4)* They feared their credit card numbers being stolen by hackers. Other concerns were that the quality of the product received could be lower than expected. They also worried about high prices due to transportation, taxes, and other consequences from ordering products online. The older male respondents showed a lower confidence of buying online product when compared to the other three groups. As one respondent said, *"I am interesting in buying online but still don't have enough confidence to act. We need to study the transportation system, payment terms, taxes, and problems after purchase". (M6)*

Perceived risk was one of the most important factors mentioned by respondents in this group for not buying products online. They also felt that the government in Thailand should issue an e-commerce law to protect consumer's rights. *"There is no e-commerce law in Thailand. It is quite risky to buy online. Companies should give warranties on their products". (M9)* Male respondents said that the company must

provide a sales warranty for products or services sold on the Internet. As one of the male respondents said, *“I once wanted to buy a computer. But I change my mind because I do not trust the system in Thailand. They should provide warranties and accept products returned within a certain period should the quality or condition not be up to specifications”*. (M5)

**Younger females group G3.** Respondents from this group rated perceived risk as the most important factor for them to make the decision to buy online. Many of the young female respondents had just graduated from university. They did not possess credit cards. *“I do not have any credit card. They should give payment options to the consumers so that a person like me can buy products online using conventional payment methods”*. (Y3) They were worried about the quality of product purchased online. They also foresaw some risks associated with purchases online such as the delivery process done by an unknown source to their house, fake products, and the possibility of getting second hand products instead of new products as ordered. *“I am afraid of getting a fake product or inferior product. I prefer to see and feel the product before paying money”*. (Y4) Sales guarantees or a product warranty with money refund was a recommendation given by many respondents in this group. *“If the product is not what I expected or I received a broken product, how can I complain and get my money refunded? We do not know where they are because it is a virtual shop. Companies should offer a product guarantee or return the money if a customer is not happy with the product”*. (Y5) Some respondents were afraid of being charged more than what they should pay for the product. One respondent explained her reason for not buying online, *“I do not buy online because I am not quite sure that they will not debit my account more than what I should pay for the product”*. (Y2)

**Younger males group G4.** Respondents from this group rated perceived risk as the second most important factor after perceived ease of use. Those respondents who have made some transactions on the Internet were not as worried about credit cards as those who have never bought anything online. Respondents who hesitated in buying products online gave reasons for not participating in the online transaction. They were worried about getting the wrong product or a defective product that would be difficult to return to the company. *“You can get the wrong product from*

*the picture. The color may be different. I am not comfortable to buy online because I am not sure how to return the defective products. The company should have a product warranty policy and after sale service function, or money back satisfaction guarantee to handle this problem". (H1) Respondents suggested the company set up a security system to protect their credit card. As one respondent proposed, "I think the company should encrypt the credit card numbers to preserve confidentiality. At present, it is not safe at all". (H4) This group seemed to worry about not getting the right products and credit cards being stolen by someone involved with the online selling process.*

In summary, respondents from all groups, regardless of age and sex, were worried about the security of their credit cards. They were afraid that products received after payment would not be as good as expected. Some respondents proposed the company use a flexible payment system, offer warranties with a money back guarantee to the consumers, and set up a proper system to handle goods returned from buyers. Female respondents were more concerned about product condition after receiving the product while male respondents focused more on the transportation and payment systems.

**User attributes: customer experience.** Customer experience was the least important factor for respondents in all groups. This is a surprising because the Internet is a new technology and experience should play a major role. It is possible that respondents were so worried about the financial elements that they overlooked this factor. Details on the analysis of results of customer experience are presented in table 3.16.

**Table 3.16: User attributes on customer experience (CE)**

Customer experience	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
Belief of users	X	X		X	3X
Past experience of users	X	X		X	3X
Like shopping		X	X	X	3X
Attitude of users	X			X	2X
Skill	X			X	2X
Education	X			X	2X
Frequency	X			X	2X
Do not trust information		X	X		2X

Customer experience	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
Acquaintance	X				1X
Want to touch or test product	X				1X
Level of innovation	X				1X
Prefer cash payment			X		1X
Do not have credit card			X		1X
Do not like salesmen in the shop			X		1X
Permanent address that can be found			X		1X
Telephone to contact			X		1X
Salesmen have no knowledge		X			1X
Exaggerated information		X			1X
Over claimed information		X			1X
Do not trust salesmen				X	1X
Customer relationship				X	1X
Loyalty program				X	1X
Like to try new things				X	1X
No one explained the products				X	1X

Source: Field data collected from this research

**Older females group G1.** Respondents did not mention their experiences in using the Internet at all. They focused more on their feelings when surfing online. They listed customer experience as the least important factor. Some of them stated that they were interested in buying online because they could get better quality information directly from the company. They did not trust or believe the salesmen. *“I trust the Web more than the sales girls. Most of the product consultants are not pharmacists. They do not really know the products and often give the wrong information”*. (W6) Many respondents felt that they must touch or test the product before making purchase decisions. They admitted that the Internet was a good source to get product information and price. *“It is important to touch and see the products before buying. The Internet is good for searching for information and prices”*. (W1)

**Older males group G2.** Most respondents in this group were heavy users of the Internet. They did not consider this factor important when compared with the other four factors. Similarly to the female respondents from the first group, they felt that salesmen generally exaggerated too much and did not really know the products. *“Salesmen or product consultants do not know anything. I also do not trust the information provided on the Web. I prefer asking friends or experts before making any decision”*. (M5) They also admitted that consumers need a lot of information before making a purchase decision. Surprisingly, male respondents in this group liked to go shopping. They would search for information from the Web, but they



would go and buy from the traditional outlets. *“I like to search for information on the Web, but I will never buy online. I prefer to go shopping and make a decision after seeing the product”*. (M3)

**Younger females group G3.** This factor was also the least important factor for respondents in this group. Most of the respondents in this group were quite young and did not have credit cards. They preferred to go shopping and pay in cash. However, they proposed that companies should provide payment alternatives so that young people like them would have a chance to buy products online. *“Of course I like shopping. It is unfair to allow only those with credit cards to buy online. I do not have a credit card. I have no chance to buy online”*. (Y6) The permanent address and telephone number of the company selling online was very important for respondents in this group. They would like to ensure that the company or Web site owner really existed. One of the respondents said, *“They must have a permanent address and telephone number that we can communicate with”*. (Y1)

**Younger males group G4.** This factor was also the least important factor for respondents in this group, which is consistent with the results of the first three groups. Respondents felt that selling through the Internet required a strong customer relations program and should not just focus on selling the product alone. *“We all have to buy over the Internet in the future. This is a new trend. Health food products require word of mouth. Companies should build more customer relations and not just sell the products”*. (H2) Using credit cards on the Internet brought up mixed feelings, depending on personal beliefs and past experiences. Some of the respondents compared credit card usage on the Internet with usage in conventional outlets. They reckoned that both methods have similar risks. As stated by one regular online purchaser, *“I am not worried about credit cards. I think people can also steal your number when you sign on paper. I have bought a lot of spare parts from the Internet and have never faced any problems”*. (H3)

In summary, respondents from all groups judged this factor as the least important factor. Many respondents wanted to buy products online because they believed that information from the Internet was better than from salesmen in the shop. They felt that a customer relations program was very important for any company selling online

because the Internet worked as a means for customers to contact the company. Many respondents also admitted that they liked to go shopping.

**Product attributes: products and company attribute (PCA).** Product or company attributes were rated as the most or the second most important factor in the focus groups. Details are presented in table 3.17. Attributes mentioned by all groups are bold.

**Table 3.17: Product and company attributes (PCA)**

Products and company attribute	G1 Female (31-45)	G2 Males (31-45)	G3 Female (21-29)	G4 Male (21-29)	Total
<b>After sale services</b>	X	X	X	X	4X
<b>Trusted company</b>	X	X	X	X	4X
<b>Trusted product or brand name</b>	X	X	X	X	4X
<b>Value for money</b>	X	X	X	X	4X
Well known products	X		X	X	3X
Product sold only on the Web	X	X	X		3X
Product not sold in the shop	X	X		X	3X
Need to touch or test product		X	X	X	3X
Reference group	X		X	X	3X
Do not know the Web sites	X		X		2X
Advertised Web site			X	X	2X
Unique products	X		X		2X
Product types	X	X			2X
Variety of products	X	X			2X
Low value item / small outlay	X	X			2X
Trustworthy	X	X			2X
See product from other sources	X			X	2X
Cheaper price	X				1X
Product quality	X				1X
Do not know the company	X				1X
Clear product details	X				1X
Long established company			X		1X
Frequently bought products	X				1X
Give incentives or premiums			X		1X
Expensive product		X			1X
High tech product		X			1X
Other people use it	X				1X
ISO certificate				X	1X
Reliable Web				X	1X

*Source: Field data collected from this research*

**Older females group G1.** This factor was considered to be the most important factor for respondents to make the decision to buy health foods online. Almost all respondents in this group mentioned this factor as the main factor in their decision. As respondents mentioned products separately from the company, the description of

this factor, as developed in the previous chapter, was changed from “product knowledge” to “product and company information” to reflect the reality and responses. The Internet is a new technology in Thailand and therefore, most people are still hesitant to fully utilize it. They searched for information but did not make any purchase transactions at all. Respondents would buy products only from a trusted company or brand name. *“I used to buy from catalogue sales. I judge the product quality from the brand name and company name. If it is a product from a well-known company, people will trust them and will believe the quality claims”.* (W4) *“If the company is famous and trustworthy, I may buy because I know who they are. I do not want to give my credit card to an unknown company”.* (W7) They also emphasized the importance of having after sales service for their clients. *“I think people will buy products online where they know how to judge the quality. In addition, companies should offer after sales service because consumers may have problems when receiving the goods”.* (W1) Some respondents commented that products sold on the Web must be unique and not easily found in conventional outlets. *“Products such as music notes, which are suitable to be sold online, must be unique only found on the Web”.* (W6)

**Older males group G2.** Similarly to the older female group, male respondents in this group considered this factor the most important for them to purchase online. They felt that they must know the product. A well-known company could help release the fear of giving away credit card numbers to some extent. *“Systems and trusted companies are important. If the company is well known, we can make a quicker decision. We trust that they will not cheat us and we will surely receive the product that we ordered”.* (M8) They said that products sold on the Web must be unique and not normally sold in a shop. As said by one respondent, *“ People will not buy products that they can find in shops. It must be something that they can order only on the Internet or products must be much cheaper than in the conventional shop”.* (M5) Some of the respondents were afraid that they might not get the right products. They said that medicine and books were probably suitable products to sell online because they could not go wrong when ordering either of the products. *“Medicine is suitable for selling online because it has a fixed brand name and fixed specifications that cannot be replaced, similar to ordering books”.* (M2) One of the reasons for them not to buy online was that they wanted to touch or see

the product before making a decision. They believed that the company should educate consumers online, but that consumer would buy the products off-line. *“Health foods are too complicated to order online. Manufacturers should give information on the Internet because salesmen are not good enough to deliver the message. Consumers can get information online and they can buy off-line. People need to trust and believe before making purchase”*. (M5)

**Younger females group G3.** This factor was the second most important factor for respondents from this group, after perceived risk. Similarly to respondents from the first two groups, they believed that a trusted company and a trusted brand were important for consumers to buy online. *“Credibility of the company and the products are important. They should advertise this to the public. I think the Web site should be well established or be well known and frequently updated so that we know that the company is still in business”*. (Y1) Since they could not touch or test the products before buying, they rated the company’s credibility and after sales service as key criteria for making a decision to buy online. One respondent said, *“We can not touch the product. I have to pay money via credit card before I see the product. The credibility of the company will be very important. They should offer after sales service in case the product is damaged during transportation”*. (Y3) They also agreed that products sold on the Web should be different and unable to be found in traditional shops. *“I ordered health foods online from Lampang province. This product is not available elsewhere”*. (Y3)

**Younger males group G4.** This factor is the second most important factor for this group after perceived ease of use. It is noticeable that younger respondents from both male and female groups did not consider this factor as important as older male and female respondents did. Similarly to other groups, they said that a trusted company and brand were key factors to convince them to buy online. *“Company name and trust are important. It should be well known or recommended by other people who have used it. Companies should advertise their Web site so that it is reliable”*. (H6) Some of them commented that it was difficult to ask women to shop online because they could not bargain on the Internet. *“It is difficult to sell products to women on the Web. Women like shopping. They like to bargain because it is fun. Men are the*

*opposite because they have a target in mind. If they like it, they will buy it at any price, as long as they trust the company. ”. (H1)*

In summary, respondents were afraid of making online purchase. They would feel more secure if they knew the company or brand name of the products or services sold on the Internet. As a result, a trusted company and trusted brand are important criteria for them to buy online. They believed that products sold online must be unique and not found in traditional outlets. After sales service offered to consumers was important to make the respondents feel better about buying online. Women seemed to like the shopping experience and would be more difficult to convince to buy in a virtual shop. Most of the respondents would like to touch or test the products before making purchases.

### **Summary of results from older females group G1**

The eight females aged 30-45 years old from group G1 felt that product or company information, perceived ease of use, and perceived risk were the top three most important factors when it comes to purchasing online. Respondents based their decision on their trust of the company and products, and the brand name. They felt more comfortable in buying products where they knew how to judge the quality and which were from well-established companies. After sales service was important for them, especially in cases where product did not perform as expected. They felt that products sold online should be unique, be products that they cannot find in the shop and offer a good price. Since no respondent had ever bought anything online before, they would only purchase products that were not expensive or did not require a large amount of money online. In the case of expensive products, they preferred to see and touch the products before making purchase decisions. There is an opportunity to sell health foods to them if the company or brand name is well known and the price is reasonable compared to the off-line shop.

### **Summary of result from older males group G2**

Eleven males aged 30-45 years from group G2 felt that the perceived risk, product and company information, and perceived ease of use were the top three most important factors when it came to purchases online. This is similar to the top three most important factors mentioned by the older females group (G1) and the younger

female group (G3), though the order of importance was slightly different. They were the group who most worried about security of their credit cards during transactions and they also were most afraid of getting products that were not up to expectations. Similarly to the first group, a trusted brand name, a trusted company, after sales service, and a small outlay may induce them to purchase online. Two out of eleven respondents had bought books online. They felt that a book was a kind of product where they would not need to risk getting an incorrect or sub-standard product. The rest had never bought anything online and insisted that they preferred to go shopping, which is quite strange as it goes against the belief that men do not like shopping (Schiffman et al.1997).

Due to the fact that respondents in this group were most worried about their credit cards, they would prefer to have an alternative payment system, such as cash upon delivery, and sales warranty after purchase should they want to buy online. They seemed to be the least likely group to purchase online because of their conservative attitudes. In addition, they were not the present purchaser of food or household products in the family. Their wives or other members of their families bought food, health foods, and other household products for them. They were more attracted by high technology products sold exclusively on the Internet, because they shopped for these products themselves.

### **Summary of result from younger females group G3**

Seven females aged 21-29 years from group G3 felt that perceived risks, product and company information, and perceived ease of use were the top three most important factors when it came to purchasing online. This is similar to the top three most important factors mentioned by the older females (G1) with a slightly different order of importance. The respondents in this group were young and many of them did not possess credit cards. They would like to have different options for payment terms. Respondents were also afraid that the company would charge their accounts more than what they should pay for the products. They were quite worried about product quality such as receiving defective, damaged, fake, and second hand products, or where quality was not up to their expectations. They felt that the company should provide a money back guarantee and a clear product return process for online purchase transactions. One respondent said that she did not want a stranger to deliver

products to her house, as it could be dangerous. They all agreed that a trusted brand and trusted company were important factors for them to make their decision. The Web site should be made known to the public. One respondent bought health foods online because it was not available elsewhere.

#### **Summary of result from younger males group G4**

Six males aged 21-29 years from group G4 felt that perceived ease of use, perceived risk, and product and company information, were the top three most important factors when it came to purchasing online. This is in line with the first three groups, although the order of importance is slightly different. The respondents in this group seemed to be more adventurous. Three out of six respondents had bought products over the Internet. They bought books, computer spare parts, airline tickets and made hotel bookings on the Internet. Respondents viewed the Internet as a technological trend that people could not get away from. The design of the Web sites was important in drawing their attention. The layout should not be complicated. They were more worried about the products being received after ordering than losing their credit cards. A trusted company, a trusted brand, and a reliable Web site were all important in their decision to buy online.

#### **Comparison between older and younger females group G1 and G3**

Older females use the Internet mainly for searching for information related to their family such as travel, health information, house decorations and consultation on how to raise a child, while the younger female group used the Internet for chatting with friends, playing games, and reading news on music and singers. Factors influencing them to buy health foods online were slightly different for both female groups. The older female group was more worried about whether the company and product were well known or not, while the younger females gave more concern to the security of credit cards. This could come from familiarity of using credit cards in the routine life among older females, while many of the younger females did not have credit cards. The older females would buy only well-known products that were known to them. They did not want to take the risk of getting sub-standard products from ordering over the Internet. The younger females were interested in buying online if the company offered an alternative payment system such as pay upon delivery or

collection after sale. They would like to ensure that they were charged the right amount. Product quality was also an important factor for both groups.

#### **Comparison between older and younger males group G2 and G4**

Male respondents in both groups used the Internet mainly for their work. They monitored competitors via the Internet, and bought raw materials and products related to their work. They were interested in high technology products. Both groups used the Internet for reading the sport and general news. Younger males liked to chat with friends on the Internet while older males used it mainly for e-mail. Older males were worried more about the security of using credit cards online while the younger males felt that the risk of someone stealing their credit card was not a big issue as long as the products were ordered from a trusted source. Older males considered information on product and company as the most important factor for them to make a decision to buy online while younger males were more concerned with perceived ease of use. The older males liked shopping while the younger males did not want to waste time traveling to the stores. This could be due to older male respondents having to go shopping with their families with shopping being some of their weekend duties. In consideration to the other three groups, the opportunity to sell health products to the older male group is very slim because they do not shop for this type of product themselves and they do not trust the Internet at all.

#### **Comparison between female (G1 and G3) and male (G2 and G4) respondents**

Although both male and female respondents used the Internet for searching for news and general information, female respondents were more interested in health related products and games while male respondents were obviously interested in technology products, electronic appliances, cameras and watches. The factors of product and company information, perceived risk and perceived ease of use were considered to be important for both male and female respondents. Although most of the respondents said that the Web site must be easy and quick to download, the content not too lengthy, and the process not too complicated, female respondents were obviously more concerned with delivery time.

Female respondents felt that online shopping must be fun, entertaining, informative, time saving and convenient. Although male respondents looked for similar



outcomes, they mostly aimed to get cheaper and more unique products on the Web. Security of credit cards was a key concern for both male and female respondents. Women were worried that the company would overcharge them and looked for an alternative payment method, such as cash upon delivery. Men, on the contrary, were afraid that they would get inferior products or products that were different from the picture shown on the Internet. Sales warranties and after sale service facilities were two main services that both male and female respondents wanted to get from online companies. Respondents of both sexes also commented that well-known companies and products would be more successful for online business than unknown companies or products.

### **Overall summary on factors influencing online purchasing of health foods**

Only six out of thirty two respondents had ever bought products on the Internet. Out of the six respondents who had bought products on the Internet, only one respondent had bought health foods.

In summary, the factors influencing online purchases found in each group were not very different. Respondents rated product and company information, perceived risk, and perceived ease of use as the three most important factors influencing their decision to purchase online. They admitted that successful online products should be unique and different from those sold in traditional outlets. Most of the respondents were afraid of losing their credit card information or being cheated by the company when they ordered products from the Internet. Male respondents were more afraid of getting sub-standard products, while female respondents focused more on the payment system. Many of them expressed interest in buying online if the company would accept cash upon delivery. Young respondents, especially males, were more likely to buy products online, as they viewed the risk from using credit cards as more or less similar for both online and off-line transactions. A well-known company and trusted brand can increase confidence in the online transaction to some extent. Many respondents suggested that companies should offer a sales warranty with a money back guarantee or after sales service to resolve the concerns about not receiving the right product.

### **3.4.3 Research Objective 2: Explore the relative importance of factors that encourage or discourage consumers from buying health foods online**

This section investigates the second research objective on exploring the relative importance of factors that encourage or discourage consumers to buy health foods online. Respondents were asked to rank the attributes identified in objective 1 in order of importance from one to five. Scores from the respondents on each factor were weighted by giving the most important factor 5 points, the second most important factor 4 points, and so on. Factors and reasons mentioned by respondents in each group were analyzed in order of importance from most to least. Group results will be addressed by segment starting from the first group G1 and proceeding up to the last group G4. The relative importances of factors that encourage or discourage respondents from shopping online are listed in the table 3.18. Factors influencing respondent's decision to shop online are listed in the first column. The weighted column (wt.) in each focus group is a calculation based on the ranking of factors from each respondent in the group. For example, eight female respondents (group G1) were asked to rank these five factors in order of importance. Five persons rated product and company information as the most important factor, two persons rated perceived risk as the most important factor and only one respondent rated perceived ease of use as the most important factor. The frequency number from respondents is weighted with factor ranking in order of importance. The most important factor is weighted at 5 points, the second most important factor at 4 points, and so on. The last column of each focus group is the weighted ranking of each factor. Product and company information received a weighted score of 4.38 from female respondents while customer experience received a score of only 2.25 from the same group. All groups were asked to follow the same process. Final results are presented in table 3.18.

**Table 3.18: Relative importance of factors influencing online purchase of health foods in each group**

Factors	Female (30-45) G1						Male (30-45) G2						Female (21-29) G3						Male (21-29) G4					
	1	2	3	4	5	wt.	1	2	3	4	5	wt.	1	2	3	4	5	wt.	1	2	3	4	5	wt.
Product and company attributes (PCA)	5	0	2	2	0	<b>4.38</b>	3	7	1	0	1	<b>4.27</b>	1	3	2	0	0	<b>3.29</b>	0	2	3	1	0	<b>3.17</b>
Perceived risk (PR)	2	2	0	2	2	<b>3.00</b>	6	0	3	0	1	<b>3.64</b>	4	0	1	1	0	<b>3.57</b>	2	2	0	0	1	<b>3.17</b>
Perceived ease of use (EOU)	1	3	1	0	2	<b>2.75</b>	2	2	5	2	0	<b>3.36</b>	0	2	2	0	1	<b>2.14</b>	3	1	2	0	0	<b>4.17</b>
Perceived usefulness (POU)	0	1	4	2	1	<b>2.63</b>	0	1	3	5	1	<b>2.18</b>	1	0	1	1	2	<b>1.71</b>	1	0	1	2	1	<b>2.17</b>
Customer experience (CE)	0	2	1	2	3	<b>2.25</b>	0	1	0	2	7	<b>1.36</b>	0	1	0	2	1	<b>1.29</b>	0	1	0	2	2	<b>1.67</b>

*Source: Field data collected from this research*

Respondents regarded product and company information, perceived risk, and perceived ease of use as the top three most important factors in making purchase decisions online. Although these three factors were important for all groups, consistency in order of importance was slightly different and seemed to be related to age. Table 3.19 shows the weighted score for each group and the average total weighted score for all groups together. The older respondents from groups G1 and G2 showed consistency in ranking factors in order of importance and in line with the average total weighted result. The younger respondents were not consistent in terms of ranking factors as compared to the average total weighted result. It is possible that the age of the respondents is one of the factors explaining the differences.

**Table 3.19: Average weighted score of each factor**

Factors	Female (30-45) G1	Male (30-45) G2	Female (21-29) G3	Male (21-29) G4	Average
Product and company attributes (PCA)	4.38	4.27	3.29	3.17	<b>3.78</b>
Perceived risk (PR)	3.00	3.64	3.57	3.17	<b>3.34</b>
Perceived ease of use (EOU)	2.75	3.36	2.14	4.17	<b>3.11</b>
Perceived usefulness (POU)	2.63	2.18	1.71	2.17	<b>2.17</b>
Customer experience (CE)	2.25	1.36	1.29	1.67	<b>1.64</b>

*Source: Developed for this research*

### Overall interpretation of four groups

In the next section, details of factors from each group of respondents will be explored, compared, and contrasted to get a final list of factors for the model development stage. The analysis will start with the most important factor taken from the average total weighted score of all respondents and proceed to the least important factor. Attributes of each factor that were repeatedly mentioned by respondents from all groups are selected and listed in table 3.20. The average weighted score from each factor is placed in brackets for reference. Attributes mentioned by all groups are bold.

Those attributes mentioned by respondents in all four groups are bolded to make them different from attributes that were mentioned by only three groups of respondents. Customer experience was the only factor that was not mentioned by all groups. This factor was mentioned by only three groups of respondents.

**Table 3.20: Attributes of each factor mentioned by all groups**

Attributes	G1 Older females	G2 Older males	G3 Younger females	G4 Younger males	Frequency
<b>Product and company attributes (3.78)</b>					
After sale services	X	X	X	X	4X
Trusted company	X	X	X	X	4X
Trusted product	X	X	X	X	4X
Value for money	X	X	X	X	4X
Well known products	X		X	X	3X
Product sold only on the Web	X	X	X		3X
Product not sold in the shop	X	X		X	3X
Need to touch or test product		X	X	X	3X
Reference group	X		X	X	3X
<b>Perceived risk (3.34)</b>					
Afraid of losing credit card info.	X	X	X	X	4x
Afraid of being cheated	X	X	X	X	4x
Safety	X	X	X	X	4x
No warranty	X	X	X	X	4x
Product not good as expected	X	X		X	3x
Difficult to return goods	X		X	X	3x
Defective products	X		X	X	3x
Payment system		X	X	X	3x
<b>Perceived ease of use (3.11)</b>					
Easy to download	X	X	X	X	4x
Short download time	X	X	X	X	4x
Not too lengthy text	X	X	X	X	4x
Not complicated	X	X	X	X	4x
Design of Web sites	X	X		X	3x
Provide picture and details	X	X		X	3x
Delivery time	X		X	X	3x
Not annoying	X	X	X		3x
Quick process		X	X	X	3x
<b>Perceived usefulness (2.17)</b>					
Fun	X	X	X	X	4x
Entertaining	X	X	X	X	4x
Informative	X	X	X	X	4x
Convenient	X	X	X	X	4x
Save time and money	X	X	X	X	4x
Fast		X	X	X	3x
Variety of information		X	X	X	3x
Cheaper		X	X	X	3x
<b>Customer services (1.64)</b>					
Belief of users	X	X		X	3X
Past experience of users	X	X		X	3X
Like shopping		X	X	X	3X

*Source: Developed for this research*

**Product and company attributes (PCA).** This factor was the most important factor that encouraged or discouraged respondents from shopping online in most of the groups. The average weighted score from all respondents was 3.78. This factor was the top ranked factor in both male and female respondents aged 30-45 years and the

second ranked factor in both male and female respondents aged 21-29 years. Originally, this factor was set as product knowledge. However, respondents in all groups mentioned both product and company simultaneously. As a result, the researcher decided to change the description of this factor to product and company information for ease of analysis and also to reflect the actual responses in each group.

Attributes or reasons mentioned by respondents for at least three groups out of four groups will be selected for future model development. Reasons mentioned by all groups of respondents were highlighted in bold and shaded. The selected attributes of these factors are as follows:

- After sales service
- Trusted company/ long established company
- Trusted product/brand name
- Value for money
- Well-known products
- Products sold only on the Web
- Product not sold in the shop
- Need to touch or test products
- Reference group

All of the respondents commented that health food products sold online should have outstanding after sales and customer service. A well-known company, well-known products and a trusted brand are important requirements for inducing respondents to make purchases online. Respondents looked up to companies or products that were recommended from other people as a source of trust. Since they could not touch or test the products before purchasing, they would buy products only from a trusted source. The consumer would increase their confidence in the online operation should the products have been recommended by other people. Therefore, it is important to create confidence in the buyers' minds in order to overcome this weakness. This is logical because consumers have a higher tendency to purchase products of which they possess adequate information. This finding is similar to results found by many researchers that the effect of attitude on behavioral intention was strongly associated

with the level of product knowledge (Chiou 2000; Bellman, Lohse & Johnson 1999). In addition, successful online products should not be sold in traditional outlets.

Factors related to product and company information that had the least effect on the decision to buy online in the category of product and company information included:

- Expensive or high tech products
- Give incentives or premiums
- Frequently bought products

Although the older male respondents liked technology products, they did not feel that these high tech products were the only suitable products to sell online. In addition, not all respondents felt that incentives or premiums would motivate them to shop online. Similarly, it was not necessary for them to buy frequently used products online. Consumers have to overcome the uncertainty of buying products online before they can consider prices or incentives received from the transaction. Only the younger male group said that high-tech products were suitable to sell online. More options and more information were available from buying online than off-line.

**Perceived risk (PR).** This factor was the second most important factor that encouraged or discouraged respondents from shopping online. The average weighted score from all respondents was 3.34. Female respondents aged 21-29 years ranked it as the most important factor while the remaining three groups of respondents ranked it as the second most important factor. Concerns related to this factor included problems of credit card fraud, safety of the transaction, and sales warranty after purchase. The details of this factor are listed in table 3.20. Attributes mentioned by all groups of respondents are bold and shaded to make them different from those mentioned by only three groups of respondents.

Reasons mentioned by respondents from at least three out of four groups, which are the majority of respondents will be selected for future model development. The selected descriptions for these factors are as follows:

- Afraid of losing credit cards
- Afraid of being cheated
- Safety

- Sales warranties/ sales guarantee
- Products not as good as expected
- Difficult to return goods
- Defective goods
- Payment system

Credit card security was one of the most important factors in respondents' decisions to buy health foods online. They do not trust the security of online transactions. Respondents were also worried about the process for returning or exchanging products should the quality or specifications be different from what they expected. They also felt that they might get products that were not as good as expected because they could not touch or check the product before payment. They were quite impatient about the delivery process. This is again in line with the results found in the literature that consumers associate a higher level of risk with non-store purchases than with store purchases (Warrington, Abgrab & Caldwell 2000; Liang & Huang 1998; Akaah & Korgaonkar 1988) and sales warranties can reduce their risk perceptions when they go online (Innis & Unnava 1991; Shimp & Bearden 1982; Roselius 1971).

Factors that least affected the decision to buy online in the category of perceived risk included:

- Over charge credit card
- Not confident
- Want an alternative payment system

Both female groups raised the problem of overcharging, while male respondents did not worry so much about this. Nevertheless, two out of four groups of respondents were still worried about using credit cards over the Internet. They did not feel confident with the payment system and would like to see alternative methods, such as payment upon delivery, sending drafts by mail, and so on.

**Perceived ease of use (EOU).** This factor was the third most important factor that encouraged or discouraged respondents from shopping online. The average weighted score from all respondents was 3.11. This factor ranked as the third most important



factor in male and female respondents aged 30-45 years. Male respondents aged 21-29 years were the only ones that rated this as the most important factor for them in shopping online. Details of this factor include the ease of download process, the download time, lengthy content, and complications of the text or services provided on the Web site. Details are listed in table 3.20. Reasons mentioned by respondents from at least three out of four groups were selected for future model development. The attributes described by respondents in all groups were put in bold and shaded. The selected descriptions for these factors are as follows:

- Easy to download/not drill down many layers
- Short download time/ not wait too long
- Not too lengthy text
- Not too complicated
- Design of the Web sites
- Provide picture and details
- Delivery time
- Not annoying
- Quick process

Respondents in all groups preferred a concise message and fast download time on the Internet. They did not like lengthy nor complicated text. The company should offer an interactive mode if they wanted to sell health foods online. For example, the system should reply and immediately confirm the order sent by consumers. Messages and the process of online purchases must not be complicated or boring. The process should be simple and easy to understand in order to motivate consumers to buy products online. Pictures and details of products specifications were very important for most of the groups. The only group of respondents who did not comment on the difficulty in using or understanding the information on the Web was the older male group. This could be due to the fact that they had the longest experience in using the Internet when compared to other groups. From the previous literature review, this factor has little direct effect on behavioral intention but its effect is largely indirect and mediating through perceived usefulness (Chau 1996; Igarria, Guimaraes & Davis 1995; Davis, Bagozzi & Warshaw 1989). The researcher has argued in the previous chapter that ease of use has a direct effect on the consumer's

behavioral intention in buying products online. Consumers have started to use this new medium for only a few years. If they feel that it is difficult to use, they might not continue using it. Findings from focus groups confirmed the previous assumption that ease of use may have a direct affect on the intention to buy online.

The factors that least affected the decision to buy online in the category of perceived ease of use included:

- Accessibility
- Interactive
- Not boring
- Waste time
- Not confusing

Many respondents said that accessibility was a matter of an individual's hardware. It had nothing to do with either the product or the company.

**Perceived usefulness (POU).** This factor was the fourth most important factor that encouraged or discouraged respondents from shopping online. The average weighted score from all respondents was 2.17. This factor ranked as the fourth most important factor among both male and female respondents in all age groups. The details of this factor include the attributes of fun, entertaining, informative sources, and convenience. Respondents also expected that they would save time and money from buying product from the Internet. Details are listed in table 3.20. Reasons mentioned by respondents from at least three out of four groups, will be selected for future model development. The attributes mentioned by respondents in all groups are highlighted with bold and shaded.

Reasons mentioned by respondents in all groups will be selected for future model development. The selected descriptions for these factors are as follows:

- Fun
- Entertaining
- Informative/lots of information
- Convenient

- Save time
- Fast
- Have a variety of information
- Cheaper

Respondents in all groups would prefer to buy health foods online if it was convenient, saved time to go shopping or traveling to the shop to buy the same products, and provided enough information to educate them. However, the process of buying online should be fun and entertaining. Some female respondents proposed to insert games in the Web sites to make it more interesting for them to buy online. Most of the respondents would also appreciate the company providing support to them through a variety of information, either related to the products or related to general health.

Factors that least affected the decision to buy online in the category of perceived usefulness were:

- Large assortment
- Cheap
- Link with other home pages
- Freedom

Having a large assortment of products was not necessarily the best strategy to sell online. Cheap prices were also not the ultimate goal for those who shopped online. Freedom and the ability to link to other home pages had significance only for the female groups as they felt that they could then control the pace of product views and investigation without a salesman's interference. From previous research, perceived usefulness has a dominant direct effect on the behavioral intention to adopt new technology (Taylor & Todd 1995; Igarria, Guimaraes & Davis 1995; Szajna 1994; Mathieson 1991). However, this factor seems to have less affect as it was not considered to be very important for Thai Internet users when it came to online purchasing.

**Customer experience customer experience (CE).** This factor was the least important factor that encouraged or discouraged respondents from shopping online. The average weighted score from all respondents was only 1.64. This factor ranked as the least important factor among male and female respondents in all age groups. Respondents in all groups did not consistently mention any descriptions of this factor. This is quite different from the other four factors. Only three out of four groups in this study mentioned the attributes listed as follows:

- Belief of users
- Past experience of users
- Like shopping

The Internet is a relatively new technology in Thailand. Only respondents who are interested in this area would consider buying online. There are not many users with little experience in using the Internet who would consider making an online purchase. Therefore, it is possible that this factor will not emerge among Thai Internet users at this stage. Most of the users who are using the Internet are those who already have either a personal or professional interest in this media. The least important attributes of this factor were:

- Salesmen
- Permanent contact of the Web owner
- Loyalty program

In summary, the factors that encouraged or discouraged respondents from buying health foods online, ranked in order of importance, were product or company information, perceived risk, perceived ease of use, and perceived usefulness. The findings from the four focus groups of Internet users aged 20-45 years are quite similar. The Thai Internet users in this study spent a lot of time surfing the Internet. They were interested in searching for games, information, catalogue sales, sports, fashion, and in chatting with friends rather than actually making purchases online. Only eighteen percent of respondents had ever bought products or services online. The remaining respondents showed interest in buying some products online if they felt more secure about payment and product delivery. Strong brand name and product popularity could increase their confidence, especially when dealing with a

well-known company on the Web. Security, resourcefulness and convenience were other key factors motivating them to surf the Internet. When it comes to shopping for health foods online, consumer experiences with the Internet were not as important as the vendor's reputation and product popularity. The top three factors influencing them in shopping online were product or company information, perceived risk, and perceived ease of use.

The most important factor influencing respondents shopping for health foods online was product or company information. The company selling health foods should be well known or have a strong brand name. After sales service was also noted as an important factor. In addition, the majority felt that health foods sold online should be unique and not available through normal channels. Reference groups or word of mouth are also important for respondents to buy health foods or shop online. Since respondents look for good value for money from online products, the price of health foods sold online must not be too expensive when compared to normal channels of distribution.

The second most important factor for buying health foods on the Internet was perceived risks. Respondents were afraid of losing credit card information or being cheated by the company. They were also worried about not receiving the right product although they had already paid the money up front by using a credit card. Sales warranties or sales guarantees were important to reduce this perceived risk. Consumers were worried about defective products or nearly expired products when it comes to buying health foods online. It is important for a company who wants to sell health foods online to set up a good delivery system and good customer service department to exchange products in case of problems encountered during transportation or from consumer complaints. Sales warranties are also important if the company wants to do online business.

The third most important factor was perceived ease of use. It is important for the company to design an interesting and friendly Web site that is easy to download. Text should be neither too lengthy nor too complicated for consumers. However, it should provide enough detail for consumers to make their decision. Perceived usefulness and customer experience were not as important as the first three factors.

Although the ranking in order of importance of these factors was slightly different from the previous literature, most of the factors found in this study are similar to the factors found in previous research. Findings from the focus groups in this study will be used to make model revisions in the next section.

### **3.5 Revision of research model**

A modified Technology Acceptance Model (TAM), based on the literature review in the previous chapter has been proposed to study the factors influencing online purchasing of health food products in Thailand. From the literature review in the previous chapter together with the result of group discussions in Thailand, the researcher proposes to add three constructs namely, perceived risk (PR), customer experience (CE), and product and company attributes (PCA) to the original TAM model.

From the literature review, factors influencing online purchasing of products were classified into three categories of attributes.

- Internet attributes: This attribute is composed of perceived ease of use (EOU) and perceived usefulness (POU)
- User attributes composed of perceived risk (PR) and customer experience (CE)
- Product attributes composed of product and company attributes (PCA)

The findings from the focus groups in this study found that most of the factors influencing online purchasing of health foods mentioned by the Thai Internet users were quite similar to results found in the United States. However, there were some slightly different responses in relation to customer experience (CE). This factor was found to be important in the literature review, but it was not so important for the Thai respondents in this study. Only respondents in some groups admitted that this factor effected their decision to buy online. Most of the respondents in this study paid more attention to the factors relating to the product and company attributes (PCA), perceived risk (PR), perceived ease of use (EOU), and perceived usefulness (POU) than they did to customer experience (CE).

The findings from this study are important to the literature context in Thailand because it is the first in-depth and intensive qualitative research examining attitudes to Internet purchasing in Thailand. Factors and attributes found from the focus groups are listed in table 3.21. The first column lists the factors and attributes found from focus groups in this study while the second column shows the factors and attributes found from the literature review.

In general, the findings of factors and their attributes from this study are in line with the findings in the literature. The differences mainly come from details of the descriptions and expressions of each attribute. Thai Internet users focused their concerns on not getting the right products, getting inferior product, the goods return process, and the payment system. They required the online company to set up a good after sales service function and also would like to have an alternative payment system when they do the transaction online. This could due to the fact that they are not accustomed to the process of intensively buying products from direct mail and paying by credit card like Americans are.

**Table 3.21: Comparison of factors and attributes found in this study with the results found in the literature.**

Factors found in the focus groups	Factors found in the literature
<b>Product and company attributes (PCA)</b>	
After sale services	X
Trusted company/ long established company	√
Trusted product/brand name	√
Value for money	√
Well-known products	√
Products sold only on the Web	√
Product not sold in the shop	√
Need to touch or test products	√
Reference group	√
<b>Perceived risk (PR)</b>	
Afraid of losing credit cards	√
Afraid of being cheated	√
Safety	√
Sales warranty/ sales guarantee	√
Products not as good as expected	X
Difficult to return goods	X
Defective goods	X
Payment system	X
<b>Perceived ease of use (EOU)</b>	
Easy to download/not drill down many layers	√
Short download time/ not wait too long	√
Not too lengthy text	√

Factors found in the focus groups	Factors found in the literature
Not too complicated	√
Design of the Web sites	√
Provide picture and details	√
Delivery time	√
Not annoying	√
Quick process	√
<b>Perceived usefulness (POU)</b>	
Fun	√
Entertaining	√
Informative/lot of information	√
Convenient	√
Saves time	√
Fast	√
Variety of information	√
Cheaper price	√
<b>Customer experience (CE)</b>	
Belief of users	√
Past experience of users	√
Like shopping	X

*Source: Developed for this research*

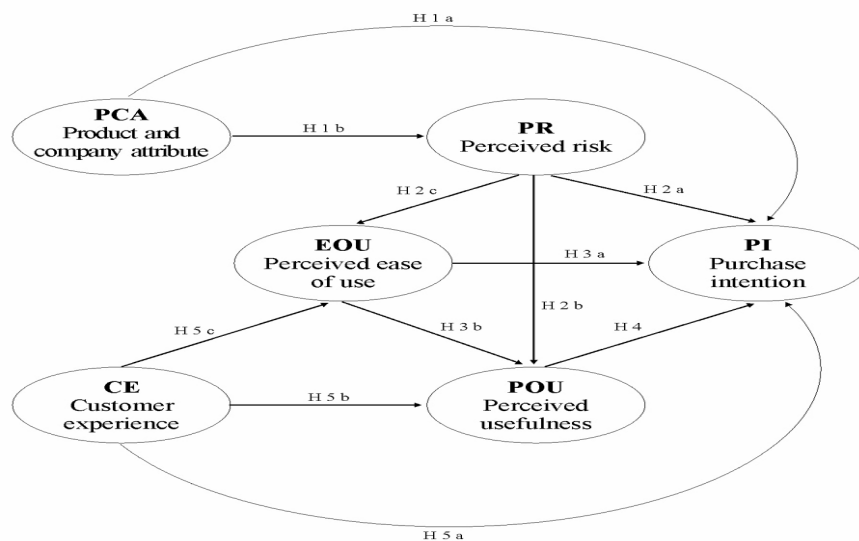
The attributes found from this study and from the literature reflect the stage of Internet development in the countries where the research was conducted. For example, American Internet users are very familiar with the Internet. They expect to get not only lots of good information, but also to get intelligent, knowledgeable and free information. None of the Internet users in the focus groups conducted in Thailand mentioned privacy or confidentiality of their personal information. Thai Internet users in this study did not worry about privacy or confidentiality when transacting online. They were more concerned with the security of credit cards and the quality of goods bought over the Internet. As a result, Thai Internet users focused their attention on after sales service, the condition of the goods, and the process of how to return defective goods. They do not like lengthy text, which could mainly be due to literacy issues and the general habit of the local population who prefer to see and listen rather than read text. Thai Internet users also like shopping because it is part of their personal and family entertainment process. This is in line with findings from the previous literature that people, especially women, have socially accepted shopping as a means to reduce stress and tension (Copeland 2000).

The relationship between factors and the purchase intention of buying health food products online in figure 3.2 was taken from model developed in the previous chapter. The findings from the exploratory research in Thailand showed slight



differences. For example, perceived ease of use (EOU) in the literature was found to have little direct effect on the behavioral intention to shop online, but its effect was largely indirect and mediating through perceived usefulness (Chau 1996; Igarria, Guimaraes, & Davis 1995). However, the finding from the focus groups indicated significant importance in perceived ease of use (EOU) among Thai Internet users. As a result, the researcher proposes to test only the direct effect of perceived ease of use on the purchase intention for health food products online and discard the indirect effect mediating through perceived usefulness. Thai Internet users also give the lowest importance to the factor of customer experience (CE). The factor has demonstrated strong relationships with the intention to shop online in the literature. The researcher proposes to test both its direct and indirect effect on behavioral intention in Thailand because the Internet users' questions described many attributes in perceived ease of use (EOU) and perceived usefulness (POU) that could relate to customer experience (CE).

**Figure 3.2: Final modified TAM model**



*Source: Developed for this study*

In summary, the revised TAM model in figure 3.2 is the final model proposed for the next stage of quantitative research. The model has incorporated factors that affect the behavioral intention of Thai Internet users in buying health foods online. The model is based on the findings from four focus groups conducted among males and females

aged 21-29 and 30-45 years old who are also Internet users in Thailand. The findings are in line with results found in the literature with slight differences in a few expressions of attributes in the factors. The revised TAM model is uniquely designed to fit with the behavioral intention to buy health foods online among Internet users in Thailand.

### **3.6 Conclusions**

This chapter described the exploratory research methodology adopted in this study. Focus group discussions were used to get consumer insight on the factors influencing online purchasing of health food products in Thailand. Four focus groups, two groups of males and two groups of females were conducted among Internet users who were also health food users in Thailand in order to refine the model proposed in the previous chapter. There were two research objectives in this study. The first research objective was to identify factors influencing online purchasing of health food products in Thailand. The second research objective was to rank the factors found in this study in order of importance.

Product and company attributes (PCA) was rated as the most important factor influencing respondents when buying health foods online in this exploratory research. Perceived risk (PR) was ranked as the second most important factor followed by perceived ease of use (EOU) and perceived usefulness (POU) while customer experience (CE) was rated as the least important factor from respondents in this study. Details of the attributes of each factor were identified through the group discussion process. These attributes will also be used in the questionnaire development for the second stage of this study.

In summary, five factors influencing online purchase based on the literature conducted in the United States are also relevant to Thai Internet users. Results from the focus groups have been used to refine the TAM model and its hypotheses formulated in the previous chapter. The revised TAM model and its hypotheses are proposed for testing the factors influencing online purchasing of health foods in Thailand. The final model is built based on the literature together with the findings from the focus groups. The exploratory research results are important because they

not only add knowledge to the literature context on Internet marketing in Thailand, but provide a good theoretical foundation for future study of selling other consumer products over the Internet in Thailand. The relationships between constructs found in this study have been postulated into five hypotheses with eleven relationships to be tested as described in the next chapter.

## **CHAPTER 4**

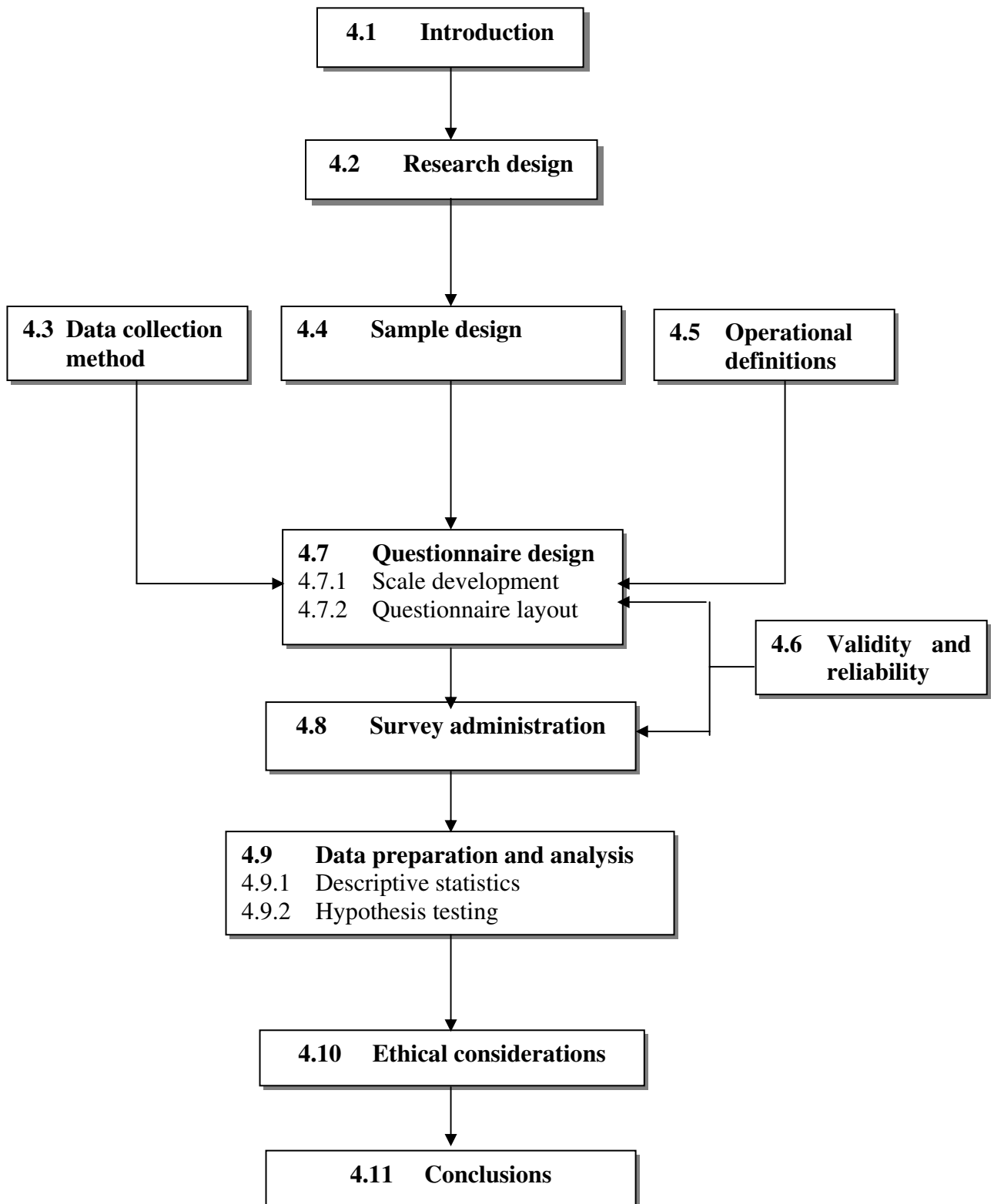
### **4 METHODOLOGY**

#### **4.1 Introduction**

In the previous chapter, a modified TAM model developed from the literature review and consumer insights taken from the stage one exploratory research was presented as a preliminary model for this study. This chapter describes the research methodology for the explanatory research, stage two, to gather data for testing the preliminary model and hypotheses.

This chapter is organized into 11 sections, as shown in figure 4.1. It starts with the research design in section 4.2 with the choice of data collection method justified in section 4.3. The sample design including target population, sample unit and frame, sample selection, and sample size are presented in section 4.4. The operational definitions of constructs and variables are described in section 4.5 and issues of validity and reliability are presented in section 4.6. Questionnaire design is discussed in detail in section 4.7. Survey administration is outlined in section 4.8, while section 4.9 addresses data preparation and analysis. Finally, ethical considerations relating to the research design of this study are discussed in section 4.10 and conclusions are drawn in section 4.11.

**Figure 4.1 Outline of stage 2: quantitative research**



*Source: Developed for this research*

## **4.2 Research design**

This section justifies the choice of a descriptive research design for the stage-two quantitative research, which is the major phase of this study. A research design is a plan of the research project to investigate and obtain answers to research questions (Cooper & Schindler 2001; Davis & Cosenza 1988). There are three types of research designs identified from the literature: exploratory, descriptive, and casual designs (Cooper & Schindler 2001). This study has already identified constructs and formulated hypotheses based on previous studies together with results from the focus groups conducted in Thailand. The research problem is already crystallized and the purposes of the research have been clearly stated such that a descriptive design is the most appropriate research design for this study (Sekaran 2000; Zikmund 1997). Descriptive research helps describe and measure the factors influencing online purchase intention of health foods by consumers. The justification for the data collection method for this study is described next.

## **4.3 Data collection method**

Data collection is the process by which the opinions and useful information from target respondents about the topic are collected, classified, and categorized according to their demographic and socioeconomic characteristics (Churchill 1987). This section aims to justify the selection of an online survey as the most suitable data collection method for this study.

There are different methods for data collection identified in the literature, including mail, face-to-face, telephone, electronic mail, and a combination of these methods (Cooper & Schindler 2001; Sekaran 2000; Zikmund 1997). This study used an online self-administered survey because it had the advantages of versatility, speed, and also worked as a check-point to ensure that all respondents in this study could access the Internet (Grossnickle & Raskin 2001; Churchill 1987).

Although data from an online survey may not be as precise as behavioral observation, it is a reliable method for researching respondents' attitudes (Grossnickle & Raskin 2001). The key strengths of an online self-administered

survey are mainly cost and accuracy (Aaker, Kumar & Day 1998). Respondents can answer the questionnaire at their convenience. The objectives of this study involved getting information from Internet users about their attitudes and motivations in buying health foods online. The target respondents were people who were familiar with the Internet and use the Internet in their routine life. These people are often difficult to reach because they go to university, institutions, offices, or factories during the daytime. As a result, an online self-administered questionnaire is probably the best method for this study. The self-administered questionnaires were sent to each respondent in two formats. The first format was an attached file that they just filled-in and sent back to the researcher. The other was in the format of a URL link to the brandworld Web site, that they just clicked and were re-directed to complete the questionnaire on the company's Web site. Many companies in Thailand allow their employees to gain access to their e-mail but not Web sites. By sending both methods to the respondents, respondents could make their own choice at their discretion.

In general, online questionnaires are easily designed and administered. It is useful when the respondent knows how to use a computer and feels comfortable responding to questionnaires in that manner, which fits very well with the respondents in this study (Sekaran 2000). In addition, online research conducted via the Web combines the strength of a mail survey with the dynamic nature of a phone survey (Grossnickle & Raskin 2001). Respondents can carefully consider and answer questions at their discretion similar to a mail survey while the interactive nature of an online survey provides the ability to customize questions and answer choices similar to a phone survey. The strengths, weaknesses, and strategies to overcome weaknesses of using online self-administered surveys in this study are summarized in table 4.1.

**Table 4.1: Strengths, weaknesses, and proposed strategies to overcome weaknesses in online survey**

Strengths	Weaknesses	Strategy to overcome weaknesses
<p><b>Lower cost.</b> Online self-administered survey is generally cheaper than other types of survey due to no postage cost.</p>		
<p><b>Easy to administer and fast delivery.</b> The questionnaire design, data collection, and data analysis can be done easily and faster than other methods.</p>		
<p><b>Reach wider coverage and respondents can answer at their convenience.</b> Electronic questionnaires can be sent to respondents nationwide. Respondents have more time to think, collect facts, or consider replies at length, before answering the questionnaires.</p>		
	<p><b>Response rate.</b> Response rate is difficult to predict. People are receiving many junk mails each day and they are also afraid of computer virus.</p>	<p>Proper covering letter, incentive program, and advance notification are used in this study to increase the response rate. In addition, follow-up contacts by e-mail or telephone will be used to support and increase the response rate.</p>
	<p><b>Computer literacy and accessibility.</b> Only respondents who use or work with computer will be able to answer the questionnaires.</p>	<p>This study is meant to check the potential of online shopping on health food products. Target group is limited to those who used or worked with computer. It will help screen out those who do not have computer literacy from the program.</p>



<b>Strengths</b>	<b>Weaknesses</b>	<b>Strategy to overcome weaknesses</b>
<p><b>No interview bias.</b> Interviewer could not give explanation. This avoids creating biases from interviewer's involvements. Thus the result should be more accurate.</p>	<p>Respondents understanding of the questions could be low because respondents have to scan through the whole questions and interviewer could not give explanation.</p>	<ul style="list-style-type: none"> <li>• Questionnaires are carefully designed and constructed to make it brief, simple and easy to read and easy for respondents to complete the questions.</li> <li>• Questionnaire pretest is conducted with selected samples to test and ensure high respondent's understanding before putting into the field survey.</li> <li>• Questions will be sent to respondents by using e-mail together with incorporating a URL link to a Web-based survey to make it convenient to respondents.</li> </ul>

*Source: Developed for this study*

In summary, an online self-administered questionnaire was deemed to be the most suitable and practical method for collecting quantitative data for this study. The advantages of using an online survey included cost, geographic coverage, no bias from an interviewer's involvement, and more accurate results from the survey. Strategies to overcome weaknesses, such as response rate, computer literacy, and understanding of questionnaires have been proposed. This data collection method is suitable for this study because it will ensure that those who answer the questionnaire are also Internet users. The next section deals with the sample design of this study.

#### **4.4 Sample design**

A sample is defined as part of the target population, carefully selected to represent the total population (Cooper & Schindler 2001). The process of sampling involves selecting a sufficient number of cases from the target population to make conclusions about the whole population, including the process to determine population, sampling frame, sampling method, sample size and sample selection (Sekaran 2000; Zikmund 1999). The sampling strategy adopted in this study is discussed next.

**Target population.** A population is the totality of cases that conform to some designated specifications, which could be people, events, or things of interest to the researcher (Sekaran 2000; Churchill 1987). The target population in this study was defined as all users of health foods, who are also users of the Internet in Thailand. However, it is too expensive and impractical in reality to use the total population in this study (Sproull 1995). An appropriate sampling frame is identified next.

**Sampling frame and sampling unit.** A sampling frame is a list of representative persons in a target population from which the sample may be drawn (McPhail 2000; Zikmund 1997). It is a subset or list of Internet users, who are also health food users in Thailand. The sample unit in this study is the individual, who is a user of both health foods and the Internet in Thailand. There are two main sources of sampling frame that can be use for this study. The first frame is from local Internet providers and the second frame is from Cerebos's database. The researcher proposes to use the database taken from Cerebos (Thailand) Ltd. as a source for obtaining a sampling frame for this study for the following reasons:

- Cerebos (Thailand) Ltd. is the leader in the health food market in Thailand. The Brand's Asian Health Survey conducted by ACNielsen in May 2001 among six thousand respondents across six countries in Asia indicated that Cerebos is a clear market leader among health supplements in many countries, especially in Thailand. This survey covered many health food products such as vitamins, minerals, protein supplements, evening primrose, cod liver oil, royal jelly, bottled essence of chicken, bottled bird's nest, Chinese herbs, tonic wine, and so on. On the contrary, the respondent lists from local Internet providers are respondents who use only the Internet and may or may not use health food supplements. The chance of getting qualified respondents in Cerebos database is much higher than from the local Internet providers. Therefore, the list of respondents taken from the Cerebos database in Thailand is not only better at representing health food users than database taken from other sources but also more reliable.
- The age ranges of health food users and Internet users in Thailand are quite similar, although the age range in Cerebos database is wider (see table 3.4). It is, therefore, logical to use list of respondents taken from Cerebos database.
- The penetration rate of Internet users found in Cerebos database is close to the penetration rate of Internet users among the Thai population (see table 3.3). Respondents who have e-mail address in the Cerebos database are also users of health foods. Therefore, the list of respondents in the Cerebos database is a good sampling frame for this study.
- The selected list of respondents with e-mail addresses from Cerebos database, are available for this study.
- There is no other source of information on the health foods users available for the researcher. It is difficult to obtain such data from other companies because of confidentiality.

In summary, the researcher proposes to use all respondents who possess e-mail addresses from the Cerebos database as a sampling frame or working population for this study.

**Sampling unit.** The sample unit or sample element is the unit of analysis in a population (McPhail 2000). It can be a single element or a group of elements

selected from the sample depending on the nature of the study (Zikmund 1999). The sample unit in this study is a health food user in the Cerebos database, who possesses e-mail address.

**Sampling selection and sample size.** All respondents in the working population will be used in this study. The total number of respondents in the Cerebos database at the end of June 2002 was 151, 615 persons but there were only 3, 872 persons or 2.6 percent, who possessed e-mail addresses. A sample size of 200–500 persons is recommended to be sufficient for data analysis (Hair et al. 1998). The researcher expected to have 500 persons participating in this study.

In summary, all consumers who have access to the Internet in the database of Cerebos (Thailand) Ltd. were used in this survey to study the factors influencing online purchasing of health foods in Thailand.

#### **4.5 Operational definitions**

In this section, the constructs from each hypothesis developed in the previous chapter are conceptualized and operationalized so that the relevant data can be collected. In the conceptualization process, the definition of each construct is carefully listed to provide clear, specific, and unambiguous definitions, that link to the theoretical framework and develops these conceptualized definitions into specific operations or procedures that will enable the concepts to be measured (Neuman 1994). Both the conceptualized and operationalized definitions are listed in table 4.2. The operationalized definitions are based on the findings from focus groups in the previous chapter together with the literature review. Issues about validity and reliability are discussed next.

**Table 4.2: Constructs and definitions used in this research**

Constructs and variable name	Conceptual definition	Operational definition
<p><b>Product and company attribute (PCA).</b></p> <p style="text-align: center;">↓</p> <p><b>Intention to purchase online (PI).</b></p>	<p>The tangible and intangible information related to product and company.</p> <p>The respondents' state where a decision to purchase health food products on the Internet has been made, but purchase has not occurred.</p>	<p><b>Multiple measures:</b></p> <ol style="list-style-type: none"> <li>1. After sale services</li> <li>2. Trust</li> <li>3. Awareness</li> <li>4. Value for money</li> <li>5. Uniqueness</li> <li>6. Product test</li> <li>7. Image &amp; Reference group</li> <li>8. Scientifically proven</li> </ol> <p><b>Purchase intention</b></p> <ol style="list-style-type: none"> <li>1. Degree of decision to buy more from the Internet</li> <li>2. Recommendation others to purchase.</li> </ol>
<p><b>Perceived risk (PR).</b></p> <p style="text-align: center;">↓</p> <p><b>Intention to purchase online (PI).</b></p>	<p>The degree of risks associated with the decision to purchase health foods online such as financial, economical, emotional, and social risks.</p> <p>As specified for H1.</p>	<p><b>Multiple measures:</b></p> <ol style="list-style-type: none"> <li>1. Risks from using credit cards</li> <li>2. Risks from getting defective products, not on time and not the right charge.</li> <li>3. Privacy</li> <li>4. Guarantee or warranty, products returned.</li> </ol> <p>As specified for H1.</p>

Constructs and variable name	Conceptual definition	Operational definition
<p><b>Perceived ease of use (EOU).</b></p> <p style="text-align: center;">↓</p> <p><b>Intention to purchase online (PI).</b></p>	<p>The degree to which an individual believes that using the Internet for purchasing of health foods would be free of physical and mental effort.</p> <p>As specified for H1.</p>	<p><b>Multiple measures:</b></p> <ol style="list-style-type: none"> <li>1. Ease of use</li> <li>2. Design of Web site</li> <li>3. Complication of order process</li> <li>4. Ease of understanding of messages</li> <li>5. Time involved in the process</li> </ol> <p>As specified for H1.</p>
<p><b>Perceived usefulness (POU).</b></p> <p style="text-align: center;">↓</p> <p><b>Intention to purchase online (PI).</b></p>	<p>The degree to which an individual believes that using the Internet would enhance his or her performances in purchase of health foods.</p> <p>As specified for H1.</p>	<p><b>Multiple measures:</b></p> <ol style="list-style-type: none"> <li>1. Fun</li> <li>2. Entertaining</li> <li>3. Informative</li> <li>4. Convenient</li> <li>5. Saving on time and money</li> <li>6. Variety</li> <li>7. Price</li> </ol> <p>As specified for H1.</p>
<p><b>Customer experience (CE).</b></p> <p style="text-align: center;">↓</p> <p><b>Intention to purchase online (PI).</b></p>	<p>The extent of familiarity in using the computer and the Internet including both hardware and software.</p> <p>As specified for H1.</p>	<p><b>Multiple measures:</b></p> <ol style="list-style-type: none"> <li>1. Belief of users</li> <li>2. Users' experiences</li> </ol> <p>As specified for H1.</p>

*Source: Developed for this research*

#### **4.6 Validity and reliability**

Validity and reliability were considered carefully in this study. Validity refers to the accuracy of measurement, whether the conceptual and operational definitions are truly a reflection of the underlying concept to be measured (Burns & Bush 1995; Neuman 1994). Reliability refers to the degree to which measures are free from error and yields consistent results from the study (Zikmund 1997; Mahhotra et al. 1996). Although it is impossible to have absolute validity and reliability in the real world, the researcher tried to improve the accuracy of measurement and increase the reliability of measures in this study with different assessment strategies as shown in appendix 4.4. The results from this study must not only be reliable but they must be valid and practical in terms of operational requirements. Practicality in this study is defined as factors relating to economy, convenience, and interpretability (Cooper & Schindler 2001).

In sum, the robustness of measures has been incorporated into the research design to establish different kinds of validity and reliability in this study. The research design has already incorporated high degrees of validity and reliability during the questionnaire design. The practicality factors are also included in the data collection process. The questionnaire development process is discussed next.

#### **4.7 Questionnaire design**

Questionnaires are an efficient method of data collection when the researcher knows exactly what should be asked and how to measure the variables of interest in order to achieve relevance and accuracy (Sekaran 2000; Zikmund 1997). The questionnaire development process in this study is divided into a number of steps and guided by the objectives of the study (Aaker, Kumar & Day 1998; Dilman 1978). The questionnaire development incorporated the following steps:

1. Set up clear objectives. The objectives were described as fully as possible and included information required to answer research question, test the hypotheses, and so on. This has already been done in chapter 1 and section 4.3.

2. Incorporate results from exploratory research and previous studies, with the relevant variables that help in ascertaining the correct vocabulary and point of view from Thai consumers.
3. Compare questionnaire design with similar studies from the literature.
4. Use multiple, high-level items. It is not possible for any single item to provide a perfect representation of the concept (Churchill 1987). Multi-item measures are used to capture the meaning of each construct.
5. Get comments from experts who often buy products online.
6. Pretest the preliminary versions of the questionnaire before actual fieldwork.

Questionnaire preparation in this study followed the processes suggested by Frazer and Lawley (2000), which consists of question content development, question wording, response formatting and questionnaire layout.

**Question content development.** Question content was based on the research objectives. The objective for this study was to determine the factors influencing consumers in buying health foods online and test the preliminary model and proposed hypotheses developed in the previous chapter. Respondents in this study could provide adequate responses because questionnaires were sent only to Internet users who were currently purchasing health food products. Data gathered was based on the opinions, beliefs, and attitudes of respondents in purchasing health food products online. Therefore, it should be easy for respondents to complete the questionnaire. Question development was based on the principles of good question design such as brief questions that can be applied to all respondents, use positive questions, avoid leading questions, and so on (Cooper & Schindler 2001; Frazer & Lawley 2000; Zikmund 1997).

**Question wording.** Question wording principles were used in drafting the questionnaire (Cooper & Schindler 2001; Frazer & Lawley 2000; Zikmund 1997). The wording in all questions was kept as brief and as simple as possible. The researcher also attempted to avoid ambiguity and leading questions. Standard wording principles were strictly followed during the questionnaire design process. Similar terminologies, which were found in respondent's descriptions in the focus



groups during the exploratory study utilized to ensure that respondent biases and measurement errors were minimized.

**Response formatting.** The questions in this survey related to online purchasing of health food products. Respondents were all Internet users and purchasers of health food products. Therefore, the respondents should be able to answer and complete the questionnaire without difficulty. The researcher incorporated different response formats, depending on the nature of the questions, to avoid response bias and encourage participation. Response bias is associated with the way respondents respond to questions due to their mentality or predisposition (Alreck & Settle 1995; Emory & Cooper 1991).

- Closed-ended or structured questions. This type of format was mostly used in this study because the context of the question remains the same for all respondents (Gendall & Hoek 1990). This will help eliminate interviewer bias. In addition, this question format reduces the amount of thinking and effort required of respondents in answering the questions (Hair, Bush & Ortinau 2000).
- Open-ended or unstructured questions. This type of format was limited to necessity when it is difficult to list all the possible answers in the questionnaire (Dillman 1978). Open-ended questions are costly and time consuming because of the difficulty in post coding the data and making meaningful comparisons (Malhotra et al. 1996). The questionnaire development also took into account input from the four focus groups conducted to explore consumer's insight on this subject. This helped keep open-ended questions to a minimum.
- Scaled-response questions. This type of question format uses a scale measurement for respondents to indicate their degree of agreement with the constructs (Alreck & Settle 1995). The Likert scale with five categories was used for questions in this study.

Questions were grouped by topic and placed in a logical sequence by using a funnel approach, starting with broad questions and narrowing down in scope. The opening question was simple and interesting for respondents. Classification information, such as demographics and psychographics, were placed last in this study (Frazer & Lawley 2000; Churchill 1987).

In summary, questions were designed with proper wording, response formatting, and layout in order to encourage response, make it easy for respondents to provide accurate answers, and facilitate ease in analysis. Scale development and details of questionnaire layout used in this study are discussed next.

#### **4.7.1 Scale development**

Information collected from this survey was divided into three major areas (Grossnickle & Raskin 2001):

**Attitudinal.** What do the respondents think about shopping for health foods online? This type of data captures the opinions, preferences, and perceptions of respondents on shopping for health foods over the Internet. It was used to help the researcher understand subtle issues that drive respondents' behavior. Questions A7-A9 covered the attitudinal dimension of respondents in this study.

**Behavioral.** What has the respondent done regarding online shopping for health foods in the past, present, and future? This type of data defines a wide range of topics that relate to the respondents' habits and past actions about buying health foods and using the Internet. Questions A1-A6, A 10-A14, B1-B64, and C1-C2 covered the behavioral dimension of respondents in this study.

**Classification.** Who are the respondents? This type of data encompasses the respondents' personal attributes, such as demographic, socioeconomic, and psychographics factors, to provide an analysis of those who intend to buy, have bought, or have never bought health food products online. Questions D1-D7 covered the demographic and socioeconomic data of respondents in this study.

Scales in this study included nominal, ordinal, and interval level. Nominal scales were limited in use only for questions that determined whether or not respondents and their actions possess certain characteristics, such as respondent gender, items purchased online, places where respondents use the Internet, and so on. Ordinal scales were used in questions that characterize the respondents' level of usage or that measured the incremental level of certain attributes. Interval scales were used

whenever applicable in this study because they give more precision and allow for a wider range of statistical analysis.

The relationships between research questions, hypotheses, variables, scale development and statistical techniques used in this study are presented in appendix 4.5. The five-point attitude rating scale used in this study was an adaptation of the summated ratings method developed by Rensis Likert. The five-point rating scale is the most popular scale for measuring attitudes and is as reliable as the seven or nine rating scales (Zikmund 1997; Elmore & Beggs 1975). Therefore, a five-point Likert scale was selected for this study based on its popularity, high reliability, and appropriateness to the nature of this study.

In summary, the questionnaire was developed based on the research questions and the hypotheses of this study. The questionnaire layout, which aimed to encourage a higher level of response, is discussed next.

#### **4.7.2. Questionnaire layout**

Questionnaires are designed to be brief, neat, attractive, and easy to follow with the objectives of obtaining accurate data, minimizing respondent fatigue, increasing completion rates, and keeping respondents interested throughout the survey (Zikmund 1997). Online surveys are a new methodology for most Thai respondents. It is important to carefully administer the survey to achieve a high level of response and reduce the possibility of respondent fatigue or confusion. A total design approach, combining both theoretical and practical considerations, was used to get effective results in this study. The questionnaire was designed in such a way that it motivated respondents to participate and complete the survey by using simple and easy to follow layout design (Malhotra et al. 1996; Salant and Dillman 1994). The longest time required for any respondent to complete this survey should be under 15 minutes. The University of Southern Queensland was named as the sponsor of this study and the names of the researcher's academic supervisors were added to help increase both the credibility and the legitimacy of the survey.

The researcher promised a donation on behalf of each respondent, who sent in a completed questionnaire, to one of the most popular foundations in Thailand (The Prosthesis Foundation under the patronage of the Princess Mother) as a reward to encourage response. This not only eliminated direct monetary costs, but also supported the respondent's values by doing a good deed for society, which is also in line with Thai and Buddhist culture. A few strategies were also used in the questionnaire layout to encourage respondents and put them at ease while taking the survey.

**Priority.** The most important questions were placed at the beginning of the survey to retain respondents' interest while demographic questions were placed towards the end of the survey (Frazer & Lawley 2000).

**Cover page.** A brief explanation of the importance of this survey with a clear and concise message was given on the cover page to encourage respondents to respond. An invitation for additional comments and a message of thanks were featured on both front and back cover pages. The name of the university sponsoring this survey and the researcher's academic advisors were featured prominently on the cover page to encourage participation and emphasize the importance of this study.

**Question layout.** Sections were numbered with detailed headings: A, B, C, and D. Questionnaires are broken into different constituent sections as A1-A14, B1-B63, C1-C2, and D1-D7 to make the number of questions appear to be fewer than they actually are and to encourage higher completion rates (Grossnickle & Raskin 2001).

**Single page.** This online survey consisted of only a single page, where respondents completed all questions before submitting the data at the end of the questionnaire.

**Visual cues.** The questionnaire layout was designed with visual cues using alternating row colors to speed up survey taking and ease the process of answering the questions (Grossnickle & Raskin 2001).

**Total time spent to complete the questionnaire.** A questionnaire pretest was conducted with 30 consumers who had similar characteristics to the population in this study. In addition, five experts were also asked to give comments on the questionnaire design. This pretest was conducted in order to see how well respondents understood the questions, ease of completion, time needed to complete the survey, and weaknesses in the questionnaire design. Results from the pretest were used to revise and adjust the questionnaire. The final questionnaire required only 5 to 8 minutes to complete. The total length of this questionnaire is equal to only 6 pages of A4 paper. The total number of pages is less than the upper limit set by common business research to not intimidate the respondent's motivation to complete the survey (Neuman 1994; Dillman 1978).

**Lower resolution.** To avoid having an unusable survey due to screen resolutions, this questionnaire used tips provided by a Web developer by designing this survey for a resolution of 800x600 or lower (Grossnickle & Raskin 2001). The low resolution was selected to ensure that the survey looked acceptable on various screen sizes and resolutions. With these techniques, nearly all users on the Web could see the survey as intended.

**Use logical questionnaire routing.** The questions were designed in such a way that they offered the ability to implement skips in the Web-based questionnaire. Respondents got clear instructions in addition to the automatic mechanisms used in the survey. For example, when respondents ticked "No" in question A1, the cursor automatically jumped to question D1 or when respondents tick "Never" in question A5, the cursor automatically jumped to question A12. This helped screen out respondents who were not qualified for this study and reduced the chance of getting answers that was not applicable to this particular respondent.

**Reduce respondent's fatigue.** The questionnaire was designed to reduce respondent fatigue by trimming down the line of questioning and focusing respondents' efforts on the important questions related to the objective of the study.

**Question grids.** A question grid allowed the researcher to maximize screen real estate and enhance the survey flow when several types of information were designed around the same attributes (Grossnickle & Raskin 2001). The opinion, belief, and attitude measurements in section B were designed to fully exploit the benefit of question grids. It can help speed up the time required for survey taking and reduces respondent's visual intimidation.

In summary, the questionnaire's structure and layout were designed to make it attractive, easy to follow, easy to complete, and take less than 10 minutes. A charity incentive of 30 Baht per questionnaire submission was used to motivate and encourage completion and response from respondents. Question layout was by order of importance from the beginning of the survey to retain respondent's interest. The questionnaire was designed to avoid incomplete data by utilizing a pop-up sign that asks respondents to complete missing data before they submit the data.

#### **4.8 Survey administration**

This section describes the different steps taken to administer the online survey in order to achieve a higher level of response. It is important to carefully administer the survey not only to get a higher response rate but also to reduce the possibility of non-response bias (Malhotra et al. 1996).

**Response behavior.** Three courses of action were used to stimulate response rates in this study, including providing rewards to the respondent, minimizing social costs, and establishing trust. Details of the techniques used in this study are given in table 4.3.

**Table 4.3: Techniques used in this survey**

<b>Technique</b>	<b>Actions</b>
Provide rewards	<ul style="list-style-type: none"><li>▪ Show positive regard on the importance of their role.</li><li>▪ Use a consulting approach to seek their opinions.</li><li>▪ Support respondents' values by emphasizing the importance of their corporation in improving the future of e-commerce in Thailand.</li><li>▪ Make the questionnaire interesting</li><li>▪ Provide a donation on their behalf to one of the most popular charity funds in Thailand.</li></ul>
Minimize social costs	<ul style="list-style-type: none"><li>▪ Eliminate direct monetary costs and replace with donation.</li><li>▪ Make task appear brief by using total design approach</li><li>▪ Reduce the mental and physical effort necessary to complete the survey by using an attractive and easy design.</li><li>▪ Eliminate the chance of embarrassment or implication of subordination by selecting proper wording in the way questions are asked.</li></ul>
Establish trust	<ul style="list-style-type: none"><li>▪ Build on existing exchange relationship by emphasizing that they were chosen by their Internet usage.</li><li>▪ Promise of confidentiality to ensure that information will be analyzed as a total result.</li><li>▪ Identify with the established and legitimate University of Southern Queensland. The names and contact addresses of the researcher, her academic advisors, and the university administrative function are given to increase confidence in respondents.</li></ul>

*Source: Developed for this study*

**Conducting the survey.** The plan for implementation was as follows:

- Pretest was conducted among 30 selected respondents with similar profiles to seek any possible weaknesses or confusion in the design so that a revision and/or remedy could be taken to improve the questionnaire before actual fieldwork (Grossnickle & Raskin 2001). This involved e-mailing to friends, family, and colleagues with the URL developed for this survey. Respondents in this pretest were selected for their similarity to the population of this study. Participants were requested to take notes on the total time spent in completing the questionnaire, the level of difficulty, suggestions for further improvements, and possible bugs found while taking the survey. It is important to pretest the instrument to ensure that respondents understand the questions posed. The researcher was aware of the non-representative nature of respondents in this pretest. However, the

main purpose of the pre-test was purely to rectify and improve the questionnaire design. Results of this pretest are presented in appendix 4.1 for reference.

Several changes were made to question wording and expressions used in the survey to reflect the feedback received from the pretest. After revising the draft questionnaire, a second pretest was conducted with a few respondents. Results from the second pretest indicated that no further revisions or changes were required.

- Preliminary notification by e-mail was sent one week prior to the questionnaire to all 3, 872 respondents in order to increase the response rate. Respondents who did not want to participate in this survey were deleted from the list.
- Final survey was administered to the whole sample excluding those who did not want to participate. The online questionnaire English version is presented in appendix 4.2 while the Thai version is in appendix 4.3.
- Follow up e-mail with combined thank you and reminder message was sent one week after the questionnaire to convey a sense of importance of the survey and at the same time stimulate and encourage response.

Follow-ups or reminders have been proven to be very successful in increasing response rates (Cooper & Schindler 2001). The researcher planned to use both e-mail and telephone to follow-up should the response rate be low. A summary of administrative processes is included in table 4.4.

**Table 4.4: Administrative procedure used in this study**

Step	Timing	Procedure	Content
1	Commencement	Sent e-mail to all participants in the list to inform them about the purpose, its importance and process of this study.	Pre-notify e-mail
2	1 week after step 1	Send questionnaire to all respondents in the list by using both attached file and URL link to Web site.	Cover letter signed by both thesis supervisors of the <a href="#">University of Southern Queensland</a> .
3	2 weeks after step 2	<a href="#">Combined</a> thank you and reminder e-mail to respondents who have not yet	Thank you, questionnaire and reminder e-mail



Step	Timing	Procedure	Content
		completed the questionnaire. The questionnaire in the form of URL link to Web site is also attached one more time.	
4	2 weeks after step 3	Send reminder e-mail to non-responded list.	Questionnaire, reminder e-mail
5	2 weeks after step 4	Thank you e-mail and the total number of participants in this survey in order to inform them about the amount of donation fund, which will be given to the Prostheses foundation.	Thank you note and donation date.

*Source: Developed for this study*

In summary, several techniques were used in this study in order to stimulate interest and encourage higher responses. A pretest was conducted to identify any possible weaknesses in the questionnaire. Feedback was used as input for improving the questionnaire design. Preliminary notification and a few follow-ups strategies sent via e-mail to respondents were planned in order to obtain higher response rates. Next, data preparation and analysis are discussed.

#### **4.9 Data preparation and analysis**

It is important to make a decision on how to analyze the data prior to data analysis in order to avoid collecting data in the wrong format and to prevent inaccurate findings from that data (Cooper & Schindler 2001; Malhotra et al. 1996). This section deals with planned data preparation and analysis. The following steps were to be taken in the data preparation stage:

- **Data editing.** The online questionnaire in this survey was designed in such a way that respondents could not submit incomplete data into the system. Therefore, this process can be omitted from this study. Only completed questionnaires were accepted as input in the system.
- **Data coding.** A well-planned and well-constructed questionnaire can reduce the time spent on coding and at the same time increase the accuracy of the data collected from the survey (Hair, Bush & Ortinau 2000). Almost all questions in this survey were close-ended, except for a few questions that required coding after the data collection process.

- **Data entry.** This was an online survey, which did not require data entry after the survey because it was entered directly into the computer by data capture. The process was designed to ensure that the data entered were correct and free of human error occurring during the data entry process.
- **Error detection.** Extreme values and a data list table were used to detect errors in this survey and, in particular, to reject coded values that were too large or too small before analyzing the data.
- **Data tabulation.** Both one-way tabulation and cross-tabulation will be used to calculate summary statistics on various questions. Simple statistical summaries, such as averages, standard deviations, and percentages, will be used to profile sample respondents and establish characteristics of respondents who respond differently.

After the data preparation process, the data was ready for data analysis as described in the next section.

#### **4.9.1 Descriptive statistics**

Once the data has been collected and prepared for analysis, basic statistical and descriptive analysis will be developed for the study.

- The measurement of central tendency is used to examine the different values for a given variable. Descriptive statistics, such as frequency and mean are used for this purpose.
- The measurement of dispersion. Range and standard deviation will be used to determine the similarities and differences in respondents' opinions and attitudes in this survey.

#### **4.9.2 Hypotheses testing**

The research problem in this study was identified as “What are the important factors influencing the purchase of health foods online?” The full model to be tested in this study includes five constructs and eleven hypotheses. The researcher has several preconceptions on the relationship between behavioral intention to buy

health foods online and factors influencing such behavior for the sample data based on a detailed understanding of the relevant literature. Judging from the number of constructs that have more than one related hypotheses, the model proposed in this study can be considered to be multivariate and would, therefore, require a multivariate analysis method (Hair, Bush & Ortinau 2000).

Factor analysis using the SPSS program is planned for the first stage of data analysis to summarize information from many variables in the proposed model into a smaller number of factors (Hair, Bush & Ortinau 2000). Data collection in this survey largely used interval scales, which would return data in a form suitable for this technique (McPhail 2000). After using factor analysis, a multivariate technique using structural equation modeling (SEM) is planned for the second step of data analysis. While factor analysis is capable of examining only a single relationship at a time, SEM uses a group of statistical procedures that simultaneously analyze multiple measurements on each respondent at the same time (McPhail 2000).

Structural equation modeling (SEM) was selected in this study because of its explanatory ability, its comprehensive statistics of model testing, its popular usage in a parsimonious model, and its ability to develop stronger models by testing theories on the specified relations (Cheng 2001; Hair et al. 1998; Rubio & Gillespie 1995; Joreskog 1993). LISREL 8.3 and PRELIS 2 were selected as the SEM software for this study for two reasons. First, LISREL has Robust Maximum Likelihood estimation with Satorra-Bentler scaled statistics that have correct chi-square even if data is nonnormal distributed (Kunnan 1998). Second, LISREL is the most generally applicable and widely available of the appropriate SEM packages (Diamantopoulos & Siguaaw 2000). Third, both LISREL and PRELIS are fully supported by SPSS (Joreskog & Sorbom 1988).

In summary, a sequence of structured steps and various statistical tests were planned for data preparation and data checking in order to ensure the accuracy and reliability of data before the data analysis stage in chapter 5. The ethical considerations of this study are discussed next.

#### **4.10 Ethical considerations**

Ethical issues must be considered throughout the entire process in order to make sure that the results and the final report of this study truly represent all of the data and relevant conditions (McPhail 2000). As integrity in research is vital, ethics were seriously considered during the research design process in this study so that respondents did not suffer physical harm, discomfort, pain, embarrassment, or loss of privacy (Cooper & Schindler 2001). The following guidelines were used to protect the interest of the sponsor, the researcher, and the survey respondents:

**Benefits.** The benefits of the study were explained to respondents in the pre-notification e-mail, covering letter of the questionnaire, and follow up e-mail. The names and contact addresses of the researcher, her academic advisors, and the university administrative function were given in the correspondences to increase respondent confidence, motivate them to answer questions truthfully, and ensure that respondents knew with whom they were dealing (Cooper & Schindler 2001). A donation given to a well-known charity foundation, the Prostheses Foundation under the patronage of Princess Mother, was used to induce participation. Direct monetary incentive was avoided in this study to prevent repeated submissions of the Web-based questionnaire.

**Deception.** Respondents were given the truth. Participants were given full details about the topic and purpose of the survey (Cooper & Schindler 2001). A promise of confidentiality was made to all respondents and the researcher was obligated not to use any information other than for purposes related to this research (Zikmund 1997). To maintain the confidentiality and privacy of the respondents, only aggregate results are used in the report.

**Informed consent.** Respondents were requested to participate by informed consent. The survey was Web-based and respondents were given the choice of cooperating. Only questions directly related to the research objective were asked (Sekaran 1992). Respondents did not interact directly with the interviewer, so no harassment could occur, even if they were not cooperative or did not complete the questionnaire. A pre-notification letter was sent to each respondent in order to ask

for cooperation to complete the survey one week prior to sending e-mail with attachment or URL.

In summary, the researcher has ultimate responsibility for assuring that the inquiry is conducted with ethical integrity. The questionnaire design process and data collection were carried out in a professional manner to ensure that the study was truly representative of the data and relevant conditions. Care and consideration were given at all stages of the research design to minimize all possible ethical issues in this study.

#### **4.11 Conclusions**

This chapter described the main research methodology used in this study. The research design and appropriate data collection methods were discussed in detail. The pretest survey administration was conducted among academic personnel, research experts, colleagues, and friends. Questions were revised according to comments made by experts and academic supervisors. The data will be collected through online questionnaire. Factor analysis and structural equation modeling (SEM) using LISREL 8.3 were planned for the data analysis. Finally, ethical considerations were discussed in detail to avoid pitfalls from these issues. Data from field research and data analysis results of this survey are presented in the next chapter.

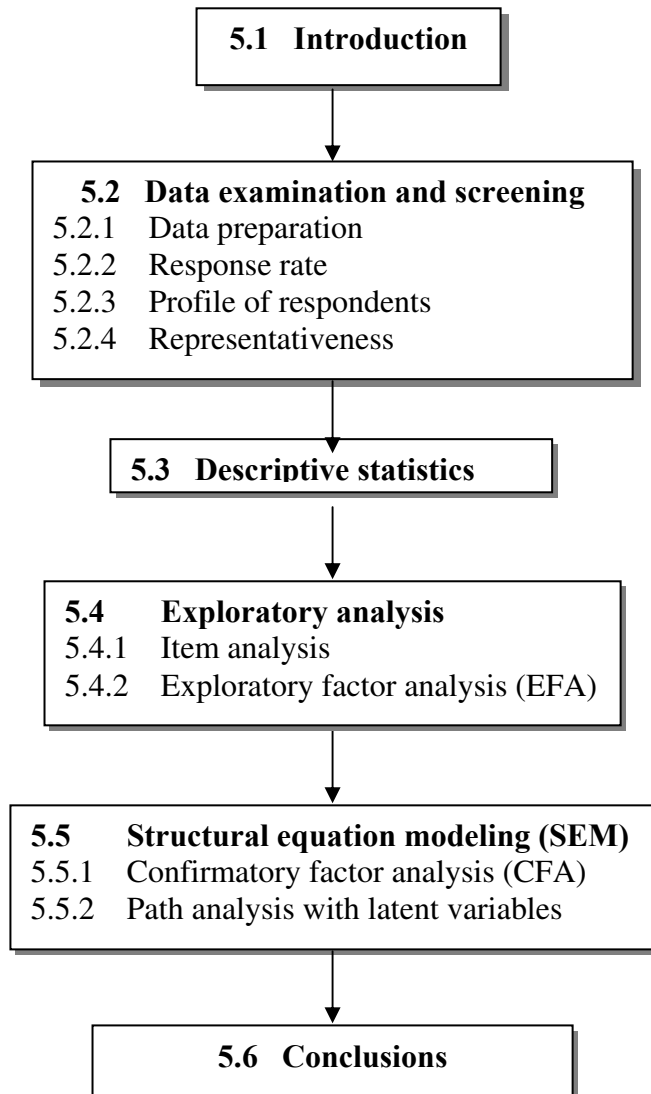
# CHAPTER 5

## 5 DATA ANALYSIS

### 5.1 Introduction

The previous chapter identified and justified the research methodology for the major study. This chapter analyses the data gathered using that methodology. There are six sections as shown in figure 5.1. After the introduction, data examination and screening is discussed in section 5.2. Descriptive statistics are presented in section 5.3. Next, exploratory analysis is used to explore and test the suitability of data collected in section 5.4. This section starts with reliability and item analysis followed by exploratory factor analysis. Structural equation modeling is used to analyze the model in section 5.5. In this section, confirmatory factor analysis is use to test the measurement model and path analysis with latent variables is used to test the structural model. Finally, conclusions are drawn in section 5.6.

**Figure 5.1: Outline of data analysis**



*Source: Developed for this research*

## **5.2 Data examination and screening**

In this section, data examination and screening are addressed. Data was examined and descriptive statistics are reported together with an analysis of the representativeness of the sample so that the researcher is familiar with and thoroughly understands the data and relationships between variables (Hair, Bush & Ortinau 2000).

### 5.2.1 Data preparation

Data preparation was done in four steps beginning with data validation, editing and coding of data, followed by data entry, error detection, and data tabulation to convert raw data collected from this survey into meaningful information (Hair, Bush & Ortinau 2000). The basic approach to data preparation was outlined in detail in section 4.9.

**Data validation.** The survey was Web-based, which prohibited double entry of answers and submission was done only after respondents completed all questions in the survey. Respondents could choose to discard the message sent to them by deleting the e-mail or refusing to participate in the survey. In addition, there was no monetary incentive involved or given to the respondents. As a result, all completed questionnaires received from respondents could be treated as indicative of a respondents' willingness to join this survey. However, the researcher promised to make a small contribution of 30 Baht per completed questionnaire to the Prostheses Foundation under the patronage of the Princess Mother. The donation was given to the Prostheses Foundation on November 11, 2003 and respondents were invited to witness the ceremony.

**Data editing, coding and entry.** There was no missing data because the system automatically rejected all incomplete questionnaires during the submission process. Completed data was imported directly into SPSS version 9.0 and LISREL version 8.3.

### 5.2.2 Response rate

The questionnaire was e-mailed to 5, 582 people in the database. 1, 720 e-mails were returned to the system due to invalid addresses, changed addresses, full mailboxes, and so on. [The number of respondents who directly declined to participate in this survey was less than 20 persons due to inconvenient, no time, and so on.](#) As a result, the valid e-mail addresses for this study were reduced to 3,872 persons. Out of the valid e-mail addresses, 1, 077 persons completed the questionnaire. This gave a response rate of 27.9 percent, which is better than the expected response rate for



most Internet surveys considering that the Internet is a new emerging technology for most respondents in Thailand. According to previous literature, the response rate using e-mail varies from 6 percent to 73.0 percent (Schaefer & Dillman 2001; Williams, Morpew & Nusser 1997; Smith 1997; Kittleson 1995). The response rate from this survey is considered acceptable in a voluntary environment. Among respondents who completed the questionnaire (1,077 persons), 291 persons said that they had used both health foods and the Internet in the past but not in the past 12 months. These people were excluded from this survey, as the researcher required only respondents who were users of health foods and the Internet in the previous 12 months. Therefore, there were only 786 eligible respondents who passed the post screening questions and these were used for further analysis in this study. The sample size in this study is well above the recommendation of at least 200 cases for the proposed analysis (Loehlin 1992; Boomsma 1983). Details are presented in table 5.1.

**Table 5.1: Successful rate of valid respondents**

	<b>Persons</b>	<b>%</b>
Total e-mail sent out to respondents (a)	5,582	100.0
Returned mails (invalid addresses, etc.) (b)	1,720	30.8
Respondents with valid addresses (a-b)	3,862	100.0
Total respondents completed this survey	1,077	27.9
<b>Total respondents in this survey</b>	<b>1,077</b>	<b>100.0</b>
Respondents who did not use health foods and the Internet in the past 12 months	291	27.0
Eligible respondents in this study	786	73.0

*Source: Developed for this research*

Note: a = Total respondents who are user of health foods and use the Internet in the past 12 months in the Cerebos database.

b = Returned mails due to invalid e-mail addresses, changes, full box, do not want to participate, late submission, etc.

### **5.2.3 Profile of respondents**

The important demographic characteristics of respondents are presented in table 5.2. Details can be obtained in appendix 5.1. Most respondents accessed the Internet from home (71.4%), followed by those who accessed it from work (58.0%). Respondents

were mostly female (71.9%) and aged between 15 to 44 years (95.3%). The majority of respondents was single (73.9%) and has income in the range of 5,001-40,000 Baht per month. Eighty seven percent of respondents have obtained a university degree or higher.

**Table 5.2: Profile of respondents in this survey**

<b>Characteristics</b>	<b>Number (persons)</b>	<b>Percentage</b>
<b>Internet Access</b>		
At home	561	71.4
At work	456	58.0
At the university	183	23.3
Others	53	6.7
<b>Age</b>		
<15 years	3	0.4
15-24 years	267	34.0
25-34 years	336	42.7
35-44 years	146	18.6
45-54 years	29	3.7
55 years and above	5	0.6
<b>Gender</b>		
• Male	221	28.1
• Female	565	71.9
<b>Marital status</b>		
• Single	581	73.9
• Married	195	24.8
• Others	10	1.3
<b>Educational level</b>		
• Primary school	4	0.5
• Secondary school	5	0.6
• High school	41	5.2
• Vocational school or equivalent	47	6.0
• Bachelor degree	502	63.9
• Master degree or higher	181	23.0
• Others	6	0.8
<b>Occupation</b>		
• Staff in private company	322	41.0
• Government officer	119	15.1
• Student	212	27.0
• Business owner	70	8.9
• Management in private company	23	2.9
• Housewife	17	2.2
• Others	23	2.9
<b>Personal income (Baht / month)</b>		
• Less than 5,000 baht	105	13.4
• 5,001-10,000 baht	188	23.9
• 10,001-20,000 baht	229	29.1
• 20,001-40,000 baht	168	21.4
• 40,001-60,000 baht	59	7.5
• 60,001-80,000 baht	12	1.5

Characteristics	Number (persons)	Percentage
• 80,001-100,000 baht	5	0.6
• More than 100,001 baht	20	2.6

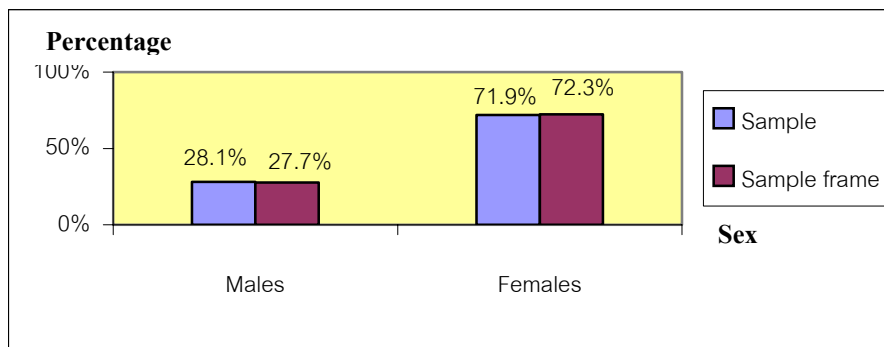
*Source: Analysis of field data collected in 2002*

#### 5.2.4 Representativeness

Although 27.9 percent of a potential of 3,862 respondents completed the questionnaire, 72.1 percent of respondents did not participate in the survey. It is important to check whether a nonresponse error occurred from respondents who were not represented or underrepresented in the response pool (Hair, Bush & Ortinau 2000). The profile of respondents also needed to be tested for nonresponse bias. That is, whether there were differences between those who completed and those who did not complete the survey. Although the chi-square goodness of fit test is normally used in testing for differences between two groups of respondents, it was not used in this study. Chi-square goodness of fit is designed to test the exact fit between two groups and its values will increase if the sample size is more than 200 (Kelloway 1998; Zikmund 1997). This means that chi-square for a large sample size will always be significant which would in turn indicate a difference between the two groups. The sample size in this study was 786 persons. As a result, chi-square goodness of fit test was not used for checking the nonresponse bias in this study (Black 1999; Sproull 1995). The differences between sample and sample frame in this study were examined using trend analysis. The profile of respondents from the sample was compared to the profile of respondent in the sample frame. To check this point, a comparison between respondents in the sample and the sample frame on five demographic criteria is reported next.

**Gender.** 28.1 percent male and 71.9 percent female respondents completed the survey. This ratio of males to females among the 786 qualified respondents was similar to that found in the sample frame (29% males and 71% females) (see figure 5.2). This indicates close similarity between respondents in the sample and sample frame.

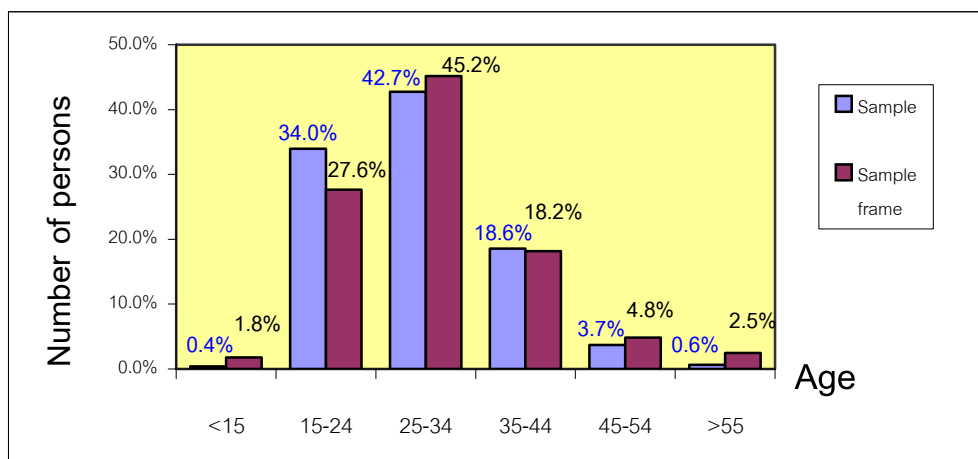
**Figure 5.2: Gender distribution**



*Source: Developed from this research*

**Age.** More than half of the respondents in the survey were aged between 15-34 years, which is generally quite young compared to the average population in Thailand. This result corresponds with other findings, which suggest that Internet users in Thailand are generally younger (ACNielsen Netwatch 2001). Over seventy percent of respondents' ages are concentrated in the range of 15-24 and 25-34 years old for both groups. Data indicates close similarity between sample group and sample frame with the exception of respondents in the age group of 15-24 years, with more respondents aged 15-24 years in the sample group than in the sample frame (see figure 5.3).

**Figure 5.3: Age distribution**

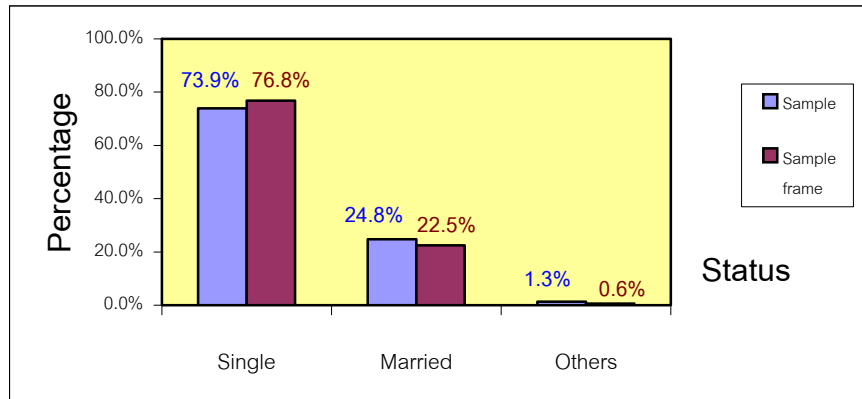


*Source: Developed from this research*

**Marital status.** The majority of respondents who participated in this survey were single (73.9%). The marital status trend of respondents in the sample group was

similar to respondents in the sample frame. This indicates that the sample is close to the sample frame in relation to this criterion (see figure 5.4).

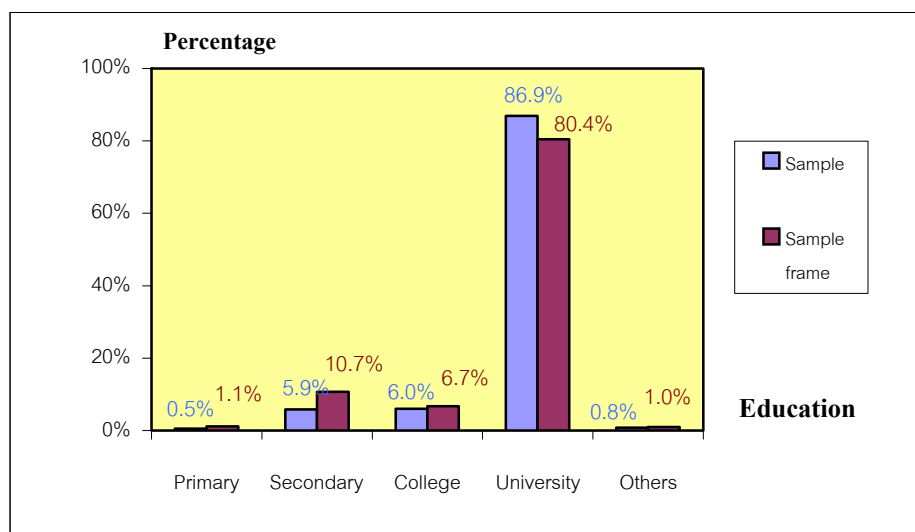
**Figure 5.4: Marital status**



*Source: Developed for this research*

**Education.** Most of the respondents participating in this survey had a high level of education when compared to average Thai citizens. The majority of respondents (86.9%) had a Bachelor degree or higher and this corresponded well with other research which has noted that Internet users in Thailand generally have higher education when compared to average population (ACNielsen Netwatch 2001). The distribution of education level was similar for both groups, which indicated that the sample was close to the sample frame in relation to this criterion (see figure 5.5).

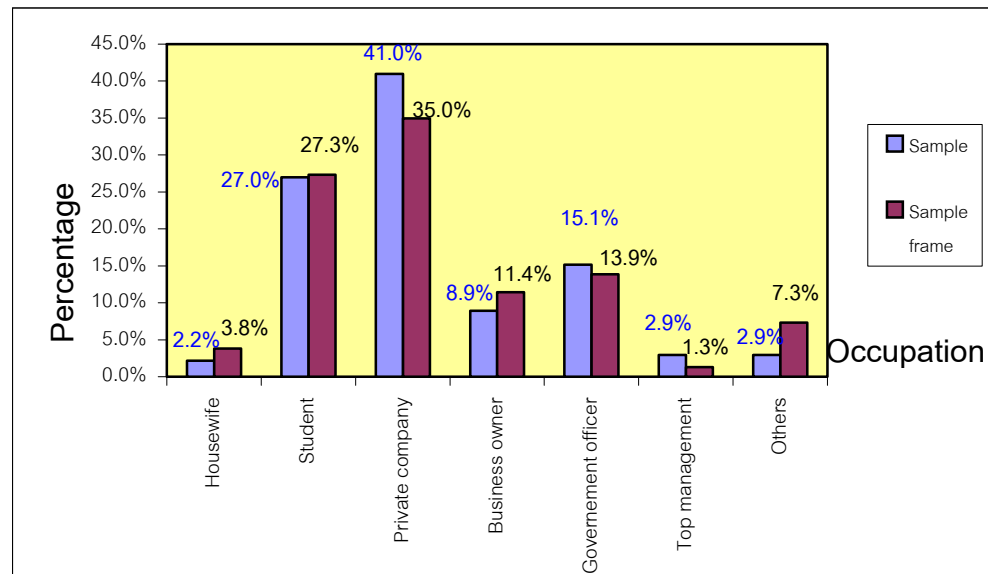
**Figure 5.5: Education distribution**



*Source: Developed for this research*

**Occupation.** Most of the respondents participating in this survey were either employed in private companies or studying at the university. These two types of occupation also represent the majority of Internet users in Thailand (ACNielsen Netwatch 2001). The findings from ACNielsen were in line with education levels and income found in this group (see figure 5.6).

**Figure 5.6: Occupation classification**



*Source: Developed for this research*

In summary, total valid respondents who were users of health foods and the Internet in the past 12 months in this survey were 786 persons. The response rate of 27.9 percent was acceptable and sample size was big enough for further analysis. Respondents' profiles in the sample when compared to that of the sample frame on five key demographic criteria were found to be similar. This indicated a good representation of respondents, who completed the survey. Thus, the researcher is able to state that the profiles of respondents who participated in this survey were similar to those who did not participate in the survey, or that respondents in the sample group were close to the respondents in the sample frame. Hence, any nonresponse error in this study is likely to be random in term of demographics. The descriptive analysis of responses is presented next.

### 5.3 Descriptive statistics

In this section, the collected data was transformed into a form that was easy for the researcher to understand and interpret (Zikmund 1997). Means and standard deviations for each variable in the model are reported in appendix 5.2. All items were rated on a five point Likert scale with a score of 5 indicating strong agreement and a score of 1 indicating strong disagreement. Means of almost all variables (67 items) were well above the neutral position ( $m > 2.5$ ), except variable B11 (products being available only on the Web) that had a mean of 2.28. These results then indicated a strong level of agreement among respondents on each of the statements used for measuring variables in this survey. The descriptive statistics of measurement items for each construct are discussed in detail next.

**Product and company attributes (PCA).** Fifteen variables measured this construct. Items relating to product and company attributes (PCA) were rated highly by most of the respondents. Factors such as *having a permanent or physical address* (B2), *being worth buying* (B10), *being a trusted brand of health foods* (B8), *having good after sales service* (B1) and *health food with scientific proof* (B15) were equally important to respondents with means over 4.5.

**Table 5.3: Means and standard deviations of items measuring product and company attributes (PCA) in the model**

No.	Product and company attributes (PCA)	Mean	Standard deviation
B2	Having a permanent, physical address.	4.76	0.60
B10	Being worth buying.	4.72	0.55
B8	Being the brand name I trust.	4.61	0.56
B1	Having good after sale services.	4.52	0.73
B15	Health food with scientific proof or clinical studies.	4.52	0.64
B3	Being well known to public.	4.36	0.74
B9	Being the brand name I have previously used.	4.24	0.87
B4	Being very well known to myself.	4.23	0.75
B12	Sufficient information available on the Internet for me to judge the product quality	4.15	0.95
B5	Having been operating good business for a long time	4.11	0.85
B7	Being a popular brand name	4.10	0.79
B6	Being recommend to me by friends or relatives	3.64	0.89
B14	Product recommended to me by friends or relatives	3.53	0.85
B13	Product endorsed by celebrities or well-known people	2.99	0.94
B11	Being available only through the Internet	2.28	1.04

*Source: Analysis of field data*

Factors such as *being well known to public* (B3) and *being well known to myself* (B4) were also important to induce respondents to buy health foods online with a mean of 4.2. However, factor relating to *being available only through the Internet* (B11) received the lowest score with a mean of 2.28. This finding is similar to the exploratory research in chapter 3, where respondents gave high scores to factors relating to *trusted company, trusted brand, value for money, and after-sales service* and lower scores to factors relating to *product specifically sold only on the Web*. Respondents indicated that products available solely on the Web were not the main reason for them to buy online. Summary statistics of means and standard deviations on items measuring product and company attributes (PCA) are reported in table 5.3 from highest mean to lowest.

**Perceived risk.** There were 15 measurement items for this construct. Items relating to *guaranteed quality of product* (B26), *various payment options* (B18), *product return policy* (B29), and *money back guarantee* (B25) were rated highly among respondents with means over 4.4. Items measuring *products purchased are as good as advertised* (B27), *cash on delivery payment option* (B19), and *product purchased is the same as pictures seen* (B28) were also rated highly with means over 4.2. Respondents agreed that they would not like to pay through credit cards, reflected in the low mean on item B17 (*we should not pay through credit cards*). However, none of the measurement items had means lower than the neutral mean. Most of the findings on perceived risk (PR) were not far from the focus group discussions in chapter 3, where respondents had major concerns with product warranties, fear of someone using their credit card, and fear of being cheated by the company. The results of perceived risk from this survey were quite similar to the results from the exploratory studies. Table 5.4 reports the summary statistics of means and standard deviation of items measuring perceived risk (PR) from the highest mean to the lowest.



**Table 5.4: Means and standard deviations of items measuring perceived risk (PR) in the model**

No.	Perceived risk (PR)	Mean	Standard deviation
B26	The quality of product purchased is fully guaranteed.	4.59	0.73
B18	There are various payments to choose from.	4.57	0.61
B29	The customers are able to return the product purchased if not fully satisfied.	4.47	0.83
B25	Returning money is guaranteed if product is not fully satisfactory.	4.45	0.80
B27	The product purchased is good and effective as advertised.	4.39	0.90
B19	Cash on delivery payment is available	4.34	0.82
B28	The product purchased is exactly the same as the pictures seen	4.26	0.91
B20	There is a risk of receiving different products from what is ordered.	4.03	0.86
B21	There is a risk of receiving products later than expected.	4.02	0.81
B22	The company charges only the agreed correct amount of money.	3.89	0.86
B16	Paying through credit cards online is safe and secure.	3.47	1.30
B23	There is no risk of using any unauthorized personal information.	3.35	1.24
B24	It might not be safe from home delivery by a stranger.	3.24	0.89
B30	It is an easy and convenient procedure for the product return process.	3.10	1.25
B17	We should not pay through credit cards	3.08	1.09

*Source: Analysis of field data*

**Perceived ease of use.** There were 14 measurement items for this construct. Respondents rated the items relating to the ease of use and understanding of the layout when buying health foods online highly. These included items such as *clear display picture* (B41), *easy to understand product direction* (B40), and *easy to read layout* (B39) and all had means over 4.3. The convenience and speed of getting the online health foods was also rated highly by consumers, and this was reflected in high means for items such as *quick ordering process* (B43), and *delivered right after online order* (B42). Unlike the results found in the exploratory research, *inconvenient logging-on to homepage* (B32) was rated as the lowest mean in this construct. However, all items had means higher than the neutral mean indicating that respondents were agreeable with these variables. Table 5.5 reports the summary statistics of means and standard deviation of items measuring perceived ease of use (EOU) in order from highest to lowest.

**Table 5.5: Means and standard deviations of items measuring perceived ease of use (EOU)**

No.	Perceived ease of use (EOU)	Mean	Standard deviation
B41	The online product picture display is clear.	4.51	0.65
B40	Health food's usage is easily read and understandable.	4.49	0.65
B43	There is a quick and swift online purchasing process.	4.35	0.73
B39	The character front size must be easy to read.	4.34	0.63
B42	Products are delivered right after online order.	4.33	0.78
B35	It is fast and convenient due to the information searching system.	3.95	0.79
B31	It is easy and convenient online ordering layout.	3.89	0.90
B34	The company homepage is clear and easily understandable	3.87	0.83
B44	It does not waste time filling too much in the online order form.	3.87	0.94
B36	It is convenient due to the product delivery date.	3.84	0.83
B37	Its online purchasing procedure is simple.	3.78	0.87
B38	Product information must not be too long.	3.75	0.96
B33	The product information is difficult to search.	3.01	0.90
B32	It is an inconvenient logging-on to company homepage.	2.98	0.96

*Source: Analysis of field data*

**Perceived usefulness.** There were 14 measurement items for this construct. Respondents rated highly factors relating to *the ability to buy health foods from both domestic companies and from abroad* (B52), *shop at any time* (B50), and *save traveling time* (B51) with means over 4.3. *Choices of products* (B53), *choices of company* (B54), and *choices of information* (B47) were also rated quite high with means around 4.0. It is noticeable that the item measuring *fun and excitement* (B45) had a low mean in this survey when compared to other items. Unlike the findings from the exploratory research in chapter 3, where *fun, excitement, and entertaining* were rated as the highest factors affecting a respondent's decision when buying health foods online. Summary statistics of means and standard deviations of items measuring perceived usefulness (POU) are reported in table 5.6.

**Table 5.6: Means and standard deviations of items measuring perceived usefulness (POU)**

No.	Perceived usefulness (POU)	Mean	Standard deviation
B52	You are able to shop things from both domestically and abroad.	4.33	0.67
B50	You can shop at your convenience whenever you want.	4.32	0.65
B51	It does not waste time traveling to shops.	4.31	0.69

No.	Perceived usefulness (POU)	Mean	Standard deviation
B53	There is a variety of health food to choose from.	4.06	0.82
B54	There are more varied choices of companies providing health foods.	4.03	0.82
B47	Rich and varied information is provided.	3.94	0.79
B49	No sales persons bother me.	3.92	0.88
B58	Free samples are available.	3.46	1.05
B55	Prices are lower than those of conventional stores.	3.41	0.99
B56	Larger discounts are offered.	3.41	0.97
B57	There are more free gifts than those in conventional stores.	3.37	0.96
B48	It has more reliable information than the one from a sales person.	3.37	0.94
B46	It is enjoyable.	3.30	0.96
B45	It is fun and exciting.	3.17	0.97

*Source: Analysis of field data*

**Customer experience.** There were 6 measurement items for this construct. *Frequent searchers of information on the Internet* (B64) was rated with the highest mean by respondents. Respondents agreed that *frequent searchers of information on the Internet* (B64) and *frequent Internet surfing* (B63) were variables, which affected their decision when buying health foods online whilst *skill in using the Internet* (B62) was rated with a lower mean. None of the measurement items had means lower than a neutral mean. These findings were in line with results from the exploratory research in chapter 3, where user's belief and past experiences of using the Internet were the major factors encouraging people to buy products online. Summary statistics of means and standard deviations of these variables are reported in table 5.7.

**Table 5.7: Means and standard deviations of items measuring customer experience (CE)**

No.	Customer experience (CE)	Mean	Standard deviation
B64	Frequent searchers of information on the Internet.	4.15	0.77
B63	Frequent Internet surfer.	4.06	0.84
B60	Like to try new things.	3.88	0.83
B59	Trendy.	3.87	0.73
B61	Skillful, efficient in surfing the Internet.	3.80	0.83
B62	As skillful in Internet as other communication tools.	3.75	0.87

*Source: Analysis of field data*

## **5.4 Exploratory analysis**

Exploratory analysis was undertaken next in order to test the measurement items used in this research. This technique has been widely used to develop scales and subscales in over seventy-five percent of studies during 1990-1995 (Gorsuch 1997). The relationships in the hypothesized measurement model were built according to the literature review and exploratory research and thus need further testing to confirm or disconfirm their structures. Sixty-four items were proposed to contribute to 5 constructs in this survey. Measurement scales used in this study were developed initially from the literature but then refined based on the results of the exploratory research (see chapter 3). According to Churchill (1979), purifying the measure is a necessary step that should be done before using factor analysis in order to delete garbage items, which may produce additional dimensions without having the common core of behavior under study. **Researcher generally does not use** all possible items in the survey but they only use a sample of measures such that the items selected are correlated with true scores (Churchill 1979). The analysis will commence with item analysis to purify and get better measures before using exploratory factor analysis to examine the dimensions of each construct and using confirmatory factor analysis to test and confirm the relationships between observed variables under each hypothesized construct (Hair et al. 1998, Zikmund 1997, Cooley & Lohnes 1972). The next section started with item analysis before processing with exploratory factor analysis.

### **5.4.1 Item analysis**

The purpose of conducting an item analysis is to select those items that will provide the most accurate and appropriate description of the behavior under investigation (Kumar & Beyerlein 1991). The final items must be able to discriminate respondents who have positive attitudes from respondents who have negative attitudes in the survey (Cooper & Schindler 2001, Zikmund 1997). Items that lack clarity or draw mixed response patterns are eliminated from the final measurement lists because they cannot discriminate between respondents whose total score is high and those whose total score is low (Cooper & Schindler 2001). The discriminating power of each item is computed by using item-remainder-score correlation or corrected-item-

total correlation index (Roderick 1999). Corrected-item-total correlation was selected instead of using item-total-score correlation in order to avoid the occurrence of increased total score variance from adding item scores (Roderick 1999). Items with negative or low item-remainder-score correlation were excluded to ensure that the final items yield discriminating power in distinguishing respondents with high score from low score (Nunnally 1994). Many researchers suggested deleting items with negative or item-to-total correlations below 0.19 because they are considered poor items and should be eliminated in order to sharpen the conceptual identity of each construct (Kehoe 1995; Ebel & Frisbie 1986; Ray 1982). Leak & Randall (1995) and Ray (1982) also suggested deleting one item at a time until no further increase in coefficient alpha is obtained. Corrected item-total item below 0.19 was used as criteria for deleting items in this study.

**Purchase Intention (PI).** The item analysis of this construct was calculated from two items. According to Huselid & Day (1991), measurement items from two or more are acceptable to use as a scale and calculate alpha for a construct. The first purchase intention scale (PI-1) was developed from two questions asking about respondents' plans to buy health foods online in the next 12 months. It was calculated from a combination of item A10 (34 respondents who bought health foods online in the past 12 months) and A13 (752 respondents who have not bought health foods online in the past 12 months). Respondents who answered question A10 were not the same persons as those who answered question A13. These two items covered all respondents in this survey. The second scale of purchase intention (PI-2) was taken from respondents' intention to recommend other people to buy health foods online (A14). Both items showed high correlated item-total correlations higher than 0.65 and were all retained in the analysis. Detail of the item analysis for purchase intention (PI) is in appendix 5.3.

**Product and company attributes (PCA).** The corrected item-total correlation from item B11 (*being available only through the Internet*) was lower than 0.19, indicating low discriminating power and should be deleted (Kehoe 1995; Ebel & Frisbie 1986; Ray 1982). In addition, item B11 also received the lowest mean (2.28) when compared to all other measurement items used in this study. As a result, B11 was

excluded from the final set and the number of item scales for PCA was reduced from 15 to 14 items. Detail is in appendix 5.4.

**Perceived Risk (PR).** Negative items were reversed and marked with R before performing the item analysis. Results indicated that items B20, B21, B24, and B17 should be deleted from the final set due to their corrected item-total correlations were negative and close to zero (Kehoe 1995; Ebel & Frisbie 1986; Ray 1982). The final items were reduced from 15 to 11 items showing high discriminating power in measuring PR. Detail is presented in appendix 5.5.

**Perceived Ease of Use (EOU).** Negative items were reversed and marked with R before analysis. The corrected item-total correlation of items B32 and B33 were close to zero. These two items were deleted due to their low discriminating power (Kehoe 1995; Ebel & Frisbie 1986; Ray 1982). Final items were reduced from 14 to 12. Details are in appendix 5.6.

**Perceived usefulness (POU).** The item analysis of perceived usefulness was calculated from 14 items. Corrected item-total correlations of all items indicated strong discriminating power. There was no need to delete any items from perceived usefulness (POU). Details are in appendix 5.7.

**Customer Experience (CE).** The item analysis of customer experience was calculated from 6 items. The corrected item-total correlations of all variables indicated strong discriminating power. There was no need to delete any items from customer experience (CE). Details of the item analysis for customer experience (CE) are in appendix 5.8.

Additionally, the internal consistency reliability of each construct was determined by using Cronbach alpha (Malhotra et al. 1999; Nunally 1978). Low alpha indicated that some items did not share equally in common core (Churchill 1979). Cronbach alpha coefficients less than 0.6 are considered to be poor, 0.7 is considered to be acceptable, and those over 0.8 are considered to be good (Mak 2001; Sekaran 2000;

McDonald 1999). Almost all Cronbach alpha coefficients for this study were close to 0.8 and higher, which demonstrated high internal consistency of scales used for measuring different observed variables under each construct in this study (Forman & Nyatanga 2001; Sekaran 2000; Hair, Bush & Ortinau 2000). The value of Cronbach alpha coefficient for each construct is presented in table 5.8.

**Table 5.8: Alpha coefficient of the item analysis**

<b>Construct</b>	<b>Number of cases</b>	<b>Number of items</b>	<b>Cronbach's alpha coefficient</b>
Purchase intention (PI)	786	2	0.7907
Product and company attributes (PCA)	786	14	0.7861
Perceived risk (PR)	786	11	0.7997
Perceived ease of use (EOU)	786	12	0.8647
Perceived usefulness (POU)	786	14	0.8728
Customer experience (CE)	786	6	0.8533

*Source: Developed for this research*

In summary, most of the items used in measuring constructs showed high corrected item-total correlations which indicated strong discriminating power in distinguishing respondents with positive attitudes from respondents with negative attitudes. A few items were deleted from the final items due to their negative or close to zero corrected item-total correlations. All items left in the measurement model demonstrated high item discriminating power for constructs. The Cronbach alpha coefficients of all constructs were close to 0.8 or higher which indicated high internal consistency of scales used in measuring different observed variables in this study.

#### **5.4.2 Exploratory factor analysis (EFA)**

The justification for using factor analysis is based on the assumption that the data matrix has sufficient correlations among variables (Hair et al. 1998). This section starts by examining the correlations between variables within the constructs. The overall correlation matrix of all variables is in appendix 5.9 while correlation matrixes of variables for individual construct are in appendix 5.10-5.14. Almost all of the variables used in this study were correlated positively and significantly to each other at the level of  $p < 0.05$  and  $p < 0.01$ . None of these correlations was higher than

0.75, which indicates that each variable can be distinct enough to measure different variables under the same construct (Sekaran 2000). In addition, the Bartlett's test of sphericity was used to determine the appropriateness of factor analysis by testing the magnitude of the correlations of the entire correlation matrix (Hair et al. 1998). Results from the Bartlett's test indicated significant correlations among measurement variables in each construct (see table 5.9).

**Table 5.9: Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO)**

Construct	Approx. Chi-square	df	P value	KMO
Product and company attributes (PCA)	2188.650	45	0.000	0.798
Perceived risk (PR)	2953.920	36	0.000	0.809
Perceived ease of use (EOU)	4914.443	55	0.000	0.851
Perceived usefulness (POU)	7240.377	91	0.000	0.831
Customer experience (CE)	2508.596	15	0.000	0.802

*Source: Developed for this research*

The adequacy of these relationships was further tested with Kaiser-Meyer-Olkin (KMO) statistic. The value of KMO statistic for each construct is also presented in table 5.9. The KMO value of all constructs was greater than 0.6. This indicated that the relationships among variables were statistically significant and these variables were suitable for applying exploratory factor analysis to provide a more parsimonious set of factors (Tabacknick & Fidell 1996). The results of the exploratory factor analysis are reported next.

Principal components analysis (PCA) was selected to generate initial solutions for the exploratory factor analysis mainly because it identifies the underlying evaluative dimensional structures and reduces a large number of variables into a smaller number of components by transforming a set of interrelated variables into a new set of unrelated linear composite variables (Cooper & Schindler 2001; Hair et al. 1998). Each component accounts for a decreasing proportion of total variance in the original variables and measures what the variables had in common (Cooper & Schindler 2001; Stevens 1992; Churchill 1987). The exploratory orthogonal factor analysis model with varimax rotation in SPSS 9.0 was used in this study due to the following reasons. Firstly, the result generated from orthogonal rotation has a higher generalizability and replicability power when compared with oblique rotation. The



oblique rotation is primarily concerned with getting results that best fits with data collected from the survey while orthogonal rotation provides a result that best fits with past and future data (Rennie 1997). Secondly, interpretation of orthogonal rotation factors is less complicated because factors are uncorrelated with each other. Lastly, orthogonal rotation is almost always the preferred choice for most researchers (Rennie 1997).

The purpose of this research is to enhance the theoretical knowledge in the area of factors influencing online purchase intention of health foods in Thailand. Therefore, an ability to generalize this finding is of utmost important objective for the researcher. As a result, orthogonal factor analysis with varimax rotation was selected in this study. Three criteria were used to determine the number of factors to extract, namely latent root criterion, percentage of variance criterion, and Scree test criterion. Eigenvalues greater than 1 are considered significant in latent root criterion while a solution that accounts for 60 percent of cumulative total variance or more in the percentage of variance criterion is considered to be satisfactory (Hair et al. 1998; Kaiser 1960). The results of the exploratory factor analysis are presented next.

**Product and company attributes (PCA).** Variables with low communality (B1, B2, B10, and B12) were excluded from the model (see detail in appendix 5.15). The 14 product and company attributes subscales were reduced to 10 items (see detail in table 5.10). From total variance explained analysis, there were three factors with eigenvalues greater than 1. The latent root criterion suggested that there was a three-components solution under this construct. This indicated that three extracted components captured and explained up to 60.6 percent of total variance. The Scree plot criterion also confirmed that a three-factor solution was necessary to capture variables on PCA.

Three variables in the first component were related to attributes of the company selling health foods with an explained variance of 36.6 percent. This factor was labeled *Trusted Company*. The second component comprised four variables, which were related to recommendations from friends or well-known people with an explained variance of 13.7 percent. It related to *Recommendation*. The third

component had three variables with an explained variance of 10.3 percent. It related to the trusted or popular brand of the health foods selling online or *Trusted Brand*.

**Table 5.10: Factor loading matrix and communality for product and company attributes (PCA)**

Item	Description	Component			Achieved Communality
		1	2	3	
B3	Being well known to public.	<b>0.796</b>		0.156	.663
B4	Being very well known to myself.	<b>0.792</b>	0.115	0.237	.697
B5	Having been operating good business for a long time.	<b>0.758</b>	0.195	0.207	.656
B14	Product recommended to me by friends or relatives.	0.135	<b>0.854</b>		.750
B6	Being recommended to me by friends or relatives.	0.438	<b>0.697</b>		.677
B13	Product endorsed by celebrities or well-known people		<b>0.620</b>		.402
B15	Health food with scientific proof or clinical studies	- 0.117	<b>0.492</b>	0.408	.422
B8	Being the brand name I trust.	0.214		<b>0.780</b>	.662
B9	Being the brand name I have previously used.	0.192		<b>0.736</b>	.581
B7	Being a popular brand name.	0.438	0.152	<b>0.580</b>	.552
<b>Eigenvalues or latent root</b>		3.665	1.371	1.027	
<b>Explained variance per factor (%)</b>		36.6	13.7	10.3	
<b>Cumulative (%)</b>		36.6	50.3	60.6	

*Source: Data analysis from this study*

**Perceived risk (PR).** The initial communalities for B30R were lower than 0.3. This variable was deleted from the model (see detail in appendix 5.16). The new set of communalities further indicated that items B18R and B19R should also be deleted due to their low interdependency with other items. After deleting three items from this construct, the 8 subscales left showed high communality values greater than 0.3 for all items (see table 5.11). From total variance explained analysis, there were only two factors with eigenvalues greater than 1 under this construct. The latent root criterion suggested a two-component solution for perceived risk (PR). These two components explained 62.9 percent of the total variance in perceived risk. The Scree plot criterion also confirmed that a two-factor solution was necessary to capture variables on perceived risk.

Five variables in the first component with an explained variance of 47.4 percent were related to the quality assurance, and product guarantee or warranty from the

company selling health foods online. They related to *Product Assurance*. Three variables in the second component with 15.5 percent explained variance were related to financial and transaction risk involved with payment system. The second factor was related to the *Payment Risk* of buying health foods online.

**Table 5.11: Factor loading matrix and communality for perceived risk (PR)**

Item	Description	Component		Achieved Communality
		1	2	
B26R	The quality of product purchased is fully guaranteed.	<b>0.843</b>	0.109	0.722
B29R	The customers are able to return the product purchased it not fully satisfied.	<b>0.837</b>	0.113	0.713
B27R	The product purchased is good and effective as advertised.	<b>0.809</b>	0.194	0.692
B25R	Returning money is guaranteed if product is not fully satisfactory.	<b>0.794</b>	0.140	0.650
B28R	The product purchased is exactly the same as the pictures seen.	<b>0.767</b>	0.201	0.629
B23R	There is no risk of using any unauthorized personal information.	0.151	<b>0.757</b>	0.596
B16R	Paying through credit cards online is safe and secure.		<b>0.693</b>	0.480
B22R	The company charges only the agreed correct amount of money.	0.286	<b>0.682</b>	0.546
<b>Eigenvalues or latent root</b>		3.992	1.310	
<b>Explained variance per factor (%)</b>		47.4	15.5	
<b>Cumulative (%)</b>		47.4	62.9	

*Source: Data analysis from this study*

**Perceived ease of use (EOU).** Variable B38 had an initial communality lower than 0.3, and so was deleted from the model (see detail in appendix 5.17). The new communalities were greater than 0.3 for all items (see table 5.12). From total variance explained analysis, there were only two factors with eigenvalues greater than 1. The latent root criterion suggested a two-component solution for perceived usefulness. This indicated that two components of this construct captured a total variance explained of 63.8 percent. The Scree plot criterion also confirmed that a two-factor solution was necessary to capture variables on EOU.

Five variables correlated highly with the first factor while six variables had high positive loadings on the second factor. Variables in the first factor with an explained variance of 44.5 percent were related to *Simple and Easy to Understand* product

usage and buying process. The second factor with 19.3 explained variance was related to *Convenience and Quickness* of the online buying process.

**Table 5.12: Factor loading matrix and communality for perceived ease of use (EOU)**

Item	Description	Component		Achieved Communality
		1	2	
B41	The online product picture display is clear.	<b>0.854</b>	0.134	0.747
B40	Health food's usage is easily read and understandable.	<b>0.839</b>	0.135	0.723
B43	There is a quick and swift online purchasing process.	<b>0.831</b>	0.174	0.722
B42	Products are delivered right after online order.	<b>0.829</b>	0.140	0.707
B39	The character front size must be easy to read.	<b>0.723</b>	0.217	0.569
B35	It is fast and convenient due to the information searching system.	0.113	<b>0.853</b>	0.741
B36	It is convenient due to the product delivery date.	0.130	<b>0.851</b>	0.741
B37	Its online purchasing procedure is simple.	0.180	<b>0.794</b>	0.663
B34	The company homepage is clear and easily understandable.	0.151	<b>0.782</b>	0.634
B31	It is an easy and convenient online ordering layout.	0.176	<b>0.651</b>	0.454
B44	It does not waste time filling too much in the online order form.	0.387	<b>0.406</b>	0.314
<b>Eigenvalues or latent root</b>		4.896	2.119	
<b>Explained variance per factor (%)</b>		44.5	19.3	
<b>Cumulative (%)</b>		44.5	63.8	

Source: Data analysis from this study

**Perceived usefulness (POU).** The communalities were higher than 0.3 for all items (see appendix 5.18). From total variance explained analysis, there were three factors with eigenvalues greater than 1 under perceived usefulness. The latent root criterion suggested a three-component solution for this construct. The Scree plot criterion also confirmed that a three-factor solution was necessary to captured a total variance explained of 67.1 percent on POU. The factor loading matrix and the communality of POU is presented in table 5.13.

Four variables correlate highly with the first factor. Six variables have high positive loadings on the second factor while four variables load heavily on the third factor. Variables in the first factor with an explained variance of 38.4 percent were related to *Price and Free Samples* of health foods sold online. The second factor with an explained variance of 17.2 percent was related to *Time Saving and Variety of Choices* from buying health foods online. The third factor with 11.5 percent of explained variance was related to the element of *Entertaining and Informative* buying process of health foods online.

**Table 5.13: Factor loading matrix and communality for perceived usefulness (POU)**

Item	Description	Component			Achieved Communality
		1	2	3	
B56	Larger discounts are offered.	<b>0.926</b>		0.202	0.906
B57	There are more free gifts than those in conventional stores.	<b>0.913</b>		0.208	0.884
B55	Prices are lower than those of conventional stores.	<b>0.906</b>	0.129	0.146	0.858
B58	Free samples are available.	<b>0.826</b>		0.170	<b>0.716</b>
B51	It does not waste time traveling to shops.		<b>0.828</b>	0.116	<b>0.699</b>
B52	You are able to shop things from both domestically and abroad.		<b>0.798</b>		<b>0.640</b>
B50	You can shop at your convenience whenever you want.		<b>0.778</b>	0.136	<b>0.626</b>
B53	There is a variety of health food to choose from.	0.317	<b>0.689</b>		<b>0.579</b>
B54	There are more varied choices of companies providing health food.	0.418	<b>0.604</b>		<b>0.546</b>
B49	No sales persons bother me.		<b>0.541</b>	0.224	<b>0.344</b>
B46	It is enjoyable.	0.124		<b>0.896</b>	<b>0.824</b>
B45	It is fun and exciting.	0.144		<b>0.883</b>	<b>0.802</b>
B47	Rich and varied information is provided.	0.216	0.323	<b>0.622</b>	<b>0.538</b>
B48	It has more reliable information than the one from a sales person.	0.311	0.239	<b>0.526</b>	<b>0.431</b>
<b>Eigenvalues or latent root</b>		5.373	2.409	1.610	
<b>Explained variance per factor (%)</b>		38.4	17.2	11.5	
<b>Cumulative (%)</b>		38.4	55.6	67.1	

*Source: Data analysis from this study*

**Customer experience (CE).** The communality analysis is presented in appendix 5.19, showing high values for all items. From total variance explained analysis, there were only two items with eigenvalues greater than 1 from this construct. The latent root criterion suggested a two-component solution for this construct. This indicated that two components of this construct captured a total variance explained of up to 80.2 percent. The Scree plot criterion also confirmed that a two-factor solution was necessary to capture variables on CE. The factor loading matrix and the communality of CE is presented in table 5.14.

**Table 5.14: Factor loading matrix and communality for customer experience (CE)**

Item	Description	Component		Achieved Communality
		1	2	
B62	As skillful in Internet as other communication tools.	<b>0.854</b>	0.293	0.815
B63	Frequent Internet surfer.	<b>0.850</b>	0.143	0.742
B61	Skillful, efficient in surfing the Internet.	<b>0.843</b>	0.291	0.796
B64	Frequent searchers of information on the Internet.	<b>0.798</b>	0.137	0.655
B59	Trendy.	0.202	<b>0.852</b>	0.767
B60	Like to try new things.	0.205	<b>0.845</b>	0.756
<b>Eigenvalues or latent root</b>		3.500	1.030	
<b>Explained variance per factor (%)</b>		58.3	17.2	
<b>Cumulative (%)</b>		58.3	75.5	

*Source: Data analysis from this study*

Four variables correlated highly with the first factor while the other two variables had high positive loadings on the second factor. Variables in the first factor with an explained variance of 58.3 percent were related to the *Skill and Experiences* among the Internet users. Variables in the second factor with 17.2 percent explained variance were related to *Modern Personality* of respondents in adopting new technology such as the Internet.

The exploratory factor analysis demonstrated that the interrelationships of the original measurement scales were captured by 12 factors. Table 5.15 shows detail of the factors derived from exploratory factor analysis and the percentage of variance explained by each factor. Factors in each construct captured more than 60 percent of total variance, which was considered satisfactory (Hair et al. 1998).

The three factors, namely *trusted company*, *recommendation* and *trusted brand* in the construct of product and company attributes (PCA) captured 60.6 percent of total variance explained by this construct. *Trusted company* was the most important factor affecting the purchase intention of health foods online under product and company attributes.

**Table 5.15: Factors derived from exploratory factor analysis**

Construct	Rank of Factors	Factor	% Explained Variance
Product and company attributes (PCA)	1	Trusted company	36.6
	2	Recommendation	13.7
	3	Trusted brand	10.3
<b>Total variances explained by PCA</b>			<b>60.6</b>
Perceived risk (PR)	1	Product assurance	47.4
	2	Payment risk	15.5
<b>Total variances explained by PR</b>			<b>62.9</b>
Perceived ease of use (EOU)	1	Simple and easy understanding	44.5
	2	Convenience and quickness	19.3
<b>Total variances explained by EOU</b>			<b>63.8</b>
Perceived usefulness (POU)	1	Price and free samples	38.4
	2	Time saving and variety of products	17.2
	3	Entertaining and informative	11.5
<b>Total variances explained by POU</b>			<b>67.1</b>
Customer experience (CE)	1	Skill and experiences	58.3
	2	Modern personality	17.2
<b>Total variances explained by CE</b>			<b>75.5</b>

*Source: Developed for this research*

There were only two factors in perceived risk (PR), namely *product assurance* and *payment risk*. These two factors explained 62.9 percent of the total variance. *Product assurance* was the more important factor affecting the purchase intention of health foods online under perceive risk.

In the case of perceived ease of use (EOU), there were two factors namely *simple and easy to understand* and *convenience and quickness* of purchase process. These two factors explained 63.8 percent of total variance. *Simple and easy to understand* ordering procedure was the more important factor to consumers when buying health foods online.

Perceived usefulness (POU) was comprised of three factors, namely *price and free samples*, *time saving and variety of products* and *entertaining and informative*, which captured 67.1 percent of total variance explained by this construct. *Price and*

*free samples* given during the online purchase process was the most important factor affecting the purchase intention to buy health foods online.

The last construct, customer experience (CE), had two factors namely *skill and experiences* of users and the *modern personality* of users. These two factors captured 75.5 percent of total variance explained by this construct. *Skill and past experiences* of consumers in using the Internet was the more important factor motivating consumers to buy health foods online.

In summary, item analysis indicated that scales used in measuring observed variables demonstrated high internal consistency with Cronbach's alpha coefficients close to 0.8 and higher for all constructs. The magnitude and adequacy of correlation of these variables were significant such that principal component analysis was used to transform a large number of original correlated variables into 12 factors representing five constructs in the measurement model. However, the exploratory factor analysis does not take into account the measurement error in the model. Therefore, these variables and their relationships need to be further confirmed by using confirmatory factor analysis in the structural equation modeling as reported next.

## **5.5 Structural equation modeling (SEM)**

Exploratory factor analysis (EFA) was used to group 49 variables with high discriminating power into 12 factors in the previous section. However, EFA is not a suitable method for confirming test models because it begins with no explicit model and factor loadings are taken from maximizing the rotation during the analysis (Hoyle 1995). Unlike exploratory factor analysis (EFA), confirmatory factor analysis (CFA) provides a better factorial validity and convergent validity by constraining factor loadings to zero on factors, which are not meant to measure. According to Joreskog and Sorbom (1986), models that include more than 30 indicators are difficult to fit even with strong theoretical support. The model used in this study had 49 variables taken from EFA. As a result, a two-step approach was employed in this study where confirmatory factor analysis (CFA) was used to test the measurement model and path analysis was used to test the structural model (Anderson & Gerbing 1988). Structural equation modeling (SEM) using LISREL was chosen in this study



to confirm the measurement model yielded from the previous section because SEM offered a mechanism to validate relationships between constructs and indicators by using confirmatory factor analysis (CFA) and test the relationships among constructs by using path analysis in a single model (Hair et al. 1998; Bentler 1995; Hoyle 1995). The SEM in this study followed the five synthesized steps of SEM proposed by Hoyle (1995). Detail is in table 5.16.

**Table 5.16: Steps of structural equation modeling used in this research**

Step number	Synthesis of steps	Chapter
1	Model specification	Chapter 2, section 2.5 Chapter 3, section 3.5
2	Estimation	Chapter 5, section 5.6
3	Evaluation of fit	Chapter 5, section 5.6
4	Model modification	Chapter 5, section 5.6
5	Interpretation	Chapter 5, section 5.6

*Source: Adapted from Hoyle 1995*

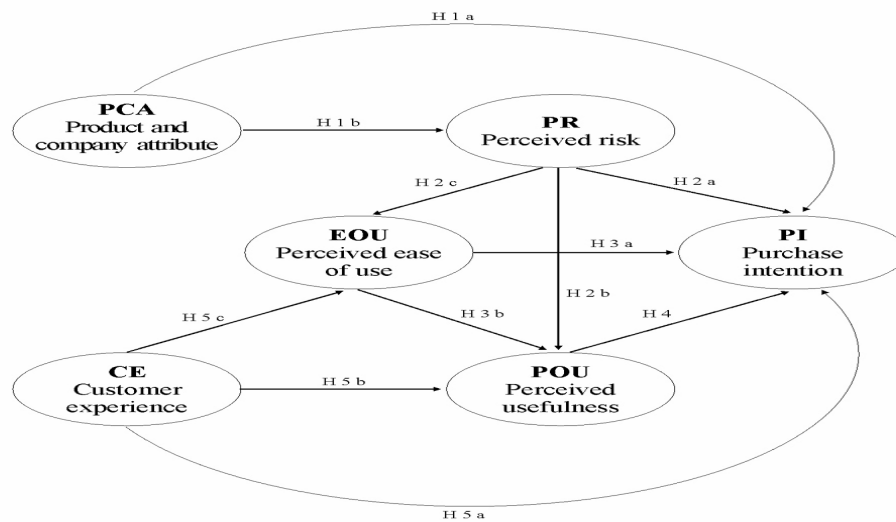
The 49 item variables from EFA were used as observed variables in CFA to determine and confirm whether the proposed measurement model adequately fitted the data. After getting confirmed variables from CFA, latent variables were constructed by using latent scores and used as observed variables of the latent constructs in the structural model in path analysis. Next, the procedure of SEM is discussed in detail step by step.

**Model specification.** The measurement model was developed from the literature review in chapter 2 together with consumer insight gained from the exploratory study in chapter 3. Unlike exploratory factor analysis, relationships of variables in the confirmatory factor analysis must be specified prior to the analysis (Miles et al. 2001, Hair et al. 1998). Product and company attributes (PCA) and customer experience (CE) were exogenous variables or hypothesized constructs for predicting endogenous variables, which were perceived risk (PR), perceived ease of use (EOU), perceived usefulness (POU), and purchase intention (PI) in the proposed model. The arrows leading from the exogenous variables to endogenous variables in SEM

represent the causal relationships between them. Figure 5.7 is the model specifying relationships before using SEM.

The model identification between free parameters and the observed variance and covariance in this study were tested with LISREL 8.3 to avoid under-identified because this software package produces a warning message if the model is under identified. All models in this study were over-identified indicating a proper solution generation (Kelloway 1998; Hoyle 1995).

**Figure 5.7: Model specification of this research**



*Source: Developed for this research*

**Estimation.** The sample size (786 persons) in this study was less than 1000. Small sample size could affect the estimation of the asymptotic covariance matrix and create bias in the estimation (Joreskog 1990). CFA in LISREL offered a few Chi-square tests for testing the goodness of fit such as the Maximum likelihood  $\chi^2$  (ML), Browne's asymptotic distribution free  $\chi^2$  (ADF), and the Satorra-Bentler rescaled  $\chi^2$  (SB). Generally, both ML and SB show no evidence of bias under normal distribution while Browne's asymptotic distribution ADF shows no bias with larger sample size over 1000 (Curran, West & Finch 1996). Although ML estimation is the most common estimation used for measuring interval scaled variables when the data is multivariate normal, it would increase overestimation with the increase of nonnormality in the model (Curran, West & Finch 1996, Hair et al. 1998; Kunnan

1998; Hoyle & Panter 1995). On the contrary, Satorra-Bentler scaled  $\chi^2$  shows no evidence of bias with nonnormal data (Curran, West & Finch 1996). Most of the data in this study were multivariate nonnormal. As a result, the ML based scaled method called robust maximum likelihood  $\chi^2$  (ML) was chosen for this study because it provided the Satorra- Bentler scaled statistics that had correct  $\chi^2$  and robust standard errors even if the assumption of normality is not met (Kunnan 1998). This point is very important because most of the statistical analysis in CFA is based on the normality assumption (Joreskog & Sorbom 1999). The sample size in this study is 786 respondents, which is larger than 200 observations. Therefore, ML is appropriately used in this analysis (Kelloway 1998; Hair et al. 1998).

In this study, skewness and kurtosis were used for testing univariate normality in the observed variables, while Mardia's coefficient was used for testing multivariate normality (Browne 1982). The PRELIS 2 program in LISREL 8.3 calculated those statistics. Details of skewness, kurtosis and Mardia's coefficients are shown in appendix 5.20. Forty-one variables out of 49 variables showed significant skew  $p < 0.05$  while twenty-seven variables out of 49 variables showed significant kurtosis  $p < 0.05$ . In addition, forty-six variables in this study showed both significant skewness and kurtosis  $p < 0.05$ . Therefore, Satorra-Bentler rescaled statistics were chosen in order to correct the Chi -square and standard errors of the nonnormal distribution of data in this study. Summary statistics of means, standard errors, and the covariance matrix are reported in appendix 5.21.

**Evaluation of model fit.** The purpose of assessing a model's overall fit is to determine the extent to which the overall hypothesized model is consistent with data collected. LISREL 8.3 generates many model fit indices, each of which has its own statistical functions (Joreskog & Sorbom 1989). Based on the recommendation of many researchers, one or more measures from each type of index should be used in model assessment (Hair et al. 1998; Schumacker & Lomax 1996; Tanaka 1993; Bollen 1989; Marsk et al. 1988). Three types of fit indexes were selected for assessing model fit in this research.

Firstly, *absolute fit indexes* are used to assess the ability of the model to reproduce the actual correlation or covariance matrix (Hair et al. 1998). This index is used to assess overall model fit of the measurement models and structural models. The absolute fit index includes the statistically nonsignificant chi-square statistic ( $\chi^2$ ) in association with its degrees of freedom (df), root mean square error of approximation (RMSEA), and the goodness-of-fit index (GFI). Secondly, *comparative fit indexes* are used to assess whether the model under consideration is better than competing models. The comparative fit indexes include incremental fit index (IFI), and comparative fit index (CFI). Lastly, *parsimonious fit indexes* are used to assess the cost-benefit trade off of model fit and the degrees of freedom. The parsimonious fit indexes include the adjusted goodness-of-fit index (AGFI) and consistent Akaike information criterion (CAIC). Details of these fit indexes and their criterion are summarized in table 5.17.

**Table 5.17: Goodness of fit indices and criteria used in this study**

Assessment Index	Model fit index	Criteria	Reference
Absolute fit index	Chi-square $\chi^2$	$\chi^2$ , df, p >0.05	Joreskog & Sorbom 1989; Diamantopoulos & Siguaw 2000
	RMSEA	$\leq 0.08$	MacCallum et al. 1993; Hu & Bentler 1995; Mak 2001
	GFI	$\geq 0.95$ good $\geq 0.90$ acceptable	Bentler & Bonett 1990; Joreskog & Sorbom 1993; Novy et al. 1995; Kelloway 1998; Mak 2001.
Comparative fit index	CFI	$\geq 0.9$	Bentler 1990; Bryne 1994; Hu & Bentler 1995; Hatcher 1996; Chau 1997; Mak 2001
	IFI	$\geq 0.9$	Bollen 1989; Hu & Bentler 1995
Parsimonious fit index	AGFI	$\geq 0.95$ good $\geq 0.90$ acceptable	Hair et al. 1998; Kelloway 1998; Chau 1997; Rai & Patnayakuni 1996; Joreskog & Sorbom 1993;
	CAIC	$CAIC_{\text{model}} < CAIC_{\text{saturated}}$	Akaike 1987; Bozdogan 1987

*Source: Developed for this research from*

**Note:** RMSEA = root mean square error of approximation, GFI = goodness of fit index  
CFI = comparative fit index, AGFI = adjusted goodness of fit index  
CAIC = Consistent Akaike Information Criterion IFI = Incremental fit index,

**Model modification.** This process involves the adjustment of the specified model by adding or deleting certain parameters to improve the model fit (Diamantopoulos & Siguaw 2000). Model development strategy using incremental modifications were

applied in this study to achieve the best fitting measurement model and ensure that the model improvement is substantively interpretable and meaningful (Segars & Grover 1993; MacCallum et al. 1992). This method is acceptable because latent variables in the measurement model are measured with multiple scales where theoretical justifications can be made to explain the changes before deleting the selected indicators. Deletion in this study was made one by one to avoid affecting the other parts of the model until the resubmitted model achieved satisfactory model fit (Segars & Grover 1993).

**Interpretation.** LISREL 8.3 produces three pieces of information for each free parameter in the model, the standardized parameter estimate, its standard error, and the relevant t-value. As a result of the levels of nonnormality of variables in the model, t-values  $> 2$  (instead of 1.96) were used as criteria to conclude with confidence that the coefficient of a certain parameter is significant (Steenkamp & Van Trijp 1991). Similarly, factors loadings higher than 0.5, were also used as a criteria to be accepted with statistical significance  $p < 0.05$  (Churchill 1987).

After achieving the final and fitted model, reliability analysis using Cronbach's alpha was calculated to examine the internal consistency of the construct indicators. In addition, composite or construct reliability was also computed to depict the degree to which these indicators measured the common latent construct. The composite reliability was recommended to be greater than 0.7 (Hair et al. 1998). Next, application of confirmatory factor analysis (CFA) in measurement model is discussed, followed with path analysis in the hypothesized structural model.

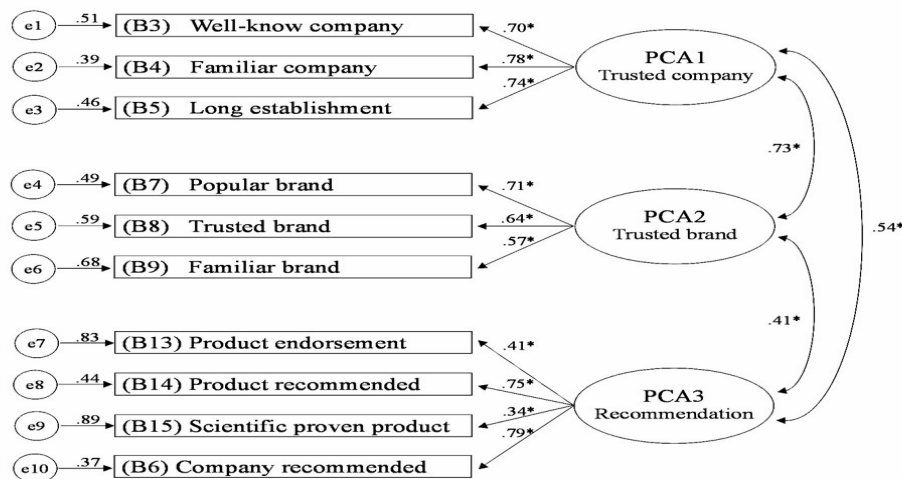
### **5.5.1 Confirmatory factor analysis (CFA)**

This process was similar to exploratory factor analysis (EFA). The only difference was that the measurement items from the EFA were used as observed indicators for the latent variables in the confirmatory factor analysis (CFA). Variable names of these composite variables are presented in appendix 5.22. Pearson's correlations of the composite variables are presented in appendix 5.23. Almost all of the composite variables used in this study were correlated positively and significantly to each other at confidence levels of  $p < 0.05$  and  $p < 0.01$ . None of these correlations is higher than

0.75, which indicates that each variable is distinct enough to measure different variables under the same construct (Sekaran 2000). Descriptive statistics, the covariance matrix of latent variables and results of tests are presented in appendix 5.24 – 5.25. Details of the relationships between observed variables and the latent variables are discussed next.

**Product and company attributes (PCA).** The three factors from CFA were similar to the result found in the EFA. The modified model of product and company attributes (PCA) is displayed in figure 5.8.

**Figure 5.8: Modified model of product and company attributes (PCA)**



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
171.48	32	0.00	0.075 √	0.95 √	0.91 √	0.91 √	0.91 √	347.82 < 421.68 √

Source: Developed for this research

The first factor consisted of three observed indicators, *trusted company*. Factor loadings of all measurement variables were statistically significant and ranged from 0.70 to 0.78 indicating a strong association between factors and their variables (Churchill 1987). The second factor was related to *trusted brand* of health foods sold online. All factor loadings were significant and higher than 0.5 indicating an acceptable relationship of the factor and its variables. The third factor was related to *recommendation* of product and company. All of the factor loadings were significant but only two out of four variables had factor loadings higher than 0.5. *Company recommended by friend or relatives*, with a factor loading of 0.79, was the most

effective item. In brief, the measurement model for product and company attributes (PCA) had acceptable fit as indicated by the fit indexes in figure 5.8. The findings from CFA were similar to the result found in the exploratory factor analysis and in line with the exploratory research in chapter 3.

**Perceived risk (PR).** The proposed model taken from exploratory factor analysis in the previous section did not fit. Details of the model fit indexes are presented in table 5.18. Six out of seven indexes did not yield acceptable fit indexes. As a result, variable B25 (*returning money is guaranteed*) and B26 (*product quality is fully guaranteed*) were deleted because these two items had similar meaning to variable B29 (*customers are able to return products if not fully satisfactory*).

**Table 5.18: Model fit indexes for perceived risk before deleting variables**

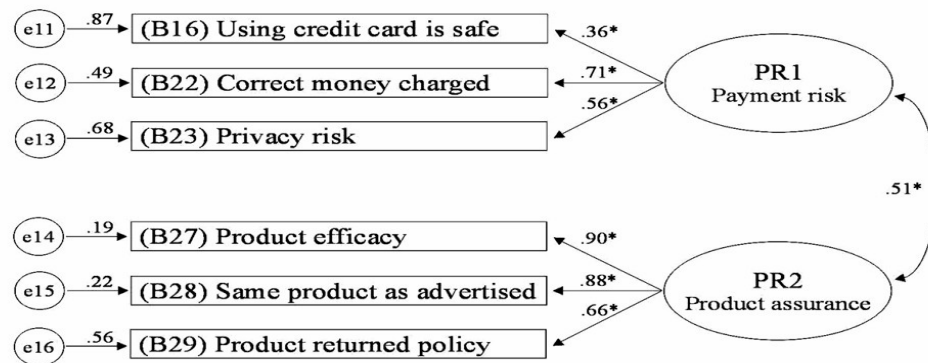
Factor	$\chi^2$	Df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
Criteria			>0.05	<0.08	$\geq 0.90$	$\geq 0.90$	$\geq 0.90$	$\geq 0.90$	CAIC <sub>model</sub> < CAIC <sub>saturated</sub>
Perceived risk (PR)	376.16	19	0.00	0.15 <b>X</b>	0.84 <b>X</b>	0.81 <b>X</b>	0.81 <b>X</b>	0.70 <b>X</b>	506.50 > 276.01 <b>X</b>

*Source: Analysis data from this study*

The Satorra-Bentler scales improved from  $\chi^2 = 376.16$  (df = 19, p = 0.00) to 11.58 (df = 8, p = 0.17) and all goodness of fit indexes after deleting these variables yielded acceptable fit. The two factors from CFA were similar and confirmed the result from EFA. The modified model for perceived risk is presented in figure 5.9 together with the model fit indexes.

The first factor was related to **payment risk**. All factor loadings were significant but only two out of three variables had factor loadings greater than 0.5. *Correct money charged by company* when buying health foods online is the most important variable with a factor loading = 0.71. Respondents were afraid of being overcharged when they bought health foods online. This finding is similar to the result from the exploratory study in chapter 3. The second factor was related to **product assurance**. All factor loadings were significant and greater than 0.5. Product efficacy was the strongest variable with a factor loading = 0.90.

**Figure 5.9: Modified model for perceived risk (PR)**



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
11.58	8	0.17	0.024	0.99	1.00	1.00	0.98	111.25 < 161.01
		√	√	√	√	√	√	√

Source: Developed for this research

**Perceived ease of use (EOU).** The first model did not fit. Details of the fit indexes are presented in table 5.19. Six out of seven fit indexes were not acceptable. As a result, three variables were deleted from the model namely B35 (*fast and convenient searching system*), B36 (*convenient delivery date*), and B44 (*not have to fill too much information*). Information of these variables was still captured by the rest of items such as B37 (*purchase procedure is simple*) and B43 (*quick and swift buying process*). The Satorra-Bentler Scales improved from  $\chi^2 = 565.91$  (df = 43, p = 0.00) to 71.48 (df = 17, p = 0.00).

**Table 5.19: Model fit indexes for perceived ease of use before deleting variables**

Factor	$\chi^2$	Df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
<b>Criteria</b>			>0.05	<0.08	≥0.90	≥0.90	≥0.90	≥0.90	CAIC <sub>model</sub> < CAIC <sub>saturated</sub>
Perceived ease of use (EOU)	565.91	43	0.00	0.12 X	0.84 X	0.85 X	0.85 X	0.75 X	742.25 > 506.02 X

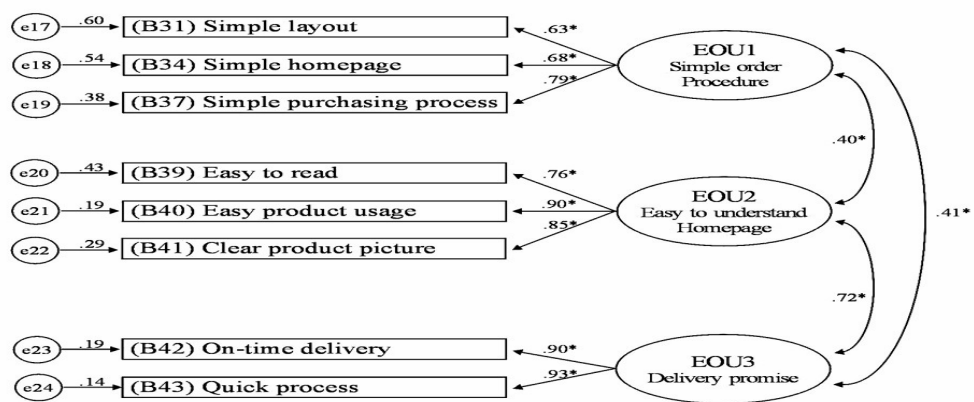
Source: Developed for this research

The final hypothesized model fit indexes yielded acceptable fit. There were three factors with eight effective measurement scales found from CFA, which gave good



model fit indexes. The factors of perceived ease of use found from CFA were one factor higher than EFA, where the first two factors were combined into one factor. The first factor was related to *simple order procedure* of health foods online. All factor loadings were significant and factor loadings were higher than 0.6. Simple purchasing process had the highest factor loading among the three effective measurement items. The modified model for perceived ease of use is displayed in figure 5.10 together with the model fit indexes.

**Figure 5.10: Modified model for perceived ease of use (EOU)**



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
71.48	17	0.00	0.064 √	0.97 √	0.98 √	0.98 √	0.94 √	217.16 < 276.01 √

Source: Developed for this research

The second factor was related to *easy to understand homepage*. All factor loadings were significant and higher than 0.7. Items in this factor were related to the font size of text used in the homepage, easy understanding product description, and clear product shot on the Internet. The third factor was related to *delivery promise* where factor loadings were up to 0.9. These findings are similar to the results from the focus groups.

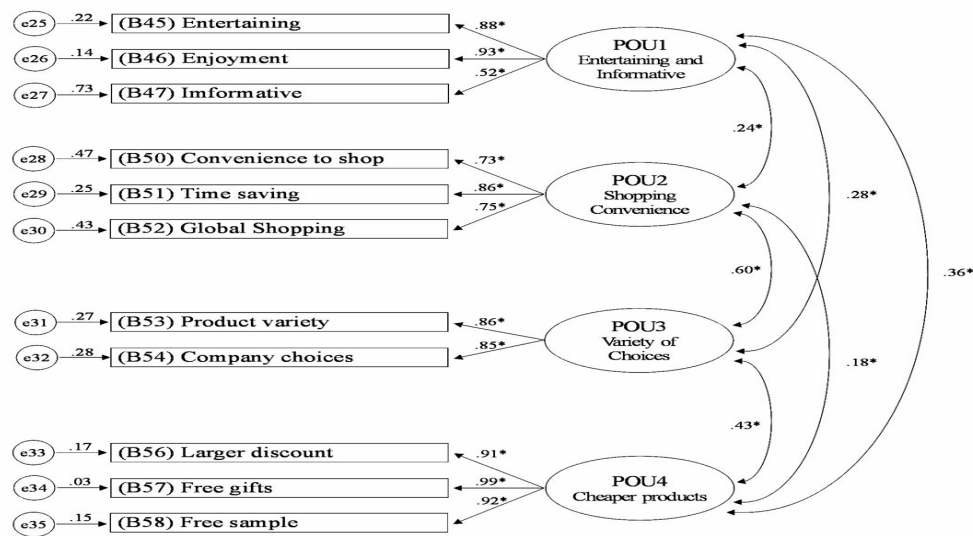
**Perceived usefulness (POU).** The first model did not fit. Details of the model fit indexes are in table 5.20. The modified model for perceived usefulness is presented in figure 5.11 together with the model fit indexes.

**Table 5.20: Model fit indexes for perceived usefulness before deleting variables**

Factor	$\chi^2$	Df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> VS CAIC <sub>saturated</sub>
Criteria			>0.05	<0.08	≥0.90	≥0.90	≥0.90	≥0.90	CAIC <sub>model</sub> < CAIC <sub>saturated</sub>
Perceived usefulness (POU)	635.73	74	0.00	0.098 X	0.83 X	0.87 X	0.87 X	0.76 X	873.40 > 805.03 X

Source: Developed for this research

**Figure 5.11: Modified model for perceived usefulness (POU)**



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> VS CAIC <sub>saturated</sub>
116.42	38	0.00	0.051 √	0.95 √	0.97 √	0.97 √	0.91 √	331.10 < 506.02 √

Source: Developed for this research

Six out of seven indexed do not yield acceptable fit indexes. As a result, three variables (B48, B49, and B58) were deleted. B48 and B49 were items related to sales persons while B58 was related to free samples. Other items left in the model such as B47, B55, B56, and B57 captured the information from these three items. The Satorra-Bentler Scales improved from  $\chi^2 = 635.73$  (df = 74, p = 0.00) to 116.42 (df = 38, p = 0.00). The other seven model fit indexes yielded acceptable fit. There were three factors under this construct found from CFA, which was one factor higher than EFA, where the first two factors were combined into one factor. All factor loadings

were significant and higher than 0.7 with the exception of the item called informative.

The first factor was related to *entertaining and informative* property of online purchase. Respondents wanted to have fun and enjoyment in addition to the information that they got from buying health foods online. The second factor was related to *shopping convenience*. They can buy anything at anytime from anywhere when they purchased health foods online. The third factor was related to *variety of choices*. Respondents had more variety of products and companies to choose from on the Internet. This included health foods, which were not available or difficult to buy in the Thai market. The fourth factor was related to *cheaper products*. All factor loadings were close to 1.00 indicating that respondents related free gifts, free samples, and larger discount with the products sold on the Internet. This could be due to the fact that many companies are now offering free gifts, free samples, discounts, and so on all the time to whoever logs on to their Web sites. These findings are similar to the findings from chapter 3.

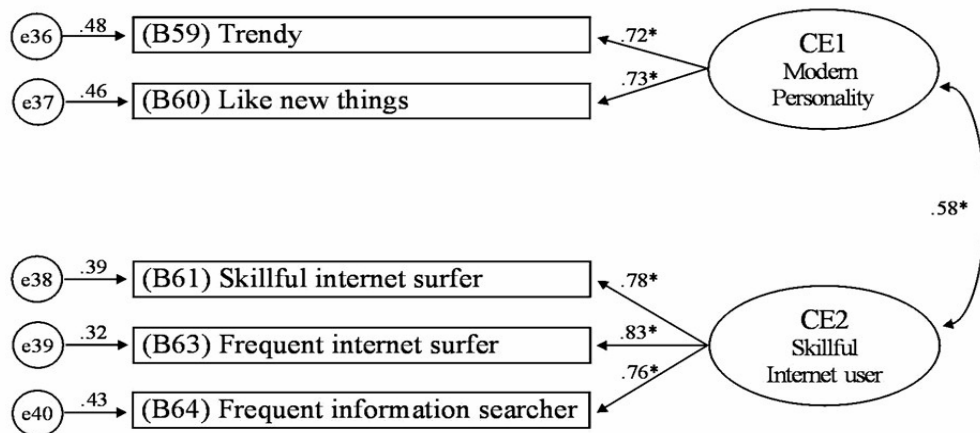
**Customer experience (CE).** The first model did not fit. Details of the fit indexes are in table 5.21. Five out of seven indexes did not yield acceptable fit indexes. The model yielded only one good fit index - GFI. As a result, variable B62 (*skillful in other communication tools*) was deleted. The Satorra-Bentler Scales improved from  $\chi^2 = 96.51$  (df = 8, p = 0.00) to 23.54 (df = 4, p = 0.00). The other seven model fit indexes yielded acceptable fit. Two factors found from CFA were similar to EFA. All factor loadings were significant and higher than 0.7. The modified model for customer experience is presented in figure 5.12 together with the model fit indexes.

**Table 5.21: Model fit indexes for customer experience before deleting variables**

Factor	$\chi^2$	Df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
Criteria			>0.05	<0.08	$\geq 0.90$	$\geq 0.90$	$\geq 0.90$	$\geq 0.90$	CAIC <sub>model</sub> < CAIC <sub>saturated</sub>
Customer experience (CE)	96.51	8	0.00	0.12 X	0.95 √	0.85 X	0.85 X	0.88 X	196.18 > 161.01 X

Source: Developed for this research

**Figure 5.12: Modified model for customer experience (CE)**



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
23.54	4	0.00	0.079 √	0.99 √	0.98 √	0.98 √	0.95 √	107.88 < 115.0 √

Source: Developed for this research

The first factor was related to *modern personality* of users. This factor had two effective measurement scales with factor loadings higher than 0.7. The second factor was related to *skill of Internet users*. The factor loading of these three effective measurement items were higher than 0.7 indicating a strong relationship between the factor and its measurement items. A summary of the goodness of fit indexes for each construct is reported in table 5.22. Six out of seven indexes for measuring goodness-of-fit indicated good fit for all proposed models. Perceived risk was the only model that had good model fit for all seven indexes.

All factor loadings in these models were calculated in standardized forms so that their relationships could be compared across different variables (Hair et al.1998). The overall good model fit indexes and the statistical significance of all factor loadings ( $p < 0.05$ ), indicate validity of variables used to represent the construct of interest in each of the measurement models (Diamantopoulos & Sigauw 2000; Churchill 1987).

**Table 5.22: Summary of goodness-of-fit indexes from CFA**

Factor	$\chi^2$	Df	p	RMSE A	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
Criteria			>0.05	<0.08	≥0.90	≥0.90	≥0.90	≥0.90	CAIC <sub>model</sub> < CAIC <sub>saturated</sub>
Product and company attributes (PCA)	171.48	32	0.00	0.075 √	0.95 √	0.91 √	0.91 √	0.91 √	347.82 < 421.68 √
Perceived risk (PR)	11.58	8	0.17 √	0.024 √	0.99 √	1.00 √	1.00 √	0.98 √	111.25 < 161.01 √
Perceived ease of use (EOU)	71.48	17	0.00	0.064 √	0.97 √	0.98 √	0.98 √	0.94 √	217.16 < 276.01 √
Perceived usefulness (POU)	116.42	38	0.00	0.051 √	0.95 √	0.97 √	0.97 √	0.91 √	331.10 < 506.02 √
Customer experience (CE)	23.54	4	0.00	0.079 √	0.99 √	0.98 √	0.98 √	0.95 √	107.88 < 115.0 √

*Source: Analysis data from this research*

The reliability analysis using Cronbach’s alpha and composite reliability were computed to test the internal consistency of indicators in the constructs (see details in appendix 5.26-5.30). Table 5.23 reports the summary of Cronbach’s alpha and construct reliability of latent variables used in the model.

**Table 5.23: Reliability analysis and construct reliability of constructs**

Construct	Cronbach alpha		Construct reliability	
Criteria	≥ 0.7		>0.5	
Purchase intention (PI)	0.7907	√	0.7918	√
Product and company attributes (PCA)	0.7953	√	0.8798	√
Perceived risk (PR)	0.7295	√	0.8462	√
Perceived ease of use (EOU)	0.8356	√	0.9376	√
Perceived usefulness (POU)	0.8456	√	0.9642	√
Customer experience (CE)	0.7986	√	0.8752	√

*Source: Analysis of field data for this research*

All of these indexes were higher than the recommended criteria showing strong reliability and high internal consistency in measuring relationships in the measurement models (Hair et al. 1998).

In brief, there were 14 factors extracted from five constructs in confirmatory factor analysis (CFA) compared to 12 factors generated from exploratory factor analysis (EFA). The comparison of factors from both analyses is presented in table 5.24.

**Table 5.24: Comparison of factors extracted from exploratory factor analysis and confirmatory factor analysis**

<b>Construct</b>	<b>Factors discovered from EFA</b>	<b>Factors discovered from CFA</b>
Product and company attributes (PCA)	Trusted company	Trusted company
	Recommendation	Recommendation
	Trusted brand	Trusted brand
Perceived risk (PR)	Product assurance	Product assurance
	Payment risk	Payment risk
Perceived ease of use (EOU)	Simple and easy understanding	Simple order procedure
	Convenience and quickness	Easy to understand homepage
		Delivery promise
Perceived usefulness (POU)	Price and free samples	Cheaper products
	Time saving and variety of products	Variety of choices
	Entertaining and informative	Entertaining and informative
		Shopping convenience
Customer experience (CE)	Skill and experiences	Skillful Internet users
	Modern personality	Modern personality

*Source: Developed for this research*

In summary, the overall model fit indicated that there was adequate representation of relationships of the proposed measurement model used in this study. All of the five constructs were evaluated separately. The factor loadings of each construct were found to be statistically significant ( $p < 0.05$ ). The constructs met the criteria of both validity and reliability. There were 14 factors under the five constructs found in confirmatory factor analysis, two factors more than resulted from exploratory factor analysis (12 factors). The difference was that factors in confirmatory factor analysis were classified with more detail on perceived ease of use (EOU) and perceived usefulness (POU). The multiple factors measurement models for factors influencing online purchasing of health foods were developed with good estimates of the underlying latent variables. Next, path analysis was used to test the structural model.

## 5.5.2 Path analysis with latent variables

Path analysis was employed in this study to optimize fit of the structural model and test the hypotheses of relationships between constructs and measured variables drawn from confirmatory factor analysis (Kunnan 1998; McDonald 1996). The proposed structural model for path analysis is presented in figure 5.13. The analysis process was similar to the confirmatory factor analysis in the previous section. The 14 composite variables extracted from confirmatory factor analysis in the previous section were used as observed variables in the structural model of path analysis.

**Table 5.25: Goodness-of-fit indexes of model modification**

Factor	$\chi^2$	Df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
Criteria			>0.05	<0.08	≥0.90	≥0.90	≥0.90	≥0.90	CAIC <sub>model</sub> < CAIC <sub>saturated</sub>
Proposed model with all theoretical paths	55 9.5 2	92	0.00 √	0.080 √	0.91 √	0.88	0.88	0.86	896.87 < 1042.71 √
Model modification with correlated measurement errors of POU	44 0.1 4	89	0.00 √	0.071 √	0.93 √	0.91 √	0.91 √	0.89	800.48 < 1042.71 √
Nested Model (delete linkage PR→PI)	44 1.6 4	91	0.00 √	0.070 √	0.93 √	0.91 √	0.91 √	0.89	786.65 < 1042.71 √

*Source: Analysis data from this study*

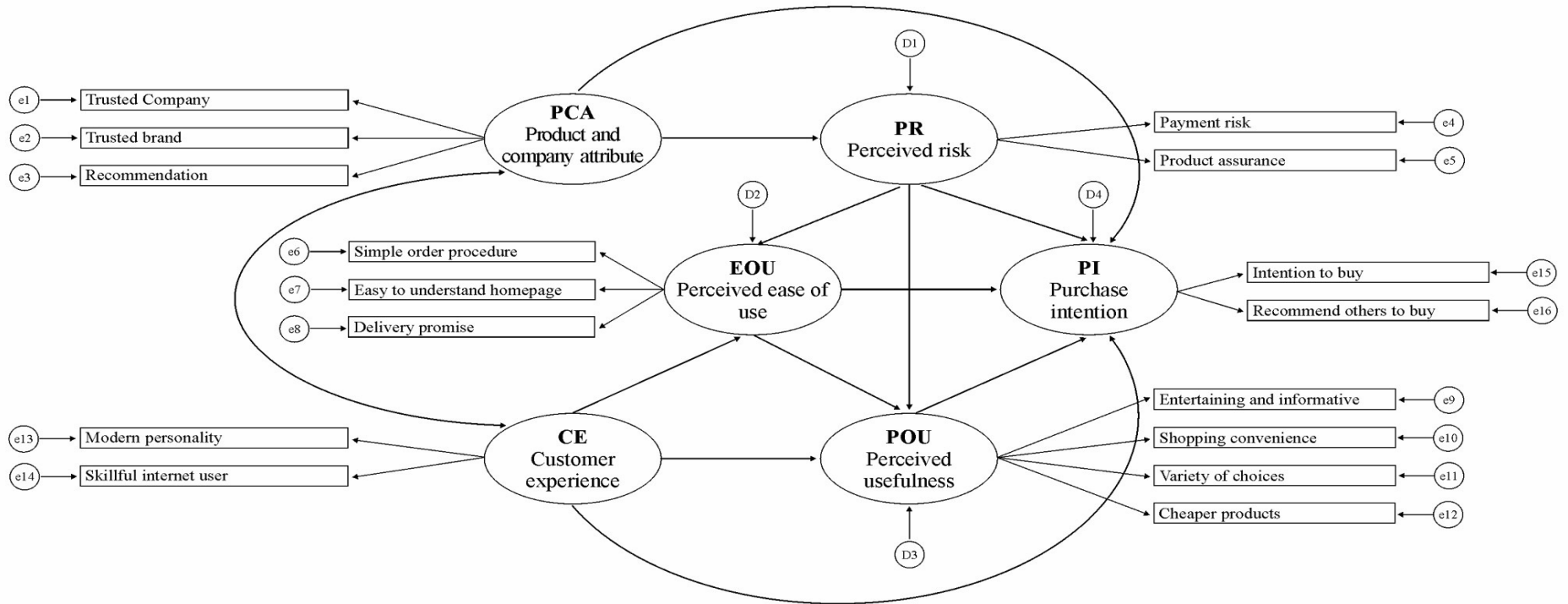
The first structural model did not fit. Although the proposed model showed some good fit indexes, half of the indexes did not meet the criteria as detailed in table 5.25.

Model modification was applied to increase the model fit indexes. Variables and their relationships in the structural model of this study were formulated from the literature review in chapter 2 and refined by using result from exploratory research in chapter 3. In general, it is not advisable to add or delete any structural relationships from the model without having enough theoretical justification or methodological reasons in support (Diamantopoulos & Sigauw 2000; Segars & Grover 1993; MacCallum et al. 1992). The last option was to allow a few measurement errors to be correlated in the structural model in order to improve the model goodness of fit (Pedhazur 1997). Data from the analysis indicated that measurement errors of

perceived usefulness between POU1 and POU4, POU2 and POU3, and POU3 and POU4 provided the most reduction of chi-square if they were correlated. As a result, the researcher allowed the measurement errors of perceived usefulness to be correlated to improve the model fit indexes. After modification, the revised model demonstrated a substantial improvement of the goodness-of-fit indexes. Six out of seven goodness-of-fit indexes met the model fit criteria. The only unacceptable fit index of AGFI was 0.89, which were very close to 0.90 and considered to be accepted for model fit. Details of the fit indexes are in table 5.25 and the modified structural model is displayed in figure 5.14. This was the best fitting structural model because it achieved the best goodness-of-fit indexes of structural models with almost all of the hypothesized paths between the latent constructs statistically significant ( $p < 0.05$ ) (Cheng 2001) except the two relationships between perceived risk and purchase intention and customer experience and purchase intention.

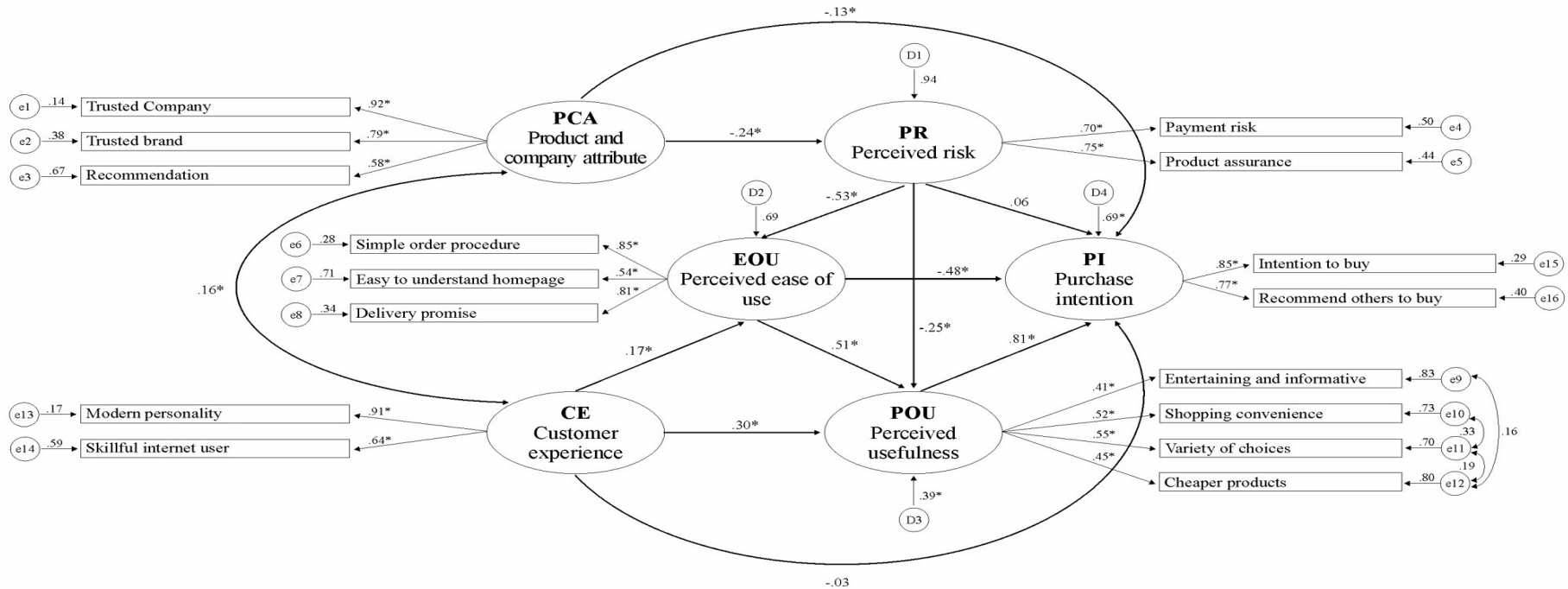


**Figure 5.13: Proposed structural model**



*Source: Developed for this research*

Figure 5.14: Modified structural model with factor loading



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
440.14	89	0.00 √	0.071 √	0.93 √	0.91 √	0.91 √	0.89	800.48 < 1042.71 √

Source: Developed from data collected for this research

Factor loadings in the modified structural model were significant at  $p < 0.05$  with the exception the two factor loadings between perceived risk and purchase intention and customer experience and purchase intention. Both relationships were not statistically significant and were deleted from the structural model. The new structural model was a nested model, which possessed the same number of constructs and indicators except having fewer estimated relationships from deleting the non-significant relationship between perceived risk and purchase intention and customer experience and purchase intention (Hair et al. 1998). The chi-square differences and the goodness-of-fit indexes between the modified model and the nested model were compared and displayed in table 5.26. The goodness-of-fit indexes for the nested model did not change much from the modified model except a marginal increase of  $\chi^2$  and degrees of freedom, which is not statistical significant ( $p = 0.47$ ).

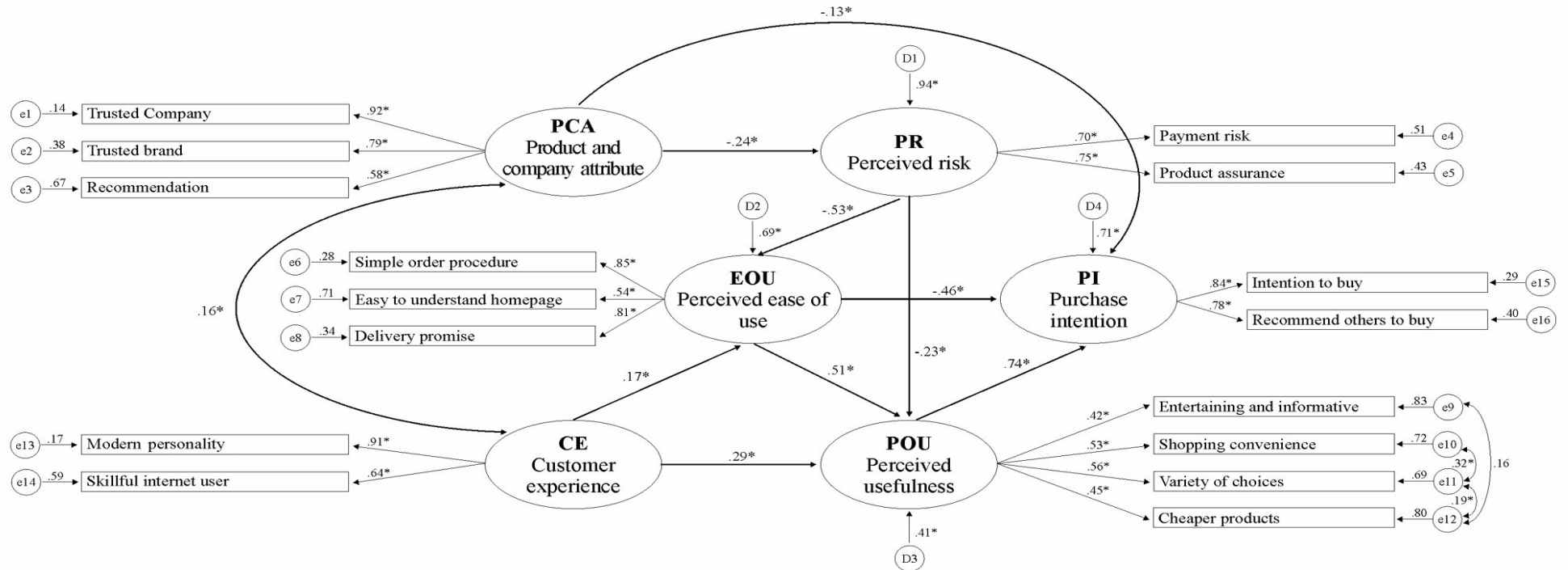
**Table 5.26: Test of differences**

Model	Chi-square	df.	$\Delta$ Chi-square	$\Delta$ df.	p. value
Modified model	440.14	89			
Nested model	441.61	91	1.5	2	0.47

*Source: Developed for this study*

Even though the final nested model did not improve the goodness of fit, it provided a more parsimonious model with fewer estimated relationships among constructs. The nested model was simpler but maintained the ability to explain the same phenomenon in the structural model (Moorman 1991). As a result, the nested structural model was the final and complete model for explaining factors influencing purchase intention to buy health foods online for Thai consumers. The final model from this study is presented in figure 5.15.

**Figure 5.15: Final and complete nested model with factor loadings**



$\chi^2$	df	p	RMSEA	GFI	CFI	IFI	AGFI	CAIC <sub>model</sub> vs CAIC <sub>saturated</sub>
441.64	91	0.00 √	0.070 √	0.93 √	0.91 √	0.91 √	0.89	786.65 < 1042.71 √

Source: Developed from data collected for this research

The final nested structural model as presented in figure 5.15 had good overall model fit indexes (RMSEA = 0.70, GFI = 0.93, CFI = 0.91, IFI = 0.91, and AGFI = 0.89). Factor loadings of all composite variables were statistically significant at  $p < 0.05$ . This model describes the relationships of factors influencing Thai consumers when buying health foods online. Next, the tests of hypotheses proposed in chapter 2 are reported.

**Hypotheses testing.** The results of the eleven hypotheses related to the five constructs in the structural model are summarized in table 5.27 as follows:

**Table 5.27: Relationships developed through path analysis**

Hypothesis	Relationship	Standardized coefficients	Significance at $p < 0.05$
H1a	PCA → PI	-0.13	√
H1b	PCA → PR	-0.24	√
H2a	PR → PI	<b>0.06</b>	<b>X</b>
H2b	PR → EOU	-0.53	√
H2c	PR → POU	-0.25	√
H3a	EOU → PI	-0.48	√
H3b	EOU → POU	0.51	√
H4	POU → PI	0.81	√
H5a	CE → PI	<b>-0.03</b>	<b>X</b>
H5b	CE → POU	0.30	√
H5c	CE → EOU	0.17	√

*Source: Analysis of field data collected for this research*

The hypotheses of latent variables in the structural model were tested. Nine relationships between exogenous and endogenous constructs were significant at  $p < 0.05$ . Three postulated constructs, namely product and company attributes (PCA), perceived ease of use (EOU) and perceived usefulness (POU) showed statistically significant affects on the respondents' purchase intention of health foods online. Relationships of the other two constructs, namely perceived risk (PR) and customer experience (CE) with purchase intention, were rejected in this study. Both constructs, PR and CE did not indicate a direct effect on the purchase intention of health foods

online among Thai consumers. However, six more relationships between exogenous and endogenous variables excluding purchase intention were also found among the five constructs in this study. Each hypothesis and preliminary insight is discussed in detail in the next chapter.

In summary, nine out of eleven hypotheses were accepted. Three out of five constructs showed statistically significant relationships with purchase intention. The relationship between perceived risk and purchase intention, and customer experience and purchase intention were the only two relationships in this model that were rejected. Six additional preliminary insights depicting the relationships of these constructs were also found through path analysis in the final structural model.

## **5.6 Conclusions**

This chapter presented the data analysis for the second stage of explanatory research. The data was collected using Web-based questionnaires. The response rate was 27.9 percent. The data was checked for nonresponse error from respondents, who did not participate in the survey by using trend analysis. The statistics of skewness, kurtosis, and Mardia's coefficients, indicated that most of the univariate and multivariate data from this study were nonnormally distributed. Robust maximum likelihood with Satorra-Bentler scaled  $\chi^2$  was chosen because it provides correct  $\chi^2$  even under the condition of nonnormality. Exploratory factor analysis was used to group multiple items that belonged to the same construct but still maintained the explanatory power of the construct.

Structural equation modeling (SEM) using LISREL 8.3 was chosen to test the measurement and structural model in this study because of its explanatory ability, its comprehensive statistics of model testing, and its ability to develop a stronger model by testing theories on the specified relationships. The SEM used a two- step approach. The first step, confirmatory factor analysis (CFA) of measurement models using multiple fit indexes was used. All constructs in the modified measurement model showed high reliability and validity.

In the second step, path analysis with latent variables was used to test the structural model and its hypotheses. All factor loadings in the modified structural model were significant at  $p < 0.05$  except relationships between perceived risk to purchase intention and customer experience to purchase intention. A nested model without linkages from perceived risk to purchase intention and customer experience to purchase intention was found to have better model fit. It was simpler and more parsimonious while maintaining the ability to explain the same phenomenon. Therefore, the nested model was the final and complete model for explanation of factors influencing online purchase of health foods in Thailand.

Path analysis was used to test eleven hypotheses developed from the literature review and focus groups. Nine out of eleven hypotheses were accepted. The two hypotheses rejected in this study were hypothesis H2a and H5a. Six additional preliminary insights depicting the relationships of the constructs were also found in the path analysis. The implications of these findings and limitations are discussed in detail in the next chapter.

## **CHAPTER 6**

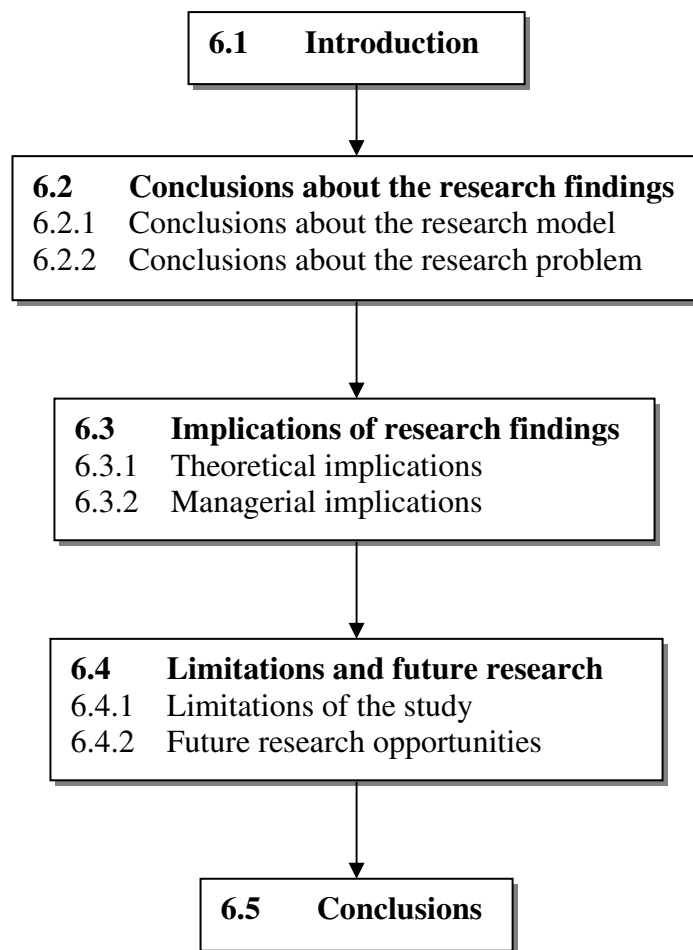
### **6 CONCLUSIONS AND IMPLICATIONS**

#### **6.1 Introduction**

The analysis of data was reported in the previous chapter. This chapter presents the conclusions and implications of research findings on factors influencing online purchase intention of health foods in Thailand. There are five major sections as outlined in figure 6.1. The introduction (section 6.1) summarizes the five earlier chapters of this study. Conclusions are drawn in section 6.2. The section on research implications (section 6.3) presents the theoretical contributions and managerial implications of this research. Limitations and directions for future study are discussed in section 6.4. The final section (section 6.5) is an overall conclusion of this thesis.



**Figure 6.1: Outline of chapter 6**



*Source: Developed for this research*

Five chapters exist prior to this one. Chapter 1 provided the background and justification for the research, together with an outline of the study. The research problem was developed from gaps in the literature together with the consumer insights derived from focus groups. The research problem was:

***What are the important factors influencing consumer's online purchase intention of health foods in Thailand?***

The specific objectives of this research were to:

- Identify factors influencing consumer's online purchase intention of health foods in Thailand.

- Explore the relative importance of factors that encourage or discourage consumers from buying health foods online.
- Develop a model of factors influencing the online purchase intention of health foods by consumers in Thailand.

The chapter began with a brief introduction outlining the importance and contribution of the Internet to business, followed by the background and justification for doing this research. A three-stage research design was proposed for this study. Stage 1 consisted of a literature review to explore and identify a suitable theoretical framework for this research. Stage 2 was an exploratory study using focus groups to further develop and refine a model, which would come to form the framework for this study. Stage 3 was a large-scale quantitative study, using an Internet based survey, to gather data to test the model developed in the previous two stages.

In chapter 2, the literature was reviewed and gaps in the literature were identified. Different theories and empirical studies of online purchase intention were reviewed. The Technology Acceptance Model was chosen as the basis for this study due to its parsimony and consistency in explaining a substantial proportion of variance in behavioral intention and actual behaviors themselves. A preliminary model adapted from the modified technology acceptance model (TAM), together with suitable factors found in the literature was proposed for this research. This model was used as a theoretical framework for testing the relationship between five constructs namely, product and company attributes (PCA), perceived risk (PR), perceived ease of use (EOU), perceived usefulness (POU), and customer experience (CE) toward the consumer's intention to buy health foods online.

Chapter 3 reported the second and exploratory stage of this research. This chapter started with the justification, followed by the research design, for this exploratory stage. Four focus groups were conducted with both males and females to gain greater consumer insight about the research objectives. The results of these focus groups were used to refine and develop measurement variables for operationalizing the constructs of this research in the Thai context. Finally, the model proposed in chapter two was revised and refined based on these findings.

Chapter 4 described the quantitative research methodology used for collecting and analyzing data for this study. The chapter started with a justification for using a Web-based survey, followed by a description of the sampling strategy, and operational definitions based on the literature review and findings from previous chapters. A questionnaire was designed and pre-tested with respondents having similar profiles to proposed respondents to disclose possible weaknesses in design. A revised questionnaire was then proposed based on pre-test results. Finally, data preparation and analysis were discussed, followed by ethical considerations.

Chapter 5 reported the analysis of data collected from chapter four, which was the final stage of this study. The chapter began with data examination and screening, followed by descriptive statistics. Exploratory factor analysis was used to study the relationships of variables and grouped multiple items belonging to the same construct together. Structural equation modeling (SEM) was then used to test the conceptual model developed in chapter 3. Confirmatory factor analysis was employed to test the measurement model using multiple fit indices, followed by path analysis with latent variables to test the eleven hypotheses proposed in this study. Nine out of eleven hypotheses were accepted and discussed in detail. Finally, several additional preliminary insights were presented.

This chapter, which is the final chapter of this study, begins with conclusions of the research findings in section 6.2, followed by research implications for both theory and practice in section 6.3. Section 6.4 presents the limitations and recommendations for future research in this area. Finally, overall conclusions are drawn in section 6.5.

## **6.2 Conclusions about research findings**

The specific objectives of this research were to:

- Identify factors influencing consumer's online purchase intention of health foods in Thailand
- Determine the relative importance of factors that encourage or discourage consumers from buying health products online.

- Develop a model of factors influencing online purchase intention of health foods by consumers in Thailand.

While the first objective was addressed through the literature review and exploratory research, the second and third objectives were addressed through the analysis of data collected in the major study of this thesis. This section draws conclusions about findings from this major study. Briefly, fourteen factors from five constructs in the measurement model were identified. Table 6.1 presents a summary of constructs and factors and compares them to factors found during the exploratory stage (chapter 3) and literature review (chapter 2). Most factors show consistent support from the quantitative survey in chapter 5, focus groups in chapter 3 and literature review in chapter 2. The first column shows constructs hypothesized in the model. Column two illustrates factors found in the survey, focus groups, and literature. Column three, four, and five are findings on whether the factor is supported by the literature, focus groups, and survey, in this study respectively. The last column describes the factor loadings of the factors found in the major study.

All fourteen factors found in the survey received good support from both the literature and focus groups. However, some factors, identified in either the literature or focus groups were not supported in this survey. For instance, three factors in product and company attributes (PCA) namely “*product sold only on the Web*”, “*need to touch or test product*” and “*value for money*”, were identified in focus groups but did not emerge in the literature nor from results of this survey. Similarly, the factors “*product differentiation*” and “*experience goods*”, which were identified in the literature did not emerge in the focus groups and this survey. Thai consumers were more interested in buying health foods from a trusted company or trusted brands especially through virtual shops.

Two factors “*safety*” and “*warranty or guarantee*” in perceived risk (PR) were identified in the focus groups and the literature, but not supported in this study. Consumers were more interested in the product efficacy of health foods and product return policy of the company selling health foods, rather than other processes. The factor “*interactive*” in ease of use (EOU) was found in the literature but not in the focus groups or this survey. This indicates that Thai consumers do not pay as much

attention to the interactive element as western consumers. They would buy health foods online if the order and delivery processes were simple and easy to understand.

The “*speed*” factor identified in the literature and focus groups under perceived usefulness (POU) was not supported in this survey. Consumers focused more on the factors relating to “*variety of choices*”, “*shopping convenience*”, “*cheaper products*” and “*entertaining and informative*”. This finding was similar to results found in the literature. Three factors from customer experience (CE) namely, “*like shopping*”, “*risk taking or risk averse*”, and “*education*” were supported either in the literature or focus groups but not in this study. Nevertheless, respondents in this survey accepted that modern personality and higher skills in using the Internet had a strong impact on the tendency to buy health foods online. Next, the conclusions about the research model are discussed in detail.

**Table 6.1: Summary of results on factors influencing online purchase intention of health foods**

Construct	Factors	Result of factors found in the study			Factor loading
		Literature (Chapter 2)	Focus Group (Chapter 3)	Survey (Chapter 5)	
Product and company attributes (PCA)	Trusted company	√	√	√	<b>0.92</b>
	Trusted brand	√	√	√	<b>0.79</b>
	Recommendation	√	√	√	<b>0.58</b>
	Products sold only on the Web	×	√	×	
	Need to touch or test products	×	√	×	
	Value for money	×	√	×	
Perceived risk (PR)	Product assurance	√	√	√	<b>0.75</b>
	Payment risk	√	√	√	<b>0.70</b>
	Safety	√	√	×	
	Warranty or guarantee	√	√	×	
	Interactive	√	×	×	
Perceived ease of use (EOU)	Simple order procedure	√	√	√	<b>0.85</b>
	Delivery promise	√	√	√	<b>0.81</b>
	Easy to understand homepage	√	√	√	<b>0.54</b>
	Interactive	√	×	×	
Perceived usefulness (POU)	Variety of choices	√	√	√	<b>0.56</b>
	Shopping convenience	√	√	√	<b>0.53</b>
	Cheaper products	√	√	√	<b>0.43</b>
	Entertaining and informative	√	√	√	<b>0.42</b>
	Speed	√	√	×	

Construct	Factors	Result of factors found in the study			Factor loading
Customer experience (CE)	Modernize personality	√	√	√	<b>0.91</b>
	Skillful Internet users	√	√	√	
	Like shopping	×	√	×	
	Risk taking or risk averse	√	×	×	
	Education	√	×	×	

*Source: Developed for this study*

### 6.2.1 Conclusions about the research model

The research model describing the factors influencing consumer’s purchase intention when buying health foods online was developed based on the literature review in chapter two and the consumer insights obtained from exploratory research in chapter three. Five constructs were generated to form a preliminary model. These five constructs were, product and company attributes (PCA), perceived risk (PR), perceived ease of use (EOU), perceived usefulness (POU), and customer experience (CE). The measurement items for each construct were developed from the literature as well as the results of focus groups as described in chapter 3. The final questionnaire used 64 measurement items to measure these five constructs. Eleven hypotheses were also tested in this study. The conclusions about the measurement and structural model are discussed next.

**Conclusions about the measurement model.** The measurement model was specially developed for this study. A summary of constructs, latent variables, effective items of measurement and their factor loadings ranked in order, from high to low, are presented in table 6.2. Most of these measurement items show high factor loadings with the exception of “product endorsement” and “scientifically proven” from product and company attributes (PCA) and “using credit cards is safe” from perceived risk (PR), which have factor loading of lower than 0.5. Details of constructs and their factors in the model are discussed next.

**Table 6.2: Summary of constructs, factors, factor loadings, and their significant items of measurement from the final nested model**

Constructs	Latent variables	Factor loading *p <0.05	Item of measurement	Factor loading *p <0.05
Product and company attributes (PCA)	<i>Trusted company</i>	0.92	Familiar company	0.78
			Long establishment	0.74
			Well-known company	0.70
	<i>Trusted brand</i>	0.79	Popular brand	0.71
			Trusted brand	0.64
			Familiar brand	0.57
	<i>Recommendation</i>	0.58	Company recommendation	0.79



Constructs	Latent variables	Factor loading *p <0.05	Item of measurement	Factor loading *p <0.05
			Product recommendation	0.75
			Product endorsement	0.41
			Scientifically proven	0.34
<b>Perceived risk (PR)</b>	<i>Product assurance</i>	0.75	Product efficacy	0.90
			Same product as advertised	0.88
			Product return policy	0.66
	<i>Payment risk</i>	0.70	Correct money charged	0.71
			Privacy risk	0.56
			Using credit card is safe	0.36
<b>Perceived ease of use (EOU)</b>	<i>Simple order procedure</i>	0.85	Simple purchasing process	0.79
			Simple homepage	0.68
			Simple layout	0.63
	<i>Delivery promise</i>	0.81	Quick process	0.93
			On-time delivery	0.90
	<i>Easy to understand homepage</i>	0.54	Easy product usage	0.90
			Clear product picture	0.85
			Easy to read	0.76
	<b>Perceived usefulness (POU)</b>	<i>Variety of choices</i>	0.56	Product variety
Company choices				0.85
<i>Shopping convenience</i>		0.53	Time saving	0.86
			Global shopping	0.75
			Convenience to shop	0.73
<i>Cheaper products</i>		0.43	Free gifts	0.99
			Free sample	0.92
			Large discount	0.91
<i>Entertaining and informative</i>		0.42	Enjoyment	0.93
			Entertaining	0.88
			Informative	0.52
<b>Customer experience (CE)</b>		<i>Modernize personality</i>	0.91	Like new things
	Trendy			0.72
	<i>Skillful Internet users</i>	0.64	Frequent Internet surfer	0.83
			Skillful Internet surfer	0.78
			Frequent information searcher	0.76

\*p<0.05

Source: Developed for this research based on data from chapter 5

In brief, this research confirms findings from previous studies that *trusted company*, *trusted brand*, and *recommendation* are important factors influencing consumer's purchase intention toward products sold on the Internet (Chiou 2000; Novak, Hoffman & Yung 2000; Limayen, Khalifa & Frini 2000; Tan 1999). Consumers

have a higher tendency to buy health foods online if they know, trust, or possess enough information about the health foods or company selling health foods online. This finding then, supports the literature that behavioral intention is highly associated with the level of product knowledge possessed by consumers (Davis 2000; Bellman, Lohse & Johnson 1999).

**Perceived risk (PR).** This construct consisted of two strong factors, *product assurance* ( $\beta = 0.75$ ) and *payment risk* ( $\beta = 0.70$ ) as shown in table 6.2. Some factors, such as “safety” and “warranty”, which were found in the focus groups and the literature review, failed to emerge in the SEM testing. *Product assurance* was the strongest factor contributing to perceived risk in this study. This factor was effectively measured by three measurement items, “product efficacy (0.90)”, “same product as advertised (0.88)”, and “product return policy (0.66)”. “Product efficacy” is the measurement item that was not commonly found within the literature. Most products used in previous studies were technology related products. This study used health foods, where efficacy of health food is a major reason for people to acquire the product. Consumers in this study felt that health foods with stronger efficacy gave them higher product assurance and consequently reduced their perceived risk when buying online. Thai consumers also showed concern for the quality of health foods ordered on the Internet in regard to deterioration during transportation and product correspondence with what was initially seen or read about on the Web.

*Payment risk* was the second strongest factor contributing to perceived risk and was significantly measured by three items. Two of the three items, “correct money charged (0.71)” and “privacy risk (0.56)” were used as effective measurement items of this factor. The third item “using credit card is safe (0.36)” had a factor loading lower than 0.5. Thai consumers would like to have more payment options apart from using credit cards when buying products online. These findings are in accordance with the literature. This study confirms that *payment risk* is also an important factor influencing the consumer decision by increasing their perceived risk when buying products online (Szymanski & Hise 2000; Limayen, Khalifa & Frini 2000; Vijayasathy & Jones 2000; Miyazaki & Fernandez 2000; Korgaonkar & Wolin 1999; Tan 1999).

In short, *product assurance* was the most important factor influencing consumer's perceived risk when buying health foods online. Respondents were more worried about the quality of health foods sold on the Internet than the payment risk. This finding is important and valuable to companies selling health related products online and also augments the existing literature.

**Perceived ease of use (EOU).** This construct consisted of three factors, namely *simple order procedure* ( $\beta = 0.85$ ), *delivery promise* ( $\beta = 0.81$ ), and *easy to understand homepage* ( $\beta = 0.54$ ) as shown in table 6.2. All factors received strong and consistent support from the literature, focus groups, and SEM testing. Here, *simple order procedure* was the strongest factor contributing to perceived ease of use (EOU) and was effectively measured by three items; "simple purchasing process (0.79)", "simple homepage (0.68)", and "simple layout (0.63)". This finding is logical because the Internet is a newly emerging technology in Thailand where broadband and its consequent speed is not common. Consumers give up or abort the communication process if it takes too long, is too complicated or poses difficulties when logging-on to the system or processing the order.

*Delivery promise* was the second most important factor contributing to perceived ease of use (EOU). As a factor, it was measured by two measurement items, "quick process (0.93)" and "on-time delivery (0.90)". Consumers in Thailand worried about the delivery promise because they had to pay money in advance and wait for delivery. This is unlike buying from traditional outlets, where consumers take products away with them immediately after paying. Moreover, they wanted to make sure that a company delivered product to them quickly and on-time with a fixed delivery date to their home with no surprise deliveries. *Easy to understand homepage* was the third factor contributing to perceived ease of use and was measured by three items; "easy product usage (0.90)", "clear product picture (0.85)", and "easy to read (0.76)". Consumers wanted to ensure that they bought the right health foods after viewing them on screen. They also wanted to ensure that they understood how to use the particular health foods that they bought online. This is understandable because consumers have to read the instructions and use the products without getting any additional explanation from pharmacists or salesmen.

In brief, this finding supports the literature that *simple order procedure*, *delivery promise*, and *easy to understand homepage* are important factors influencing Thai consumer's perceived ease of use toward the process of buying health foods online. Similar discoveries are found in the literature among Web users for other technological products (Szymanski & Hise 2000; Limayen, Khalifa & Frini 2000; Venkatesh & Davis 2000; Novak, Hoffman & Yung 2000; Bellman, Lohse & Johnson 1999; Abels & Liebscher 1996). This finding is important to both companies selling health foods online and Web developers. Consumers do not touch and feel products before buying products sold online. As a result, order procedure, delivery promise, and ease of understanding the homepage are important factors for the success of companies selling health foods online. Homepage development is deemed to be an important factor in inducing consumers to buy online.

**Perceived usefulness (POU).** Four factors contributed to this construct. All of these factors, namely *variety of choices* ( $\beta = 0.56$ ), *shopping convenience* ( $\beta = 0.53$ ), *cheaper products* ( $\beta = 0.43$ ), and *entertaining and informative* ( $\beta = 0.42$ ) received strong and consistent support from the literature, focus groups (table 3.5.1, chapter 3), and SEM testing. Thai consumers felt that *variety of choices* had the highest impact on the perception of usefulness, followed by *shopping convenience*, *cheaper products*, and *entertaining and informative*. *Variety of choices* was effectively measured by two items of measurement; “product variety (0.86)” and “company choices (0.85)”. Consumers believed that buying health foods online was useful if the Internet offered an opportunity for them to select a product from a large variety of health foods and companies selling health foods. They realized the benefit of buying health foods from the Internet compared with buying from a traditional outlet where limited types and brands of health foods were available to consumers.

*Shopping convenience* was the second most important factor contributing to perceived usefulness (POU). “Time saving (0.86)”, “global shopping (0.75)”, and “convenience to shop (0.73)” were the three significant measurement items of this factor. Consumers wanted to save time in traveling to buy health foods. They can order health foods from the Internet 24 hours a day, 7 days a week. Thai consumers also looked for an opportunity to buy health foods that were not available in the Thai

market by ordering from the Internet. Nevertheless, all these processes are useful to consumers only if they offer convenience to them.

*Cheaper product* was the third factor (with a factor loading lower than 0.56) in this construct and was measured by items such as “free gifts (0.99)”, “free sample (0.92)”, and “large discount (0.91)”. Thai consumers believed that an online company should offer free gifts, free samples, or a special discount as extra incentives to them if a company wanted them to buy the same health foods online as they could buy in traditional retail outlets. This finding is important and useful for companies that plan to sell health foods online. They cannot charge premium prices for health foods that sell in both channels. Product sampling is probably a good promotion strategy for selling health foods on the Internet.

Surprisingly, *entertaining and informative* was the least important factor among the four factors in this construct. This factor is widely known to be one of the most important factors of perceived usefulness (POU) from many studies (Ferle 2000; Korgaonkar & Wollin 1999; Chen & Wells 1999). *Entertaining and informative* was measured by “enjoyment (0.93)”, “entertaining (0.88)”, and “informative (0.52)”. Thai consumers preferred benefits from choices, time saving, and prices, to information or enjoyment when buying products online. This finding is important to marketers and policy makers as it shows the different perceptions between Thai consumers and consumers in western countries when buying products online.

In brief, this study confirms that *variety of choices, shopping convenience, cheaper products*, and *entertaining and informative* are factors influencing perceived usefulness among Thai consumers when buying health foods online. These findings are consistent with many other studies (Teo 2001; Haubl & Trifts 2000; Venkatesh & Davis 2000; Limayen, Khalifa & Frini 2000; Szymanski & Hise 2000; Ferle 2000; Korgaonkar & Wolin 1999; Chen & Wells 1999). However, the degree of importance of each factor to Thai consumers and consumers in western countries are clearly different. Thai consumers seem to be more interested in the number of choices of health foods and companies selling health foods online than information or entertaining activities offered by the online companies. Compared to buying from traditional outlets, consumers expected to get a better promotions such as free gifts,

free samples and special price discounts when buying health foods from an online company. This finding is important for companies, which want to be successful in selling health foods online in Thailand.

**Customer experience (CE).** This construct consisted of two factors, namely *modern personality* ( $\beta = 0.91$ ) and *skillful Internet users* ( $\beta = 0.64$ ). *Modern personality* was the strongest factor of customer experience and was measured by “like new things (0.73)” and “trendy (0.72)”. *Skillful Internet users* was the second most important factor of this construct and was measured by “frequent Internet surfer (0.83)”, “skillful Internet surfer (0.78)”, and “frequent information searcher (0.76)”.

Unlike findings from existing literature, *modern personality* was found to be more important a factor than *skillful Internet users* in the Thai context. Thai consumers are just starting to use the Internet with a current penetration rate lower than 2 percent. They generally view the Internet as a new technology used by new generation of people. Such people, who are trendy and love to try new things in life have a higher tendency to use the Internet, thus suggesting a higher probability of buying health foods online. Nevertheless, consumers accepted the fact that higher Internet skills enhanced control of the process and indirectly induced them to buy products online. This finding also supports previous studies, which implies that the more confidence consumers gain in controlling the system, the more time and money they will be willing to spend in buying products online (Liang & Huang 1998; Igbaria, Guimaraes & Davis 1995; Kraemer et al. 1993). Other factors such as “like shopping”, “education”, and “risk taking attitude” were not found in this survey but they did appear in the focus groups and in the literature review (Teo 2001; Goldsmith 2001; Limayen, Khalifa & Frini 2000; Vijayasathy & Jones 2000; Tan 1999).

In brief, these findings support the literature that *modern personality* and *skillful Internet users* are important factors related to customer experience (CE). Consumers who are modern, trendy, who like to try new things, and are frequent Internet users have a higher tendency to use the Internet and subsequently have a higher tendency to buy health foods online.

In summary, this study identified fourteen factors under five hypothesized constructs, affecting the purchase intention of Thai consumers when buying health foods online. The relative importance of each factor has been discussed and ranked from high to low according to their impact on each construct. The next section presents conclusions about the structural model.

**Conclusions about the structural model.** From the structural model presented in chapter two and additional revisions in chapter three, eleven hypotheses were developed and tested in this study. The results of hypothesis testing are summarized in table 6.3. The summary of direct, indirect, and total effects of each factor is also presented in table 6.4 for reference. The results of each hypothesis are discussed next.

**Table 6.3: Summary of support for hypotheses in this study**

No.	Hypothesis	Support (p<0.05)	Loading factor
H1a	Product and company attributes (PCA) will directly affect intention to buy health foods online (PI).	√	-0.13
H1b	Product and company attributes (PCA) will directly affect perceived risk (PR).	√	-0.24
H2a	Perceived risk (PR) will directly affect the intention to buy health foods online (PI).	X	0.06
H2b	Perceived risk (PR) will directly affect perceived ease of use (EOU).	√	-0.53
H2c	Perceived risk (PR) will directly affect perceived usefulness (POU).	√	-0.23
H3a	Perceived ease of use (EOU) will directly affect intention to buy health foods online (PI).	√	-0.46
H3b	Perceived ease of use (EOU) will directly affect the perceived usefulness (POU).	√	0.51
H4	Perceived usefulness (POU) will have a direct effect on the intention to buy health foods online (PI).	√	0.74
H5a	Customer experience (CE) will have a direct effect on the intention to buy health foods online (PI).	X	-0.03
H5b	Customer experience (CE) will have a direct effect on the perceived usefulness (POU).	√	0.29
H5c	Customer experience (CE) will have a direct effect on the perceived ease of use (EOU).	√	0.17

\*  $P < 0.05$

*Source: Analysis of field data collected for this research*

**Table 6.4: Total effect on relationships between constructs of the nested model**

Causal variable	Effect variables											
	PR			EOU			POU			PI		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
PCA	-0.24*	0	-0.24*	0	0.13*	0.13*	0	0.12*	0.12*	-0.13*	0.03*	-0.10*
PR				-0.53*	0	-0.53*	-0.23*	-0.27*	-0.50*	0	-0.12*	-0.12*
EOU							0.51*	0	0.51*	-0.46*	0.38*	-0.08
POU										0.74*	0	0.74*
CE				0.17*	0	0.17*	0.29*	0.09*	0.38*	0	0.20*	0.20*

\* $P < 0.05$

Source: Analysis of field data collected from this research

**Hypothesis 1a: Product and company attributes (PCA) will directly affect intention to buy health foods online (PI).** This hypothesis was supported. The path analysis in section 5.6.2 indicated a statistically significant and negative influence of product and company attributes (PCA) toward purchase intention (PI). This is quite surprising because respondents who had enough knowledge regarding health food products and companies in this study were more likely *not* to buy them online. This finding contradicts findings from the literature, which stated that the effect of attitude on behavioral intention was strongly associated with the level of product and company knowledge (Chiou 2000; Phau & Poon 2000; Peterson & Balasubramanian 1997). The results of this study showed that most respondents tended to buy popular brand names of health foods from familiar companies in the market. They did surf for information on the Internet but preferred to buy from conventional outlets rather than buying online. This finding is also supported by some empirical studies that suggest that consumers go to the Web to obtain information on products but then do not buy products online (Holiday 2001; Cales 2000). This finding from this research shows that knowledge of the product and company alone may not convince consumers to buy health foods online. Consumers need supporting influences from other areas such as perceived usefulness (POU) and perceived ease of use (EOU) to positively affect their purchase intention when buying health foods online. This finding is in accordance with one from Cales (2000), who found that 82 percent of consumers used the Internet to surf for information and there were four times more people searching for information than actually buying products on the Internet.



**Hypothesis 1b: Product and company attributes (PCA) will directly affect perceived risk (PR).** This hypothesis was supported. The finding indicated both strong and negative influences of product and company attributes (PCA) toward perceived risk (PR). This finding indicated that respondents, familiar with the properties of health food and the companies selling it, had a higher perceived risk, which consequently decreases their intention to buy these health foods online. This contradicts the literature (Nowlis & McCabe 2000; Novak, Hoffman & Yung 2000; Jarvepaa & Todd 1997; Burke et al 1992). The feedback from the focus groups also indicated that consumers were worried about the deterioration of health foods sent to them through mail delivery. This finding is also supported by a survey conducted among Internet users in Thailand, which showed that forty four percent (44%) of respondents did not buy products online because of the lack of touch and feel (National Science and Technology Development Agency 2000). Thai consumers had a different view in that the more they knew about the products and company, the higher the perceived risk for them to buy online. This appears logical as they can indeed buy similar health foods from conventional outlets, where consumers can touch and feel without incurring the risk of buying online.

**Hypothesis 2a: Perceived risk (PR) will directly affect the intention to buy health foods online (PI).** This hypothesis was not supported. The direct relationship between perceived risk (PR) and purchase intention (PI) was not significant. Unlike results from previous studies (Van der Heijden, Verhagen & Creemers 2001; Miyazaski & Fernandez 2000; Vijayasarathy & Jones 2000; Szymanski & Hise 2000; Novak, Hoffman & Yung 2000; Korgaonkar & Wolin 1999; Tan 1999; Boudling & Kirmani 1993; Innis & Unnava 1991; Shimp & Bearden 1982), perceived risk (PR) did not have a direct effect on purchase intention in this study but rather an indirect effect through the mediating factors of perceived ease of use (EOU) and perceived usefulness (POU). This study was conducted among health food users from a database of a well-established health food company. Respondents may have subconsciously felt lower perceived risk due to the higher trust and confidence in this company such that they did not demonstrate perceived risk in their decision to buy health foods online. This relationship was finally deleted in the nested model.

**Hypothesis 2b: Perceived risk (PR) will directly affect perceived ease of use (EOU).** This hypothesis was supported. Perceived risk (PR) was found to have a strong, direct and negative impact on the perceived ease of use (EOU). The higher the perceived risk, the lower the perceived ease of use and consequently the lower the intention to buy health foods online. This supports the findings in previous studies, that consumers believed Internet shopping was riskier and less reliable than purchases made through conventional sources (Vijayasathya & Jones 2000; Tan 1999).

**Hypothesis 2c: Perceived risk (PR) will directly affect perceived usefulness (POU).** This hypothesis was supported. This finding indicated a strong and negative influence of perceived risk (PR) toward perceived usefulness (POU). Perceived risk (PR) showed a strong and negative effect through both a direct and indirect effect on perceived usefulness (POU) of buying health foods online. The higher the perceived risk and usefulness that consumers generate from this activity, the lower the perceived intention to buy health foods online. This finding indicates that consumers perceived Internet shopping to be of higher risk, which is in line with findings in the literature (Vijayasathya & Jones 2000; Thailand National Science and Technology Development Agency 2000; Tan 1999).

**Hypothesis 3a: Perceived ease of use (EOU) will directly affect intention to buy health foods online (PI).** This hypothesis was supported. Perceived ease of use (EOU) had a strong, direct, and negative relationship with purchase intention (PI). The higher the perceived ease of use (EOU), the lower the intention of consumers to buy health foods online. At the same time, this study also found that perceived ease of use had both a direct (negative) and an indirect effect (positive) toward the intention to buy health foods online. This means that perceived ease of use (EOU) alone could not encourage consumers to buy health foods online. In order to increase the intention of purchasing online, respondents must associate perceived ease of use with the beneficial aspects of this transaction. This finding does not support previous studies whereby perceived ease of use (EOU) has little to no direct effect on purchase intention but perceived ease of use does have an indirect effect on purchase intention through the mediation of perceived usefulness (Venkatesh & Davis 2000; Limayen, Khalifa & Frini 2000; Szymanski & Hise 2000; Novak, Hoffman & Yung

2000; Chen & Wells 1999; Abels & Liebscher 1996; Chau 1996; Igarria, Guimaraes & Davis 1995; Davis, Bagozzi & Warshaw 1989).

In this study, perceived ease of use (EOU) had both a direct and indirect effect on purchase intention (PI). The finding from this study indicated perceived ease of use had a direct effect towards purchase intention (PI) was different from most of the studies in the past but similar to a recent study conducted by Van der Heijden et al. (2001), who found both perceived risk (PR) and perceived ease of use (EOU) to have a direct effect towards the intention to purchase products online (PI). [Thai respondents, who have higher perceived ease of use \(EOU\), will have a tendency to view the process of buying health foods online to be too easy and doubtful, thus end up with a lesser intention to buy health foods online](#)

**Hypothesis 3b: Perceived ease of use (EOU) will directly affect perceived usefulness (POU).** This hypothesis was supported. Perceived ease of use (EOU) had a strong, positive and direct effect on perceived usefulness (POU). Respondents related ease of the buying process with the perceived benefits they will receive when buying health foods online. This finding is in accordance with many studies (Chau 1996; Igarria, Guimaraes, & Davis 1995; Davis, Bagozzi, & Warshaw 1989; Davis 1989).

**Hypothesis 4: Perceived usefulness (POU) will have a direct effect on the intention to buy health foods online (PI).** This hypothesis was supported. This construct had the strongest, positive and direct effect on consumer intention to buy health foods online. If Thai respondents have a higher perceived usefulness in the buying process, they will in turn have a higher intention to buy health foods online. This behavior is logical as respondents choose to buy health foods on the Internet if they believe either that virtual shopping is useful, or that they will obtain greater benefits compared to buying from traditional outlets. This finding supports previous studies that perceived usefulness is the strongest determinant of intention to adopt online shopping (Teo 2001; Venkatesh & Davis 2000; Szymanski & Hise 2000; Haul & Trifts 2000; Vijayasathy & Jones 2000; Limayen, Khalifa & Frini 2000; Ferle 2000; Novak, Hoffman & Yung 2000; Chen & Wells 1999; Davis 1989).

**Hypothesis 5a: Customer experience (CE) will have a direct effect on the intention to buy health foods online (PI).** This hypothesis was not supported. The relationship between customer experience (CE) and purchase intention (PI) was not statistically significant in this study. Thai respondents, who considered themselves modern and capable of using the Internet, did not necessarily want to shop for health foods online. The relationship between customer experience and purchase intention was therefore deleted in the final nested model. This finding does not support previous studies which showed that respondents with higher skills and who surf more frequently for information on the Internet thus gaining confidence, subsequently have a higher intention to shop and spend money online (Goldsmith 2001; Citrin et al. 2000; Limayen, Khalifa & Frini 2000; Novak, Hoffman & Yung 2000; Liang & Huang 1998; Igbaria, Livari, & Maragahh 1995; Kraemer et al. 1993; Lee 1986).

**Hypothesis 5b: Customer experience (CE) will have a direct effect on perceived usefulness (POU).** This hypothesis was supported. This study confirmed that customer experience (CE) had a strong, positive and direct effect on perceived usefulness (POU). When consumers gained more Internet experience, they gained confidence and control over the system and subsequently perceived more benefits from this process. Respondents who had higher skills and experience in using the Internet felt that using this system was easy and perceived more benefits from the system. This finding supports the empirical studies that customer experiences affect usage directly as well as indirectly through the mediating factors of perceived usefulness and perceived ease of use (Goldsmith 2001; Citrin et al. 2000; Limayen, Khalifa & Frini 2000; Novak, Hoffman & Yung 2000; Igbaria, Livari, & Maragahh 1995; Kraemer et al. 1993; Lee 1986).

**Hypothesis 5c: Customer experience (CE) will have a direct effect on the perceived ease of use (EOU).** This hypothesis was supported. Customer experience (CE) had a direct and positive effect on perceived ease of use (EOU). This finding confirms previous studies that consumer experience is associated positively with greater adoption of information technology (Goldsmith 2001; Citrin et al. 2000; Novak, Hoffman & Yung 2000; Limayen, Khalifa & Frini 2000; Korgaonkar &

Wolin 1999; Liang & Huang 1998; Abels & Liebscher 1996; Igarria, Guimaraes & Davis 1995; Igarria, Livari, & Maragahh 1995; Kraemer et al. 1993; Lee 1986)

The results from this study indicated that nine out of eleven hypotheses were supported. Perceived risk (PR) and customer experience (CE) were found to have no direct effect on the purchase intention (PI) of health foods online. In addition, six new preliminary insights were found through the explanatory analysis. These preliminary insights and associated findings are listed in table 6.5. The implications and limitations of these findings are discussed in detail next.

**Table 6.5: Preliminary insights developed through path analysis in this study**

No	Variable	Preliminary insight	Supported (P<0.05)	Factor loading
P-1	PCA	Product and company attributes have positive and <i>indirect</i> affect on PI.	√	<b>0.03</b>
P-2	PR	Perceived risk has negative and <i>indirect</i> affect on perceived usefulness.	√	<b>-0.27</b>
P-3	PR	Although perceived risk showed no direct impact on PI, it has a negative and <i>indirect</i> affect on PI.	√	<b>-0.12</b>
P-4	EOU	Although perceived ease of use has direct and negative affect on PI, perceived ease of use also has strong and positive <i>indirect</i> effect on PI.	√	<b>0.38</b>
P-5	CE	Although customer experience showed no direct impact on PI, it has a strong and positive <i>indirect</i> affect on PI.	√	<b>0.20</b>
P-6	CE)	Although customer experience has a strong and positive affect on perceived usefulness, it also demonstrates a positive and <i>indirect</i> affect on perceived usefulness.	√	<b>0.09</b>

\*P<0.05

*Source: Developed for this study*

**Preliminary insight 1: Product and company attributes (PCA) has a positive and indirect effect on purchase intention (PI).** This preliminary insight was supported. It illustrated that product and company attributes (PCA) had a statistically significant effect on consumer's decision to purchase health foods online through the mediating effect of other constructs. Although product and company attributes had a *direct* and negative effect on purchase intention (H1a), this construct also demonstrated an *indirect* positive effect on purchase intention (P-1). This indicates that product and company attributes (PCA) alone cannot convince consumers to buy

health foods online. Consumers need to perceive that factors of *trusted company*, *trusted brand*, and *recommendation* in this construct help reduce their perceived risk and increase perceived usefulness to some extent and consequently increase the purchase intention of consumers to shop for health foods online. This finding is in accordance with many studies, that brand image, retailer reputation and reference groups, can be used as a risk reliever and thus increase the perceived usefulness to consumers when shopping online (Tan 1999; Javenpaa & Todd 1997; Burke et al. 1992).

**Preliminary insight 2: Perceived risk (PR) has a negative and indirect effect on perceived usefulness (POU).** This preliminary insight was supported. Perceived risk (PR) not only had a direct and negative effect on perceived usefulness (POU) as in hypothesis H2c, but it also had a negative and *indirect* effect on perceived usefulness. The factors *product assurance* and *payment risk* were found to have both a direct and indirect negative influence on perceived usefulness. The concern from consumers regarding *product assurance* and *payment risk* will reduce the perceived usefulness of the transaction. As a result, perceived risk (PR) had both a direct and indirect negative effect on perceived usefulness (POU). The higher the perceived risk, the lower the perceived usefulness in buying product online and subsequently reduced intention to buy health foods online. This finding confirms the empirical studies that perceived risk for online products is higher than products bought from traditional outlets (Vijayasathya & Jones 2000; Thailand National Science and Technology Development Agency 2000; Tan 1999). This study demonstrated that Thai consumers did not associate perceived risk directly with purchase intention but they related perceived risk through the mediating factor of perceived usefulness.

**Preliminary insight 3: Perceived risk (PR) has a negative and indirect effect on purchase intention (PI).** Although perceived risk showed no direct impact on purchase intention as found in the hypothesis H2a, perceived risk had a negative and *indirect* effect on purchase intention. However, there was an indirect and negative effect of perceived risk (PR) on purchase intention (PI) through the mediating factors of perceived ease of use (EOU) and perceived usefulness (POU). The factors of *product assurance* and *payment risk* were found to have only an indirect and negative effect on purchase intention. Thai consumers in this study did not associate

perceived risk with a direct impact on purchase intention of health foods online unless the perceived risk was associated with perceived ease of use and perceived usefulness in the transaction. This is a new contribution from this study.

**Preliminary insight 4: Perceived ease of use (EOU) has a strong, positive, and indirect effect on purchase intention (PI).** Not only did perceived ease of use have a direct and negative impact on purchase intention as found in hypothesis H3a, but it also showed a positive and *indirect* effect on purchase intention. The higher the perceived ease of use, the lower the purchase intention of consumers to buy health foods online unless consumers perceived some benefits from this transaction. This preliminary insight demonstrates that perceived ease of use has a positive effect on purchase intention through the mediating factors of other constructs such as perceived usefulness and perceived risk. Unlike other studies (Chau 1996; Igbaria, Guimaraes & Davis 1995; Davis, Bagozzi & Warshaw 1989), results from this study indicated that perceived ease of use had both direct and indirect effects on purchase intention. However, this finding also supports some researchers, who found that ease of use impacted on the purchase intention to buy products online but the effect was mediated through perceived usefulness (Venkatesh & Davis 2000; Novak, Hoffman & Yung 2000; Limayen, Khalifa & Frini 2000; Bellman, Lohse & Johnson 1999; Abels & Liebscher 1996).

**Preliminary insight 5: Customer experience (CE) has a strong, positive, and indirect affect on purchase intention (PI).** Although consumer experience had no direct effect on purchase intention as found in hypothesis H5a, consumer experience had a strong, positive and *indirect* affect on purchase intention in buying health foods online. Consumers who have higher experience and skill in using the Internet will have a higher tendency to buy health foods online because of higher perceived ease of use and higher perceived usefulness due to their ability to control and make use of the system. This finding supports the previous literature, that customer experience affects the usage of technological products (Bellman, Lohse & Johnson 1999; Igbaria, Guimaraes & Davis 1995; Kraemer et al. 1993; Lee 1986).

**Preliminary insight 6: Customer experience (CE) has a positive and indirect effect on perceived usefulness (POU).** This preliminary insight supported

hypothesis H5b, that consumers possessing higher experience and skill on the Internet had a greater perception of benefit from using this system (Bellman, Lohse & Johnson 1999; Igarria, Guimaraes & Davis 1995; Lee 1986). Thai consumers feel that factors of *modern personality* and *skillful Internet users* had both a direct and indirect effect on perceived usefulness in buying health foods online.

To sum up, nine out of eleven hypotheses and an additional six preliminary insights were accepted. The relationships between perceived risk (PR) and purchase intention (PI) and customer experience (CE) and purchase intention (PI) were the only two relationships in this model that were rejected. Six hypotheses and four preliminary insights confirmed previous empirical studies while the other five hypotheses and two preliminary insights were contradictory to the literature. Table 6.6 summarizes the hypotheses and preliminary insights that are confirmed or contradicted in the literature.



**Table 6.6: Summary of hypotheses and preliminary insights found in this study**

No	Hypothesis in this study	Confirmed with empirical studies	Partially supported by recent study	Reference
H1a	Product and company attributes (PCA) will directly affect intention to buy health foods online (PI).	X		Chiou 2000; Phau & Poon 2000; Peterson & Balasubramanian 1997.
			√	Holiday 2001; Cales 2000.
H1b	Product and company attributes (PCA) will directly affect perceived risk (PR).	X		Nowlis & McCabe 2000; Novak, Hoffman & Yung 2000; Jarvepaa & Todd 1997; Burke et al 1992.
			√	Thailand National Science and Technology Development Agency 2000.
H2a	Perceived risk (PR) will directly affect the intention to buy health foods online (PI).	X		Van der Heijden, Verhagen & Creemers 2001; Miyazaski & Fernandez 2000; Vijayasarathy & Jones 2000; Szymanski & Hise 2000; Novak, Hoffman & Yung 2000; Korgaonkar & Wolin 1999; Tan 1999; Boudling & Kirmani 1993; Innis & Unnava 1991; Shimp & Bearden 1982.
H2b	Perceived risk (PR) will directly affect perceived ease of use (EOU).	√		Vijayasarathy & Jones 2000; Tan 1999.
H2c	Perceived risk (PR) will directly affect perceived usefulness (POU).	√		Vijayasarathy & Jones 2000; Thailand National Science and Technology Development Agency 2000; Tan 1999.
H3a	Perceived ease of use (EOU) will directly affect intention to buy health foods online (PI).	X		Venkatesh & Davis 2000; Limayen, Khalifa & Frini 2000; Szymanski & Hise 2000; Novak, Hoffman & Yung 2000; Chen & Wells 1999; Abels & Liebscher 1996; Chau 1996; Igbaria, Guimaraes & Davis 1995; Davis, Bagozzi & Warshaw 1989.
			√	Van der Heijden, Verhagen & Creemers 2001.
H3b	Perceived ease of use (EOU) will directly affect the perceived usefulness (POU).	√		Chau 1996; Igbaria; Guimaraes, & Davis 1995; Davis, Bagozzi, & Warshaw 1989; Davis 1989.
H4	Perceived usefulness (POU) will have a direct effect on the intention to buy health foods online (PI).	√		Teo 2001; Venkatesh & Davis 2000; Szymanski & Hise 2000; Haul & Trifts 2000; Vijayasarathy & Jones 2000; Limayen, Khalifa & Frini 2000; Ferle 2000; Novak, Hoffman & Yung 2000; Chen & Wells 1999; Davis 1989.
H5a	Customer experience (CE) will have a direct effect on the intention to buy health foods online (PI).	X		Goldsmith 2001; Citrin et al. 2000; Limayen, Khalifa & Frini 2000; Novak, Hoffman & Yung 2000; Liang & Huang 1998; Igbaria, Livari, & Maragahh 1995; Kraemer et al. 1993; Lee 1986.

No	Hypothesis in this study	Confirmed with empirical studies	Partially supported by recent study	Reference
H5b	Customer experience (CE) will have a direct effect on the perceived usefulness (POU).	√		Goldsmith 2001; Citrin et al. 2000; Limayen, Khalifa & Frini 2000; Novak, Hoffman & Yung 2000; Igbaria, Livari, & Maragahh 1995; Kraemer et al. 1993; Lee 1986.
H5c	Customer experience (CE) will have a direct effect on the perceived ease of use (EOU).	√		Goldsmith 2001; Citrin et al. 2000; Limayen, Khalifa & Frini 2000; Novak, Hoffman & Yung 2000; Korgaonkar & Wolin 1999; Liang & Huang 1998; Abels & Liebscher 1996; Igbaria, Guimaraes & Davis 1995; Igbaria, Livari, & Maragahh 1995; Kraemer et al. 1993; Lee 1986.
P-1	Product and company attributes (PCA) has positive and <i>indirect</i> effects on purchase intention (PI).	√		Javenpaa & Todd 1997; Burke et al. 1992; Tan 1999.
P-2	Perceived risk (PR) has negative and <i>indirect</i> effect on perceived usefulness (POU).	√		Vijayasathy & Jones 2000; Thailand National Science and Technology Development Agency 2000; Tan 1999.
P-3	Although perceived risk (PR) showed no direct impact on purchase intention (PI), it has a negative and <i>indirect</i> effect on PI.	X		Van der Heijden, Verhagen & Creemers 2001; Miyazaski & Fernandez 2000; Vijayasathy & Jones 2000; Szymanski & Hise 2000; Novak, Hoffman & Yung 2000; Korgaonkar & Wolin 1999; Tan 1999; Boudling & Kirmani 1993; Innis & Unnava 1991; Shimp & Bearden 1982.
P-4	Although perceived ease of use (EOU) has direct and negative effect on purchase intention (PI), perceived ease of use also has strong and positive <i>indirect</i> effect on PI.	X		Chau 1996; Igbaria, Guimaraes & Davis 1995; Davis, Bagozzi & Warshaw 1989.
			√	Venkatesh & Davis 2000; Novak, Hoffman & Yung 2000; Limayen, Khalifa & Frini 2000; Bellman, Lohse & Johnson 1999; Abels & Liebscher 1996.
P-5	Although customer experience (CE) showed no direct impact on purchase intention (PI), it has a strong and positive <i>indirect</i> effect on PI.	√		Bellman, Lohse & Johnson 1999; Igbaria, Guimaraes & Davis 1995; Kraemer et al. 1993; Lee 1986.
P-6	Although customer experience (CE) has a strong and positive effect on perceived usefulness (POU), it also demonstrates a positive and <i>indirect</i> effect on perceived usefulness.	√		Bellman, Lohse & Johnson 1999; Igbaria, Guimaraes & Davis 1995; Lee 1986.

Source: Developed for this study

Although perceived risk and customer experience illustrated no *direct* effect on purchase intention in this study, both were found in the preliminary insights to have an *indirect* effect on consumer's intention to buy health foods online. It is noticeable that most of these constructs illustrate direct and negative effects on purchase intention such as:

- The higher the product and company attributes (PCA), the lower the purchase intention (PI).
- No direct effect between perceived risk (PR) and purchase intention (PI).
- The higher the perceived ease of use (EOU), the lower the purchase intention (PI).
- No direct effect between customer experience (CE) and purchase intention (PI).

However, many indirect effects between these constructs and purchase intention were found in the preliminary insights, which are confirmed and in line with many empirical studies in the literature such as:

- Product and company attributes (PCA) indirectly increased purchase intention (PI) through the mediating factors of perceived risk (PR), perceived ease of use (EOU), and perceived usefulness (POU).
- Perceived risk (PR) indirectly decreased purchase intention (PI) through the mediating factors of perceived ease of use (EOU) and perceived usefulness (POU).
- Perceived ease of use (EOU) indirectly increased purchase intention (PI) through the mediating factor of perceived usefulness (POU).
- Customer experience (CE) indirectly increased purchase intention through the mediating factors of perceived ease of use (EOU) and perceived usefulness (POU).

In terms of total effect, perceived usefulness (POU) has the strongest direct and total effect on consumer intention to buy health foods online while perceived ease of use has the least effect on purchase intention due to the cannibalization of its direct and indirect effects.

## 6.2.2 Conclusions about the research problem

The previous section drew conclusions about the research objectives of model measurement and model structure. This section aims to provide conclusions to the research problem namely, *what are the important factors influencing consumer purchase intention in buying health foods online?* Forty effective measurement variables were identified to link with fourteen factors for the five hypothesized constructs in the structural model. The fourteen factors found to influence behavioral intention when purchasing health foods online among Thai consumers in the model are:

- Trusted company
- Trusted brand
- Recommendation from friends or relatives
- Product assurance
- Payment risk
- Simple order procedure
- Delivery promise
- Easy to understand homepage
- Variety of choices of products and companies
- Shopping convenience
- Cheaper products
- Entertaining and informative
- Modern personality
- Skillful Internet surfer

These fourteen factors can be used to effectively predict behavioral intention of consumers when buying health foods online among Thai consumers through the hypothesized constructs of perceived usefulness (POU), customer experience (CE), perceived risk (PR), product and company attributes (PCA), and perceived ease of use (EOU) in the modified TAM model.

Based on the total effect towards purchase intention when buying health foods online, perceived usefulness (POU) was found to be the strongest factor, followed by

customer experience (CE), perceived risk (PR), product and company attributes (PCA) and perceived ease of use (EOU) respectively.

*Variety of choices* was the most effective item of measurement for perceived usefulness (POU). *Modern personality* was the most effective item of measurement for customer experience (CE) while *product assurance* and *payment risk* were equally important items of measurement for perceived risk (PR). Product and company attributes (PCA) was effectively measured by variables such as *trusted company*, *trusted brand*, and *recommendation*, while perceived ease of use (EOU) was measured by *simple order procedure*, *delivery promise*, and *ease to understand homepage*. The implications of these research findings are discussed in the next section.

In summary, the behavioral intention of Thai consumers can be predicted by using the modified TAM model similarly to consumers in western countries. Although the degree of importance and direction of the impact could be different, the modified TAM model proved to be a good theoretical model for predicting the behavioral intention of Thai consumers when buying health foods online. Perceived usefulness had the highest influence on the purchase intention of Thai consumers. The higher the degree of perceived usefulness (POU), the higher the purchase intention (PI) in buying health foods online. No direct effect towards purchase intention was found in terms of customer experience (CE) and perceived risk (PR), but both factors showed an indirect effect on consumer's purchase intention. Product and company attributes (PCA) had both a direct and an indirect effect on a consumer's purchase intention, similar to the factor, perceived ease of use (EOU).

This research has thus answered the original research problem of “*What are the important factors influencing consumer purchase intention in buying health foods online?*” The theoretical and managerial implications of these findings are elaborated upon in the next section.

### **6.3 Implications of research findings**

The implications regarding research findings starting with theoretical implications are discussed in section 6.3.1, followed by managerial implications in section 6.3.2.

#### **6.3.1 Theoretical implications**

This study was conducted based on gaps found in the literature concerning factors influencing purchase intention of health foods on the Internet in Thailand. They were as follows:

- Lack of empirical studies on the factors influencing online purchase intention of health foods in the Thai context.
- Lack of explanatory models and theory building studies in the area of health foods sold on the Internet.

The findings of this research indicate that the extant literature does not adequately explain factors that either discourage or encourage consumers when buying health foods online in the Thai context. Even though there were some empirical studies on factors influencing consumers in buying products online, most of them were conducted in the United States and were based on technologically related products. This study is the first study of its kind in the field of health foods, having implications for theory, which result from the product selected for this study, more comprehensive data collection using a multi-disciplinary approach, and more sophisticated data analysis techniques using structural equation modeling. Theoretical implications are summarized next.

**Health foods on the Internet.** Health food is a high involvement product in Thailand (Bunnag 1997). The nature of this product makes it suitable for applying to Internet marketing, where it offers a significant advantage, through two-way communication, over other forms of mass media. This study contributes significantly to the existing literature as the majority of previous empirical studies were based mostly on technologically related products. It thus expands the body of knowledge in this particular field. In addition, knowledge from this study can also be applied to other consumer products in Thailand.

**Development and testing of a model of factors influencing purchase intention of health foods online.** A major gap in the existing body of knowledge regarding purchase intention of health foods online was a lack of explanatory models and theory building studies, especially in the Thai context. This study supports what is hypothesized in the TAM model, namely that perceived usefulness (POU) is the most important factor influencing the adoption of technology related products, which in this study is purchase intention in buying health foods on the Internet. In addition, perceived ease of use (EOU) was also found to have little or no impact on behavioral intention, but its influence came via a mediating effect through perceived usefulness. The consumer's behavioral intention predicted by the TAM model, and effectively used in Western countries, is also applicable to use with consumers in Thailand. This study simultaneously provides results to fill existent gaps and makes a significant contribution to the theory of Technology Acceptance Model (TAM) by providing a body of knowledge from the field of Internet marketing concerning health related products.

**Data collection and analysis procedure.** This research used both qualitative and quantitative methodologies. It combined results from literature and empirical studies on technology related products and applied them to the online purchase of health foods in Thailand. Focus groups were used to validate and refine results from the literature for greater suitability to the Thai context. Care was taken in this research to use comprehensive measures for constructs due to inadequate operational definitions in this area. In addition, this study also avoided direct monetary incentives in order to prevent respondents from repeatedly submitting of the Web-based questionnaire; a donation to the Prosthesis Foundation under the patronage of Princess Mother was offered to respondents instead. Due to this innovative offer, many respondents sent separate e-mails giving praise, showing appreciation, and offering well wishes for the completion of both the research and project. Almost a twenty eight percent (27.9%) response rate or 1,077 valid and completed questionnaires were received within the period of data collection. This was quite an achievement as the response rate was significantly more than usually anticipated. Finally, structural equation modeling (SEM) was used to develop and test the model of purchase intention when buying health foods online. This methodology had not commonly been used in this

area of research in Thailand. Such an attempt should therefore set a new benchmark for research conducted in this country.

**Identification of important items of measurement for health foods.** The findings of important items of measurement in this study were similar to those in the literature with the exception of some items that are suitable only for health foods, such as, “product efficacy” and “scientifically proven”. “Product efficacy” was found to be a strong and effective item of measurement of *product assurance*, which was one of the strongest factors influencing perceived risk (PR) in the hypothesized model. Similarly, “scientifically proven product” was also found to be an effective item of measurement of *recommendation*, which was one of the factors influencing product and company attributes (PCA) hypothesized in the model. Both factors are special characteristics applied only to products like health foods. These two items were not found in the literature because most products in previous studies were based on technological products.

In summary, this study offers a significant contribution to the body of knowledge regarding behavioral intention prediction of the Technology Acceptance Model (TAM) in the Thai context. It also supports TAM as not only providing a significant explanation concerning behavioral intention of technology related products as in the literature, but also providing a significant explanation for high involvement products like health foods. The results of this research reflect the use of more sophisticated techniques in model development, data collection and data analysis using structural equation modeling (SEM), which are to date not widely used in Thailand.

### **6.3.2 Managerial implications**

This research has many managerial implications for different stakeholders as outlined next.

**Corporate management.** The astonishing growth rate of e-commerce and its benefit in terms of communication, distribution, and transactions are forcing companies in Thailand to have an Internet presence on the Web without knowing the actual impact of this new medium on their business. The knowledge of factors influencing



consumer's decision to buy health foods online, coupled with effective items of measurement are useful for organizations to prioritize their resources in terms of manpower, investment, time and allocation, in the most effective and efficient way. For instance, perceived usefulness (POU) is the most important construct that influences intention to buy health foods online. Four factors influence this construct namely, *variety of choices*, *shopping convenience*, *cheaper products*, and *entertaining and informative*. Some elements in these factors are under a company's control while others are due to the characteristics of the Internet itself. In order to increase perceived usefulness, companies must ensure that they provide enough product variety for the consumer, save time in ordering health foods on the Internet, provide cheaper prices in terms of discounts, loyalty programs or free samples of new products, provide a pool of health related information to consumers, and finally, create an enjoyable two-way communication with consumers who log-on to the company Web site.

Additionally, companies must try to reduce the degree of influence of certain constructs such as perceived risk (PR). In this case, perceived risk has a negative impact on purchase intention when buying health foods online. This construct is effectively measured by *product assurance* and *payment risk*. Strategies that could be adopted to reduce risk include giving enough information on product efficacy and supporting this with clinical studies, setting a flexible and effective product return policy upfront, ensuring that a company will always charge the correct money during transactions, and ensuring that the internal process in controlling customer's credit cards are properly conducted.

To sum up, the results of this study, especially concerning factors discouraging or encouraging consumers to shop for health foods online, are important and useful to companies in order to plan their investment and align their organization's resources, to meet consumer needs thus optimizing output.

**Marketing management.** Many marketers acknowledge the importance of using the Internet in their marketing mix, but they have very little knowledge of consumer motivation when potentially buying health foods online. Marketing managers have to allocate their marketing budget to raise positive factors and suppress negative factors

to positively influence consumer's intention to buy online. Trust for instance, is one of the main factors influencing a consumer's decision to buy a certain health food from a certain company. It is important that marketing invests enough in advertising and promotion to increase the familiarity and popularity of both company and brand before going online. Marketing managers must ensure that the brand equity of an online product is strong enough to move consumers from the consideration stage to dependable or recommendable stage in the brand equity chart. "Product endorsement" and "scientifically proven product" can also be used as support to increase consumer's intention to buy health foods online. Investment in clinical studies should be done to improve and strengthen product endorsement and increase the perception of product efficacy.

Occasional promotions to give extra incentives to consumers should be carried out to increase the perceived usefulness and subsequently induce more consumers to buy online. Marketing managers must also focus on the content of information to be placed on the Web, presenting it in an enjoyable and entertaining way. Their primary target should be consumers of health foods, who frequently surf the Internet. These people will have a higher tendency to buy health foods online when compared to those who use the Internet less frequently.

**Web developer.** The findings from this study are also beneficial to Web developers. Knowledge and factors generated from this study are useful and serve as guidelines for developing attractive and effective Websites and company homepages. This information is not only beneficial to the Web developers in the health food industry but it is also beneficial to the Web developers of other consumer products in Thailand. In addition, Internet and telecommunication providers may have to invest in creating broadband Internet to ensure speed and ease in logging-on to Web in order to promote businesses and transactions online. They should use simple graphic design that is easy to read or understand. In addition, they should offer content that is fun, entertaining, and easy to understand by consumers.

**Government.** E-commerce in Thailand is far behind other developed countries such as Singapore, Taiwan, Korea, and Malaysia (Thairath, May 6, 2001). The main reasons for the limited growth in Thailand are language, telecommunication

infrastructure and low Internet penetration in the country (TFRC 2000). Moreover, companies often face many problems from selling products online, such as high transportation costs, high bank charges, high competition, high access charges, poor security, poor network reliability and negative attitudes of online consumers (Bangkok Post, Jan 5, 2000; Bangkok Post, Jan 24, 2001). So far, no company has a successful online business in Thailand. If government wants to promote e-commerce in Thailand, they have to improve the infrastructure of telecommunication to improve speed and accessibility. This improvement will increase perceived usefulness and perceived ease of use and encourage more consumers and retailers to do business online. The cost of Internet connection in Thailand is comparatively expensive; almost double the cost when compared to United Kingdom, Singapore, South Korea, Malaysia, Hong Kong, Indonesia, and Philippines (Thairath, May 6, 2001). Hardware and software prices should be lower to increase the accessibility of Thai consumers to the Internet. In addition, regulations and laws should be implemented to prevent and control fraud on the Internet to reduce perceived risk among the general public. Finally, the government should take this new technology seriously and consider the development of the Internet as one of the country agendas in order to catch up with world trends.

Thus, this study provides a comprehensive understanding of the main factors that encourage or discourage Thai consumers from buying health foods online. This knowledge gives valuable input that will help marketing managers design, plan, and execute proper marketing programs increasing both the intention to buy health foods on the Internet and consumer satisfaction, which in turn, will increase sales of the product. These findings also provide good input for the Thai government to improve the penetration of the Internet and e-commerce in general.

#### **6.4 Limitations and future research**

This study is not without limitations. The limitations of this research are elaborated upon in section 6.4.1 and the opportunities for future studies, are proposed in section 6.4.2.

#### **6.4.1 Limitations of the study**

The researcher attempted to expand the understanding of factors influencing online purchase intention of health foods in Thailand. Although the endeavor was worthwhile, it was not without its limitations. First, there is the possible problem of self-selection and self-reporting in this study. The electronic questionnaire was sent to all respondents in the sample frame. This survey allowed customers to participate at will, it is possible that results are biased toward customers who were willing to join this survey. The data obtained could raise the question of external validity. Although a test for non-response biases was performed, it is still entirely possible to have some biases from respondents. In addition, information on respondent's demographic statistics and usage were self-reported, rather than observed. Self-report statistics can only be used as relative measures (Blair & Burton 1987). Therefore, care should be given in interpreting or generalizing from these findings when applying them to the overall population.

Secondly, there is a possibility of multi-response potential. There was no way to ensure that all respondents answered the survey once. This is always a major weakness of an Internet survey. To reduce this phenomenon, the researcher avoided using a monetary incentive and sent electronic mail only to respondents listed in the sample frame. It is suggested that an additional software feature should be added to lock out a repeat response from the same person. This technology was not available at the time of this survey.

Thirdly, this study addresses a contemporary issue in Internet marketing for which limited previous literature was available. Due to the lack of previous studies regarding shopping for health foods online in Thailand, the researcher found it necessary to make several cross-cultural references to developed countries. It thus, may not be completely appropriate. Some different findings might be due to the differences in culture and stage of Internet development of the country such as perceived risk has no direct effect on purchase intention or customer experience has no direct affect on purchase intention. The Internet technology is quite new to Thai people such that they do not view risk and experiences similarly to respondents in developed countries. Most of the Thai respondents view the effect of these two

constructs on purchase intention through the mediating factors of other constructs in the model.

Fourthly, this survey used many measurement scales adapted from the theory of Technology Acceptance Model, literature, and refined them by using results from focus groups. Even though all proposed measurement scales displayed excellent psychometric properties, a few measurement scales were reduced through the techniques of exploratory and confirmatory analysis to aid in parsimony. Hence one cannot ultimately be certain that they were measuring the same construct. The ability of these scales to reflect the complexities of consumer's perceptions and intentions has not been fully explored.

Fifthly, this survey measured perceptions and intentions of consumers by using TAM modeling at a certain point in time. It may not be appropriate to assume that this model will predict the actual online purchase of health foods from respondents as noted by some researchers that behavioral intention does not always predict actual behavior (Venkatesh & Brown 1996). It is advisable to be careful regarding any interpretation of results linked to actual sales.

Finally, favorable results using a model in any study are relative not absolute (Hair et al. 1998). Good model fit does not guarantee a reflection of reality because it only indicates a good representation of relationships between factors in the model. It is possible that some important factors were not properly included in the model or that the model did not include enough measurement in its relationships (Bagozzi & Baumgartner 1994). However, multiple criteria of goodness of fit indices based on both theoretical and practical considerations were used in this study to achieve an optimum goodness of fit (Diamantopoulos & Siguaw 2000).

These limitations do not minimize the significance of the results or findings in this study. The above points are mentioned in order to direct the attention of future research identifying and aiding further improvement in this area. Next, the implications for future research are discussed.

#### **6.4.2 Future research opportunities**

This study was the first study on the topic of purchase intention when buying health foods online in Thailand. It is the first attempt to empirically examine consumer's purchase intention using the theoretical framework of the Technology Acceptance Model. Given the rising usage of the Internet in Thailand, the lack of systematic and empirical research in this area is quite alarming. This study then provides advanced knowledge in a context other than the United States, where most studies of online shopping to date have taken place. Some suggestions for future research are now described.

Firstly, future study should be undertaken in order to explore and refine measurement scales used in measuring product and company attributes, perceived risk, perceived ease of use, perceived usefulness, and customer experience. The repeated testing of effective scales identified for these constructs should be conducted and examined to show whether findings from this study hold true or not. It would be interesting to examine whether findings could be replicated or made applicable to products other than health foods. Additionally, this study was based on respondents from the Cerebos database. Future studies should be conducted with respondents from other sample frames to reconfirm whether the modified TAM model still provides the same results.

Secondly, this study did not differentiate the extent of computer experience or extent of Web knowledge from novice users to Web savvy. It would be useful to study whether there is a difference in terms of purchase intention among these two groups.

Thirdly, the ultimate goal for future study should be the development of behavioral intention using the TAM model explicitly incorporating the interactive nature of the Internet to actual measurement of online shopping behavior, instead of using self-reported data.

Fourthly, most of the world's Web traffic comes from the United States (Flynn 2000). It is possible that demographic and psychographics variables have some influence on a consumer's purchase intention when buying products on the Internet.

Future studies should also incorporate additional factors such as age and income into the model (Citrin et al. 2000) as well as education and gender. Yahoo female audience in the North American makes up to 51 percent, 43 percent in Asia and only 36 percent in Europe (Regan 2002). Some research found that initial users of the Internet have a tendency to be male (Meeker & DePuy 1996). Nevertheless, Pew Internet & American Life Project reported that 58 percent of all Internet purchase transactions made during the 2001 holiday season were made by women ([www.EcommerceTimes.com](http://www.EcommerceTimes.com), Jan 18, 2002). Therefore, it would be useful to test whether or not gender has impact in any future study.

Fifthly, as the available bandwidth for communication increases, it is expected to lead to a greater use of the Internet in the everyday lives of Thai people. A longitudinal study could be designed as attitudes and perceptions of Thai consumers toward the Internet may change over time due to the rapid development of this emerging technology in Thailand. It would be interesting to see whether findings from this research still hold true or not.

Sixthly, the TAM model considers attitude as purely cognitive, such that some valuable subjective information could be lost (Davis 1985). It would be useful to consider more subjective appraisals and evaluations of the Internet by including an affective component in future studies. A greater number of scales and broader scope could help reduce the possibility of method bias, a common problem in sparse scales.

Finally, it may also be desirable to investigate the levels of satisfaction a consumer experiences with Internet purchases and the factors influencing satisfaction and dissatisfaction with their shopping experience for health foods online.

## 6.5 Conclusions

This research is the very first empirical study of its kind in Thailand. It follows the basic principle that more complex phenomenon demand more accurate interpretations. Comprehensive data analysis using structural equation model (SEM) was employed to achieve a better understanding of the collected information. Results from this study indicate that a modified Technology Acceptance Model (TAM) is able to explain and predict factors influencing online purchase intention of health food consumers in Thailand. Nine out of eleven hypotheses were identified to be statistically significant for Thai consumers in buying health foods online. Five constructs, fourteen factors, and forty effective items of measurements were found in the modified TAM model for this study. In addition, six preliminary insights that were not specified prior to the study were also identified from the path analysis. This research also found that “product efficacy” was an effective scale for measuring factors of *product assurance* under the construct of perceived risk (PR), was important for health foods. Similarly, “scientifically proven” was also an effective measurement for the factor *recommendation* under the construct of product and company attributes (PCA). This study provides a significant contribution to the body of knowledge on the theory of behavioral intention in purchasing products online.

Perceived usefulness (POU) was the most important factor influencing consumer purchase intention in buying health foods on the Internet, followed by customer experience (CE), perceived risk (PR), product and company attributes (PCA), and perceived ease of use (EOU) here ranked in order from high to low. In addition, a number of operationalized measurement scales of critical factors encouraging or discouraging the purchasing of health foods online were also revealed. Stakeholders are indeed recommended to improve or consider these factors if they would like to be successful when selling health foods online. The contributions of this study can be summarized as follows:

- The development and testing of a modified TAM model in a new context to predict consumer purchase intention in buying health foods online in Thailand.
- Application of a comprehensive research methodology covering both qualitative and quantitative analyses.



- Scales measuring items and factors of five constructs were identified, refined, and subjected to rigorous statistical testing to demonstrate validity and reliability.
- The utilization of structural equation modeling to analyze collected data by using LISREL.
- This research provides a major step forward in the prediction of factors influencing online shopping of consumer goods, namely health foods.

In summary, this study found that consumers have a higher tendency to purchase health foods online if they find this process is useful. They have a tendency to use the Internet to surf for information and entertainment rather than to make an actual purchase due to the higher perceived risk of buying health foods online. The findings have important implications for companies wanting to sell health foods online. Marketing managers must find the right formula concerning functionality and design, such as a value added search engine combined with the right marketing mix to increase the likelihood of consumers buying health foods online. Management is recommended to utilize various kinds of risk-reducing strategies, minimizing perceived risk thus increasing the intention of consumers to buy online. Marketers may also be able to create new marketing strategies increasing the perception of the usefulness of online shopping by fulfilling or improving the scales of this construct. Many consumers go online to check prices but the majority do not make actual purchases. Understanding a consumer's need in each factor would help companies to tailor their resources, ultimately increasing consumer purchase intention when buying health foods online.

Web developers can use knowledge from this survey as an input in their design process for Website and homepage. In order to allow the e-business to catch up with world trends, the Thai government must improve and develop infrastructure and draw up regulations to facilitate and support this new emerging technology, which will ultimately be beneficial to the country as a whole.

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### Research on Internet Profile Survey

<b>Reason for not shopping online</b>	<b>Variables</b>	<b>Percent</b>
Lack of touch & feel	Product knowledge	44.1%
Reluctant to give away card no.	Perceived risk	33.8%
Do not trust merchants	Perceived risk	32.8%
Not interested	Perceived usefulness	26.1%
Do not have credit card	na	25.3%
Too complicated	Perceived ease of use	23.0%
Concern for loss/ damage	Perceived risk	14.6%
Do not want to wait for delivery	Perceived usefulness	14.1%
Do not know the Web sites	Perceived ease of use	8.1%
Expensive	Perceived usefulness	8.1%
Do not want to buy imported goods	Perceived usefulness	5.7%
Find no interesting goods/ service	Perceived usefulness	4.6%
Others	na	2.6%

*Source: Data taken from "Internet Profile Survey – August 2000" National Science and Technology Development*

Note: Sample was taken among people age 15 years old and up who used the Internet in the past 12 months.

**Screening Questionnaires: health food users who access to the Internet**

**Focus Group Screening Questionnaires**

Date..... Interviewer.....

Hello, my name is .....and I am a DBA student from University of Southern Queensland. We are currently conducting a brief research study on the Internet and would like to ask you a few questions. We are not selling anything and will only take a few minutes of your time. All of your responses will be kept confidential.

INTERVIEWER: IF RESPONDENT REFUSES, PLEASE THANK AND CLOSE. IF RESPONDENT GETS SCREENED OUT AT ANY STAGE, LET THEM KNOW THAT WE HAVE FULFILLED OUR REQUIRED NUMBER FOR THOSE IN HIS/HER CATEGORY.

- S1. Have you ever bought any type of health food products?
  - a. Yes (CONTINUE TO S2)
  - b. No (THANK AND TERMINATE)
  - c. Don't know/refused (THANK AND TERMINATE)
- S2. Have you loged on to the Internet in the past 12 months?
  - a. Yes (CONTINUE TO S3)
  - b. No (THANK AND TERMINATE)
  - c. Don't know/refused (THANK AND TERMINATE)
- S3. RECORD GENDER
  - a. Male (CHECK QUOTA)
  - b. Female (CHECK QUOTA)
- S4. **How often on average do you surf through the Internet?**
  - a. **Daily (1)**
  - b. **Several times/week (2)**
  - c. **Once/week (3)**
  - d. **Several times/month (4)**
  - e. **Once/month (CLOSE)**
  - f. **Less often (CLOSE)**
- S5. May I know which of the age ranges does your age fall under?
  - a. Below 15 (CLOSE)
  - b. 15-21 (CLOSE)
  - c. 22-29 (2)
  - d. 30-45 (3)
  - e. >45 (CLOSE)
- S6. What is your professional?
  - a. Student (1)
  - b. Employee (2)
  - c. Government officer (3)
  - d. Owner or entrepreneur (4)
  - e. Executive (5)
  - f. Unemployed (CLOSE)
- S7. What type of health foods you are currently using?



- a. Cerebos products (1)
  - b. Other health food products (2)
  - c. Herbal products (3)
  - d. None (CLOSE)
- S8. Are you the purchaser of those health foods?**
- a. Yes (CONTINUE TO S8)
  - d. No (THANK AND TERMINATE)
  - e. Don't know/refused (THANK AND TERMINATE)
- S9. Have you participated in a focus group in the past 6 months?**
- a. Yes (THANK AND TERMINATE)
  - b. No (CONTINUE TO S8)
  - c. Don't know/refused (THANK AND TERMINATE)
- S10.** We will be conducting focus group discussions with the Internet user such as person like you. The discussion will center on the purchasing of health foods. The purpose of the group is solely to obtain your opinions; no sale will be involved. The session will last approximately 1.5 to 2.0 hours, and light refreshments will be served. In addition, you will receive 400B for your participation. Would you be interested in attending a group?
- a. Yes (CONTINUE TO S9)
  - b. No (THANK AND TERMINATE)
  - c. Don't know/refused (THANK AND TERMINATE)
- S10.** The groups are scheduled for 14.00 and 18.00 hrs on November 10 and 13, 2001. Will you be able to attend either of these groups?
- a. Yes (CONTINUE TO NEXT SECTION)
  - b. No (THANK AND TERMINATE)
  - c. Don't know/not sure (SCHEDULE CALLBACK)
  - d. Refused (THANK AND TERMINATE)

**Participant Information**

PROVIDE RESPONDENT WITH GENERAL LOCATION OF FACILITY. EXPLAIN THAT DETAILED DIRECTIONS WILL BE SENT BY MAIL SOON.

NOTE GROUP ATTENDING AND EXACT AGE

- 1. 16.00 hr. Date.....Age.....
- 2. 18.00 hr. Date.....Age.....

I NEED YOUR FULL NAME AND MAILING ADDRESS SO THAT WE CAN SEND YOU A CONFIRMATION LETTER AND DIRECTIONS (PROBE FOR COMPLETE INFORMATION)

Name.....  
Address.....

ALSO I WOULD LIKE TO CONFIRM THAT THE PHONE NUMBER I REACHED YOU AT IS (READ NUMBER FROM SAMPLE AND RECORD OR CORRECT IT BELOW)

Tel.....

THANK YOU FOR YOUR TIME!! WE LOOK FORWARD TO SEEING YOU ON .....AT (TIME SELECTED ABOVE)

## Moderator Discussion Guide

1. Introduction (10 minutes)
  - Greeting
  - Purpose of focus groups
    - Opportunity to provide input about the Internet
    - Get closer to consumers to better serve their needs
    - Expand the literature in the Thai context
  - Ground rules
    - Role of moderator
    - Recording equipment and one-way mirror
    - Confidentiality of comments / responses
    - Individual opinions (no right no wrong)
    - Speak one at a time and as clearly as possible
  - Brief get-acquainted period
    - Respondents' names, positions, companies, experience on using the Internet
2. Internet usage (15 minutes)
  - How long have you used the Internet? How often do you use the Internet?
  - Where do you normally use the Internet? (At home, at work, at school)
  - What types of products or services are you looking for in the Internet?
  - What are the factors encouraging you to use the Internet? Why? (Probe for reasons on Internet characteristics, users characteristics, product characteristics)
3. Online shopping experience (15 minutes)
  - If yes, what are the factors motivating you to shop online? (Probe for reasons on perceived ease of use, perceived usefulness, perceived risks, customer experiences, product knowledge, brand name, company's reputation, etc.)
  - Why not buy from the other sources?
  - What types of products or services do you consider to buy online?
  - What are the positive aspects of shopping online?
  - If no, why not? Have you ever considered to shop online?
  - What factors would encourage you to shop online? (Probe for reasons on Internet characteristics, users characteristics, product characteristics)
  - What are the potential problems that discourage you to shop online?
4. Health foods consumption (10 minutes)
  - What types of health foods do you consume in the past 12 months?
  - Where do you choose to buy health foods? Why?
  - Why do you not buy from other sources? Why?
  - What is the reason for selecting each channel? (Probe for all channels)
5. Buying health foods online (20minutes)
  - Have you ever bought health foods online? What types?
  - If yes, why? If not, why not? (Probe in detail until no new reasons given)

- Which factors is impact most to your decision to buy health foods online? Why? (Probe in detail until no new reasons given)
  - What are the positive impacts that encourage you to buy health foods online?
  - What are the potential problems that discourage you to buy health foods online?
  - Do you intend to buy health foods online in the future? What types?
  - If yes, why? If not, why not? (Probe in detail until no new reasons given)
  - Can you rank the order of importance for those factors you just mentioned to us?
6. Cerebos's e-commerce (15 minutes)
- If Cerebos offers to sell their product ranges by using the Internet, would you interest to participate?
  - If yes, why? If not, why not (Probe in detail until no new reasons given)
  - What do you think Cerebos must do to convince you to buy health foods online? (Probe in detail until no new reasons given)
  - Can you rank those factors in order of importance? Why do you say so?
  - Whom do you think will be interested in buying health foods online? Why?
7. Closing comments (5 minutes)
- Additional comments /inputs for convincing you to buy health foods online?
  - Thank participants and remind them to pick up transportation cost and gift on the way out.

**(Total 90 minutes)**

### Focus Group Sessions

<b>Group 1</b>	
Date: 10 November 2001 (Saturday)	
Time: 2.00 PM - 4.00 PM	
Sex: Female	
Age: 30-45 years	
Code	Age
W 1	37
W 2	39
W 3	35
W 4	30
W 5	38
W 6	38
W 7	30
W 8	31
<b>Total</b>	<b>8 persons</b>

<b>Group G2</b>	
Date: 10 November 2001 (Saturday)	
Time: 5.00 PM - 7.00 PM	
Sex: Male	
Age: 30-45 years	
Code	Age
M 1	39
M 2	35
M 3	39
M 4	40
M 5	37
M 6	38
M 7	33
M 8	40
M 9	32
M 10	37
M 11	40
<b>Total</b>	<b>11 persons</b>

<b>Group G3</b>	
Date: 13 November 2001 (Tuesday)	
Time: 2.00 PM - 4.00 PM	
Sex: Female	
Age: 20-30 years	
<b>Code</b>	<b>Age</b>
Y 1	29
Y 2	22
Y 3	26
Y 4	25
Y 5	27
Y 6	22
Y 7	23
<b>Total</b>	<b>7 persons</b>

<b>Group G3</b>	
Date: 13 November 2001 (Tuesday)	
Time: 5.00 PM - 7.00 PM	
Sex: Male	
Age: 20-30 years	
<b>Code</b>	<b>Age</b>
H 1	24
H 2	25
H 3	24
H 4	21
H5	24
H 6	23
<b>Total</b>	<b>6 persons</b>

### Demographics of respondents in the focus groups

	Female (30-45) G1	Male (30-45) G2	Female (21-29) G3	Male (21-29) G4
<b>Age</b>	8	11	7	6
<b>Marital status</b>				
Single	1	5	6	6
Married with children	4	4	1	-
Married without children	3	2	-	-
Divorce	-	-	-	-
<b>Occupation</b>				
Employee	6	5	2	2
Government officer	1	3	1	-
Entrepreneur	-	3	-	-
Housewife	1	-	-	-
Student	-	-	4	4
<b>Personal income (B/m)</b>				
<5000	-	-	-	1
5001-7500	-	-	2	1
7501-12500	2	1	3	2
12501-25000	1	5	2	2
>25001	5	4	-	-
<b>Household income (B/m)</b>				
<30000	1	1	2	1
30001-50000	3	7	1	2
50001-80000	2	1	1	-
80001-100000	1	-	1	1
>100001	1	1	2	2
<b>Education</b>				
Vocational	1	2	1	-
Bachelor degree	6	6	4	5
Master degree or higher	1	3	2	1

	Female (30-45) G1	Male (30-45) G2	Female (21-29) G3	Male (21-29) G4
<b>Health foods taken (&gt;1 answer)</b>				
Cerebos products	7	5	5	5
Other products	5	7	6	1
<b>Purchase decision makers</b>				
Yes	8	7	7	5
No	-	4	-	1
<b>Monthly spending on health foods (B)</b>				
<200	-	1	-	1
201-300	-	-	1	-
301-500	1	2	1	-
501-1000	6	4	1	2
>1001	1	4	4	3
<b>Place for buying health foods</b>				
Top store /department store	7	7	6	2
Convenience store	-	1	3	-
Direct sales	2	2	1	2
Drug store	2	1	-	1
<b>Experience on the Internet</b>				
< 6 months	-	-	1	-
6months -1 year	3	-	-	1
1-2 years	3	3	3	-
> 2 years	2	8	3	5
<b>Frequency of usage</b>				
Everyday	3	7	3	5
1-2 times/week	3	4	4	1
1-2 times/month	2	-	-	-
<1 time/month	-	-	-	-
<b>Purchasing online</b>				
Never	8	9	6	3
Ever	-	2	1	3

## Results from pretest data collection

### Section A. Health food usage

A1. Have you bought or consumed health foods in the past 12 months?

	Frequency	Percent
<b>Yes</b>	27	90.0
<b>No</b>	3	10.0
<b>Total</b>	<b>30</b>	<b>100.0</b>

A2. What kind of health foods have you bought or consumed in the past 12 months?

Health foods	Frequency	Percent
Vitamins	18	22.22
Primrose oil / flower oil	10	12.35
Essence of chicken	9	11.11
Bird's nest	7	8.64
Omega 3	6	7.41
Chili and green tea extract	5	6.17
Ginkgo Biloba	5	6.17
Prune concentrate	5	6.17
Lecithin	4	4.94
Grape seed	3	3.7
Minerals	2	2.47
Garlic	1	1.23
Others	6	7.41
<b>Total</b>	<b>81</b>	<b>100.00</b>

A3. Have you bought health foods from the Internet in the past 12 months?

	Frequency	Percent
<b>Yes</b>	1	3.3
<b>No</b>	29	96.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

A4. How often have you bought health foods from the Internet in the past 12 months?

	Frequency	Percent
<b>1-2 times</b>	1	3.3
<b>No</b>	29	96.7
<b>Total</b>	<b>30</b>	<b>100.0</b>



A5. How likely is that you will purchase health foods on the Internet in the next 12 months?

	<b>Frequency</b>	<b>Percent</b>
<b>Very likely</b>	1	3.3
<b>Likely</b>	3	10.0
<b>Not sure</b>	10	33.3
<b>Unlikely</b>	11	36.7
<b>Very unlikely</b>	5	16.7
<b>Total</b>	30	100.0

**Section B. Opinions, belief, and attitude towards online purchasing of health foods**

**I would be more likely to buy health foods online if.....**

No.		Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Mean
1	the company had good after sale services.	33.3	50.0	16.7	0	0	4.17
2	the company was easily contactable.	33.3	56.7	10.0	0	0	4.23
3	the company was well known.	46.7	33.3	20.0	0	0	4.27
4	the company had been in operation for a long time.	23.3	46.7	30	0	0	3.93
5	the brand name was popular.	43.3	36.7	20.0	0	0	4.23
6	It was a brand I trusted.	56.7	33.3	10.0	0	0	4.47
7	I had already used this brand before.	53.3	23.3	20.0	3.3	0	4.27
8	It was the product that I wanted to have.	30.0	60.0	10.0	0	0	4.20
9	it was good value for money.	53.3	40.0	6.7	0	0	4.47
10	the product was sold only on the Internet.	26.7	20.0	30.0	10.0	13.3	3.37
11	I could touch or test it before actually buying.	40.0	40.0	16.7	3.3	0	4.17
12	Someone recommended it to me.	6.7	30.0	50.0	13.3	0	3.30
13	the company used celebrities or well-known people to endorse it	0	23.3	56.7	10.0	10.0	2.93
14	There were some clinical studies backing up the product's efficacy.	33.3	53.3	6.7	6.7	0	4.13
15	Using credit card online was secure.	80	16.7	3.3	0	0	4.77
16	No cheating could occur during the transaction.	83.3	13.3	3.3	0	0	4.80
17	The company charged the right amount of money.	73.3	20.0	3.3	3.3	0	4.63
18	It would not put my privacy at risk.	66.7	26.7	6.7	0	0	4.60
19	There was no danger from the home delivery.	73.3	16.7	10.0	0	0	4.63
20	The company offered a money back guarantee.	53.3	40.0	3.3	3.3	0	4.43
21	Product's quality was assured upon arrival.	73.3	23.3	3.3	0	0	4.70
22	Products were as effective as claimed.	66.7	30.0	3.3	0	0	4.63
23	Products were as good as what was shown on the Internet.	46.7	40.0	13.3	0	0	4.33

No.		Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Mean
24	The company accepted goods returned when not satisfied.	53.3	40.0	6.7	0	0	4.47
25	process of product return was not difficult.	63.3	30.0	6.7	0	0	4.57
26	Product was exchanged with no extra cost.	66.7	23.3	10.0	0	0	4.57
27	I could choose to pay cash upon delivery.	40	36.7	20.0	0	3.3	4.10
28	I could choose other payment systems	40.0	50.0	10.0	0	0	4.30
29	.I did not have to give my credit card number	66.7	23.3	10.0	0	0	4.57
30	It was easy to log-on to the company's home page.	43.3	36.7	13.3	6.7	0	4.17
31	The instructions on the Internet were easy to follow.	46.7	46.7	3.3	3.3	0	4.37
32	It was quick to download the company's home page.	33.3	46.7	20.0	0	0	4.13
33	The product's description was not too long.	26.7	46.7	26.7	0	0	4.00
34	The text was easy to read.	30.0	50.0	16.7	3.3	0	4.07
35	The product information was easy to understand.	40.0	46.7	13.3	0	0	4.27
36	The buying process on the Internet was simple.	33.3	56.7	10.0	0	0	4.23
37	Design of company's home page was interesting.	10.0	50.0	33.3	6.7	0	3.63
38	Design of company's home page was clear and easy to understand.	33.3	43.3	16.7	6.7	0	4.03
39	there were clear pictures showing the products	50.0	40.0	6.7	3.3	0	4.37
40	there was enough product details.	46.7	53.3	0	0	0	4.47
41	I understood how to use the health foods.	40.0	46.7	10.0	3.3	0	4.23
42	I could receive the product quickly after placing order.	33.3	60.0	6.7	0	0	4.27
43	The company told me the specific delivery date.	46.7	50.0	3.3	0	0	4.43
44	I did not feel frustrated about the buying process.	30.0	50.0	16.7	3.3	0	4.07
45	the company did not ask too much information.	40.0	50.0	10.0	0	0	4.30
46	the buying process was fast.	33.3	60.0	6.7	0	0	4.27
47	I did not have to waste time.	33.3	60.0	6.7	0	0	4.27
48	it was fun to buy from the Internet.	10.0	30.0	46.7	10.0	3.3	3.33
49	it was entertaining to buy from the Internet	6.7	26.7	50.0	13.3	3.3	3.20

No.		Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Mean
50	I enjoyed the interaction on the Internet.	13.3	30.0	43.3	13.3	0	3.43
51	the buying process was exciting.	6.7	13.3	60.0	10.0	10.0	2.97
52	the company provided rich information on the Internet.	13.3	50.0	26.7	10.0	0	3.67
53	it was convenient.	16.7	60.0	13.3	10.0	0	3.83
54	the process was flexible.	13.3	36.7	36.7	13.3	0	3.50
55	there was no time constraint.	16.7	36.7	30.0	16.7	0	3.53
56	it could save time.	26.7	50.0	13.3	10.0	0	3.93
57	it could enhance my effectiveness in seeking health foods.	26.7	46.7	16.7	10.0	0	3.90
58	it was useful.	16.7	53.3	20.0	10.0	0	3.77
59	I could easily find health foods that I want.	20.0	66.7	6.7	3.3	3.3	3.97
60	it had a vast selection of health foods.	16.7	60.0	13.3	6.7	3.3	3.80
61	price was cheaper than buying from off-line	53.3	23.3	20.0	3.3	0	4.27
62	more discounts were given.	53.3	23.3	20.0	3.3	0	4.27
63	I got premiums from buying online.	43.3	30.0	23.3	3.3	0	4.13
64	free samples were given online.	40.0	30.0	23.3	6.7	0	4.03
65	I was a risk taker	0	13.3	43.3	33.3	10.0	2.60
66	it made me look trendy	6.7	26.7	36.7	26.7	3.3	3.07
67	I liked to try new things	10.0	33.3	40.0	16.7	0	3.37
68	I had a modem and Internet hook-up facilities	23.3	33.3	30.0	13.3	0	3.67
69	I was used to buying products online in the past	6.7	30.0	26.7	20.0	16.7	2.90
70	I was skillful at using the Internet	13.3	46.7	16.7	16.7	6.7	3.43
71	I liked shopping on the Internet	3.3	16.7	33.3	30.0	16.7	2.60
72	I hated shopping in the traditional shops	3.3	10.0	30.0	33.3	23.3	2.37

C1. Where is your Internet access?

	<b>Frequency</b>	<b>Percent</b>
<b>At work</b>	25	50
<b>At home</b>	22	44
<b>At the university</b>	3	6
<b>At the Internet cafe</b>	0	0
<b>Somewhere else</b>	0	0
<b>Total</b>	<b>50</b>	<b>100.0</b>

C2. How long have you been using the Internet?

	<b>Frequency</b>	<b>Percent</b>
<b>6 months – 1 year</b>	1	3.3
<b>1-2 years</b>	6	20.0
<b>Over 2 years</b>	23	76.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

C3. What is the purpose for accessing the Internet each time?

	<b>Frequency</b>	<b>Percent</b>
<b>Knowledge/information</b>	28	24.14
<b>Others</b>	22	18.97
<b>Business/Work</b>	21	18.10
<b>Personal entertainment</b>	20	17.24
<b>Study</b>	16	13.79
<b>Chat room</b>	6	5.17
<b>Buying or selling</b>	3	2.59
<b>Total</b>	<b>116</b>	<b>100.0</b>

C4. How often have you bought products or services on the Internet in the past 12 months?

	<b>Frequency</b>	<b>Percent</b>
<b>1-2 times</b>	5	16.7
<b>3-5 times</b>	2	6.7
<b>Never</b>	23	76.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

C5. What kind of products have you ever bought online in the past 12 months?

	<b>Frequency</b>	<b>Percent</b>
<b>Books</b>	1	8.33
<b>Computer</b>	2	16.67
<b>Banking service</b>	4	33.33
<b>Clothes</b>	2	16.67
<b>Others</b>	3	25
<b>Total</b>	<b>12</b>	<b>100.0</b>

Section D. Expenditure on health foods

D1. How much money do you spend on buying health foods each month?

	<b>Frequency</b>	<b>Percent</b>
<b>Less than 500 baht</b>	7	23.3
<b>501-1000 baht</b>	10	33.3
<b>1001-1500 baht</b>	6	20.0
<b>1501-2000 baht</b>	3	10.0
<b>2001-3000 baht</b>	2	6.7
<b>3001-5000 baht</b>	2	6.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

D2. Do you buy health foods for your own consumption or for others?

	<b>Frequency</b>	<b>Percent</b>
<b>Self consumption</b>	22	55
<b>Gift giving</b>	13	32.5
<b>Others</b>	5	12.5
<b>Total</b>	<b>40</b>	<b>100.0</b>

Section D Demographic

E1. What is your gender?

	<b>Frequency</b>	<b>Percent</b>
<b>Male</b>	5	16.7
<b>Female</b>	25	83.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

E2. What is your age?

	<b>Frequency</b>	<b>Percent</b>
<b>15-24 years old</b>	1	3.3
<b>25-34 years old</b>	11	36.7
<b>35-44 years old</b>	11	36.7
<b>45-54 years old</b>	4	13.3
<b>55 years and above</b>	3	10.0
<b>Total</b>	<b>30</b>	<b>100.0</b>

E3. What is your personal income per month?

	<b>Frequency</b>	<b>Percent</b>
<b>Less than 10,000 baht</b>	1	3.3
<b>10001-20000 baht</b>	5	16.7
<b>20001-40000 baht</b>	7	23.3
<b>40001-60000 baht</b>	6	20.0
<b>60001-80000 baht</b>	4	13.3
<b>80001-100000 baht</b>	7	23.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

E4. What is your marital status?

	<b>Frequency</b>	<b>Percent</b>
<b>Single</b>	17	56.7
<b>Married</b>	13	43.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

E5. What is your highest level of education?

	<b>Frequency</b>	<b>Percent</b>
<b>Secondary school</b>	1	3.3
<b>College</b>	2	6.7
<b>Bachelor degree</b>	7	23.3
<b>Master degree or higher</b>	20	66.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

E6. What is your present occupation?

	<b>Frequency</b>	<b>Percent</b>
<b>Government officer</b>	10	33.3
<b>Staff in private company</b>	10	33.3
<b>Management in private company</b>	4	13.3
<b>Business owner</b>	1	3.3
<b>Housewife</b>	3	10.0
<b>Others</b>	2	6.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

ONLINE QUESTIONNAIRE

The URL for questionnaire in **English** version is  
<http://203.120.74.57/th2/survey/survey.asp>



## BUYING HEALTH FOODS ONLINE: A new choice for you

Do you like buying your favorite health foods without having to take the trouble to shop? Your opinions about buying health foods over the Internet can shape the future business direction of health foods in Thailand. **Even if you have never bought health foods from the Internet, your feedback is valuable in shaping the future of e-commerce in Thailand.** This survey asks for only general information and will take less than 15 minutes to fill out. It can be completed by anyone who buys health food products.

Your name was randomly drawn from the databank of a leading health food supplement company in Thailand. As a postgraduate student at the University of Southern Queensland, I am conducting this research to discover people's opinions, attitudes, beliefs, intentions and expectations about buying health foods online. The University of Southern Queensland, Australia, supports this study. All responses to this survey will be kept completely confidential. Only the researchers will have access to the names of the respondents. Results will be reported in general terms, with no specific individuals identified in any reports.

In order to express our gratitude for your cooperation, 30 Baht will be donated to the Prosthesis Foundation for producing artificial legs, which operates under the patronage of the Princess Mother. We invite you to join the donation presentation ceremony. The date and venue will be sent to the address you supply at outlined at the end of this questionnaire.

If you have any questions concerning this survey, please do not hesitate to phone, e-mail, or write either myself, or one of my academic supervisors listed below.

Thank you for sharing your time and experiences.  
Sincerely



---

**Lackana Leelayouthayotin**  
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If you are unable to get a satisfactory response about this research after contacting either the researcher or their academic supervisors, please feel free to contact the Secretary, University Research and Higher Degrees Committee, University of Southern Queensland, PO Box Darling Heights, Toowoomba, Queensland 4350, Australia. Phone no. (61) 746 312866.

## FACTORS INFLUENCING ONLINE PURCHASING OF HEALTH FOODS

Kindly complete the questionnaire to the best of your knowledge, and also any additional comments that can be useful for this study, at the end of this questionnaire. To submit your completed response, please select "Submit" at the end of this survey. Thank you very much for your cooperation, and your valuable time as well.

.....

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### **SECTION A – EXPERIENCES AND INTENTIONS TOWARDS ONLINE PURCHASING OF HEALTH FOODS**

- A1. Have you bought or consumed any health foods during the past 12 months?
- Yes  
 No (*Go to question D1*)
- A2. What kind of health foods have you bought or consumed during the past 12 months? (*Please tick as many as applicable.*)
- Essence of chicken  
 Bird's nest  
 Chili and green tea extract  
 Primrose oil/flower oil  
 Lecithin  
 Ginkgo Biloba  
 Prune concentrate extract  
 Fish oil (Omega3)  
 Grape seed extract  
 Vitamins or minerals  
 Other (*please specify*)
- A3. Have you used any Internet services during the past 12 months?
- Yes  
 No (*Go to question D1*)
- A4. From where did you access the Internet? (*Please tick as many as applicable.*)
- At home  
 At work  
 At the university  
 Other (*please specify*)
- A5. Have you ever bought products or services online from the Internet?
- Yes  
 No (*Go to question A12*)
- A6. What kind of products or services have you bought online from the Internet during the past 12 months? (*Please tick as many as applicable.*)
- Books, magazines, newspapers  
 Computer software or hardware  
 Music or concert recordings  
 Banking/financial services/insurance

- Clothes/fashion products
- Foods or medicines
- Travel / hotel arrangements
- Other (*please specify*)

- A7. How often have you bought products or services online from the Internet during the past 12 months?
- 1-2 times
  - 3-5 times
  - More than 5 times
  - Did not buy in the past 12 months (*Go to question A12*)
- A8. Have you ever bought any health foods online from the Internet during the past 12 months?
- Yes
  - No (*Go to question A12*)
- A9. How often have you bought health foods online from the Internet during the past 12 months?
- 1-2 times
  - 3-5 times
  - More than 5 times
- A10. If you need any health foods within the next 12 months, do you plan to make your purchase online from the Internet?
- Very likely (5)
  - Likely (4)
  - Not sure (3) (*Go to question A14*)
  - Unlikely (2) (*Go to question A14*)
  - Very unlikely (1) (*Go to question A14*)
- A11. If you buy some health foods online from the Internet within the next 12 months, will you buy more often?
- Very likely (5) (*Go to question A14*)
  - Likely (4) (*Go to question A14*)
  - Not sure (3) (*Go to question A14*)
  - Unlikely (2) (*Go to question A14*)
  - Very unlikely (1) (*Go to question A14*)
- A12. Would you like to try purchasing health foods online from the Internet?
- Very likely (5)
  - Likely (4)
  - Not sure (3)
  - Unlikely (2)
  - Very unlikely (1)
- A13. If you need any health foods within the next 12 months, do you plan to make your purchase online from the Internet?
- Very likely (5)
  - Likely (4)

- Not sure (3)
- Unlikely (2)
- Very unlikely (1)

A14. Will you *recommend* your friends to buy health foods online from the Internet?

- Very likely (5)
  - Likely (4)
  - Not sure (3)
  - Unlikely (2)
  - Very unlikely (1)
- .....

**SECTION B – OPINIONS, BELIEFS, AND ATTITUDES TOWARDS ONLINE PURCHASING OF HEALTH FOODS**

We would like to know more about your opinions, beliefs, and attitudes regarding your previous experiences and intentions of your future online-purchase of health food products from the Internet. *Please read each of the statements below and indicate your level of agreement or disagreement:*

- 5 = Strongly agree
- 4 = Agree
- 3 = Neutral
- 2 = Disagree
- 1 = Strongly disagree

No.	Statement	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
<b>The company selling health foods online via the Internet:</b>						
1	Having good after sale service.					
2	Having a permanent, physical address.					
3	Being well known to the public.					
4	Being very well known to myself					
5	Having been operating good business for a long time.					
6	Recommended to me by friend or relative.					
<b>Health foods sold online via the Internet:</b>						
7	The brand name is popular.					
8	Being the brand name I trusted.					
9	Being the brand name I have previously used.					
10	Offering good value for my money.					
11	Available only through the Internet.					
12	Sufficient information available on the Internet for me to judge the product quality.					
13	Product endorsed by celebrities or well-known people.					
14	Product recommended to me by friends or relatives.					

No.	Statement	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
15	Health foods with scientific proven or clinical studies.					
<b>What do you feel about purchasing health foods online?</b>						
16	Charge through credit cards online is safe and secure.					
17	Should not pay through credit card.					
18	Various options of payment to choose from.					
19	Cash on delivery payment available.					
20	Risk receiving products differ from what being ordered.					
21	Risk receiving product later than expected date.					
22	Being charged only the agreed correct amount of money.					
23	No risk being used any unauthorized personal Information.					
24	It might not be safe from home delivery by stranger.					
25	Money back guarantee if product is not fully satisfied.					
26	The quality of product purchased is fully guaranteed.					
27	The product purchased is good and effective as advertised.					
28	The product purchased is exactly same as pictures seen.					
29	Able to return the product purchased if not fully satisfied.					
30	Easy and convenient procedure for product return process.					
31	Easy and convenient online ordering layout.					
32	Inconvenient logging-on to company homepage.					
33	Product information is difficult to look up.					
34	Company homepage is clear and easily understandable.					
35	Fast and convenient information searching system.					
36	Conveniently fixed and secured product delivery date.					
37	Online purchasing procedure is simple.					

No.	Statement	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
38	Product information must not be too long.					
39	Character font size must be easy to read.					
40	Health food's usage is easily read and understandable.					
41	Online product picture display is clear.					
42	Fast product delivery right after online order.					
43	Quick and swift online purchasing process.					
44	Not wasting time filling too much in the online order form.					
45	Being fun and exciting.					
46	Enjoyable.					
47	Provided rich and varied information.					
48	More reliable information than from sales person.					
49	No sales person to bother with.					
50	Shop at your convenient, whenever you want.					
51	Not wasting time traveling to shop.					
52	Able to shop both from within domestic and abroad.					
53	Wider range of health foods to choose from.					
54	Varied choice of companies providing health foods.					
55	Lower price than conventional stores.					
56	Larger discounts offered.					
57	More free of charge gifts than conventional stores.					
58	Free samples are available.					
<b>Your opinion about yourself:</b>						
59	Trendy.					

No.	Statement	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
60	Like to try new things.					
61	Skillful, efficiency in surfing the Internet.					
62	As skillful in Internet as other communication tools.					
63	Frequent Internet surfer.					
64	Frequent searchers of information on the Internet.					

.....



## SECTION C - EXPENDITURE ON HEALTH FOODS

- C1. How much **money** do you **spend** on buying health foods each month?
- Less than 500 Baht
  - 501-1,000 Baht
  - 1,001-1,500 Baht
  - 1,501 Baht or more
- C2. Do you buy health foods **for your own consumption** or for others? (*Please tick as many as applicable.*)
- Self consumption
  - Gift giving
  - Other (*please specify*)

.....

## SECTION D – DEMOGRAPHICS

- D1. What is your **gender**?
- Male
  - Female
- D2. What is your **age** as of December 31, 2002?
- Less than 15 years old
  - 15-24 years old
  - 25-34 years old
  - 35-44 years old
  - 45-54 years old
  - 55 years old and above
- D3. What is your **marital status**?
- Single
  - Married
  - Others (divorced. Widowed, separated, etc.)
- D4. What is your highest level of **education**?
- Primary school (P1-P6)
  - Secondary school (M1-M3)
  - High school (M4-M5)
  - College/ technical school/ vocational school or equivalent
  - Bachelors degree
  - Masters degree or higher
  - Other (*please specify*)
- D5. What is your present **occupation**?
- Government officer or civil servant
  - Staff in a private company
  - Management in a private company
  - Business owner
  - Student
  - Housewife
  - Other (*please specify*)
- D6. What is your personal **income per month**?
- Less than 10,000 Baht
  - 10,001-20,000 Baht

- 20,001-40,000 Baht
- 40,001-60,000 Baht
- 60,001-80,000 Baht
- 80,001-100,000 Baht
- More than 100,001 Baht

D7. Where is your current **accommodation**?

- Bangkok or Greater Bangkok Vicinity
- Up-Country

.....  
 We really appreciate your help and your time with this questionnaire. Finally, we would welcome any additional feedback; comments or thoughts that you feel may be relevant and useful to this study.

*Please use the space below to write your comments or send an additional separate E-mail to [luckyana@loxinfo.co.th](mailto:luckyana@loxinfo.co.th). Thank you very much.*

.....  
**Would you like to attend the donation presentation ceremony?**

- No
- Yes, please send your name and street address or e-mail address to [luckyana@loxinfo.co.th](mailto:luckyana@loxinfo.co.th)

**Thank you so much for your assistance and cooperation.**

**Submit**

ONLINE QUESTIONNAIRE

The URL for questionnaire in **Thai** version is  
[http://203.120.74.57/th2/survey/survey\\_th.asp](http://203.120.74.57/th2/survey/survey_th.asp)

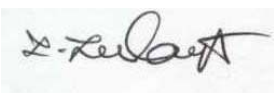
## การซื้ออาหารเสริมผ่านทางอินเทอร์เน็ต: ทางเลือกใหม่สำหรับสุขภาพของคุณ

คุณเคยนึกอยากที่จะซื้ออาหารเสริมที่คุณต้องการโดยไม่ต้องออกไปซื้อตามร้านหรือไม่? ความคิดเห็นด้านการซื้ออาหารเสริมของคุณผ่านทางอินเทอร์เน็ตจะช่วยกำหนดทิศทางของธุรกิจอาหารเสริมในประเทศไทยได้ ถึงแม้ว่าคุณจะไม่เคยซื้ออาหารเสริมผ่านทางอินเทอร์เน็ตมาก่อนก็ตาม แต่การช่วยตอบแบบสอบถามนี้ จะสามารถช่วยให้คุณตัดสินใจเลือกซื้ออาหารเสริมต่าง ๆ ในประเทศไทยสามารถปรับปรุงการให้บริการกับคุณได้ในอนาคต แบบสอบถามชุดนี้จะสอบถามเกี่ยวกับข้อมูลทั่วไปซึ่งใช้เวลาในการตอบประมาณ 15 นาที โดยผู้ตอบแบบสอบถามจะเป็นกลุ่มผู้ซื้อผลิตภัณฑ์อาหารเสริมชนิดใดชนิดหนึ่งนั่นเอง

ชื่อของคุณถูกเลือกมาจากการสุ่มระบบฐานข้อมูลจากบริษัทชั้นนำด้านอาหารเสริมในประเทศไทย ดิฉันเป็นนักศึกษาจาก University of Southern Queensland ประเทศออสเตรเลีย ได้จัดทำผลการวิจัยในครั้งนี้เพื่อเป็นส่วนหนึ่งของการศึกษาในระดับปริญญาเอก เพื่อศึกษาถึงความคิดเห็น, ทัศนคติ, ความเชื่อ และความคาดหวังของผู้บริโภคที่มีต่อการซื้อผลิตภัณฑ์อาหารเสริมผ่านทางอินเทอร์เน็ต โดยทาง University of Southern Queensland เป็นผู้ให้การสนับสนุนการทำวิจัยในครั้งนี้ **ทุกคำตอบที่ได้รับกลับมา จะถูกเก็บเป็นความลับ** มีเพียงผู้ทำวิจัยเท่านั้นที่จะสามารถทราบรายละเอียดต่าง ๆ ได้ ผลที่ได้จากการสำรวจจะถูกจัดทำเป็นรายงานซึ่งจะไม่มีการระบุถึงชื่อของผู้ตอบแบบสอบถามแต่อย่างใด

ทั้งนี้ เพื่อเป็นการแสดงความขอบคุณที่ทุกท่านได้กรุณาช่วยตอบแบบสอบถามชุดนี้ ดิฉันจะบริจาคเงิน 30 บาทต่อการทำวิจัยหนึ่งชุด ให้กับทางมูลนิธิชาเทียม ในสมเด็จพระศรีนครินทราบรมราชชนนี เพื่อใช้ในการทำชาเทียมสำหรับคนพิการต่อไป ท่านสามารถเข้าร่วมเป็นสักขีพยานในวันที่ทำการบริจาคเงินได้ เพียงแต่ท่านให้รายละเอียดที่อยู่ของท่านใน E-mail ที่แนบท้ายแบบสอบถามชุดนี้ โดยดิฉันจะแจ้ง วัน , เวลา และสถานที่ให้กับท่าน ต่อไป

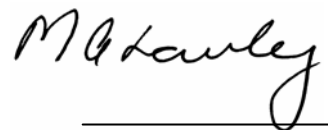
หากท่านมีปัญหาเกี่ยวกับการทำวิจัยครั้งนี้ โปรดกรุณาโทรศัพท์, E-mail หรือเขียนจดหมายถึงดิฉัน / อาจารย์ที่ปรึกษา (Academic Supervisor) ตามชื่อ, ที่อยู่และเบอร์โทรศัพท์ด้านล่างนี้



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หากท่านยังได้รับคำตอบไม่เป็นที่พอใจเกี่ยวกับการทำวิจัยนี้หลังจากการได้ติดต่อกับผู้ทำวิจัยหรืออาจารย์ที่ปรึกษา (Academic Supervisor) แล้ว กรุณาแจ้งไปยัง เลขานุการคณะกรรมการจัดทำผลงานวิจัย, University of Southern Queensland, P.O. Box Darling Heights, Toowoomba, Queensland 4350, Australia โทร. (61) 746-312866

กรุณากรอกแบบสอบถามด้านล่างให้สมบูรณ์ หลังจากกรอกแบบสอบถามเรียบร้อยแล้ว กรุณาคlickที่ปุ่ม "ส่ง" ซึ่งอยู่ตอนท้ายของแบบสอบถามชุดนี้ ท่านสามารถจะเพิ่มเติมข้อเสนอแนะหรือคำแนะนำต่าง ๆ ที่ท่านคิดว่าจะมีส่วนช่วยให้การทำวิจัยนี้สมบูรณ์มากยิ่งขึ้น ได้ในช่องว่างท้ายแบบสอบถามนี้

ขอขอบพระคุณทุกท่านที่กรุณาเสียสละเวลาอันมีค่าและให้ความร่วมมือในการทำวิจัยครั้งนี้

.....  
**Section A. ประสพการณ์ และความตั้งใจเกี่ยวกับการซื้อผลิตภัณฑ์อาหารเสริมผ่านอินเทอร์เน็ต**

- A1. ท่านใช้หรือซื้ออาหารเสริมในช่วง 12 เดือนที่ผ่านมาหรือไม่ **(เลือกตอบเพียง 1 ข้อ)**  
 ใช่  
 ไม่ใช่ **(ข้ามไปที่ข้อ D1)**
- A2. อาหารเสริมที่ท่านซื้อ/บริโภคในช่วง 12 เดือนที่ผ่านมา **(เลือกตอบได้มากกว่า 1 ข้อ)**  
 ชุปไก่สกัด  
 รังนก  
 ฟริกสกัดและชาเขียว  
 น้ำมันพริมโรส/น้ำมันสกัดจากดอกไม้ต่าง ๆ  
 เลซิดิน  
 สารสกัดจากใบแปะก๊วย  
 พรุนสกัดเข้มข้น  
 น้ำมันปลา (โอเมก้า 3)  
 สารสกัดจากเมล็ดองุ่น  
 วิตามินและแร่ธาตุต่าง ๆ  
 อื่น ๆ **(โปรดระบุในช่องว่าง)**
- A3. ท่านใช้อินเทอร์เน็ตในช่วง 12 เดือนที่ผ่านมาหรือไม่ **(เลือกตอบเพียง 1 ข้อ)**  
 ใช่  
 ไม่ใช่ **(ข้ามไปที่ข้อ D1)**
- A4. ท่านต่อใช้อินเทอร์เน็ตจากที่ใด **(เลือกตอบได้มากกว่า 1 ข้อ)**  
 บ้าน  
 สถานที่ทำงาน  
 สถานศึกษา  
 อื่น ๆ **(โปรดระบุในช่อง)**
- A5. ท่านเคยซื้อสินค้าผ่านอินเทอร์เน็ตหรือไม่ **(เลือกตอบเพียง 1 ข้อ)**  
 เคย  
 ไม่เคย **(ข้ามไปที่ข้อ A12)**
- A6. ท่านซื้อสินค้าประเภทใดผ่านทางอินเทอร์เน็ตในช่วง 12 เดือนที่ผ่านมา **(เลือกตอบได้มากกว่า 1 ข้อ)**  
 หนังสือ/นิตยสาร/หนังสือพิมพ์  
 อุปกรณ์และซอฟต์แวร์คอมพิวเตอร์  
 เพลง/ดนตรี/ตัวคอนเสิร์ต/ตัวกีฬา  
 ธนาคาร/สถาบันการเงิน/ประกันภัย/ประกันชีวิต  
 เสื้อผ้า/สินค้าเกี่ยวกับแฟชั่น  
 อาหาร/ยา  
 การท่องเที่ยว/โรงแรม

- A7.  อื่น ๆ (โปรดระบุในช่องว่าง)
- ท่านซื้อสินค้าผ่านทางอินเทอร์เน็ตบ่อยเพียงใด ในช่วง 12 เดือนที่ผ่านมา (เลือกตอบเพียง 1 ข้อ)
- 1-2 ครั้ง
- 3-5 ครั้ง
- มากกว่า 5 ครั้ง
- ไม่ได้ซื้อ (ข้ามไปที่ข้อ A12)
- A8. ท่านเคยซื้อ อาหารเสริมผ่านทางอินเทอร์เน็ตในช่วง 12 เดือนที่ผ่านมาหรือไม่ (เลือกตอบเพียง 1 ข้อ)
- เคย
- ไม่เคย (ข้ามไปข้อ A 12)
- A9. ท่านซื้อ อาหารเสริมผ่านทางอินเทอร์เน็ตบ่อยเพียงใด ในช่วง 12 เดือนที่ผ่านมา (เลือกตอบเพียง 1 ข้อ)
- 1-2 ครั้ง
- 3-5 ครั้ง
- มากกว่า 5 ครั้ง
- A10. ถ้าท่านมีโอกาสซื้ออาหารเสริมในช่วงอีก12 เดือนข้างหน้า ท่านคิดจะซื้อผ่านทางอินเทอร์เน็ตหรือไม่ (เลือกตอบเพียง 1 ข้อ)
- ซื้อแน่นอน (5)
- ซื้อ (4)
- ไม่แน่ใจ (3) (ถามต่อข้อ A14)
- ไม่ซื้อ (2) (ถามต่อข้อ A14)
- ไม่ซื้อแน่นอน (1) (ถามต่อข้อ A14)
- A11. ถ้าท่านมีโอกาสซื้ออาหารเสริมผ่านอินเทอร์เน็ตในอีก 12 เดือนข้างหน้า ท่านจะซื้อบ่อยมากขึ้นหรือไม่ (เลือกตอบเพียง 1 ข้อ)
- บ่อยขึ้นแน่นอน (5)
- บ่อยขึ้น (4)
- ไม่แน่ใจ (3)
- ไม่บ่อยขึ้น (2)
- ไม่บ่อยขึ้นแน่นอน (1)
- A12. ท่านอยากลองซื้ออาหารเสริมผ่านทางอินเทอร์เน็ตบ้างหรือไม่ (เลือกตอบเพียง 1 ข้อ)
- อยากลองมาก (5)
- อยากลอง (4)
- ไม่แน่ใจ (3)
- ไม่อยากลอง (2)
- ไม่อยากลองเลย (1)
- A13. ถ้าท่านมีโอกาสซื้ออาหารเสริมในช่วงอีก12 เดือนข้างหน้า ท่านคิดจะซื้อผ่านทางอินเทอร์เน็ตหรือไม่ (เลือกตอบเพียง 1 ข้อ)
- ซื้อแน่นอน (5)
- ซื้อ (4)
- ไม่แน่ใจ (3)
- ไม่ซื้อ (2)
- ไม่ซื้อแน่นอน (1)
- A14. ท่านคิดจะแนะนำให้เพื่อนหรือคนรู้จักซื้ออาหารเสริมผ่านทางอินเทอร์เน็ตบ้างหรือไม่ (เลือกตอบเพียง 1 ข้อ)
- แนะนำแน่นอน (5)
- แนะนำ (4)

- ไม่นั่งใจ (3)
  - ไม่นั่งน้ำ (2)
  - ไม่นั่งน้ำแน่นอน (1)
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**Section B**    **ความคิดเห็น, ความเชื่อ และทัศนคติเกี่ยวกับการซื้อผลิตภัณฑ์อาหารเสริมผ่านทางอินเทอร์เน็ต**

อยากทราบข้อมูลเกี่ยวกับความคิดเห็น, ความเชื่อ และทัศนคติเกี่ยวกับประสบการณ์ของท่านในปัจจุบัน หรือความตั้งใจในการซื้อผลิตภัณฑ์อาหารเสริมผ่านทางอินเทอร์เน็ตในอนาคต กรุณาอ่านข้อความด้านล่างและคลิกคำตอบในช่องตามระดับความคิดเห็นหรือความเชื่อของคุณ

- 5 = เห็นด้วยอย่างยิ่ง
- 4 = เห็นด้วย
- 3 = ไม่แน่ใจ
- 2 = ไม่เห็นด้วย
- 1 = ไม่เห็นด้วยอย่างยิ่ง

ข้อ	ข้อความ	เห็นด้วย อย่างยิ่ง (5)	เห็นด้วย (4)	ไม่ แน่ใจ	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่าง
<b>B.1. ท่านคิดว่าบริษัทที่ขายอาหารเสริมผ่านทางอินเทอร์เน็ตควรจะ.....</b>						
1	มีบริการหลังการขายที่ดี					
2	มีที่อยู่ถาวรที่ติดต่อได้					
3	เป็นบริษัทที่มีชื่อเสียง					
4	เป็นบริษัทที่ข้าพเจ้ารู้จักเป็นอย่างดี					
5	เป็นบริษัทที่ดำเนินกิจการมานาน					
6	เป็นบริษัทที่มีคนรู้จักแนะนำ					
<b>B.2. ท่านคิดว่าอาหารเสริมที่ขายผ่านทางอินเทอร์เน็ตควรจะ.....</b>						
7	เป็นยี่ห้อที่มีชื่อเสียง					
8	เป็นยี่ห้อที่ข้าพเจ้าไว้วางใจ					
9	เป็นยี่ห้อที่ท่านเคยใช้มาก่อนแล้ว					
10	คุ้มค่ากับเงินที่ต้องจ่าย					



ข้อ	ข้อความ	เห็นด้วย อย่างยิ่ง	เห็นด้วย (F)	ไม่เห็น ด้วย	ไม่เห็น ด้วย (A)	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่าง
11	มีขายเฉพาะทางอินเทอร์เน็ตเท่านั้น						
12	สามารถประเมินคุณภาพจากข้อมูลที่ให้ในอินเทอร์เน็ตได้						
13	ใช้บุคคลที่มีชื่อเสียงมาโฆษณาแนะนำสินค้า						
14	เป็นสินค้าที่มีคนรู้จักแนะนำ						
15	เป็นอาหารเสริมที่มีผลวิจัยทางวิทยาศาสตร์มาสนับสนุน						
B.3. ท่านคิดว่าการซื้ออาหารเสริมผ่านทางอินเทอร์เน็ตนั้น.....							
16	มีความปลอดภัยในการใช้บัตรเครดิตชำระเงิน						
17	ไม่ควรใช้บัตรเครดิตชำระเงิน						
18	สามารถเลือกชำระเงินได้หลายวิธี						
19	สามารถเลือกชำระเป็น <i>เงินสด</i> เมื่อสินค้ามาส่ง						
20	เสี่ยงต่อการได้รับสินค้าที่ไม่ตรงตามสั่ง						
21	เสี่ยงต่อการได้รับสินค้าล่าช้า						
22	บริษัทเก็บเงินค่าสินค้าถูกต้องตามที่ตกลง						
23	ไม่เสี่ยงต่อการถูกนำข้อมูลส่วนตัวไปใช้						
24	ไม่ปลอดภัยเพราะต้องมีคนนำสินค้ามาส่งที่บ้าน						
25	มีการรับประกัน <i>คืนเงิน</i> ถ้าไม่พอใจ						
26	มีการรับประกันคุณภาพสินค้าที่ซื้อ						
27	ได้สินค้ามีประสิทธิภาพตรงตามที่โฆษณาไว้						
28	ได้สินค้าเหมือนในรูปที่เห็น						
29	สามารถคืนสินค้าหากไม่พอใจ						
30	ไม่ยุ่งยากในการ <i>คืนสินค้า</i>						

ข้อ	ข้อความ	เห็นด้วย อย่างยิ่ง (F)	เห็นด้วย (A)	ไม่ แน่ใจ	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่าง
31	ทำรายการตามคำสั่งได้ง่าย					
32	ไม่สะดวกเพราะต้องเสียเวลาเชื่อมต่อเข้าโฮมเพจของบริษัท					
33	วิธีเรียกดูข้อมูลค่อนข้างยุ่งยาก					
34	มีรูปแบบโฮมเพจที่ชัดเจนและเข้าใจได้ง่าย					
35	สะดวกเพราะมีระบบค้นหาข้อมูลที่รวดเร็ว					
36	สะดวกเพราะมีการระบุวันส่งสินค้าที่แน่นอน					
37	มีกระบวนการสั่งซื้อที่ไม่ยุ่งยาก					
38	ข้อมูลเกี่ยวกับสินค้าต้องไม่ยาวเกินไป					
39	ขนาดตัวอักษรที่ใช้ต้องอ่านง่าย					
40	อ่านข้อมูลแล้วต้องเข้าใจว่าจะใช้อาหารเสริมนั้นได้อย่างไร					
41	มีภาพแสดงสินค้าในอินเทอร์เน็ตที่ชัดเจน					
42	ได้รับสินค้ารวดเร็วหลังจากการซื้อ					
43	มีกระบวนการสั่งซื้อสินค้ารวดเร็ว					
44	ไม่ต้องเสียเวลารอกข้อมูลมากไป					
45	สนุกและตื่นเต้น					
46	ได้รับความเพลิดเพลิน					
47	ได้รับข้อมูล มากมายและหลากหลาย					
48	ได้ข้อมูลที่น่าเชื่อถือกว่าพนักงานขาย					
49	ไม่มีพนักงานขายมารบกวน					
50	สามารถซื้อสินค้าได้ตลอดเวลาเมื่อต้องการ					
51	ไม่ต้องเสียเวลาเดินทางไปซื้อสินค้า					

ข้อ	ข้อความ	เห็นด้วย อย่างยิ่ง (F)	เห็นด้วย (A)	ไม่ แน่ใจ	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่าง
52	สามารถสั่งซื้อสินค้าได้จากทั้งในและต่างประเทศ					
53	สามารถเลือกอาหารเสริมได้หลากหลายกว่า					
54	มีบริษัทที่ขายอาหารเสริมให้เลือกมากกว่า					
55	มีราคาถูกกว่าซื้อจากร้านค้าทั่วไป					
56	ได้รับส่วนลดมากกว่า					
57	มีของแถมมากกว่าร้านค้าทั่วไป					
58	มีการแจกตัวอย่างฟรี					
B.4. ท่านคิดว่าตัวท่านเองนั้น.....						
59	เป็นคนทันสมัย					
60	เป็นคนชอบลองของใหม่					
61	มีความชำนาญในการใช้อินเทอร์เน็ต					
62	มีความชำนาญในการใช้อินเทอร์เน็ตได้คล่องแคล่วเหมือนเครื่องมือสื่อสารอื่นๆ					
63	เป็นคนใช้อินเทอร์เน็ตบ่อย					
64	เป็นคนที่ชอบค้นหาข้อมูลต่างๆบนอินเทอร์เน็ต					

**Section C**    **ค่าใช้จ่ายด้านอาหารเสริมสุขภาพ**

- C1.    **คุณมีค่าใช้จ่ายในการซื้ออาหารเสริมสุขภาพเดือนละเท่าใด (เลือกตอบเพียง 1 ข้อ)**
- น้อยกว่า 500 บาท
  - 501-1,000 บาท
  - 1,001-1,500 บาท
  - 1,501 ขึ้นไป
- C2.    **คุณซื้ออาหารเสริมเพื่ออะไร (เลือกตอบได้มากกว่า 1 ข้อ)**
- บริโภคเอง
  - ซื้อให้คนอื่น (รวมทั้งซื้อเป็นของขวัญ)
  - อื่น ๆ (โปรดระบุในช่องว่าง)

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**Section D**    **ข้อมูลด้านประชากร**

- D1.    **เพศ (เลือกตอบเพียง 1 ข้อ)**
- ชาย
  - หญิง
- D2.    **อายุ**
- น้อยกว่า 15 ปี
  - 15-24 ปี
  - 25-34 ปี
  - 35-44 ปี
  - 45-54 ปี
  - มากกว่า 55 ปีขึ้นไป
- D3.    **สถานภาพสมรส (เลือกตอบเพียง 1 ข้อ)**
- โสด
  - สมรส
  - อื่น ๆ เช่น หย่า, ม่าย, แยกกันอยู่ เป็นต้น
- D4.    **การศึกษาชั้นสูงสุด (เลือกตอบเพียง 1 ข้อ)**
- ประถมศึกษา
  - มัธยมศึกษาตอนต้น
  - มัธยมศึกษาตอนปลาย
  - วิทยาลัย/วิทยาลัยเทคนิค/สายอาชีพหรือเทียบเท่า
  - ปริญญาตรี
  - ปริญญาโทหรือมากกว่า
  - อื่น ๆ (โปรดระบุในช่องว่าง)
- D5.    **อาชีพของท่านในปัจจุบัน (เลือกตอบเพียง 1 ข้อ)**
- ข้าราชการ/รัฐวิสาหกิจ
  - พนักงานบริษัทเอกชน
  - ผู้บริหารในบริษัทเอกชน
  - ธุรกิจส่วนตัว/เจ้าของบริษัท
  - แม่บ้าน
  - นักเรียน/นักศึกษา
  - อื่น ๆ (โปรดระบุในช่องว่าง)
- D6.    **รายได้ของท่านต่อเดือน (เลือกตอบเพียง 1 ข้อ)**
- น้อยกว่า 5,000 บาท
  - 5,001-10,000 บาท

- 10,001-20,000 บาท
- 20,001-40,000 บาท
- 40,001-60,000 บาท
- 60,001-80,000 บาท
- 80,001-100,000 บาท
- มากกว่า 100,001 บาท ขึ้นไป

D7. ปัจจุบันท่านพำนักอยู่ที่ไหน **(เลือกตอบเพียง 1 ข้อ)**

- กรุงเทพฯ
- ต่างจังหวัด

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**ขอขอบพระคุณทุกท่านที่กรุณาตอบแบบสอบถาม**

หากท่านมีข้อเสนอแนะ หรือความคิดเห็นเพิ่มเติมที่อาจมีส่วนช่วยในการทำวิจัยในครั้งนี้ กรุณากรอกลงในช่องว่างด้านล่าง หรืออาจส่ง E-mail ไปที่ [luckyana@loxinfo.co.th](mailto:luckyana@loxinfo.co.th)

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**ท่านต้องการเข้าร่วมในงานบริจาคเงินให้กับมูลนิธิฯ หรือไม่ **(เลือกตอบเพียง 1 ข้อ)****

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**ขอขอบพระคุณสำหรับความร่วมมือที่เป็นประโยชน์ครั้งนี้ด้วยคะ**

**ส่ง**

### Validity, reliability, and its assessment strategies for this study

	Definition	Assessment strategies
<b>Validity</b>	<b>A measure is valid when the used measurement tools reflect true differences of subjects or measures what is supposed to be measured in the study (Cooper &amp; Schindler 2001, Zikmund 1997).</b>	<ul style="list-style-type: none"> <li>• Use variety of integrated processes to determine the information about construct, concept, and objects of the interest in this study (Cooper &amp; Schindler 2001, Hair, Bush, &amp; Ortinau 2000, Zikmund 1997).</li> </ul>
<i>Content Validity</i>	The extent to which measurement scales provide adequate coverage of all relevant dimensions under study. It is mainly the subjective agreement among professionals that the measurement scales accurately reflect what is supposed to measure (Cooper & Schindler 2001, Zikmund 1997).	<p>Does the measure adequately measure the concept?</p> <ul style="list-style-type: none"> <li>• Carefully define concerned topics, items to be scaled, and scales to be used in the study.</li> <li>• All dimensions are taken from prior literature review and confirmed with results from focus group discussions.</li> <li>• Feedbacks taken from a panel of 5 professionals, who have experiences in shopping online.</li> <li>• Pretest of the questionnaires with 30 respondents before actual fieldwork.</li> </ul>
<i>Criterion- related Validity</i>	The degree of correlation between a measure and its criterions that is expected to measure or predict the same construct. The multiple indicators of the same concept can be combined to form a single measure (Sekaran 2000, Zikmund 1997, Neuman 1994).	<p>Does the measure differentiate in a manner that helps to predict a dimension used in the study?</p> <ul style="list-style-type: none"> <li>• Empirical investigation</li> <li>• Correlation</li> </ul>

	<b>Definition</b>	<b>Assessment strategies</b>
<p>1. <i>Concurrent validity</i></p> <p>2. <i>Predictive validity</i></p>	<p>The degree of correlation between a measure and its criterions that is expected to measure or predict the same construct at the same time. The measure differentiates in a manner that helps predict a criterion variable currently used in the study (Sekaran 2000).</p> <p>The degree of correlation between a measure and its criterions that is expected to measure or predict the same construct of a future event. The measure differentiates in a manner as to help predict a future criterion used in the study (Sekaran 2000).</p>	<ul style="list-style-type: none"> <li>• Empirical investigation</li>   <li>• Empirical investigation</li> </ul>
<p><i>Construct Validity</i></p> <p>1. <i>Convergent validity</i></p> <p>2. <i>Discriminant validity</i></p>	<p>The degree to which the measure confirms a network or related hypotheses generated from a theory based on the concepts. The constructs used in the study achieve both empirical and theoretical meaning (Sekaran 2000, Zikmund 1997, Steenkamp &amp; Van Trijp 1991).</p> <p>The scores obtained by two different instruments measuring the same concept are correlated (Sekaran, 2000).</p> <p>Two variables are predicted to be unrelated and the scores obtained by measuring them are also</p>	<p>Does the instrument tap the concept as theorized?</p> <ul style="list-style-type: none"> <li>• Multiple dimensions are taken from prior literature review and confirmed with results from focus group discussions.</li> <li>• Pretest of the questionnaires with 50 respondents.</li> <li>• Statistical analysis</li> <li>• Factor analysis</li>   <li>• Data analysis</li> <li>• Correlation</li> <li>• Factor analysis</li>   <li>• Data analysis</li> </ul>

	Definition	Assessment strategies
	found to be unrelated (Sekaran 2000).	<ul style="list-style-type: none"> <li>• Factor analysis</li> <li>• Multitrait-multimethod analysis</li> </ul>
<b>Reliability</b>	<b>A measure is reliable when it has no bias and offers consistent results with repeated measurement across time and across various items in the instrument. It indicates the stability and consistency that helps to assess the goodness of a measure (Cooper &amp; Schindler 2001, Sekaran 2000, Zikmund 1997).</b>	<ul style="list-style-type: none"> <li>• Carefully differentiate concepts and its indicators.</li> <li>• Clearly define items or dimensions in the study.</li> <li>• Use the highest levels of measurement where possible.</li> <li>• Standardize conditions under which measurement occurs</li> <li>• Use multiple indicators for each concept and broaden the sample of measurement questions.</li> <li>• Pre-test the survey instrument before it is administered.</li> <li>• Exclude extreme responses drawn from measurement questions.</li> <li>• Use statistical data such as coefficient alpha</li> </ul>

*Source: Developed for this study*



### Link between research questions and scale developments

No.	Research Questions	Hypotheses	Variables	Scale	Relevant Questions	Statistical Techniques
1	Establish health food users who are also Internet users, types of health foods purchased, and the pattern of buying health foods online and offline.	-	-	Nominal	A1	Frequency, percentage, and mode
				Nominal	A2	Frequency, percentage, and mode
				Nominal	A3	Frequency, percentage, and mode
				Nominal	A4	Frequency, percentage, and mode
				Nominal	A5	Frequency, percentage, and mode
				Nominal	A6-A7	Frequency, percentage, and mode
				Nominal	A8	Frequency, percentage, and mode
				Nominal	A9	Frequency, percentage, and mode
				Nominal	C1	Frequency, percentage, and mode
				Nominal	C2	Frequency, percentage, and mode
2	Determine respondent's intention to buy health foods online in the next 12 months	-	PI	Interval	A10-A14	Mean, standard deviation, and variance SEM
3	Investigate opinions, beliefs, and attitudes towards online purchasing of health foods	<b>H1a.</b> Product and company attributes (PCA) will directly affect intention to buy health foods online (PI).	PCA PI	Interval	B1- B15, A10, A13, A14	Mean, standard deviation, and variances SEM

No.	Research Questions	Hypotheses	Variables	Scale	Relevant Questions	Statistical Techniques
		PCA → PI				
		<b>H1b.</b> Product and company attributes (PCA) will directly affect perceived risk (PR). PCA → PR	PCA PR	Interval	B16-B30	Mean, standard deviation, and variances SEM
		<b>H2a.</b> Perceived risk (PR) will directly affect the intention to buy health foods online (PI). PR → PI	PR PI	Interval	B16-B30, A10, A13, A14	Mean, standard deviation, and variances SEM
		<b>H2b.</b> Perceived risk (PR) will directly affect perceived ease of use. PR → EOU	PR EOU	Interval	B16-B30, B31-B44	Mean, standard deviation, and variances SEM
		<b>H2c.</b> Perceived risk (PR) will directly affect perceived usefulness. PR → POU	PR POU	Interval	B16-B30, B45-B58	Mean, standard deviation, and variances SEM
		<b>H3a.</b> Perceived ease of use (EOU) will directly affect intention to buy health foods online (PI). EOU → PI	EOU PI	Interval	B31-B44, A10, A13, A14	Mean, standard deviation, and variances SEM
		<b>H3b.</b> Perceived ease of use (EOU) will directly affect perceived usefulness (POU). EOU → POU	EOU POU	Interval	B31-B44, B45-B58	Mean, standard deviation, and variances SEM
		<b>H4.</b> Perceived usefulness (POU) will directly affect the intention to buy	POU PI	Interval	B45-B58, A10, A13,	Mean, standard deviation, and variances

No.	Research Questions	Hypotheses	Variables	Scale	Relevant Questions	Statistical Techniques
		health foods online (PI). POU → PI			A14	SEM
		<b>H5a.</b> Customer experience (CE) will have a direct effect the intention to shop online (BI). CE → PI	CE PI	Interval	B59-B63	Mean, standard deviation, and variances SEM
		<b>H5b.</b> Customer experience (CE) will have a direct effect on the perceived usefulness (POU). CE → POU	CE POU	Interval	B59-B63, B45-B58	Mean, standard deviation, and variances SEM
		<b>H5b.</b> Customer experience (CE) will have a direct effect on the perceived ease of use (POU). CE → EOU	CE EOU	Interval	B59-B63, B31-B44	Mean, standard deviation, and variances SEM

*Source: Developed for this study*

## Demographics analysis

Gender

	Frequency	Percent	% Valid	% Cum.
Female	565	52.5	71.9	71.9
Male	221	20.5	28.1	100.0
Valid	<b>786</b>	<b>73.0</b>	<b>100</b>	
Total	<b>1077</b>	<b>100.0</b>		

Age

	Gender	Frequency	Percent	% Valid	% Cum.
Less than 15 years old	F	2	0.2	0.3	0.3
	M	1	0.1	0.1	0.4
15-24 years old	F	214	19.9	27.2	27.6
	M	53	4.9	6.7	34.3
25-34 years old	F	245	22.7	31.2	65.5
	M	91	8.4	11.6	77.1
35-44 years old	F	87	8.1	11.1	88.2
	M	59	5.5	7.5	95.7
45-54 years old	F	16	1.5	2.0	97.7
	M	13	1.2	1.7	99.4
55 years and above	F	1	0.1	0.1	99.5
	M	4	0.4	0.5	100.0
Valid		<b>786</b>	<b>73.0</b>	<b>100</b>	
Total		<b>100.0</b>	<b>100.0</b>		

## Income

	<b>Gender</b>	<b>Frequency</b>	<b>Percent</b>	<b>% Valid</b>	<b>% Cum.</b>
Less than 5,000 baht	F	86	8.0	10.9	10.9
	M	19	1.8	2.4	13.3
5001-10000 baht	F	143	13.3	18.2	31.5
	M	45	4.2	5.7	37.2
10001-20000 baht	F	178	16.5	22.7	59.9
	M	51	4.7	6.5	66.4
20001-40000 baht	F	110	10.2	14.0	80.4
	M	58	5.4	7.4	87.8
40001-60000 baht	F	34	3.2	4.3	92.1
	M	25	2.3	3.2	95.3
60001-80000 baht	F	3	0.3	0.4	95.7
	M	9	0.8	1.1	96.8
80001-100000 baht	F	1	0.1	0.1	96.9
	M	4	0.4	0.5	97.4
More than 100001 baht	F	10	0.9	1.3	98.7
	M	10	0.9	1.3	100.0
Valid		<b>786</b>	<b>73.0</b>	<b>100</b>	
Total		<b>100.0</b>	<b>100.0</b>		

## Marital status

	<b>Gender</b>	<b>Frequency</b>	<b>Percent</b>	<b>% Valid</b>	<b>% Cum.</b>
Single	F	450	41.8	57.3	57.3
	M	131	12.2	16.7	74.0
Married	F	107	9.9	13.6	87.6
	M	88	8.2	11.2	98.8
Others	F	8	0.7	1.0	99.8
	M	2	0.2	0.2	100.0
Valid		<b>786</b>	<b>73.0</b>	<b>100</b>	
Total		<b>100.0</b>	<b>100.0</b>		

## Education

	Gender	Frequency	Percent	% Valid	% Cum.
Primary school	F	2	0.2	0.3	0.3
	M	2	0.2	0.3	0.6
Secondary school	F	4	0.4	0.5	1.1
	M	1	0.1	0.1	1.2
High school	F	32	3.0	4.1	5.3
	M	9	0.8	1.1	6.4
College/ Technical/ Vocational	F	28	2.6	3.6	10.0
	M	19	1.8	2.4	12.4
Bachelor degree	F	364	33.8	46.3	58.7
	M	138	12.8	17.6	76.3
Master degree or higher	F	130	12.1	16.5	92.8
	M	51	4.7	6.5	99.3
Others	F	5	0.4	0.6	99.9
	M	1	0.1	0.1	100.0
Valid		<b>786</b>	<b>73.0</b>	<b>100</b>	
Total		<b>100.0</b>	<b>100.0</b>		

## Occupation

	Gender	Frequency	Percent	% Valid	% Cum.
Staff in private company	F	234	21.7	29.8	29.8
	M	88	8.2	11.2	41.0
Student	F	162	15.1	20.6	61.6
	M	50	4.6	6.4	68.0
Government officer	F	81	7.5	10.3	78.3
	M	38	3.5	4.8	83.1
Business owner	F	40	3.7	5.1	88.2
	M	30	2.8	3.8	92.0
Management in private company	F	13	1.2	1.6	93.6
	M	10	0.9	1.3	94.9
Housewife	F	17	1.6	2.2	97.1
	M	0	0	0	97.1
Others	F	18	1.7	2.3	99.4
	M	5	0.5	0.6	100.0
Valid		<b>786</b>	<b>73.0</b>	<b>100</b>	
Total		<b>100.0</b>	<b>100.0</b>		

## Accommodation

	Gender	Frequency	Percent	% Valid	% Cum.
Bangkok or Greater Bangkok	F	422	39.2	53.7	53.7
	M	157	14.6	20.0	73.7
Up-Country	F	143	13.3	18.2	91.9
	M	64	5.9	8.1	100.0
Valid		<b>786</b>	<b>73.0</b>	<b>100</b>	
Total		<b>1077</b>	<b>100.0</b>		

## Means and standard deviations of variables in the model

Question number	Variable	Mean	Standard Deviation
A10	<i>Purchase Intention-1</i> Plan to make purchase of health foods online in the next 12 months among those who have bought health foods online	3.85	0.56
A13	<i>Purchase Intention-1</i> Plan to make purchase of health foods online in the next 12 months among those who have never bought health foods online during the past 12 months.	2.57	0.87
A10 & 13	<i>Purchase Intention-1</i> PI-1	2.63	0.90
A14	<i>Purchase Intention-2</i> Will recommend friends to buy health foods online (PI-2).	2.79	0.91
	<i>Product and company attributes</i>		
B1	Having good after-sale service.	4.52	0.73
B2	Having a permanent, physical address.	4.76	0.60
B3	Being well known to public.	4.36	0.74
B4	Being very well known to myself.	4.23	0.75
B5	Having been operating good business for a long time.	4.11	0.85
B6	Being recommended to me by friends or relatives.	3.64	0.89
B7	Being a popular brand name.	4.10	0.79
B8	Being the brand name I trust.	4.61	0.56
B9	Being the brand name I have previously used.	4.24	0.87
B10	Being worth buying.	4.72	0.55
B11	Being available only through the Internet.	2.28	1.04
B12	Sufficient information available on the Internet for me to judge the product quality.	4.15	0.95
B13	Product endorsed by celebrities or well-known people.	2.99	0.94
B14	Product recommended to me by friends or relatives.	3.53	0.85
B15	Health food with scientific proof or clinical studies.	4.52	0.64
	<i>Perceived Risk</i>		
B16	Paying through credit cards online is safe and secure.	3.47	1.30
B17	We should not pay through credit cards.	3.08	1.09
B18	There are various options of payments to choose from.	4.57	0.61
B19	Cash on delivery payment is available.	4.34	0.82
B20	There is a risk of receiving different products from what is ordered.	4.03	0.86
B21	There is a risk of receiving products later than expected.	4.02	0.81
B22	The company charges only the agreed correct amount of money.	3.89	0.86
B23	There is no risk of using any unauthorized personal information.	3.35	1.24
B24	It might not be safe from home delivery by a stranger.	3.24	0.89
B25	Returning money is guaranteed if product is not fully satisfactory.	4.45	0.80
B26	The quality of product purchased is fully guaranteed.	4.59	0.73
B27	The product purchased is good and effective as advertised.	4.39	0.90
B28	The product purchased is exactly the same as the pictures seen.	4.26	0.91
B29	The customers are able to return the product purchased it not fully satisfied.	4.47	0.83
B30	It is an easy and convenient procedure for the product return process.	3.10	1.25

Question number	Variable	Mean	Standard Deviation
	<i>Perceived Ease of Use</i>		
B31	It is an easy and convenient online ordering layout.	3.89	0.90
B32	It is an inconvenient logging-on to company homepage.	2.98	0.96
B33	The product information is difficult to search.	3.01	0.90
B34	The company homepage is clear and easily understandable.	3.87	0.83
B35	It is fast and convenient due to the information searching system.	3.95	0.79
B36	It is convenient due to the product delivery date.	3.84	0.83
B37	Its online purchasing procedure is simple.	3.78	0.87
B38	Product information must not be too long.	3.75	0.96
B39	The character front size must be easy to read.	4.34	0.63
B40	Health food's usage is easily read and understandable.	4.49	0.65
B41	The online product picture display is clear.	4.51	0.65
B42	Products are delivered right after online order.	4.33	0.78
B43	There is a quick and swift online purchasing process.	4.35	0.73
B44	It does not waste time filling too much in the online order form.	3.87	0.94
	<i>Perceived usefulness</i>		
B45	It is fun and exciting.	3.17	0.97
B46	It is enjoyable.	3.30	0.96
B47	Rich and varied information is provided.	3.94	0.79
B48	It has more reliable information than the one from a sales person.	3.37	0.94
B49	No sales persons bother me.	3.92	0.88
B50	You can shop at your convenience whenever you want.	4.32	0.65
B51	It does not waste time traveling to shops.	4.31	0.69
B52	You are able to shop things from both domestically and abroad.	4.33	0.67
B53	There is a variety of health food to choose from.	4.06	0.82
B54	There are more varied choices of companies providing health food.	4.03	0.82
B55	Prices are lower than those of conventional stores.	3.41	0.99
B56	Larger discounts are offered.	3.41	0.97
B57	There are more free gifts than those in conventional stores.	3.37	0.96
B58	Free samples are available.	3.46	1.05
	<i>Customer Experience</i>		
B59	Trendy.	3.87	0.73
B60	Like to try new things.	3.88	0.83
B61	Skillful, efficient in surfing the Internet.	3.80	0.83
B62	As skillful in Internet as other communication tools.	3.75	0.87
B63	Frequent Internet surfer.	4.06	0.84
B64	Frequent searchers of information on the Internet.	4.15	0.77



**Item analysis on Purchase Intention construct (PI) – 2 items**

<b>Rank No.</b>	<b>Question No.</b>	<b>Items</b>	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-total Correlation</b>
1	A10 & 13	Plan to make purchase of health foods online in the next 12 months among those who have bought health foods online (A10) and those who have never bought health foods online (A13) during the past 12 months.	2.7939	0.8212	0.6539
2	A14	Will recommend friends to buy health foods online.	2.6272	0.8099	0.6539

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0      Number of Items = 2      Alpha = 0.7907**

## Appendix 5.4

### Item analysis on Product and Company Attributes (PCA)-15 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B4	Being very well known to myself.	56.5013	28.6962	0.5444	0.7406
2	B5	Having been operating good business for a long time.	56.6247	28.0488	0.5438	0.7387
3	B6	Being recommended to me by friends or relatives.	57.1043	27.8770	0.5327	0.7392
4	B3	Being well known to public.	56.3753	29.0806	0.5074	0.7441
5	B8	Being the brand name I trust.	56.1209	30.3663	0.4771	0.7503
6	B7	Being a popular brand name.	56.6349	29.0092	0.4708	0.7465
7	B14	Product recommended to me by friends or relatives.	57.1997	28.9677	0.4297	0.7498
8	B15	Health food with scientific proof or clinical studies.	56.2074	30.6894	0.3570	0.7571
9	B9	Being the brand name I have previously used.	56.4924	29.5700	0.3502	0.7576
10	B13	Product endorsed by celebrities or well-known people	57.7455	29.3747	0.3318	0.7601
11	B2	Having a permanent, physical address.	55.9746	31.1637	0.3135	0.7603
12	B10	Being worth buying.	56.0165	31.6851	0.2654	0.7635
13	B1	Having good after-sale service.	56.2099	30.9788	0.2644	0.7641
14	B12	Sufficient information available on the Internet for me to judge the product quality.	56.5827	30.1492	0.2481	0.7689
15	B11	Being available only through the Internet.	58.4517	31.2391	0.1125	0.7861

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 15**

**Alpha = 0.7680**

**Item analysis on Product and company attributes (PCA)-14 items**

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B4	Being very well known to myself.	54.2214	26.3484	0.5607	0.7597
2	B5	Having been operating good business for a long time.	54.3448	25.7956	0.5494	0.7592
3	B6	Being recommended to me by friends or relatives.	54.8244	25.6736	0.5327	0.7605
4	B3	Being well known to public.	54.0954	26.7667	0.5169	0.7638
5	B8	Being the brand name I trust.	53.8410	27.9530	0.4987	0.7687
6	B7	Being a popular brand name.	54.3550	26.7643	0.4706	0.7672
7	B14	Product recommended to me by friends or relatives.	54.9198	26.8432	0.4147	0.7723
8	B15	Health food with scientific proof or clinical studies.	53.9275	28.2890	0.3712	0.7761
9	B9	Being the brand name I have previously used.	54.2125	27.1077	0.3721	0.7765
10	B13	Product endorsed by celebrities or well-known people	55.4656	27.3982	0.3001	0.7848
11	B2	Having a permanent, physical address.	53.6947	28.6531	0.3433	0.7782
12	B10	Being worth buying.	53.7366	29.2185	0.2868	0.7819
13	B1	Having good after-sale service.	53.9300	28.5161	0.2830	0.7829
14	B12	Sufficient information available on the Internet for me to judge the product quality.	54.3028	27.9770	0.2345	0.7917

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 14**

**Alpha = 0.7861**

## Item analysis on Perceived Risk (PR)-15 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B26R	The quality of product purchased is fully guaranteed.	32.7863	27.9211	0.6133	0.6353
2	B27R	The product purchased is good and effective as advertised.	32.5878	26.8362	0.5870	0.6287
3	B28R	The product purchased is exactly the same as the pictures seen.	32.4517	26.8671	0.5736	0.6300
4	B29R	The customers are able to return the product purchased it not fully satisfied.	32.6641	27.5686	0.5618	0.6356
5	B25R	Returning money is guaranteed if product is not fully satisfactory.	32.6552	28.0045	0.5474	0.6396
6	B22R	The company charges only the agreed correct amount of money.	32.0891	28.7793	0.3869	0.6562
7	B18R	There are various options of payments to choose from.	32.7481	30.2702	0.3402	0.6655
8	B23R	There is no risk of using any unauthorized personal information.	31.8944	28.4640	0.2919	0.6685
9	B16R	Paying through credit cards online is safe and secure.	32.0076	28.4713	0.2766	0.6713
10	B30R	It is an easy and convenient procedure for the product return process.	31.7252	28.3473	0.2754	0.6719
11	B19R	Cash on delivery payment is available.	32.5458	30.8903	0.1725	0.6810
12	B17	We should not pay through credit cards.	31.0980	30.1675	<b>0.1309</b>	0.6935
13	B21	There is a risk of receiving products later than expected.	30.1616	32.0618	<b>0.0234</b>	0.6981
14	B20	There is a risk of receiving different products from what is ordered.	30.1527	32.2034	<b>-0.0008</b>	0.7025
15	B24	It might not be safe from home delivery by a stranger.	30.9440	33.3039	<b>-0.1123</b>	0.7162

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 15**

**Alpha = 0.6831**

### Item analysis on Perceived Risk (PR)-11 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B26R	The quality of product purchased is fully guaranteed.	18.4249	26.2319	0.6425	0.7696
2	B29R	The customers are able to return the product purchased it not fully satisfied.	18.3028	25.5744	0.6296	0.7675
3	B27R	The product purchased is good and effective as advertised.	18.2265	25.0748	0.6235	0.7663
4	B25R	Returning money is guaranteed if product is not fully satisfactory.	18.2939	26.0218	0.6152	0.7703
5	B28R	The product purchased is exactly the same as the pictures seen.	18.0903	25.1957	0.5982	0.7689
6	B22R	The company charges only the agreed correct amount of money.	17.7277	26.5296	0.4764	0.7822
7	B23R	There is no risk of using any unauthorized personal information.	17.5331	25.8951	0.3933	0.7933
8	B18R	There are various options of payments to choose from.	18.3868	28.4744	0.3778	0.7921
9	B30R	It is an easy and convenient procedure for the product return process.	17.3639	26.0636	0.3449	0.8011
10	B16R	Paying through credit cards online is safe and secure.	17.6463	26.7945	0.2902	0.8069
11	B19R	Cash on delivery payment is available.	18.1845	28.5838	0.2635	0.8014

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Correlated

**Number of Cases = 786.0**

**Number of Items = 11**

**Alpha = 0.7997**

## Appendix 5.6

### Item analysis on Perceived Ease of Use (EOU)-14 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B37	Its online purchasing procedure is simple.	50.8931	31.7058	0.6166	0.7865
2	B35	It is fast and convenient due to the information searching system.	50.7214	32.3312	0.6138	0.7880
3	B36	It is convenient due to the product delivery date.	50.8384	32.2095	0.5972	0.7887
4	B43	There is a quick and swift online purchasing process.	50.3270	33.1656	0.5670	0.7924
5	B41	The online product picture display is clear.	50.1654	33.8325	0.5616	0.7944
6	B34	The company homepage is clear and easily understandable.	50.8028	32.5254	0.5593	0.7916
7	B40	Health food's usage is easily read and understandable.	50.1807	33.9648	0.5450	0.7955
8	B39	The character front size must be easy to read.	50.3359	34.1724	0.5281	0.7967
9	B42	Products are delivered right after online order.	50.3435	33.1838	0.5228	0.7949
10	B31	It is an easy and convenient online ordering layout.	50.7888	32.5108	0.5019	0.7958
11	B44	It does not waste time filling too much in the online order form.	50.8079	32.8637	0.4415	0.8011
12	B38	Product information must not be too long.	50.9198	34.0636	0.3143	0.8122
13	B33R	The product information is difficult to search.	51.8053	37.2245	<b>0.0430</b>	0.8318
14	B32R	It is an inconvenient logging-on to company homepage.	51.8359	37.5998	<b>0.0000</b>	0.8370

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 14**

**Alpha = 0.8127**

### Item analysis on Perceived Ease of Use (EOU)-12 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B37	Its online purchasing procedure is simple.	45.1858	30.4827	0.6404	0.8475
2	B36	It is convenient due to the product delivery date.	45.1310	30.8605	0.6359	0.8480
3	B35	It is fast and convenient due to the information searching system.	45.0140	31.2495	0.6208	0.8493
4	B43	There is a quick and swift online purchasing process.	44.6196	31.9201	0.5940	0.8514
5	B34	The company homepage is clear and easily understandable.	45.0954	31.2890	0.5836	0.8516
6	B41	The online product picture display is clear.	44.4580	32.7021	0.5737	0.8534
7	B39	The character front size must be easy to read.	44.6285	32.8784	0.5634	0.8541
8	B42	Products are delivered right after online order.	44.6361	31.8521	0.5584	0.8533
9	B40	Health food's usage is easily read and understandable.	44.4733	32.8279	0.5576	0.8543
10	B31	It is an easy and convenient online ordering layout.	45.0814	31.4609	0.5040	0.8575
11	B44	It does not waste time filling too much in the online order form.	45.1005	31.4510	0.4798	0.8597
12	B38	Product information must not be too long.	45.2125	32.5752	0.3557	0.8692

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 12**

**Alpha = 0.8647**

## Appendix 5.7

### Item analysis on Perceived usefulness (POU)-14 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B56	Larger discounts are offered.	49.0127	46.7005	0.6960	0.8552
2	B57	There are more free gifts than those in conventional stores.	49.0534	46.8201	0.6911	0.8555
3	B55	Prices are lower than those of conventional stores.	49.0140	46.7985	0.6674	0.8568
4	B58	Free samples are available.	48.9644	47.2573	0.5903	0.8615
5	B54	There are more varied choices of companies providing health food.	48.3995	49.6491	0.5688	0.8628
6	B47	Rich and varied information is provided.	48.4847	50.0080	0.5586	0.8634
7	B53	There is a variety of health food to choose from.	48.3613	49.9559	0.5410	0.8641
8	B48	It has more reliable information than the one from a sales person.	49.0522	49.1043	0.5240	0.8650
9	B46	It is enjoyable.	49.1221	49.2564	0.4970	0.8665
10	B45	It is fun and exciting.	49.2532	49.3027	0.4873	0.8671
11	B50	You can shop at your convenience whenever you want.	48.1069	52.1389	0.4596	0.8682
12	B51	It does not waste time traveling to shops.	48.1120	51.8626	0.4546	0.8682
13	B52	You are able to shop things from both domestically and abroad.	48.0980	52.7560	0.3732	0.8714
14	B49	No sales persons bother me.	48.5064	51.5955	0.3582	0.8732

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 14**

**Alpha = 0 .8728**



## Appendix 5.8

### Item analysis on Customer Experience (CE)-6 items

Rank No.	Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
1	B62	As skillful in Internet as other communication tools.	19.7557	8.8753	0.7872	0.7986
2	B61	Skillful, efficient in surfing the Internet.	19.7074	9.1601	0.7759	0.8021
3	B63	Frequent Internet surfer.	19.4377	9.4948	0.6811	0.8208
4	B59	Trendy.	19.6361	10.8585	0.4900	0.8541
5	B64	Frequent searchers of information on the Internet.	19.3562	10.0717	0.6292	0.8309
6	B60	Like to try new things.	19.6196	10.4831	0.4822	0.8579

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 6**

**Alpha = 0.8533**

Appendix 5.9

Pearson Correlations

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B12	B13	B14	B15	B16R	B18R	B19R	B22R	B23R	B25R	B26R	B27R	B28R	B29R	B30R	B31	
B1	1																										
B2	.591**	1																									
B3	.186**	.261**	1																								
B4	.190**	.208**	.568**	1																							
B5	.152**	.213**	.497**	.570**	1																						
B6	.156**	.192**	.324**	.378**	.439**	1																					
B7	-0.01	0.052	.454**	.393**	.411**	.226**	1																				
B8	.186**	.197**	.280**	.351**	.328**	.235**	.451**	1																			
B9	.076*	.115**	.207**	.344**	.316**	.179**	.375**	.421**	1																		
B10	.301**	.284**	.109**	.140**	.103**	.124**	0.051	.281**	.166**	1																	
B12	.148**	.152**	.106**	0.059	0.042	.146**	0.059	.166**	0.018	.289**	1																
B13	0.001	0.012	.151**	.172**	.199**	.252**	.288**	.115**	.110**	-0.035	.145**	1															
B14	0.025	0.016	.167**	.222**	.239**	.600**	.228**	.158**	.170**	0.027	.135**	.388**	1														
B15	.180**	.204**	.162**	.135**	.152**	.239**	.161**	.230**	.131**	.263**	.291**	.145**	.269**	1													
B16R	-0.042	-0.01	0.012	-0.028	-0.029	0.051	-0.05	-0.067	-0.023	-0.028	-0.003	0.055	0.008	-0.052	1												
B18R	-.186**	.215**	-0.053	-.114**	-.113**	-.109**	-0.039	-.151**	-.072*	-.265**	-.143**	-0.012	-0.045	-.187**	.192**	1											
B19R	-.123**	-.160**	-.080*	-.166**	-.178**	-.082*	-.072*	-.151**	-.109**	-.160**	-0.055	-0.03	-0.013	-.158**	.102**	.362**	1										
B22R	-.118**	-.078*	-.104**	-.175**	-.163**	-.085**	-0.062	-.090*	-.117**	-.126**	-0.009	-0.047	-0.035	-0.069	.228**	.215**	.160**	1									
B23R	-0.016	-0.029	-0.058	-.082*	-.096**	-.072*	-0.055	-0.057	-0.049	-0.048	-0.053	-0.034	-0.078*	-0.03	.254**	.150**	.123**	.402**	1								
B25R	-.214**	-.181**	-.108**	-.137**	-.106**	-.096**	-0.04	-.119**	-.098**	-.164**	-0.017	0.044	-0.05	-.134**	.105**	.296**	.228**	.307**	.282**	1							
B26R	-.219**	-.208**	-0.067	-.090*	-0.043	-0.024	-0.044	-.154**	-.111**	-.197**	-.075*	0.037	-0.018	-.156**	.134**	.323**	.237**	.284**	.232**	.764**	1						
B27R	-.163**	-.137**	-0.045	-.093**	-0.059	-0.067	-0.035	-.168**	-0.064	-.188**	-0.052	-0.007	-0.035	-.160**	.173**	.212**	.119**	.345**	.218**	.469**	.586**	1					
B28R	-.186**	-.142**	-0.064	-.114**	-.120**	-.089*	-0.059	-.154**	-.084*	-.163**	-.079*	-0.056	-0.054	-.176**	.170**	.218**	.138**	.339**	.212**	.421**	.497**	.799**	1				
B29R	-.171**	-.159**	-.102**	-.140**	-.128**	-.106**	-.081*	-.165**	-.102**	-.191**	-0.044	-0.026	-.099**	-.154**	.145**	.250**	.159**	.275**	.224**	.655**	.638**	.597**	.585**	1			
B30R	-.089*	-0.041	-.091*	-0.045	-.115**	-.085**	-.089*	-.072*	-0.024	-0.051	0.021	-0.006	-0.043	-0.062	.224**	.140**	.104**	.233**	.235**	.235**	.209**	.212**	.206**	.263**	1		
B31	0.062	.084*	0.017	0.005	0.024	0.055	-0.001	0.022	0.043	.083*	.082*	0.025	0.03	.176**	-.172**	-.208**	-.098**	-.208**	-.128**	-.164**	-.141**	-.212**	-.220**	-.207**	-.367**	1	
B34	.105**	.093**	.071*	.087*	.129**	.108**	0.07	.089*	0.059	0.031	0.062	0.06	0.027	.100**	-.114**	-.197**	-.101**	-.232**	-.140**	-.172**	-.188**	-.290**	-.300**	-.217**	-.271**	.418**	
B35	0.06	.080*	0.022	0.046	.097**	.087*	0.044	0.045	0.057	0.059	0.058	.071*	0.02	.151**	-.081*	-.228**	-.136**	-.207**	-.112**	-.119**	-.130**	-.207**	-.246**	-.148**	-.229**	.445**	
B36	.081*	.114**	0.05	.071*	.151**	.127**	0.048	0.068	.087*	0.045	0.028	0.059	0.03	.138**	-.159**	-.222**	-.172**	-.282**	-.175**	-.203**	-.215**	-.282**	-.280**	-.182**	-.301**	.455**	
B37	0.058	.073*	0.022	0.021	.094**	.112**	0.001	.078*	0.058	.109**	.070*	-0.005	0.027	.137**	-.170**	-.222**	-.132**	-.277**	-.181**	-.165**	-.181**	-.233**	-.270**	-.174**	-.289**	.501**	
B38	-0.026	-0.013	0.043	.116**	.133**	.120**	0.058	0.033	.071*	0.053	.075*	.077*	.104**	0.046	-0.035	-.145**	-.125**	-.138**	-.137**	-.093**	-.114**	-.157**	-.151**	-.109**	-.117**	.193**	
B39	.142**	.128**	0.025	.077*	.113**	0.064	0.044	.120**	.102**	.174**	.134**	-0.003	0.037	.174**	-.109**	-.212**	-.141**	-.188**	-.131**	-.204**	-.249**	-.234**	-.239**	-.213**	-.179**	.203**	
B40	.156**	.180**	0.018	0.049	0.036	0.048	0.036	.144**	.098**	.184**	.125**	0.009	0.013	.207**	-.092**	-.204**	-.146**	-.144**	-.073*	-.236**	-.283**	-.255**	-.256**	-.255**	-.176**	.230**	
B41	.228**	.222**	.073*	.070*	.093**	.096**	.085*	.177**	.145**	.234**	.160**	-0.005	0.021	.187**	-0.049	-.274**	-.168**	-.146**	-.090*	-.254**	-.304**	-.259**	-.265**	-.294**	-.180**	.237**	
B42	.208**	.157**	0.036	0.065	.108**	0.068	.107**	.166**	.105**	.189**	.138**	-0.002	0.049	.109**	-.112**	-.213**	-.138**	-.175**	-.133**	-.269**	-.316**	-.335**	-.320**	-.342**	-.199**	.240**	
B43	.174**	.162**	.073*	.109**	.110**	.078*	.100**	.186**	.127**	.241**	.158**	0.002	0.032	.138**	-.083*	-.223**	-.152**	-.214**	-.134**	-.270**	-.311**	-.326**	-.298**	-.342**	-.195**	.270**	

B44	.147**	.127**	.084*	.147**	.196**	.113**	.119**	.155**	0.061	.152**	.127**	0.053	.081*	.129**	-.105**	-.154**	-.100**	-.230**	-.145**	-.160**	-.190**	-.263**	-.258**	-.232**	-.223**	.337**
B45	0.056	0.061	0.039	.090**	.125**	.150**	0.025	0.007	-0.013	0.035	.128**	.198**	.110**	0.065	-0.051	-.102**	-0.045	-.230**	-0.017	-0.044	-0.059	-.080*	-.121**	-.087*	-0.04	.211**
B46	0.041	0.046	0.039	.095**	.148**	.161**	-0.009	0.024	0.009	0.06	.101**	.209**	.134**	0.057	-0.012	-.117**	-.084*	-.149**	-0.016	-0.048	-0.047	-.079*	-.119**	-0.053	-0.012	.171**
B47	.124**	.128**	0.047	0.066	.076*	.124**	0.009	.083*	.070*	.128**	.144**	0.055	0.044	.226**	-.148**	-.208**	-.116**	-.203**	-.090*	-.132**	-.166**	-.253**	-.253**	-.182**	-.097**	.341**
B48	0.054	0.037	0.041	0.033	0.051	0.039	-0.006	-0.021	-0.007	0.026	.078*	0.058	0.023	.103**	-.105**	-.130**	-0.032	-.126**	-.082*	-.085*	-.135**	-.147**	-.188**	-.123**	-.093**	.213**
B49	0	0.023	.100**	0.057	.089*	0.021	.088*	.071*	0.044	.076*	.083*	0.031	0.02	.077*	-0.024	-.135**	-.107**	-.076*	-.079*	-.077*	-.075*	-0.053	-.090*	-.088*	-.074*	.141**
B50	0.043	.088*	.098**	0.066	.091*	0.039	.133**	.149**	.122**	.112**	.080*	-0.032	-0.038	.151**	-0.063	-.241**	-.159**	-.169**	-.111**	-.119**	-.134**	-.131**	-.141**	-.111**	-.144**	.239**
B51	0.061	.137**	.093**	.086*	.077*	0.067	.073*	.112**	0.068	.168**	.152**	-0.046	-0.022	.145**	-0.044	-.236**	-.127**	-.166**	-.152**	-.162**	-.145**	-.101**	-.145**	-.136**	-.108**	.329**
B52	0.069	.137**	.080*	.092**	0.057	0.066	.074*	.139**	.159**	.155**	.130**	-0.037	0	.143**	-.107**	-.238**	-.154**	-.123**	-.086*	-.168**	-.174**	-.146**	-.104**	-.141**	-.117**	.240**
B53	0.048	0.058	0.07	.096**	.110**	.125**	.071*	0.036	0.066	.154**	.124**	0.048	-.100**	.156**	-0.053	-.173**	-.117**	-.147**	-.106**	-.136**	-.156**	-.178**	-.183**	-.154**	-.111**	.295**
B54	.075*	0.049	.090**	.119**	.093**	.140**	.089*	.078*	.072*	.118**	0.051	0.049	.071*	.138**	-.073*	-.137**	-.092**	-.209**	-.122**	-.161**	-.150**	-.198**	-.188**	-.165**	-.151**	.292**
B55	.078*	0.021	0.038	0.052	.100**	.166**	0.058	0.037	0.005	0.033	0.04	.093**	.090*	.082*	-.162**	-.089*	-0.051	-.263**	-.136**	-.122**	-.122**	-.163**	-.191**	-.149**	-.223**	.308**
B56	.086*	0.054	0.045	0.061	.111**	.153**	0.054	0.041	0.012	0.039	0.012	.090*	.088*	.081*	-.171**	-.099**	-.079*	-.276**	-.147**	-.161**	-.150**	-.188**	-.209**	-.183**	-.224**	.301**
B57	.086*	0.031	0.05	0.064	.090*	.155**	0.063	0.038	0.024	0.006	0.064	.108**	.109**	0.054	-.124**	-.074*	-0.062	-.246**	-.140**	-.141**	-.131**	-.156**	-.176**	-.161**	-.214**	.288**
B58	.095**	0.047	.085*	.091*	.134**	.098**	0.067	0.05	0.049	0.023	-0.019	.105**	.078*	0.052	-.125**	-.098**	-.078*	-.284**	-.166**	-.208**	-.192**	-.213**	-.216**	-.224**	-.219**	.244**
B59	.076*	0.027	0.068	.086*	.102**	.079*	.113**	.097**	0.04	.095**	.091*	.099**	.118**	.123**	-0.06	-.116**	-.095**	-0.066	-0.036	-.118**	-.119**	-.145**	-.168**	-.104**	-.093**	.095**
B60	-0.021	-0.014	.073*	0.068	.074*	.095**	.080*	0.066	-0.005	.083*	.111**	.091*	.161**	.106**	-0.028	-.104**	-0.044	-0.047	0.002	-0.055	-0.057	-.098**	-.116**	-0.069	-0.066	.132**
B61	0.002	0.007	0.003	.084*	0.051	0.016	.104**	0.034	.100**	-0.025	0.027	0.022	0.041	0.065	-0.027	-0.059	-0.054	-.093**	0.03	-.071*	-0.067	-.085*	-.110**	-0.025	-.115**	.181**
B62	0.008	0.016	0.031	.128**	0.062	0.006	.137**	0.045	.093**	-0.005	0.03	0.045	0.036	0.062	-0.041	-.095**	-.120**	-.115**	0.004	-.079*	-.070*	-.093**	-.136**	-0.046	-.131**	.150**
B63	-0.003	0.006	-0.002	.077*	0.056	-0.038	.094**	0.021	.095**	0.037	0.007	0.027	0.026	0.05	-0.019	-0.039	-.109**	-0.048	0.037	-0.058	-0.03	-0.04	-0.05	0.007	-.155**	.114**
B64	0.052	0.044	-0.004	0.054	0.058	0.041	.071*	.076*	.094**	0.068	0.047	0.003	0.019	0.019	.076*	-0.037	-.115**	-.097**	-.112**	-0.009	-.093**	-.083*	-.074*	-0.05	-.177**	.132**
PI1	0.007	-.073*	-0.026	-0.029	-0.006	0.028	-.125**	0	-0.058	0.009	0.04	0.015	0.059	0.056	-0.002	-.103**	0.057	-0.064	0.026	-0.04	-0.032	-0.054	-.095**	-0.041	0	.131**
PI2	0.055	-0.024	-0.069	-0.035	-0.001	0.049	-.130**	-0.005	-0.007	-0.006	0.024	0.044	0.06	0.055	-0.017	-.092**	-0.01	-0.06	0.003	-0.026	-0.033	-.095**	-.131**	-0.045	0.011	.156**
	B34	B35	B36	B37	B38	B39	B40	B41	B42	B44	B45	B46	B47	B48	B49	B51	B54	B55	B57	B58	B59	B60	B61	B62	B63	PI2
B1																										
B2																										
B3																										
B4																										
B5																										
B6																										
B7																										
B8																										
B9																										
B10																										
B12																										
B13																										
B14																										
B15																										
B16R																										



<b>B62</b>	.134**	.155**	.145**	.180**	.119**	.106**	0.059	.093**	.112**	.150**	0.052	.080*	.124**	.139**	.150**	.102**	.118**	.110**	.123**	.126**	.408**	.391**	.864**	1		
<b>B63</b>	.120**	.130**	.092**	.119**	.080*	.090*	0.065	.077*	.101**	.112**	0.025	0.051	.105**	.101**	.149**	.092*	.112**	.093**	.099**	.097**	.315**	.313**	.640**	.667**	1	
<b>B64</b>	.145**	.180**	.138**	.156**	.113**	.130**	.103**	.111**	.155**	.108**	0.051	.076*	.175**	.132**	.161**	.145**	.145**	.102**	.086*	.112**	.284**	.323**	.571**	.579**	.644**	
<b>PI1</b>	.132**	.106**	.115**	.137**	0.067	-0.006	-0.007	-0.052	-0.004	.108**	.244**	.233**	.141**	.170**	0.048	.121**	.131**	.166**	.190**	.106**	.099**	.154**	.084*	0.069	0.017	
<b>PI2</b>	.185**	.192**	.166**	.159**	.103**	0.046	0.015	-0.036	0.037	.113**	.231**	.228**	.168**	.188**	0.022	0.063	.114**	.179**	.196**	.110**	.140**	.146**	.142**	.093**	0.044	1

\*. Correlation is significant at the 0.05 level (2-tailed)

\*\* . Correlation is significant at the 0.01 level

Appendix 5.10

**Pearson correlation matrix for Product and Company Attributes (PCA)**

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B12	B13	B14	B15
B1	1.000													
B2	.591**	1.000												
B3	.186**	.261**	1.000											
B4	.190**	.208**	.568**	1.000										
B5	.152**	.213**	.497**	.570**	1.000									
B6	.156**	.192**	.324**	.378**	.439**	1.000								
B7	-.010	.052	.454**	.393**	.411**	.226**	1.000							
B8	.186**	.197**	.280**	.351**	.328**	.235**	.451**	1.000						
B9	.076*	.115**	.207**	.344**	.316**	.179**	.375**	.421**	1.000					
B10	.301**	.284**	.109**	.140**	.103**	.124	.051	.281**	.166**	1.000				
B12	.148**	.152**	.106**	.059	.042	.146**	.059	.166**	.018	.289**	1.000			
B13	.001	.012	.151**	.172**	.199**	.252**	.288**	.115**	.110**	-.035	.145**	1.000		
B14	.025	.016	.167**	.222**	.239**	.600**	.228**	.158**	.170**	.027	.135**	.388**	1.000	
B15	.180**	.204**	.162**	.135**	.152**	.239**	.161**	.230**	.131**	.263**	.291**	.145**	.269**	1.000

Note:

Correlation is significant at 0.01 level (2-tailed).

Appendix 5.11

**Pearson Correlation for Perceived Risk (PR)**

	B16R	B18R	B19R	B22R	B23R	B25R	B26R	B27R	B28R	B29R	B30R
B16R	1.000										
B18R	.192**	1.000									
B19R	.102**	.362**	1.000								
B22R	.228**	.215**	.160**	1.000							
B23R	.254**	.150**	.123**	.402**	1.000						
B25R	.105**	.296**	.228**	.307**	.282**	1.000					
B26R	.134**	.323**	.237**	.284**	.232**	.764**	1.000				
B27R	.173**	.212**	.119**	.345**	.218**	.469**	.586**	1.000			
B28R	.170**	.218**	.138**	.339**	.212**	.421**	.497**	.799**	1.000		
B29R	.145**	.250**	.159**	.275**	.224**	.655**	.638**	.597**	.585**	1.000	
B30R	.224**	.140**	.104**	.233**	.235**	.235**	.209**	.212**	.206**	.263**	1.000

Note:

1. \*\* = Correlation is significant at 0.01 level (2-tailed).
2. Questions marked with R were negative questions, which scores have already reversed in the analysis.

Appendix 5.12

Pearson Correlation for Perceived Ease of Use (EOU)

	B31	B34	B35	B36	B37	B38	B39	B40	B41	B42	B43	B44
B31	1.000											
B34	.418**	1.000										
B35	.445**	.674**	1.000									
B36	.455**	.582**	.729**	1.000								
B37	.501**	.535**	.588**	.656**	1.000							
B38	.193**	.254**	.312**	.332**	.381**	1.000						
B39	.202**	.267**	.282**	.320**	.310**	.298**	1.000					
B40	.230**	.228**	.252**	.252**	.251**	.157**	.713**	1.000				
B41	.237**	.248**	.242**	.234**	.250**	.158**	.599**	.757**	1.000			
B42	.240**	.259**	.204**	.215**	.261**	.126**	.445**	.562**	.616**	1.000		
B43	.270**	.269**	.232**	.239**	.301**	.143**	.478**	.559**	.629**	.836**	1.000	
B44	.337**	.306**	.288**	.333**	.342**	.209**	.249**	.245**	.315**	.400**	.408**	1.000

Note: Correlation is significant at 0.01 level (2-tailed).



Appendix 5.13

**Pearson Correlation for Perceived Usefulness (POU)**

	B45	B46	B47	B48	B49	B50	B51	B52	B53	B54	B55	B56	B57	B58
B45	1.000													
B46	.821**	1.000												
B47	.435**	.479**	1.000											
B48	.355**	.373**	.491**	1.000										
B49	.173**	.173**	.244**	.307**	1.000									
B50	.159**	.153**	.310**	.277**	.495**	1.000								
B51	.172**	.186**	.293**	.215**	.393**	.647**	1.000							
B52	.114**	.151**	.278**	.128**	.265**	.528**	.647**	1.000						
B53	.177**	.201**	.310**	.303**	.269**	.372**	.462**	.479**	1.000					
B54	.213**	.228**	.342**	.256**	.227**	.344**	.384**	.405**	.726**	1.000				
B55	.274**	.258**	.311**	.377**	.137**	.202**	.169**	.100**	.329**	.431**	1.000			
B56	.316**	.306**	.354**	.377**	.156**	.178**	.148**	.086**	.304**	.402**	.898**	1.000		
B57	.332**	.307**	.330**	.375**	.156**	.166**	.164**	.111**	.304**	.361**	.837**	.910**	1.000	
B58	.277**	.271**	.287**	.324**	.137**	.150**	.128**	.079**	.288**	.335**	.684**	.729**	.772**	1.000

Note: Correlation is significant at 0.01 level (2-tailed).

## Appendix 5.14

### Pearson Correlation for Customer Experience (CE)

	B59	B60	B61	B62	B63	B64
B59	1.000					
B60	.531**	1.000				
B61	.404**	.385**	1.000			
B62	.408**	.391**	.864**	1.000		
B63	.315**	.313**	.640**	.667**	1.000	
B64	.284**	.323**	.571**	.579**	.644**	1.000

## PCA

## Communalities for Product and company attributes - (14 items)

Item	Description	Initial	Extraction
B1	Having good after-sale service.	1.000	<b>0.292</b>
B2	Having a permanent, physical address.	1.000	<b>0.292</b>
B3	Being well known to public.	1.000	0.530
B4	Being very well known to myself.	1.000	0.616
B5	Having been operating good business for a long time.	1.000	0.584
B6	Being recommended to me by friends or relatives.	1.000	0.559
B7	Being a popular brand name.	1.000	0.548
B8	Being the brand name I trust.	1.000	0.419
B9	Being the brand name I have previously used.	1.000	0.356
B10	Being worth buying.	1.000	<b>0.253</b>
B12	Sufficient information available on the Internet for me to judge the product quality.	1.000	<b>0.206</b>
B13	Product endorsed by celebrities or well-known people	1.000	0.444
B14	Product recommended to me by friends or relatives.	1.000	0.697
B15	Health food with scientific proof or clinical studies.	1.000	0.429

## Communalities for Product and company attributes – Final (10 items)

Item	Description	Initial	Extraction
B3	Being well known to public.	1.000	0.663
B4	Being very well known to myself.	1.000	0.697
B5	Having been operating good business for a long time.	1.000	0.656
B6	Being recommended to me by friends or relatives.	1.000	0.677
B7	Being a popular brand name.	1.000	0.552
B8	Being the brand name I trust.	1.000	0.662
B9	Being the brand name I have previously used.	1.000	0.581
B13	Product endorsed by celebrities or well-known people	1.000	0.402
B14	Product recommended to me by friends or relatives.	1.000	0.750
B15	Health food with scientific proof or clinical studies.	1.000	0.422

## Total Variance Explained for Product and company attributes

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.665	36.650	36.650	3.665	36.650	36.650	2.342	23.422	23.422
2	1.371	13.708	50.358	1.371	13.708	50.358	1.932	19.318	42.740
3	1.027	10.266	60.624	1.027	10.266	60.624	1.788	17.884	60.624
4	0.887	8.868	69.491						
5	0.789	7.891	77.383						
6	0.589	5.891	83.274						
7	0.518	5.180	88.454						
8	0.462	4.623	93.077						
9	0.373	3.734	96.811						
10	0.319	3.189	100.000						

## PR

## Communalities for Perceived Risk – (11 items)

Item	Description	Initial	Extraction
B16R	Paying through credit cards online is safe and secure.	1.00	0.314
B18R	There are various options of payments to choose from.	1.00	0.343
B19R	Cash on delivery payment is available.	1.00	0.306
B22R	The company charges only the agreed correct amount of money.	1.00	0.416
B23R	There is no risk of using any unauthorized personal information.	1.00	0.410
B25R	Returning money is guaranteed if product is not fully satisfactory.	1.000	0.627
B26R	The quality of product purchased is fully guaranteed.	1.000	0.696
B27R	The product purchased is good and effective as advertised.	1.000	0.705
B28R	The product purchased is exactly the same as the pictures seen.	1.000	0.651
B29R	The customers are able to return the product purchased it not fully satisfied.	1.000	0.705
B30R	It is an easy and convenient procedure for the product return process.	1.000	<b>0.258</b>

## Communalities for Perceived Risk – (10 items)

Item	Description	Initial	Extraction
B16R	Paying through credit cards online is safe and secure.	1.00	0.373
B18R	There are various options of payments to choose from.	1.00	0.388
B19R	Cash on delivery payment is available.	1.00	<b>0.297</b>
B22R	The company charges only the agreed correct amount of money.	1.00	0.426
B23R	There is no risk of using any unauthorized personal information.	1.00	0.412
B25R	Returning money is guaranteed if product is not fully satisfactory.	1.000	0.634
B26R	The quality of product purchased is fully guaranteed.	1.000	0.704
B27R	The product purchased is good and effective as advertised.	1.000	0.713
B28R	The product purchased is exactly the same as the pictures seen.	1.000	0.649
B29R	The customers are able to return the product purchased it not fully satisfied.	1.000	0.709

**Communalities for Perceived Risk – ( 9 items )**

<b>Item</b>	<b>Description</b>	<b>Initial</b>	<b>Extraction</b>
B16R	Paying through credit cards online is safe and secure.	1.00	0.492
B18R	There are various options of payments to choose from.	1.00	<b>0.230</b>
B22R	The company charges only the agreed correct amount of money.	1.00	0.524
B23R	There is no risk of using any unauthorized personal information.	1.00	0.557
B25R	Returning money is guaranteed if product is not fully satisfactory.	1.000	0.649
B26R	The quality of product purchased is fully guaranteed.	1.000	0.723
B27R	The product purchased is good and effective as advertised.	1.000	0.684
B28R	The product purchased is exactly the same as the pictures seen.	1.000	0.623
B29R	The customers are able to return the product purchased it not fully satisfied.	1.000	0.709

**Communalities for Perceived Risk – Final (8 items)**

<b>Item</b>	<b>Description</b>	<b>Initial</b>	<b>Extraction</b>
B16R	Paying through credit cards online is safe and secure.	1.00	0.480
B22R	The company charges only the agreed correct amount of money.	1.00	0.546
B23R	There is no risk of using any unauthorized personal information.	1.00	0.596
B25R	Returning money is guaranteed if product is not fully satisfactory.	1.000	0.650
B26R	The quality of product purchased is fully guaranteed.	1.000	0.722
B27R	The product purchased is good and effective as advertised.	1.000	0.692
B28R	The product purchased is exactly the same as the pictures seen.	1.000	0.629
B29R	The customers are able to return the product purchased it not fully satisfied.	1.000	0.713

**Total Variance Explained for Perceived Risk**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.792	47.402	47.402	3.792	47.402	47.402	3.390	42.371	42.371
2	1.238	15.470	62.871	1.238	15.470	62.871	1.640	20.501	62.871
3	.857	10.707	71.579						
4	.773	9.658	83.237						
5	.570	7.124	90.360						
6	.365	4.564	94.925						
7	.224	2.803	97.728						
8	.182	2.272	100.000						

## EOU

## Communalities for Perceived Ease of Use – (12 items)

Item	Description	Initial	Extraction
B31	It is an easy and convenient online ordering layout.	1.00	0.434
B34	The company homepage is clear and easily understandable.	1.00	0.612
B35	It is fast and convenient due to the information searching system.	1.00	0.727
B36	It is convenient due to the product delivery date.	1.00	0.734
B37	Its online purchasing procedure is simple.	1.00	0.671
B38	Product information must not be too long.	1.00	<b>0.240</b>
B39	The character front size must be easy to read.	1.000	0.571
B40	Health food's usage is easily read and understandable.	1.000	0.721
B41	The online product picture display is clear.	1.000	0.747
B42	Products are delivered right after online order.	1.000	0.709
B43	There is a quick and swift online purchasing process.	1.000	0.723
B44	It does not waste time filling too much in the online order form.	1.000	0.313

## Communalities for Perceived Ease of Use – Final (11 items)

Item	Description	Initial	Extraction
B31	It is an easy and convenient online ordering layout.	1.00	0.454
B34	The company homepage is clear and easily understandable.	1.00	0.634
B35	It is fast and convenient due to the information searching system.	1.00	0.741
B36	It is convenient due to the product delivery date.	1.00	0.741
B37	Its online purchasing procedure is simple.	1.00	0.663
B39	The character front size must be easy to read.	1.000	0.569
B40	Health food's usage is easily read and understandable.	1.000	0.723
B41	The online product picture display is clear.	1.000	0.747
B42	Products are delivered right after online order.	1.000	0.707
B43	There is a quick and swift online purchasing process.	1.000	0.722
B44	It does not waste time filling too much in the online order form.	1.000	0.314

## Total Variance Explained for Perceived Ease of Use

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.896	44.508	44.508	4.896	44.508	44.508	3.600	32.728	32.728
2	2.119	19.263	63.770	2.119	19.263	63.770	3.415	31.042	63.770
3	.936	8.507	72.277						
4	.640	5.820	78.097						
5	.640	5.490	83.588						
6	.480	4.364	87.952						
7	.373	3.389	91.341						
8	.344	3.130	94.471						
9	.239	2.171	96.642						
10	.212	1.927	98.570						
11	.157	1.430	100.000						

## POU

## Communalities for Perceived Usefulness – Final (14 items)

Item	Description	Initial	Extraction
B45	It is fun and exciting.	1.00	0.802
B46	It is enjoyable.	1.00	0.824
B47	Rich and varied information is provided.	1.000	0.538
B48	It has more reliable information than the one from a sales person.	1.000	0.431
B49	No sales persons bother me.	1.000	0.344
B50	You can shop at your convenience whenever you want.	1.000	0.626
B51	It does not waste time traveling to shops.	1.000	0.699
B52	You are able to shop things from both domestically and abroad.	1.000	0.640
B53	There is a variety of health food to choose from.	1.000	0.579
B54	There are more varied choices of companies providing health food.	1.000	0.546
B55	Prices are lower than those of conventional stores.	1.000	0.858
B56	Larger discounts are offered.	1.00	0.906
B57	There are more free gifts than those in conventional stores.	1.00	0.884
B58	Free samples are available.	1.00	0.716

## Total Variance Explained for Perceived Usefulness

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.373	38.379	38.379	5.373	38.379	38.379	3.650	26.072	26.072
2	2.409	17.205	55.584	2.409	17.205	55.584	3.266	23.328	49.400
3	1.610	11.500	67.084	1.610	11.500	67.084	2.476	17.684	67.084
4	.996	7.114	74.199						
5	.789	5.632	79.831						
6	.657	4.692	84.523						
7	.475	3.391	87.914						
8	.401	2.863	90.777						
9	.352	2.516	93.292						
10	.310	2.218	95.510						
11	.245	1.747	97.257						
12	.177	1.261	98.519						
13	.138	.986	99.505						
14	.069	.495	100.000						

## CE

## Communalities for Customer Experience-6 items

Item	Description	Initial	Extraction
B59	Trendy.	1.000	0.767
B60	Like to try new things.	1.000	0.756
B61	Skillful, efficient in surfing the Internet.	1.000	0.796
B62	As skillful in Internet as other communication tools.	1.00	0.815
B63	Frequent Internet surfer.	1.000	0.742
B64	Frequent searchers of information on the Internet.	1.000	0.655

## Total Variance Explained for Customer Experience

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.500	58.338	58.338	3.500	58.338	58.338	2.881	48.020	48.020
2	1.030	17.163	75.501	1.030	17.163	75.501	1.649	27.481	75.501
3	.541	9.014	84.516						
4	.457	7.623	92.138						
5	.337	5.618	97.756						
6	.136	2.244	100.000						



### Skewness, Kurtosis, and Mardia's coefficient

#### Product and company attributes (PCA)

Test of univariate and multivariate normality for continuous variables of PCA

(Mardia's coefficient)

Variable	Skewness			Kurtosis			Skewness and Kurtosis	
	Value	z-Score	P-Value	Value	z-Score	P-Value	Chi-Square	P-Value
B3	-0.980	-11.240	<b>0.000</b>	0.569	2.695	<b>0.007</b>	133.605	<b>0.000</b>
B4	-0.767	-8.795	<b>0.000</b>	0.371	1.917	0.055	81.026	<b>0.000</b>
B5	-0.773	-8.860	<b>0.000</b>	0.179	1.039	0.299	79.580	<b>0.000</b>
B6	-0.279	-3.197	<b>0.001</b>	-0.220	-1.346	0.178	12.030	<b>0.002</b>
B7	-0.794	-9.100	<b>0.000</b>	0.738	3.278	<b>0.001</b>	93.554	<b>0.000</b>
B8	-1.152	-13.205	<b>0.000</b>	0.577	2.722	<b>0.006</b>	181.791	<b>0.000</b>
B9	-0.994	-11.400	<b>0.000</b>	0.448	2.233	<b>0.026</b>	134.958	<b>0.000</b>
B13	-0.055	-0.630	0.529	-0.128	-0.706	0.480	0.896	0.639
B14	-0.346	-3.966	<b>0.000</b>	0.181	1.050	0.294	16.834	<b>0.000</b>
B15	-1.188	-13.626	<b>0.000</b>	1.206	4.616	<b>0.000</b>	206.991	<b>0.000</b>

P<0.05 => significant nonnormality

#### Perceived Risk (PR)

Test of univariate and multivariate normality for continuous variables of perceived risk (Mardia's coefficient)

Variable	Skewness			Kurtosis			Skewness and Kurtosis	
	Value	z-Score	P-Value	Value	z-Score	P-Value	Chi-Square	P-Value
B16R	0.188	2.160	<b>0.031</b>	-1.457	85.532	<b>0.000</b>	7320.339	<b>0.000</b>
B22R	0.027	0.310	0.757	-1.153	-19.933	<b>0.000</b>	397.416	<b>0.000</b>
B23R	0.040	0.454	0.650	-1.368	-110.937	<b>0.000</b>	12307.269	<b>0.000</b>
B25R	1.251	14.341	<b>0.000</b>	0.646	2.969	<b>0.003</b>	214.468	<b>0.000</b>
B26R	1.664	19.081	<b>0.000</b>	1.801	5.913	<b>0.000</b>	399.055	<b>0.000</b>
B27R	1.099	12.598	<b>0.000</b>	-0.250	-1.575	0.115	161.193	<b>0.000</b>
B28R	0.834	9.563	<b>0.000</b>	-0.546	-4.317	<b>0.000</b>	110.095	<b>0.000</b>
B29R	1.408	16.152	<b>0.000</b>	0.994	4.052	<b>0.000</b>	277.298	<b>0.000</b>

P<0.05 => significant nonnormality

### Perceived Ease of Use (EOU)

Test of univariate and multivariate normality for continuous variables of Perceived Ease of Use (Mardia's coefficient)

Variable	Skewness			Kurtosis			Skewness and Kurtosis	
	Value	z-Score	P-Value	Value	z-Score	P-Value	Chi-Square	P-Value
B31	-0.575	-6.591	<b>0.000</b>	0.058	0.411	0.681	43.614	<b>0.000</b>
B34	-0.121	-1.392	0.164	-0.711	-6.489	<b>0.000</b>	44.048	<b>0.000</b>
B35	-0.470	-5.388	<b>0.000</b>	0.259	1.421	0.155	31.054	<b>0.000</b>
B36	-0.190	-2.174	<b>0.030</b>	-0.315	-2.081	<b>0.037</b>	9.056	<b>0.011</b>
B37	-0.169	-1.941	0.052	-0.473	-3.529	<b>0.000</b>	16.223	<b>0.000</b>
B39	-0.516	-5.922	<b>0.000</b>	-0.204	-1.233	0.218	36.593	<b>0.000</b>
B40	-1.080	-12.390	<b>0.000</b>	0.956	3.947	<b>0.000</b>	169.081	<b>0.000</b>
B41	-1.198	-13.732	<b>0.000</b>	1.401	5.082	<b>0.000</b>	214.396	<b>0.000</b>
B42	-1.007	-11.552	<b>0.000</b>	0.702	3.159	<b>0.002</b>	143.432	<b>0.000</b>
B43	-0.958	-10.985	<b>0.000</b>	0.872	3.698	<b>0.000</b>	134.348	<b>0.000</b>
B44	-0.474	-5.430	<b>0.000</b>	-0.289	-1.876	0.061	33.007	<b>0.000</b>

P<0.05 => significant nonnormality

### Perceived usefulness (POU)

Test of univariate and multivariate normality for continuous variables of perceived usefulness (Mardia's coefficient)

Variable	Skewness			Kurtosis			Skewness and Kurtosis	
	Value	z-Score	P-Value	Value	z-Score	P-Value	Chi-Square	P-Value
B45	-0.065	-0.747	0.455	-0.160	-0.925	0.355	1.414	0.493
B46	-0.232	-2.655	<b>0.008</b>	-0.146	-0.828	0.408	7.734	<b>0.021</b>
B47	-0.659	-7.557	<b>0.000</b>	0.882	3.729	<b>0.000</b>	71.013	<b>0.000</b>
B48	0.047	0.543	0.587	-0.115	-0.622	0.534	0.681	0.711
B49	-0.643	-7.369	<b>0.000</b>	0.175	1.018	0.308	55.334	<b>0.000</b>
B50	-0.707	-8.112	<b>0.000</b>	0.876	3.711	<b>0.000</b>	79.579	<b>0.000</b>
B51	-1.017	-11.660	<b>0.000</b>	2.119	6.479	<b>0.000</b>	177.945	<b>0.000</b>
B52	-0.830	-9.522	<b>0.000</b>	1.127	4.415	<b>0.000</b>	110.154	<b>0.000</b>
B53	-0.528	-6.052	<b>0.000</b>	-0.150	-0.854	0.393	37.351	<b>0.000</b>
B54	-0.526	-6.036	<b>0.000</b>	0.080	0.529	0.597	36.713	<b>0.000</b>
B55	0.248	2.840	<b>0.005</b>	-0.417	-2.982	<b>0.003</b>	16.956	<b>0.000</b>
B56	0.304	3.485	<b>0.000</b>	-0.371	-2.561	<b>0.010</b>	18.707	<b>0.000</b>
B57	0.308	3.532	<b>0.000</b>	-0.176	-1.034	0.301	13.543	<b>0.001</b>
B58	-0.018	-0.211	0.833	-0.459	-3.388	<b>0.001</b>	11.522	<b>0.003</b>

P<0.05 => significant nonnormality

### Customer Experience (CE)

Test of univariate and multivariate normality for continuous variables of customer experience (Mardia's coefficient)

Variable	Skewness			Kurtosis			Skewness and Kurtosis	
	Value	z-Score	P-Value	Value	z-Score	P-Value	Chi-Square	P-Value
B59	-0.462	-5.297	<b>0.000</b>	0.698	3.144	<b>0.002</b>	37.942	<b>0.000</b>
B60	-0.542	-6.212	<b>0.000</b>	0.319	1.690	0.091	41.444	<b>0.000</b>
B61	-0.341	-3.912	<b>0.000</b>	-0.053	-0.230	0.818	15.355	<b>0.000</b>
B62	-0.321	-3.677	<b>0.000</b>	-0.234	-1.453	0.146	15.634	<b>0.000</b>
B63	-0.763	-8.750	<b>0.000</b>	0.203	1.156	0.248	77.902	<b>0.000</b>
B64	-0.676	-7.747	<b>0.000</b>	0.135	0.819	0.413	60.690	<b>0.000</b>

P<0.05 => significant nonnormality

**Mean, Standard Deviation and the Covariance Matrix**

Total Effective Sample Size = 786

**Mean, Standard Deviation and the Covariance Matrix of product and company attributes (PCA)**

Variable	Mean	St. Dev.	Variable	B3	B4	B5	B6	B7	B8	B9	B13	B14	B15
B3	4.356	0.735	B3	0.54									
B4	4.230	0.751	B4	0.31	0.56								
B5	4.107	0.847	B5	0.31	0.36	0.72							
B6	3.627	0.886	B6	0.21	0.25	0.33	0.78						
B7	4.097	0.791	B7	0.26	0.23	0.28	0.16	0.63					
B8	4.611	0.563	B8	0.12	0.15	0.16	0.12	0.20	0.32				
B9	4.239	0.871	B9	0.13	0.23	0.23	0.14	0.26	0.21	0.76			
B13	2.986	0.941	B13	0.10	0.12	0.16	0.21	0.21	0.06	0.09	0.89		
B14	3.532	0.853	B14	0.10	0.14	0.17	0.45	0.15	0.08	0.13	0.31	0.73	
B15	4.524	0.642	B15	0.08	0.07	0.08	0.14	0.08	0.08	0.07	0.09	0.15	0.41

**Mean, Standard Deviation and the Covariance Matrix of Perceived risk (PR)**

Variable	Mean	St. Dev.	Variable	B16R	B22R	B23R	B25R	B26R	B27R	B28R	B29R
B16R	2.172	1.102	B16R	1.22							
B22R	2.090	0.834	B22R	0.21	0.70						
B23R	2.285	1.070	B23R	0.30	0.36	1.14					
B25R	1.524	0.754	B25R	0.09	0.19	0.23	0.57				
B26R	1.393	0.699	B26R	0.10	0.17	0.17	0.40	0.49			
B27R	1.592	0.877	B27R	0.17	0.25	0.20	0.31	0.36	0.77		
B28R	1.728	0.889	B28R	0.17	0.25	0.20	0.28	0.31	0.62	0.79	
B29R	1.515	0.802	B29R	0.13	0.18	0.19	0.40	0.36	0.42	0.42	0.64

Note: R = reversed questions

**Mean, Standard Deviation and the Covariance Matrix of Perceived ease of use (EOU)**

Variable	Mean	St. dev.	Variable	B31	B34	B35	B36	B37	B39	B40	B41	B42	B43	B44
B31	3.885	0.903	B31	0.81										
B34	3.872	0.828	B34	0.31	0.69									
B35	3.953	0.793	B35	0.32	0.44	0.63								
B36	3.836	0.826	B36	0.34	0.40	0.48	0.68							
B37	3.781	0.869	B37	0.39	0.38	0.40	0.47	0.75						
B39	4.338	0.634	B39	0.12	0.14	0.14	0.17	0.17	0.40					
B40	4.494	0.647	B40	0.13	0.12	0.13	0.13	0.14	0.29	0.42				
B41	4.509	0.649	B41	0.14	0.13	0.12	0.13	0.14	0.25	0.32	0.42			
B42	4.331	0.780	B42	0.17	0.17	0.13	0.14	0.18	0.22	0.28	0.31	0.61		
B43	4.347	0.733	B43	0.18	0.16	0.13	0.14	0.19	0.22	0.27	0.30	0.48	0.54	
B44	3.866	0.938	B44	0.29	0.24	0.21	0.26	0.28	0.15	0.15	0.19	0.29	0.28	0.88

**Mean, Standard Deviation and the Covariance Matrix of Perceived usefulness (POU)**

Variable	Mean	St. Dev.	Variable	B45	B46	B47	B48	B49	B50	B51	B52	B53	B54	B55	B56	B57	B58
B45	3.173	0.969	B45	0.94													
B46	3.304	0.959	B46	0.76	0.92												
B47	3.941	0.790	B47	0.33	0.36	0.62											
B48	3.374	0.938	B48	0.32	0.34	0.36	0.88										
B49	3.920	0.876	B49	0.15	0.15	0.17	0.25	0.77									
B50	4.319	0.649	B50	0.10	0.10	0.16	0.17	0.28	0.42								
B51	4.314	0.692	B51	0.11	0.12	0.16	0.14	0.24	0.29	0.48							
B52	4.328	0.675	B52	0.07	0.10	0.15	0.08	0.16	0.23	0.30	0.46						
B53	4.065	0.817	B53	0.14	0.16	0.20	0.23	0.19	0.20	0.26	0.26	0.67					
B54	4.027	0.817	B54	0.17	0.18	0.22	0.20	0.16	0.18	0.22	0.22	0.48	0.67				
B55	3.412	0.995	B55	0.26	0.25	0.24	0.35	0.12	0.13	0.12	0.07	0.27	0.35	0.99			
B56	3.413	0.970	B56	0.30	0.28	0.27	0.34	0.13	0.11	0.10	0.06	0.24	0.32	0.87	0.94		
B57	3.373	0.964	B57	0.31	0.28	0.25	0.34	0.13	0.10	0.11	0.07	0.24	0.28	0.80	0.85	0.93	
B58	3.462	1.049	B58	0.28	0.27	0.24	0.32	0.13	0.10	0.09	0.06	0.25	0.29	0.71	0.74	0.78	1.10

**Mean, Standard Deviation and the Covariance Matrix of Customer experience (CE)**

Variable	Mean	St. Dev.	Variable	B59	B60	B61	B62	B63	B64
B59	3.866	0.729	B59	0.53					
B60	3.883	0.826	B60	0.32	0.68				
B61	3.795	0.829	B61	0.24	0.26	0.69			
B62	3.747	0.875	B62	0.26	0.28	0.63	0.77		
B63	4.065	0.843	B63	0.19	0.22	0.45	0.49	0.71	
B64	4.146	0.771	B64	0.16	0.21	0.37	0.39	0.42	0.59

### Variable names used in the confirmatory factor analysis

Observed variable	Composite variable
PCA <sub>1</sub>	Trusted company
B3. Being well known to public.	Well-known company
B4. Being very well known to myself.	Familiar company
B5. Having been operating good business for a long time.	Long establishment
PCA <sub>2</sub>	Trusted brand
B7. Being a popular brand name.	Popular brand
B8. Being the brand name I trust.	Trusted brand
B9. Being the brand name I have previously used.	Familiar brand
PCA <sub>3</sub>	Recommendation
B13. Product endorsed by celebrities or well-known people	Product endorsement
B14. Product recommended to me by friends or relatives.	Product recommended
B15. Health food with scientific proof or clinical studies.	Scientifically proven product
B6. Being recommended to me by friends or relatives.	Company recommended
PR <sub>1</sub>	Payment risk
B16R. Paying through credit cards online is safe and secure.	Using credit card is safe
B22R. The company charges only the agreed correct amount of money.	Correct money charged
B23R. There is no risk of using any unauthorized personal information.	Privacy risk
PR <sub>2</sub>	Product assurance
B27R. The product purchased is good and effective as advertised.	Product efficacy
B28R. The product purchased is exactly the same as the pictures seen.	Same product as advertised
B29R. The customers are able to return the product purchased it not fully satisfied.	Product returned policy
EOU <sub>1</sub>	Simple order procedure
B31. It is an easy and convenient online ordering layout.	Simple layout
B34. The company homepage is clear and easily understandable.	Simple homepage
B37. Its online purchasing procedure is simple.	Simple purchasing process
EOU <sub>2</sub>	Easy to understand homepage
B39. The character front size must be easy to read.	Easy to read
B40. Health food's usage is easily read and understandable.	Easy product usage
B41. The online product picture display is clear.	Clear product picture
EOU <sub>3</sub>	Delivery promise
B42. Products are delivered right after online order.	On-time delivery
B43. There is a quick and swift online purchasing process.	Quick process
POU <sub>1</sub>	Entertaining and informative
B45. It is fun and exciting.	Entertaining
B46. It is enjoyable.	Enjoyment
B47. Rich and varied information is provided.	Informative

<b>Observed variable</b>	<b>Composite variable</b>
<b>POU<sub>2</sub></b>	<b>Shopping convenience</b>
B50. You can shop at your convenience whenever you want.	Convenience to shop
B51. It does not waste time traveling to shops.	Time saving
B52. You are able to shop things from both domestically and abroad.	Global shopping
<b>POU<sub>3</sub></b>	<b>Variety of choices</b>
B53. There is a variety of health food to choose from.	Product variety
B54. There are more varied choices of companies providing health food.	Company choices
<b>POU<sub>4</sub></b>	<b>Cheaper products</b>
B56. Larger discounts are offered.	Larger discount
B57. There are more free gifts than those in conventional stores.	Free gifts
B58. Free samples are available.	Free samples
<b>CE<sub>1</sub></b>	<b>Modern personality</b>
B59. Trendy.	Trendy
B60. Like to try new things.	Like new things
<b>CE<sub>2</sub></b>	<b>Skillful Internet user</b>
B61. Skillful, efficient in surfing the Internet.	Skillful Internet surfer
B63. Frequent Internet surfer.	Frequent Internet surfer
B64. Frequent searchers of information on the Internet.	Frequent information searcher

## Correlations of composite variables

Pearson Correlation

	PCA1	PCA2	PCA3	PR1	PR2	EOU1	EOU2	EOU3	POU1	POU2	POU3	POU4	CE1	CE2	PI1	PI2
<b>PCA1</b>	1															
<b>PCA2</b>	.731**	1														
<b>PCA3</b>	.539**	.439**	1													
<b>PR1</b>	-.177**	-.149**	-.106**	1												
<b>PR2</b>	-.129**	-.139**	-.106**	.530**	1											
<b>PE1</b>	.123**	.175**	.086*	-.283**	-.376**	1										
<b>PE2</b>	.088*	.086*	.108**	-.402**	-.352**	.414**	1									
<b>PE3</b>	.092**	.144**	.082*	-.242**	-.323**	.716**	.403**	1								
<b>PU1</b>	.124**	0.041	.191**	-.132**	-.129**	.135**	.252**	.107**	1							
<b>PU2</b>	.126**	.155**	0.058	-.220**	-.170**	.381**	.391**	.394**	.241**	1						
<b>PU3</b>	.139**	.117**	.154**	-.238**	-.228**	.324**	.434**	.316**	.284**	.604**	1					
<b>PU4</b>	.094**	0.066	.154**	-.316**	-.218**	.224**	.419**	.143**	.359**	.183**	.426**	1				
<b>CE1</b>	.120**	.122**	.154**	-.098**	-.157**	.178**	.190**	.155**	.236**	.143**	.230**	.210**	1			
<b>CE2</b>	.077*	.114**	0.04	-.096**	-.083*	.143**	.213**	.129**	.088*	.156**	.167**	.140**	.583**	1		
<b>PI1</b>	-0.029	-.079*	0.045	-0.034	-.076*	0.001	.157**	-0.02	.251**	.117**	.150**	.171**	.143**	0.064	1	
<b>PI2</b>	-0.04	-.071*	0.059	-0.047	-.113**	0.031	.198**	0.01	.244**	0.053	.128**	.194**	.165**	.096**	.654**	1

\*\* Correlation is significant at the 0.01 level 2-tailed.

\* Correlation is significant at the 0.05 level 2-tailed.

Appendix 5.24

Covariance matrix of latent variables

Variable	Mean	Std.	PCA1	PCA2	PCA3	PR1	PR2	EOU1	EOU2	EOU3	POU1	POU2	POU3	POU4	CE1	CE2	PI-1	PI-2
PCA1	0.129	1.000	1.000															
PCA2	0.040	1.000	0.731	1.00														
PCA3	0.084	1.000	0.539	0.439	1.000													
PR1	0.000	1.000	-0.177	-0.149	-0.106	1.000												
PR2	0.000	1.000	-0.129	-0.139	-0.106	0.530	1.000											
EOU1	0.000	1.000	0.123	0.175	0.086	-0.283	-0.376	1.000										
EOU2	0.000	1.000	0.088	0.086	0.108	-0.402	-0.352	0.414	1.000									
EOU3	0.000	1.000	0.092	0.144	0.082	-0.242	-0.323	0.716	0.403	1.000								
POU1	0.000	1.000	0.124	0.041	0.191	-0.132	-0.129	0.135	0.252	0.107	1.000							
POU2	0.000	1.000	0.126	0.155	0.058	-0.220	-0.170	0.381	0.391	0.394	0.241	1.000						
POU3	0.000	1.000	0.139	0.117	0.154	-0.238	-0.228	0.324	0.434	0.316	0.284	0.604	1.000					
POU4	0.000	1.000	0.094	0.066	0.154	-0.316	-0.218	0.224	0.419	0.143	0.359	0.183	0.426	1.000				
CE1	0.000	1.000	0.120	0.122	0.154	-0.098	-0.157	0.178	0.190	0.155	0.236	0.143	0.230	0.210	1.000			
CE2	0.000	1.000	0.077	0.114	0.040	-0.096	-0.083	0.143	0.213	0.129	0.088	0.156	0.167	0.140	0.583	1.000		
PI-1	2.627	0.900	-0.026	-0.071	0.040	-0.031	-0.068	0.001	0.142	-0.018	0.226	0.106	0.135	0.154	0.129	0.058	0.810	
PI-2	2.794	0.906	-0.037	-0.065	0.053	-0.042	-0.102	0.028	0.179	0.009	0.221	0.048	0.116	0.176	0.149	0.087	0.533	0.821



### Skewness, Kurtosis, and Mardia's coefficients of composite variables

Test of univariate and multivariate normality for continuous variables of the structural model (Mardia's coefficient)

Variable	Skewness			Kurtosis			Skewness and Kurtosis	
	Value	z-Score	P-Value	Value	z-Score	P-Value	Chi-Square	P-Value
PCA1	-0.625	-7.173	<b>0.000</b>	0.324	1.713	0.087	54.379	<b>0.000</b>
PCA2	-0.670	-7.681	<b>0.000</b>	0.007	0.126	0.900	59.012	<b>0.000</b>
PCA3	-0.228	-2.612	<b>0.009</b>	0.033	0.273	0.785	6.896	<b>0.032</b>
PR1	-0.091	-1.046	0.295	-0.738	-6.903	<b>0.000</b>	48.746	<b>0.000</b>
PR2	1.017	11.661	<b>0.000</b>	-0.186	-1.105	0.269	137.193	<b>0.000</b>
EOU1	-0.958	- 10.985	<b>0.000</b>	0.912	3.818	<b>0.000</b>	135.245	<b>0.000</b>
EOU2	-0.106	-1.211	0.226	-0.238	-1.479	0.139	3.653	0.161
EOU3	-1.048	- 12.015	<b>0.000</b>	0.952	3.933	<b>0.000</b>	159.820	<b>0.000</b>
POU1	-0.107	-1.225	0.221	0.000	0.083	0.933	1.508	<b>0.000</b>
POU2	-0.587	-6.736	<b>0.000</b>	0.818	3.533	<b>0.000</b>	57.894	<b>0.000</b>
POU3	-0.333	-3.817	<b>0.000</b>	-0.436	-3.162	<b>0.002</b>	24.573	<b>0.000</b>
POU4	0.323	3.703	<b>0.000</b>	-0.352	-2.396	<b>0.017</b>	19.448	<b>0.000</b>
CE1	-0.331	-3.800	<b>0.000</b>	0.681	3.086	<b>0.002</b>	23.967	<b>0.001</b>
CE2	-0.467	-5.357	<b>0.000</b>	-0.058	-0.265	0.791	28.769	<b>0.003</b>
PI-1	-0.142	-1.633	0.102	-0.369	-2.539	<b>0.011</b>	9.115	<b>0.010</b>
PI-2	-0.015	-0.168	0.866	-0.176	-1.037	0.311	1.104	0.576

P<0.05 => significant nonnormality

**Reliability Analysis (Cronbach Alpha)-PCA (10 items)**

Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
B3	Being well known to public.	35.9529	18.4755	0.5165	0.7723
B4	Being very well known to myself.	36.0789	17.9861	0.5851	0.7642
B5	Having been operating good business for a long time.	36.2023	17.4049	0.5884	0.7620
B7	Being a popular brand name.	36.2125	17.9765	0.5487	0.7678
B8	Being the brand name I trust.	35.6985	19.6325	0.4671	0.7803
B9	Being the brand name I have previously used.	36.0700	18.5569	0.3953	0.7870
B6	Being recommended to me by friends or relatives.	36.6819	17.4885	0.5409	0.7681
B13	Product endorsed by celebrities or well-known people	37.3232	18.6776	0.3342	0.7969
B14	Product recommended to me by friends or relatives.	36.7774	18.1758	0.4639	0.7781
B15	Health food with scientific proof or clinical studies.	35.7850	20.1996	0.2888	0.7953

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 10**

**Alpha = 0.7953**

**Composite reliability = 0.8798**

**Reliability Analysis (Cronbach Alpha)-PR (6 items)**

Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
B16R	Paying through credit cards online is safe and secure.	9.2099	10.2476	0.2753	0.7570
B22R	The company charges only the agreed correct amount of money.	9.2913	10.1965	0.4715	0.6909
B23R	There is no risk of using any unauthorized personal information.	9.0967	9.7486	0.3762	0.7227
B27R	The product purchased is good and effective as advertised.	9.7901	9.3049	0.6226	0.6472
B28R	The product purchased is exactly the same as the pictures seen.	9.6539	9.2992	0.6121	0.6495
B29R	The customers are able to return the product purchased it not fully satisfied.	9.8664	10.0828	0.5266	0.6780

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 6**

**Alpha = 0.7295**

**Composite reliability = 0.8462**

**Reliability Analysis (Cronbach Alpha)-EOU (8 items)**

Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
B31	It is an easy and convenient online ordering layout.	29.6718	13.5711	0.4338	0.8375
B34	The company homepage is clear and easily understandable.	29.6858	13.7393	0.4638	0.8306
B37	Its online purchasing procedure is simple.	29.7761	13.3179	0.5045	0.8260
B39	The character front size must be easy to read.	29.2188	14.0489	0.5929	0.8145
B40	Health food's usage is easily read and understandable.	29.0636	13.7386	0.6494	0.8079
B41	The online product picture display is clear.	29.0483	13.6741	0.6619	0.8064
B42	Products are delivered right after online order.	29.2265	13.0467	0.6414	0.8059
B43	There is a quick and swift online purchasing process.	29.2099	13.1342	0.6771	0.8020

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 8**

**Alpha = 0.8356**

**Composite reliability = 0.9376**

**Reliability Analysis (Cronbach Alpha)-POU (11 items)**

Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
B45	It is fun and exciting.	38.5471	29.1042	0.4941	0.8361
B46	It is enjoyable.	38.4160	29.0484	0.5065	0.8349
B47	Rich and varied information is provided.	37.7786	29.8974	0.5426	0.8317
B50	You can shop at your convenience whenever you want.	37.4008	31.6366	0.4310	0.8400
B51	It does not waste time traveling to shops.	37.4059	31.1867	0.4584	0.8381
B52	You are able to shop things from both domestically and abroad.	37.3919	31.7010	0.4014	0.8417
B53	There is a variety of health food to choose from.	37.6552	29.6759	0.5464	0.8312
B54	There are more varied choices of companies providing health food.	37.6934	29.4052	0.5790	0.8287
B56	Larger discounts are offered.	38.3066	27.7212	0.6406	0.8225
B57	There are more free gifts than those in conventional stores.	38.3473	27.7047	0.6474	0.8219
B58	Free samples are available.	38.2583	27.9116	0.5590	0.8308

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0    Number of Items = 11**

**Alpha = 0 .8456**

**Composite reliability = 0.9642**

**Reliability Analysis (Cronbach Alpha)-CE (5 items)**

Question No.	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
B59	Trendy.	15.8893	6.5113	0.4928	0.7858
B60	Like to try new things.	15.8728	6.1800	0.4904	0.7889
B61	Skillful, efficient in surfing the Internet.	15.9606	5.5462	0.6761	0.7282
B63	Frequent Internet surfer.	15.6908	5.6100	0.6399	0.7404
B64	Frequent searchers of information on the Internet.	15.6094	5.9836	0.6095	0.7514

*Source: Item analysis of field data*

Note: Items were ranked according to the value of Corrected Item-total Correlation for the factor.

**Number of Cases = 786.0**

**Number of Items = 5**

**Alpha = 0.7986**

**Composite reliability = 0.8752**