

2000

## Consumer perceptions of the internet as a product and service information source

Kevin Nguy  
*Edith Cowan University*

Follow this and additional works at: [https://ro.ecu.edu.au/theses\\_hons](https://ro.ecu.edu.au/theses_hons)



Part of the [E-Commerce Commons](#)

---

### Recommended Citation

Nguy, K. (2000). *Consumer perceptions of the internet as a product and service information source*. Edith Cowan University. [https://ro.ecu.edu.au/theses\\_hons/149](https://ro.ecu.edu.au/theses_hons/149)

This Thesis is posted at Research Online.  
[https://ro.ecu.edu.au/theses\\_hons/149](https://ro.ecu.edu.au/theses_hons/149)

# Edith Cowan University

## Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study.

The University does not authorize you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following:

- Copyright owners are entitled to take legal action against persons who infringe their copyright.
- A reproduction of material that is protected by copyright may be a copyright infringement.
- A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

**CONSUMER PERCEPTIONS OF THE INTERNET AS A  
PRODUCT AND SERVICE INFORMATION SOURCE**

**BY**

**KEVIN NGUY**

**A Thesis Submitted in Partial Fulfilment of the Requirements**

**for the Award of**

**Bachelor of Business with Honours**

**At the Faculty of Business and Public Management,**

**Edith Cowan University, Perth, Western Australia**

**Supervisor: Elaine Leong**

**Date of Submission: January 2000**

## USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

## Abstract

The Internet is fast becoming an important product and service information source. Consumers are using the medium for gathering information on products and services. The Internet has unique characteristics, which makes it a powerful medium for communication. However, what is the perception of the product and service information on the Internet? This study aims to contribute to an understanding of consumers' perception of product and service information on the Internet.

The research is exploratory in nature. Consumers' perceptions towards the Internet as a product and service information source were measured along a construct relating to perceptions towards the Internet information. A self-administered questionnaire was employed to capture the perceptions of 300 participants. Descriptive statistics and multivariate techniques, including Factor Analysis, Discriminant Analysis and Cluster Analysis, were used in the data analysis.

The study found interesting differences in the perceptions held by participants on the product and service information on the Internet. The findings suggest that participants have highly positive perceptions on the *wide coverage, currency, relevancy, and depth* of product and service information on the Internet. They also have moderately positive perceptions on the credentials of the information providers as being *knowledgeable, qualified* and *experts*. However, on the most important evaluative criteria of *trustworthiness (fairness, honesty and unbiasedness)* of the information on the Internet, participants have weak and less positive perceptions.

Factor Analysis revealed that there are three important dimensions in the perception of information on the Internet – *quality, authority* and *scope*. Cluster Analysis and Discriminant Analysis was then conducted to explore the similarity and differences between groups on those three dimensions. The Cluster Analysis revealed that there are four distinct clusters - *Highly Specific Information Seekers, Disillusioned Information Seekers, Undirected Information Seekers* and *Intuitive Information Seekers*. The Discriminant Analysis revealed that the variables in the study (i.e. *gender, level of Internet experience, age* and *income*) are not powerful predictors of the participants' perceptions of the product and service information on the Internet. The implications of the findings for marketers are discussed.

Declaration

*I certify that this thesis does not, to the best of my knowledge and belief:*

- (i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education:*
- (ii) contain any material previously published or written by another person except where due reference is made in the text: or*
- (iii) contain any defamatory material.*

Full Name: (Please type)

Kevin NGUY

Signature: ..


Date: .....18/2/2000.....

## **Acknowledgements**

I am especially grateful to my supervisor, Elaine Leong for her help and guidance throughout my Honours. I would thank her personally for her invaluable time, guidance, patience and encouragement throughout my research. Without her support, I would not be sitting down typing this last section (acknowledgements) of my thesis. As I know that one word of thank you is insufficient, I would like to reiterate my thanks to Elaine from the bottom of my heart.

I would also like to thank Dr. Xueli Huang for his invaluable time to provide assistance in the most difficult area of all, the analysis of results. I hope you will continue to provide further assistance to others in the future. Thank you from the bottom of my heart.

I would also like to thank my parents for their understanding, encouragement and endless support throughout all my years of study. I love you Mum and Dad. You are the best parents in the world.

Finally, I want to thank GOD for giving me the perseverance, strength and sanity to complete my honours year. Thank you GOD for your promises. You are my mentor and motivator in life.

I would also like to dedicate this Honours thesis to Chang, Siew Ling. Thanks to your advice, I have this thesis to remember for the rest of my life. **THANK YOU!**

## Table of Contents

	<i>Page</i>
Abstract	i
Declaration	iii
Acknowledgements	iv
Table of Contents	v
Lists of Tables	xi
List of Figures	xiii
List of Appendices	xiv

### **Chapter 1    Introduction**

1.0	Introduction	1
1.1	Background	3
1.1.1	Growth of the Internet	4
1.1.2	Internet Users	5
1.1.3	Marketing and the Internet	5
1.2	Significance of the Study	6
1.2.1	Shaping of Consumer Perceptions	7
1.2.2	Nature of Consumer Perceptions towards the Information on the Internet	8

	<i>Page</i>
1.3 Motivation of the Study	9
1.3.1 Gap in Research	9
1.4 Research Objectives	10
1.5 Research Questions	11
1.6 Organisation of the Study	12

## **Chapter 2    Literature Review**

2.0 Introduction	14
2.1 Characteristics of the Internet Users	15
2.1.1 User Segments	15
2.1.2 Demographics of the Internet Users	20
2.1.3 Usage Patterns	23
2.2 Perceptions Towards the Internet as a Product and Service	
Information Source	27
2.2.1 Perception and Measurement	27
2.2.2 Perception of the Information on the Internet	29
2.3 Behaviour Towards the Internet as a Product and Service	
Information Source	36
2.3.1 Consumer Searches and the Internet	36
2.3.2 Online Product and Service Information and Consumer	
Searches	37
2.3.3 The Need to Be Concerned with the Evaluation of the	
Internet Information Sources	39

	<i>Page</i>
2.3.4 The Criteria for the Evaluation of Internet Information Sources	41
2.4 Conclusion	55
<b>Chapter 3 <u>Model and Conceptual Framework</u></b>	<b>58</b>
<b>Chapter 4 <u>Methodology</u></b>	<b>61</b>
4.0 Introduction	61
4.1 Research Design	61
4.2 Research Sample	62
4.2.1 Use of Student Sample	63
4.3 The Pilot Study	65
4.3.1 Introduction	65
4.3.2 Procedures	66
4.4 The Main Study	67
4.4.1 Introduction	67
4.4.2 Procedures	68
4.5 Research Instrument	69
4.5.1 Likert's Summated Scale	70
4.5.2 Semantic Differential Scale	71
4.6 Questionnaire Content	72
4.6.1 Internet Behaviour	72
4.6.2 Perception's of the Internet Information	74
4.6.3 Reliability and Validity	76

	<i>Page</i>
4.7 Sampling and Data Collection Procedures	78
4.8 Methods and Techniques of Analysis	80
4.8.1 Factor Analysis	80
4.8.2 Cluster Analysis	82
4.8.3 Discriminant Analysis	83
4.9 Limitations to the Research	85
4.10 Ethical Considerations	86

## **Chapter 5 Findings: The Perception of the Participant's about the Internet as Information Sources**

5.0 Introduction	88
5.1 The Participant's Demographic Profile	89
5.1.1 The Age and Gender of the Participants	89
5.1.2 Country of Origin and Ethnic Group of the Participants	90
5.1.3 The Majors Undertaken and Year of Study	92
5.1.4 The Employment and Income Distribution	92
5.2 Results of Descriptive Statistics	94
5.2.1 Participants' Perceptions Towards the Internet as a Product and Service Information Source	94
5.3 Results of Principal Component Analysis	100
5.3.1 The Dimensions of the Participant's Perception Towards The Internet as a Product and Service Information Source	100

	<i>Page</i>
5.3.2. Results of Reliability Tests	103
5.4 Results of Cluster Analysis	104
5.4.1 Profile of Participant's Perceptions of the Internet as a Product and Service Information Source	104
5.5 Results of Discriminant Analysis	110
5.6 Summary	114

## **Chapter 6    Findings: The Participant's Internet Behaviour**

6.0 Introduction	116
6.1 Results of Descriptive Statistics	116
6.1.1 Internet Access and Behaviour	116
6.1.2 Internet Use and Behaviour	120
6.1.3 The Personal Skills and Internet Experience of Participants	125
6.1.4 Information Search Behaviour via the Internet	130
6.2 Summary	141

## **Chapter 7    Conclusions, Implications and Future Research**

7.0 Introduction	144
7.1 Summary of the Study	144
7.2 Discussion	146
7.2.1 Discussion of the Perception of the Participant's about the Internet as an Information Source	147

	<i>Page</i>
7.2.2 Dimensions Underlying Perception of Internet Information	149
7.2.3 Ranking of Evaluative Criteria for Product and Service Purchases	150
7.2.4 Segmentation of the Consumers Based on their Perceptions	151
7.2.5 Discussion of the Participant's Internet Behaviour	152
7.2.5.1 Internet Access and Behaviour	152
7.2.5.2 Internet Use and Behaviour	153
7.2.5.3 Personal Skills and Internet Experience	153
7.2.5.4 Information Search Behaviour on the Internet	154
7.3 Implications of the Research	155
7.4 Limitations and Suggestions for Further Research	157
7.5 Conclusion	159
<b>References</b>	<b>160</b>
<b>Appendices</b>	<b>183</b>

## List of Tables

	<i>Page</i>
Table 4.1      Internal Consistency Data for the Dimensions of Perception Items	77
Table 5.1      The Age and Gender of the Participants	89
Table 5.2      The Country of Origin and Ethnic Group of the Participants	91
Table 5.3      The Major of Study and Year of Study	92
Table 5.4      The Employment Status and Income Distribution	93
Table 5.5      Results of Descriptive Statistics Participants' Perceptions towards the Internet as a Product and Service Information Source	94
Table 5.6      Results of Principal Component Analysis The Dimensions of the Participants' Perceptions	101
Table 5.7      Results of Reliability Tests Cronbach's Alpha Correlation Coefficient	104
Table 5.8      Results of Cluster Analysis Summary Profile of Participant's Perceptions of the Internet	105
Table 5.9      Results of Cluster Analysis Profile of Participant's Perceptions on the Internet	109
Table 6.1      Results of Descriptive Statistics Access to the Internet	117
Table 6.2      Results of Descriptive Statistics Frequency of Internet Access	119

Table 6.3	Results of Descriptive Statistics Use of the Internet	121
Table 6.4	Results of Descriptive Statistics Years on the Internet	123
Table 6.5	Results of Descriptive Statistics Hours of Internet Use	124
Table 6.6	Results of Descriptive Statistics The Level of Internet Experience	125
Table 6.7	Results of Descriptive Statistics Online Activities and Level of Internet Skills	127
Table 6.8	Results of Descriptive Statistics Product and Service Information Category	131
Table 6.9	Results of Descriptive Statistics Frequency of Internet Use to Search for Product and Service Information	133
Table 6.10	Results of Descriptive Statistics The Likelihood to Search in the Next Twelve Months	135
Table 6.11	Results of Descriptive Statistics Criterion for Expensive and Inexpensive Product and Service Purchase	138

## **Lists of Figures**

	<i>Page</i>
<b>Figure 1</b>	
<b>Proposed Model of Consumer's Perception of the Internet as a Product and Service Information Source</b>	<b>59</b>
<b>Figure 2</b>	
<b>Results of Principal Component Analysis The Dimensions of the Participant's Perceptions Towards the Internet as a Product and Service Information Source</b>	<b>183</b>

## **Lists of Appendices**

	<i>Page</i>
<b>Appendix A</b>	
<b>The Research Instrument</b>	<b>176</b>
<b>Appendix B</b>	
<b>Scree Plot</b>	<b>183</b>
<b>Factor Scree Plot of the Dimensions of the Participant's Perceptions towards the Internet as a Product and Service Information Source</b>	

## Chapter 1

# Introduction

### 1.0 Introduction

The Internet is the world's largest computer networks. It is emerging as today's Information Superhighway. Unlike a few years ago, the use of the Internet was limited to scientists and techno freaks, but now it is gaining popularity with a growth unparalleled by earlier media, the number of current users being estimated at 247 million (NUA, 2000). The growth of the Internet is driven by the increasing ease of use, lower access and telecommunications costs, cheaper and faster computers and an increasing amount of entertainment and information.

With a growing number of users spending an increasing amount of time on the Internet, a number of companies are opening on-line storefronts on the Internet. The World Wide Web is increasingly being used as shopping medium. **While shopping on the Internet is increasing in popularity, evidence indicates that online purchases have yet to become an acceptable way to purchase goods or services** (APT Strategies, 1998). It remains eclipsed by security issues and the limited ability of companies to deal with on-line sales.

**However, the Internet is increasingly being seen as a strong medium for gathering information on products and services.** The Internet is convenient, efficient, detailed and free for all.

The Internet has important implications for consumers and marketers. The Internet is attractive for consumers because it is a valuable resource to gather information on products and services. It provides an easy and acceptable forum to share, disseminate, and use information.

The Internet is also attractive for marketers, particularly to those who sell their products and services on the Internet. Web marketers have the opportunity to shape consumer perception towards the Internet as a product and service information source. The challenge for Web marketers is to effectively communicate to their target audiences on the Internet, without misusing the technology (Dinsdale, 1995; Strangelove, 1995; Washburn, 1995; Schultz, 1994; Wunderman, 1994).

With 36.7 percent of consumers now searching the Internet for information, the quality of that information becomes a critical issue (Australian Bureau of Statistics, 1999). Web marketers have an obligation to provide that high quality of information. The literature suggests that Web marketers are required to have a good, solid understanding on the quality of information on the Internet (Fenton, 1998, Alexander & Tate, 1998). Therefore, it is of crucial importance for Web marketers to exercise extreme caution when providing information on the Internet. Marketers need to understand consumer perception towards various aspects of information disseminated over the Internet.

Therefore, this study into consumer perception towards the Internet as product and service information responds to the need cited by academics for consumer research into this new medium (Hoffman & Novak, 1996; Reda, 1995; Schultz, 1994; Wunderman, 1994).

The next section of this chapter provides background information on the factors attracting marketers to the Internet. The significance of the study of consumer perception towards the information via the Internet and the motivation of the study are addressed. The research objectives including the research questions of the study is also presented in this chapter.

## **1.1 Background**

The Internet provides instant access to a wealth of information and services. The Internet allows millions of computers and users of the system to collaborate easily and quickly through messaging, discussion groups, and conferencing (Rawn, 1994). Users are able to discover and access people and information, distribute information, and experiment with new technologies and services.

Marketers agreed that a great deal of the Internet's popularity could be attributed to its ability to provide detailed and specific information that cannot be distributed by current popular media (Rawn, 1994). Television, radio, magazines, and newspapers are targeted to a general audience having a broad spectrum of interests.

Specialised magazines and journals, while providing better-focused information, suffer from a lack of timeliness (Hahn, 1997). The Internet collectively contains more detailed information than any library. Moreover, it is accessible around the clock, around the year, and around the world (Page & Martine, 1994).

Furthermore, the information published on the Internet is available instantaneously and can be read by anyone. The Web is a new and exciting medium, and has the potential to contribute in various ways to marketing success. The growth of the Internet, demographics of Internet users, and the potential for marketing are the key factors that have attracted marketers to the Internet.

### **1.1.1 Growth of the Internet**

The growth of the Internet is a key factor drawing marketers to the Internet. The Internet is said to be the fastest growing medium in the world (O'Connell, 1995). Internet usage has been growing exponentially at rate between 10 to 20 percent per month since 1990 when limited commercial activity was permitted (Rawn, 1994). As the Internet is a decentralised network of networks, it is virtually impossible to measure the number of people who use it. However, estimates have placed the Internet population as high as 247 million internationally (NUA, 2000).

For Web marketers, the Internet brings in the concept of the globalisation of products and services to reality. Bartol, Martin, Tein, & Matthews (1995) argues that globalisation aims to develop relatively standardised products and services with global appeal, and to rationalise operations throughout the world.

Furthermore, it allows substantial latitude for marketers to adapt products and services to suit the particular needs and political realities of countries in which they operate (Bartol, Martin, Tein, & Matthews, 1995).

### **1.1.2 Internet Users**

The demographic characteristics of Internet users serve as another attraction for marketers. Studies have found the education and income levels of US Internet users to be higher than average (Brightman, 1995; Bournellis, 1995; Fram & Grady, 1995; Gupta, 1995). This affluence and spending power is understood to be similar world wide, thus increasing the attraction for the Web marketer to provide consumers with an even greater array of products and services on the Internet.

### **1.1.3 Marketing and the Internet**

Marketers have been particularly attracted to the Internet by its ability to effectively reach their target audience. Studies have found that the Internet will reach 50 million users in the USA within five the next five years (Hickman & Levin, 1996; Bruner, 1997). Comparing this to the traditional medium such as television and radio, which took 13 to 38 years respectively to reach the same milestone. The Internet is therefore quickly reaching the mass market as television once did, with both younger and older users embracing the new technology (Boyce, 1998; Bruner, 1997).

As people migrate towards this media, many marketers and companies are rushing to establish an online presence by creating World Wide Web (WWW) sites describing their organisation and products. Internet service providers have responded to such expectations by increasing the size of their indexed World Wide Web (WWW) homepages, and by improving their Internet searching engines (focusing initially on improving user interfaces and query formation).

Web marketers have always been attracted to the Internet due to the many benefits it offers to the marketer. The literature suggests that the Internet provides marketers the opportunity to develop new products as well as augment existing products and services (Hoffman, Novak, & Chatterjee, 1996; Berthon, Pitt & Watson, 1996). Furthermore, the Internet offers marketers to develop products and services to meet the needs of the market. For products whose core benefit is the provision of information, the Internet also offers marketers an opportunity to provide their customers with even greater accessibility and comprehensiveness (Briggs & Hollis, 1997; Ducoffe, 1996).

## **1.2 Significance of the Study**

The significance of this study lies in understanding how Web marketers should use the Internet as a vehicle for information dissemination. While the Internet has the capacity for providing product and service information for purchase decisions, and offers Web marketers increased opportunity to sell their products and service online, it is ultimately consumer perception that will eventually determine the success of the information on the Internet.

This section identifies several factors that make an understanding of consumer perception towards the Internet as a product and service information source critical for the success of Web marketers. They include 1) shaping of consumer perception and 2) nature of consumer perception towards the information on the Internet.

### **1.2.1 Shaping of Consumer Perception**

Research into consumer perception has important implications for consumer behaviour and the shaping of consumer perception towards the Internet as a product and service information source. Understanding of consumer perception towards the Internet as a product and service information is the cornerstone of Web marketers, particularly for the retailers and manufacturers who sell their products and services on the Internet. Only by understanding consumer perception can a retailer and manufacturer influence perception and behaviour through their marketing communications.

For the Web retailer, the Internet is in an excellent position to leverage customer information. It has been noted that products, promotions and advertising can be targeted more efficiently than through conventional media for the Internet retailer (Ernst & Young, 1999). With an understanding of consumer perception towards the Internet as a product and service information source, Web retailers can adjust the mix of products, prices and promotions in response to users demand. In addition, they can make the site intuitive (i.e., easy to navigate), current (update frequently), and educational (giving customers knowledge on products and their use) (Ernst & Young, 1999).

Research into consumer perception towards the Internet as a product and service information source also has important implications for Web manufacturers. Web manufacturers can build one to one relationships with their customers, tailoring the marketing mix to individual preferences. In addition, Web manufacturers can provide useful product information to consumers by designing Web sites that enable users to navigate and link to the information site easily (Ernst & Young, 1999).

The study of consumer perception towards the Internet as a product and service information is timely. Despite the tremendous abundance of information on the Internet, electronic shopping and commercial activity on the Internet are still in the early stages of growth. Consumer perception towards the medium is still evolving, with many consumers still new to the Internet. Opportunities exist for the Web retailers and Web manufacturers to sell their products and services online. The Web marketer can provide quality information that will lead to the development of favourable consumer perception towards the Internet as a product and service information source.

### **1.2.2 Nature of Consumer Perception towards the information on the Internet**

The research also has important implications highlighted by the dynamic nature of consumer perception towards the Internet as a product and service information source. Some writers believe that it is vital to examine the perception of information on the Internet by Internet users on in evaluating information sources rather than focusing on just subjective values of style and "coolness" of the Internet sites (Stoker & Cooke,

1994). Though, a number of writers have considered criteria for evaluation of Internet information sources, scepticism towards the Internet information provided by Web marketers remain as individuals fear that information offer no guarantee of its quality (Ernst & Young, 1999). Web marketers must therefore keep abreast with perception of the information on the Internet. This study contributes to a better understanding of consumer perception in Australia towards the Internet as a product and service information source.

### **1.3 Motivation of the Study**

The motivation of this thesis lies in the lack of empirical research into the consumer perception towards product and service information on the Internet. This study is motivated by the gap in the research towards the Internet as a product and service information source.

#### **1.3.1 Gap in Research**

There is a noticeable gap in the literature about perception towards product and service information on the Internet. An enormous body of literature have been written in the 1990s about the growth of Internet users and the potential it offers for marketers (Cross, 1994; Marloff, 1995; Dickman, 1995). There is also a very large body of literature, which discusses the impact of marketers entering the Cyberspace, and numerous studies on the Internet undertaken by both academics and commercial organizations (Applebee, Clayton, & Pascoe, 1996; Booker, 1995; Cleland, 1995; Wingfield, 1995).

However, most of these studies revolve around a supply perspective and points to the impact that the Internet has had on marketing and on the ways in which it encourages marketers to make better use of the Internet in order to have corporate presence.

As such, the subject matter centres on user demographics, purchase habits and the use of the Internet (Fram & Grady, 1995; and Bournellis, 1995). Therefore, the importance of an understanding of consumer perception towards the Internet as a product and service information source is significant. With the exception of one central study based largely in the U.S (Bruce, 1999) little is to be found in this area.

## **1.4 Research Objectives**

The purpose of this study is to gain an understanding of consumer perception towards the Internet as a product and service information source. Specifically, the study seeks to provide an insight to the potential differences in consumer perception of the Internet as a potential product and service information source. Variables such as gender, age, level of Internet experience and income, will be independent variables in this study as, based on the literature, they are more likely to influence consumer's perception and behaviour towards the Internet as a product and service information source.

## **1.5 Research Questions**

This study therefore focuses on the following research questions:

What are consumers' perception towards the Internet as a product and service information source, with respect to gender, level of Internet experience, age and income?

This study addresses the following specific questions:

1. What are the consumers' perception of the Internet as a product and service information source?
2. What are the key underlying dimensions that make up the perception of product and service information on the Internet?
3. Do consumers' perception of the Internet differ by gender, level of Internet experience, age and income?

## **1.6 Organisation of the Study**

This chapter has outlined the background information on the attraction of the Internet for marketers, the significance of research into consumer perception on the Internet and the motivation for the study. In addition, the research objectives and research questions to be addressed in this study have also been identified.

The thesis is organised as follows:

- Chapter 2 provides a review of the relevant literature relating to the paradigms associated with the Internet, characteristics of Internet users, perception towards the information on the Internet, and the users' Internet behaviours. Key conclusions from the results of theoretical and empirical studies to this study are identified.
- Chapter 3 addresses the conceptual framework of the study. It provides a theoretical relationship between perception and behaviours for the evaluation of product and service information on the Internet.
- Chapter 4 presents the research method used in this study. The sample selection, measurement instruments, and data collection procedures are explained and justified. The limitations of the methodology are identified, followed by the ethics consideration.

- Chapter 5 presents the findings of the perception of the participants about the Internet as an information source. This chapter is comprised of four sections. The first section examines the Descriptive statistics of the demographic data. The second section discusses the participants' perception towards the Internet as a product and service information source. Thirdly, Factor Analysis makes up the third section of the findings. Cluster Analysis and Discriminant Analysis are presented in the final section of this chapter. The reliability and validity of the data analysis are also examined in this study. A summary of the perception of the participants' about the Internet as information sources is also outlined in this chapter.
- Chapter 6 presents the findings about the participants' behaviour on the Internet. This chapter presents the results of descriptive statistics to participant's Internet behaviour. The chapter is divided into four sections. The first section reviews participants' Internet access and behaviour. The second section examines the Internet use and behaviour of participants. The third section addresses participants' level of Internet experience and presents their implications. The final section is comprised of the information search behaviour of participants on the Internet.
- Chapter 7 consists of a summary of the study followed by a discussion of the findings and implications of the results. The study's contribution to the literature is identified. Limitations of this study and further research avenues are discussed.

## Chapter 2

# Literature Review

### 2.0 Introduction

This chapter explores existing literature relating to three main areas. The areas include: 1) characteristics of Internet users; 2) perception towards using the information on the Internet; 3) behaviours towards using the Internet as a product and service information source

Literature concerned with the characteristics of Internet users was reviewed to provide empirical observations about the users of the medium. This first area will focus on who the users are, and how they use the medium. The profile of the users of the Internet is addressed, focusing on their demographic characteristics and the way they use the Internet. Finally, the usage pattern of the Internet users is discussed.

Literature concerned with perception of the information on the Internet was also reviewed to provide a theoretical background to the perceived use of Internet by Internet users. This second area will focus on the nature of perception and definitions. The instruments used to measuring consumer perception will then be described, followed by a review of consumer perception towards the information on the Internet. The review will then concentrate on literature, which reports research on the perception of consumers towards the Internet as a product and service information source.

Particular reference will be made to the potential effects that *gender, level of Internet experience, age* and *income* that may impact on consumer perception towards the Internet as a product and service information source. This area of study forms the basis of the questions under investigation.

Literature relating to the behaviours of Internet users in terms of searching for information on the Internet was reviewed to provide the context for the study. This third area will focus on how the Internet is used as an information source. Then the evaluation of Internet information is addressed, focusing on the factors hindering users from information search on the Internet. Finally, the criteria for evaluating Internet information source are discussed. This area has been used to illustrate pertinent areas within this study.

## **2.1 Characteristics of the Internet Users**

### **2.1.1 User Segments**

#### **2.1.1.1 The Level of Internet Experience**

The literature indicates that the Internet demographic users can be divided into four levels of Internet experience. These include the Beginner, Intermediate, Experienced and Expert user (Hammond, McWilliam & Diaz, 1998; Ng, 1998; Geissler and Zinkhan, 1998; Retlev, 1991).

#### **2.1.1.1.1 Beginner User**

A review of the literature relating to Internet users' level of Web experience found that a Beginner user (or Novice user) is defined as "someone who, for example, has used a computer before and who are aware of the World Wide Web" (Ng, 1998; Hammond, McWilliam & Diaz, 1998). Novice users comprised 2 percent of the Internet population combined (VALS2 Survey, 1997). Retlev (1991) found that members of these groups have a lack of college education, limited financial resources, lack of occupational subsidies and attitudes of aversion or suspicion towards the new technology.

In terms of the level of experience on the Internet, Geissler and Zinkhan (1998) found that the Novice user has low level of confidence and experience in utilising the Web. The researchers argued that Novice users do not have sufficient time, access or education to use the Web, others consciously or unconsciously exhibit avoidance behaviour. Furthermore, the Web caused them much fear, frustration, and concern because they feel overwhelmed by the new technology (Geissler and Zinkhan, 1998).

In terms of information seeking on the Internet, Retlev (1991) argued that a large majority of novice users would accept the easiest information to answering their questions. The researcher argued that Novice users require information that gives them the opportunity to save time and money. Alternatively, the preferred information would otherwise be accessible, or information, which is put together from different, sources and presented in graphical manner, that would otherwise have required an enormous expenditure of time and effort to find.

#### **2.1.1.1.2 Intermediate User**

The literature suggests that an Intermediate user is "someone who, for example, is able to use some of the features in popular word processing programs and spreadsheets, has used e-mail, and can format a floppy disk" (Ng, 1998; Hammond, McWilliam & Diaz, 1998). Taylor (1999) found that 31 percent of the Internet user population comprised of the Intermediate users.

In terms of the level of experience on the Internet, Retlev (1991) assert that Intermediate users able to define most terms, which appear in Internet-related technical articles and occasionally browse professionally related Internet sites than Novice users. Hammond, McWilliam & Diaz (1998) in their study of fun and work on the Internet, of the differences between Novices and Experienced users, also found that Intermediate user have negative perception of the informational value of the Internet and do not perceive the Web as more fun or entertaining at all.

#### **2.1.1.1.3 Experienced Users**

The literature indicates that experienced users of the Internet comprised 17 percent of the Internet user population. Ng (1998) asserts that Experienced users have more than five hours of intense experience on the Internet. This notion is supported by Pitkow and Kehoe (1997), which found that the largest category of Internet users, spend more than 6 hours on the Internet.

In terms of the level of experience on the Internet, Ng (1998) asserts that experienced users can perform simple installations and can handle some of the occasional challenges of hardware and software configuration. Furthermore, they browse professionally related Web pages at least once every week to keep updated.

In terms of information seeking on the Internet, Hammond, McWilliam & Diaz (1998) found that experienced users place a higher value on the information found on the Internet and perceive the medium as potentially more fun than Intermediate users. As with the information content, the Experienced users are more in favour of the Internet as an entertainment medium than Intermediate or Novice users and have enduring involvement with the medium.

#### **2.1.1.1.4 Expert User**

The literature suggests that Expert users of the Internet are more sophisticated in experience than the Novice and Intermediate users (Taylor, 1999; Ng, 1998). Hammond, McWilliam & Diaz (1998) argued that Expert users comprised 17 percent of the Internet population, similar to the Experienced users.

In terms of level of experience on the Internet, Expert users are more easily bored by the Web and believe that time spent 'surfing' the Internet makes them less productive (Applebee, Bruce, Clayton, Pascoe & Sharpe, 1998). A majority of Expert users are university students and recent graduates in professional fields (SRI International, 1997). Arguably, the characteristics of Expert users are that they tend towards action on the Internet like Interactive video games. Furthermore, they also tend to be innovative, stimulation seeking and fashion-oriented (Vals Survey, 1997).

In terms of information seeking on the Internet, Expert users prefer particular information search situations. According to Retlev (1991) information supply and content on the Web are of decisive importance. An Internet site that offers the possibility of all searches being carried out in one session will have a major advantage, and will also attract searches in databases for which the Expert user normally prefers to use other hosts.

In terms of the appreciation of the Internet as a source of information medium, Hammond, McWilliam & Diaz (1998) assert that Expert users place higher value on information found on the Internet and have greater appreciation of the medium as an entertainment medium. This suggests that the perceived value of the Internet as either a source of fun or information increases with experience. Similar to Experienced users, Expert users also have high involvement and enthusiasm for the medium.

## **2.1.2 Demographics of the Internet Users**

### **2.1.2.1 Gender**

The demographic profile of the Internet users is virtually identical to that of typical computer users (CyberAtlas, 1996). The proportion of women using the Internet is lower than men. Evidence indicates that there are still relatively few women online, although the number is growing rapidly. Female composition is estimated to be 36 percent in the Nielsen Study (1996), 35 percent in the FIND/SVP study (1996) and 34 percent in the O'Reilly/Trish study (1996), and 29 percent in Hermes (1996). Recent estimates even places the gender split of Internet users to be 50:50 (eMarketer, 2000).

The literature indicates Internet users are predominately male. This observation is verified by CyberAtlas (1996); Pitkow & Kehoe, (1997); SRI International, (1996), which maintains males account for approximately 77 percent of total traffic on the Internet because they use the medium with greater intensity than females. However, the situation is gradually changing towards a higher representation of women online.

### **2.1.2.2 Age**

The literature indicates that age of Internet users, is slowing declining (Tapscott, 1998; Pitkow and Kehoe, 1997; Ernst & Young, 1999; SRI International, 1997). Studies have found that the average age of users is 36 years old (SRI International, 1997; Georgie Tech Research Corporation, 1998; Nielsen, 1996; O'Reilly/Trish, 1996). However, Tapscott (1998) found that the median age of Internet users has dropped to approximately 30. The researcher argued that the age is rapidly declining

particularly with the rise of the cohort labeled the Internet generation. The Internet Generation is reported to be in the age range of 18 to 24 years old and is the fastest growing group on the Internet. (Tapscott, 1998).

### **2.1.2.3 Occupation, Education and Income**

The users of the Internet were primarily scientists and techthusiasts. However, the last few years have witnessed a strong growth of students and professionals among Internet users, especially business professionals (Hoffman & Novak, 1996). The Internet is gradually developing towards becoming a mainstream medium as more and more users access the medium at home.

This changing composition of the users has also led to a change in the way the medium is used. Where the Internet was principally used for seeking information and communication, entertainment is increasingly important for users.

The trend is developing towards a much more heterogeneous use of the medium, where different groups of users use the medium for different purposes. With this changing trend, the user composition on the Internet is gradually developing towards a mainstream composition, but still has a strong overrepresentation of white, male, well-educated, high-income, technologically savvy users (Pitkow & Kehoe, 1997; and Hoffman & Novak, 1996).

Janal (1998) credits the demographic profile of Internet users. He asserts that users of the Internet are young, affluent, highly educated and overwhelmingly male. This notion is supported by Teo, Lim and Lai (1997), which found that Internet users are relatively young and generally well educated, with fairly high income.

In terms of income level, Internet users are also generally upscale. Nielsen (1996) found that 25 percent have an annual household income of more than \$80,000. This result is confirmed by Hermes (1996), and Teo, Lim and Lai (1997) which reached the conclusion that 27 percent have a \$75,000 + income on the basis of an extensive online survey.

Both O'Reily/Trish (1996), and Nielsen (1997) report approximately 14 percent of the Internet population have an income above \$100,000 a year and 25 percent have an income below \$15,000. Twenty-five percent have an income of \$80,000+. The low-income users comprise no doubt of university students. It is evident from the demographic data presented here that while the reach of the medium may still be very limited, the audience has an attractive demographic profile from a Web marketers viewpoint.

### **2.1.3 Usage Patterns**

#### **2.1.3.1 Use of the Internet**

The literature indicates that users of the Internet use the medium to primarily obtain information (Pitkow & Kehoe, 1997; Georgie Tech Research Corporation, 1998). Teo, Lim and Lai (1997), of the study on users and uses of the Internet on Singapore, found that a high level of undergraduate Internet users use the medium to obtain information pertaining technology, leisure and education.

The literature also indicates that the Internet is used for communications in terms of e-mailing. Teo, Lim and Lai (1997) assert that the Internet is used primarily to communicate with colleagues on the same university or on a different campus, and with other colleagues overseas. Unlike radio or television, most users use the Internet because it provides them with a cheap, fast and convenient way to keep in touch with friends and their significant others (Choi, Stahl and Whinston, 1997).

The literature indicates that the Internet is used to obtain free resources and product support (Teo, Lim & Lai, 1997; Choi, Stahl & Whinston, 1997). Pitkow and Kehoe (1997) reported similar findings that Internet users use the medium to obtain free samples (eg. software) and information about products. Hoffman and Novak (1996) note that a number of software companies (such as Netscape and Microsoft), have been distributing beta versions of software on the Internet in order to solicit feedback prior to official release of the products. This also benefits the users since they have a chance to experiment and try out new products prior to purchase. Some companies,

which include Intel, which offers free screen savers for PCs, magazine companies such as the *Economists* and *Information Week*, also offer free downloading of selected articles (Hoffman & Novak, 1997).

The literature also indicates that Internet users are using the medium for swapping transactions, purchasing of products, and on-line job applications (Teo, Lim & Lai, 1997; Fram & Grady, 1995).

### **2.1.3.2 Time Spent on the Internet**

Supported by anecdotal evidence, writers assert that the usage patterns of Internet users in terms of frequency of use, spends 6.5 hours on the Internet every week (Nielsen, 1997). This means that the average American aged 16 and older spends 35 minutes a week on the Internet, which equals that average amount of time spent watching rented videotapes (Hoffman & Novak, 1997).

Find/SVP (1996) reports that users spend an average of 6.6 hours per week, while the average Jupiter respondents spends 20 hours per week online. Pitkow and Kehoe (1997) reported similar findings that 32.7 percent of its largest category of Internet users spends 10 to 20 hours using the Internet each week. 26.4 percent of Internet users use it for more hours while 40.9 percent use it for fewer hours. Pitkow and Kehoe (1997) also assert that users who have been online for more years tend to spend more hours using the Internet.

### **2.1.3.3 Years on the Internet**

The literature indicates that Internet users have been on the Internet for 4 to 6 years (Georgie Tech Research Corporation, 1998). Pitkow & Kehoe (1997) reported similar findings of the number of years Internet users have been on the Internet, with the largest category having been on 4 to 6 years (37.1%). Previously, the researchers argued that the largest category had been online for 1 to 3 years. This shift toward more experienced users is consistent with other results showing that the growth of the Internet is slowing down. In other words, even though there are still many new users coming online, they constitute a smaller and smaller percentage of the total population as time passes. The availability of commercial online services (such as AOL and Prodigy) was a major catalyst for the first wave of growth in the online population and yet to be spawn the second wave.

### **2.1.3.4 Home Access vs. Work Access**

The users of the Internet can be divided into those who access from their home and those who access from work. Previous studies have found high statistics for home and work access (Hoffman & Novak, 1997; Ernst & Young, 1999; ABS, 1998). However, a large number Internet users access the Internet from home. (Pitkow & Kehoe, 1997). The Australian Bureau of Statistics (1998) concluded that 68 percent of Internet users access from home, than from work. This tendency is likely to be spurred further by the proliferation of network computers and the low cost of connection of the Internet Service Providers. Teo, Lim, and Lai (1997) argued that the Internet service providers are becoming cheaper for users. The cost of connection required to gain access to the Internet from home has dropped dramatically.

The literature also indicates that Internet users access the Internet from work (Pitkow & Kehoe 1997; ABS, 1998). The Australian Bureau of Statistics (1999) concluded that 52 percent of home users also use the Internet at work. And both Find/SVP (1997) and Nielsen (1997) with Internet access at home than at work (68% and 62% respectively). However, Nielsen (1998) suggests that the at-work Internet volume is higher. According to the Find/SVP (1998) 20 percent access the Internet exclusively from work.

It has been suggested that users feel justified in embracing workplace access as it has powerful Internet service providers that can provide fast connection than home access. This means that most users will have greater access to any information on the Internet. Also with workplace access, users can gather their information efficiently and effectively, with no need for fast modems or configured software (Cohen, 1997).

#### **2.1.3.5 Frequency of Internet Use**

The literature indicates that Internet users spend a great deal of hours on the Internet (Pitkow & Kehow, 1997). In their study on users of the Internet, Pitkow and Kehoe (1997) found that a majority of respondents access the Internet daily (87.9%). Males are more likely to be very frequent users than females. Frequency of access also increase with years spent on the Internet, but even for the newest users the largest category accesses the Internet 1 to 4 times a day (52.9%) (Georgie Tech Research Corporation, 1998).

## **2.2 Perception of the Internet as a Product and Service Information Source**

### **2.2.1 Perception and Measurement**

Initially, clarification needs to be made as to the meaning of the word “perception”. There are a number of definitions of perception, two of which are; “the process by which an individual selects, organises and interprets stimuli into a meaningful and coherent picture of the world” (Bednall & Kanuk, 1997), and “are the particular interpretation one gives to objects or ideas observed or otherwise brought to the individual’s attention through the senses” (Walters & Bergiel, 1989). Both of these definitions give the notion that a perception is a mental stimulus, which influences an individual’s senses. A simplified definition of perception could therefore be stated as “how we interpret or give meaning to the world around us and depends on the object and experiences that we had encountered in our lives” (Schiffman & Kanuk, 1997).

Thus, a perception can be a state where the individual are exposed to, attend to, and comprehend stimuli in the consumer environment. Within this process individuals use their senses such as sight, hearing, smell, taste and touch. A perception and attitude are highly interrelated. Perception is a prerequisite of attitude development but an existing attitude will also play a major role in how an object is to be perceived (Onkvisit & Shaw, 1994). Therefore, both psychological factors tend to influence each other. Nonetheless, these two concepts are not the same thing. For the purpose of this study, the theory of perception will be used as a basis of attitude and is thus reinforced to provide an insight into the potential differences in consumer perception towards the Internet as a product and service information source.

In order to measure this theory of perception, it is necessary to identify some specific instruments that can be used to measure perception. Andrich (1982) describes a number of instruments, which have been constructed to assess perception in area of the information via the Internet. Andrich describes the two most common approaches, one associated with Likert (1932), and the second associated with Semantic Differential Scale (1957), that have been used to measure perception. Therefore, the only suitable instruments of these for eliciting perception towards the Internet as a product and service information source are the Semantic Differential Scale and Likert's Scale.

The most popular design for studying perception is that from Likert in which persons are presented a set of statements, by asking them to indicate the degree of intensity with which they approve or disapprove of them. Likert's Scale was similar to that of Thurstone, in that responses could be quantified and given a numerical value, which could result in statistical analysis. The use of a Likert scale in this study is preferred as it allows for quantitative analysis and ease of access by lecturers and students in the sample group.

The Semantic Differential Scale requires the respondents to emphasize their emotional factors along the continuum between the adjectives their attitude towards a statement. The opposite adjectives consist items such as good or bad, fair or unfair, and hot or cold. Unlike the Likert scale, the Semantic Scale used the adjectives to evoke an emotional response and the responses could lend themselves to tabulation and statistical analysis. The Semantic Scale was used in the study because it is simple to use and does not require a judgment group.

### **2.2.2 Perception of the Information on the Internet**

Up until now, there had been little empirical research on the perception towards the information on the Internet. Researchers have also commented on the lack of empirical research in the area of perception of the Internet information (Bruce, 1999; Geissler and Zinkhan, 1998). Applebee, Bruce, Clayton, Pascoe & Sharpe (1998) comment that despite the importance of the question, there is an absence of current research into the perception of the information on the Internet.

Only one documented study in the area of perception of the Internet has been conducted in the United States. The research conducted by Bruce (1999) concentrated on the issue of perception of the Internet in regards to searching for information. The study has been directed to the analogies that academics in Australia report for the Internet with the satisfaction that they derive from information seeking on the Internet. However, the research has not provided some insight into how consumers perceive the Internet as a product and service information source when they use it to search for information.

Given developments in the research conducted by Bruce (1999) into academic's perception of the Internet with regards to searching for information, there is a clear case for reviewing the capacity of the perception of consumers towards the Internet as a product and service information source. To date this issue has not been addressed. Little research has been undertaken in the perception towards the information on the Internet held by consumers. An important purpose of this research is to address the lack of investigation on this issue and foster further research into this area.

In spite of the lack of empirical research into the consumer perception towards the Internet as a product and service information source, this research still shows a special need to be understood by the marketers on the Internet. Web marketers who sell their products and services on the Internet have identified numerous variables, which seem to influence the perception of consumers towards the Internet as a product and service information source. These variables include the gender, income, level of Internet experience and age.

### 2.2.2.1 Gender

Gender differences have been identified in the literature as one important variable in the influence on perception. A number of researchers have identified a difference between the attitudes of males and females towards computers, with males having more positive attitudes (Collis, 1985; Dambrot, Watkins-Malek, Silling, Marshal, & Garver, 1985; Nickell & Pinto, 1986; Wilder, Mackie, & Cooper, 1985; Loyd & Gressard, 1984; Fisher & Pulous, 1983).

Males have been reported to have more positive attitudes towards computers than do females. Temple & Lips (1989) supported this by suggesting that the more positive attitudes shown by males may be due to different types of computer-related attitudes such as interest, enjoyment, and confidence.

In a similar way, gender differences in the Internet have demonstrated great differences in one gender over another. Tapscott (1998) in a study on the Internet Generation found that the Internet is perceived to be largely male bastions. The researcher revealed that males are likely to hold more positive attitudes towards the

Internet and to engage in larger computer-related behaviours than females, resulting in a 'technological gender gap'. However, Tapscott (1998) argued that the situation is improving for both girls and women. He asserts that between the Summer of 1995 and Spring of 1997, the male majority on the Internet fell from 66 percent to 58 percent. The Internet has made computer more interesting for girls. However, overall, Tapscott (1998) contend that the Internet is still predominantly male.

Whilst a significant number of previous studies have demonstrated gender differences in attitudes towards computers and the Internet, there appears to be no research related specifically to gender differences in perception towards the information on the Internet. There are many journal articles that list the differences in gender attitudes towards computers (Temple & Lips, 1989; Collis, 1985; Dambrot, Watkins-Malek, Silling, Marshal, & Garver, 1985; Nickell & Pinto, 1986; Wilder, Mackie, & Cooper, 1985), and little on attitudes towards the Internet, but none of these article mention gender differences in perception towards the Internet as a product and service information source. Therefore, this study justifies the need for the understanding of this variable that may influence on the perception of consumers towards the information of the Internet.

#### **2.2.2.2 Level of Internet Experience**

The level of experience the consumers have on the Internet is identified in the literature as one important variable. In their study on attitudes towards computers, Nelson and Cooper (1991) compared computer use and attitudes, and found that there was no significant differences of Internet experiences in attitudes due to the varying

amounts of computer use experienced. Others, however, state there are significant differences in attitudes. Two separate studies that considered the level of Internet experience as a variable gave differing results.

A study by Whitley, Jr (1996) examined the variable prior experience and its influence on attitude formation of computers. The results examined, showed that differences in prior experience with computers mediate differences in attitudes. Whitley, Jr (1996) thus proposed that it is the individual characteristics of prior experience, rather than the societal effects of computers, which influences attitude formation. Overall, Whitley, Jr (1996) argued that the specific types of attitudes and specific forms of experience and their affective valence may reveal a relationship.

In a different study by Hammond, McWilliam & Diaz (1998), the researchers found difference in attitudes with user experience. Hammond, McWilliam & Diaz (1998) explored the differences between Novice and Experienced Web users and their appreciation of the Web's entertainment and informational value. The researchers found an increase in positive attitudes for experienced users who place a higher value on the information of the Web (i.e. perceive it as more legible) compared to those with the less experience (i.e. Novice user). Experienced users have more positive attitudes and perceive the Web as more fun (or potentially more fun) than Intermediate users.

Overall, Hammond, McWilliam & Diaz (1998) thus proposed that while prior experience is an important moderator of user's attitudes towards the Internet, its influence is not linear. The researchers stressed that the experienced users are enthusiasts for the medium, while Intermediate and Novice users perceive it as a source of information, but not for entertainment or fun.

In spite of the two previous studies that attempted to highlight the importance of the variable, the research still shows a lack into the perception towards the information on the Internet. There is no mention of the perception of consumer towards the Internet as a product and service information source. Thus, a need for an understanding of this variable is relevant to the study.

#### 2.2.2.3 Age

Another variable to consider is the effect the student's age has on their perception towards the information on the Internet. It has been suggested that as a child gets older many factors influence his or her feelings, such as experience, knowledge and general maturation. Two studies that considered age as a variable gave similar results. Tapscott (1998) in a study on the Internet Generation found positive attitudes developed with age. The researcher argued that the Internet Generation have an active role as information seekers rather than the passive role of information recipients. Moreover, the Internet Generation's unprecedented access to information also gives them the power to acquire the knowledge necessary to confront information they may feel not be correct. Furthermore, they consider access to information and the expression of opinion to be fundamental rights.

Miller (1996) on the other hand found that attitude also developed with age. The researcher examined the users on the Internet with the integration of online purchase and found that an increase in positive attitudes with age. By dividing Internet users into mutually exclusive and easily identifiable age groups, the researcher found that younger users browse the Web sites more than older users, seeking information pertaining to new technology, leisure and education. This notion is supported by (Harris, 1991) which found that younger Internet users perceive their Internet activity as means to retrieve information. For the older users of the Internet, Miller (1996) argued that the Boomers and Generation X have positive attitudes towards the information on the Internet. They retrieve information to learn about news and hobbies and important new product development. The information sought range from special interest groups, education and training, health and medicine, investment, and customer services. Both studies identified age as a strongly influential variable and showed that the age of users involved, like many other variables, influences different student populations in contrasting ways.

#### **2.2.2.4 Income**

Differences in the income of consumers, creates another variable, which appears to influence consumer's perception towards the information on the Internet. A study by Tapscott (1998), comparing the Internet users with that of the Internet Generation in the U.S., indicated that there was significant difference in perception. Tapscott (1998) found that users with higher-income households displayed more positive, accepting perception than the lower-income households.

According to Tapscott's (1998) research, 24 percent of people without high school diplomas and 37 percent of low-income people are interested in using the Internet to obtain product information. This compares to 64 percent of college graduates and 69 percent of those earning more than \$50,000 per year. Tapscott (1998) argued that hardly any lower-income households have a computer (7%), in comparison to those making between \$30,000 and \$50,000 (32%). Tapscott (1998) also argued that of those making over \$50,000, usage increases to 53 percent, than those making less than \$30,000 per year. Therefore, Tapscott (1998) stressed that the poor are information poor and the wealthy are information rich.

## **2.3 Behaviour Towards the Internet as a Product and Service Information Source**

### **2.3.1 Consumer Searches and the Internet**

Searching is a specific type of activity. The literature suggests that searching in physical markets is different to Internet search (Houston, Sewell & Schatz, 1998; Marchionini, 1995). Choi, Stahl and Whinston (1997) assert that in physical markets, consumer search activities include reading advertisements, calling vendors, and visiting stores. In an Internet environment, all these activities converge into Web searches and Web browsing. Analysis of the reasons behind the differences between the two searches reveals positive support for online searching. Several advantages have been proposed for online searching over physical search.

It has been suggested that consumers feel justified in engaging in online search over physical search on the Internet as the costs for time and transportation is reduced (Choi, Stahl & Whinston, 1997). An Internet search allows consumers to remember and compare information gathered from many stores is another reason behind consumer's attribution to embrace online search (Choi, Stahl & Whinston, 1997).

Teo, Lim & Lai (1997) also credits the online searches enable consumers to process a wide range of information other than price, such as location of name of vendors, terms of sales, quality and performance variables, brand names, sizes and other product characteristics, and so forth. This notion is supported by Choi, Stahl & Whinston (1997) who believes that online search allows consumers to locate and process relevant information.

In contrast to online search helping consumers to find information, several writers believe that computer programs (also called intelligent agents) can benefit consumers to find relevant information. According to Choi, Stahl & Whinston (1997), with online search, consumers can use computer programs to comfortably navigate the sea of information and have a clear economic advantage over physical searches. Similarly, Pitkow and Kehoe (1997) takes the stand that computer programs can help consumers to search locate, retrieve, filter and process information without incurring as high cost as they do in physical markets.

### **2.3.2 Online Product and Service Information and Consumer Searches**

An effective consumer search depends not only on the cost incurred, type of search but also on the type of product and service information. The type of search is one factor that makes consumer search effective. Choi, Stahl & Winston (1997) suggest that a simple search for consumers would be to obtain price quotes from the sellers, rather than the quality of the product. On the other hand, for a product and service whose quality can be judged by simple observation, termed search good, then its price would be irrelevant. However, when a product or service is an experience good, it is a different matter to assess its quality prior to consumption.

*Search goods* are different to *experience goods*. According to Klein (1998) search goods are products dominated by product attributes for which full information can be acquired prior to purchase.

Similarly, Choi, Stahl & Winston (1997) takes the stand that *search goods* can be accessed before they are purchased. The significant characteristics of *search goods* are that participants have adequate knowledge of the particular product wanted before going out to purchase it.

*Experience goods* on the other hand, are considered so because their dominant attributes are either too difficult or too costly to sample prior to purchase (Klein, 1998). *Experience goods* are very different to *search goods* in that it is very complicated and the best a consumer can do with an *experience good* is to collect the information about product specifications to evaluate the product (Choi, Stahl & Winston, 1997). It is important for the consumer to do so, for most information products are *experience goods*, which a search involves a much more complex processing of information and access than price quotations. Furthermore, search efficiency depends on how much product information sellers provide, and how truthful and reliable the information is provided. In that case, the search in the Internet environment may involve trying out the product in the form of demo or shareware or free trial.

*Credence goods* are those attributes that the consumer cannot verify even after use (Klein, 1998). *Credence goods* are different to *search goods* and *experience goods*. According to Ford, Smith and Swasy (1988) cited in Klein (1998) they expanded on *credence goods* as dependent on the level of expertise of the average consumer.

Choi, Stahl & Winston (1997) assert that *credence goods* are sought less over the Internet because the consumer cannot verify the service after use. There is no guarantee maximum value to the consumer. Choi, Stahl & Winston (1997) argued that the goods do not have physical form structure that can be physically consumed.

What is being consumed is the service by the information and the use to which the service is put. Therefore, this is perhaps the reason consumers are not willing to expand special time and effort in purchasing *credence goods*.

### **2.3.3 The Need for the Evaluation of the Internet Information Sources**

The need for criteria by which to evaluate Internet information has been discussed by several researchers (Bridges & Thede, 1996; Murray, 1996; Stoker & Cooke, 1994; Cook, Alison & Anagnostelis, 1996; Oliver, Wilkinson & Bennett, 1997; Piontek & Garlock, 1997). Several reasons have been proposed for a need to evaluate information on the Internet.

Lanier & Wilkins (1992), and Arms (1990) demonstrated that the underlying reason for evaluating information on the Internet pertains to the problems with accessing the information over the Internet. The researchers argue that the common problems cited is the difficulty of actually knowing what exists and how to get to it. Stoker & Cooke (1994) assert that the Internet is essentially a vast network of networks, worldwide in scale. And as such, there is no control of information and a fragmentation of coverage is frequent. As a result of this, the information on the Internet is either chanced upon, cited elsewhere on the network or heard through word of mouth (Arms 1990).

Another reason on the disadvantages of the information on the Internet is presented by Stoker and Cooke (1994). They argue that the difficulty in ascertaining the pedigree of information, volatility of information and the absence of context in which to judge it has been identified as a factor hindering the greater use of the Internet (Stoker & Cooke 1994). These potential disadvantages undermine the capability in the virtual community, as well as pose challenges for the consumers (Ladner & Tillman 1993).

Concern over the quality of information over the Internet is another reason for consumers to evaluate information on the Internet. Supported by anecdotal evidence, writers warn against the lack of good indications of information quality on the Internet (Anagnostelis & Cox, 1996; Tillman, 1998; Rettig, 1996; Cook, McNab & Anagnostelis, 1996; Harris, 1997; Skov, 1998).

Authority is also a particular concern to consumers. The literature indicates that the Internet has many problems pertaining to the publication of various authors (Collins, 1996; Wilkinson & Bennett, 1997; Cook, Alison & Anagnostelis, 1996; Stoker & Cooke, 1996; Oliver, Wilkinson & Bennett, 1997). These researchers argue that the information on the Internet do not undergo any form of peer review, editing or refereeing, and do not contain any information about the credentials of the Web authors. This notion is supported by Stoker and Cooke (1994), which note that anyone could publish anything on the Internet. The lack of evaluating authority affects consumer's evaluation of information and could lead to difficulty for consumers to establish the purpose for which an Internet source was designed. Inaccuracies, unsubstantiated and or misleading information can arise significantly for consumers, as well as false, incomplete and or inaccurate information can be found on a variety of Web pages on the Internet.

### **2.3.4 The Criteria for the Evaluation of Internet Information Sources**

In the last few years, a number of authors have considered criteria for the evaluation of Internet information sources (Brandt, 1996; Ormondroyd, Engle & Cosgrave, 1995; Stoker & Cooke, 1994; Tillman, 1998; Caywood, 1997; Cassel, 1995; Wilkinson, 1997). These authors generally take as their starting point criteria from other authors who have evaluated print resources, CD-ROM and online information services.

Although, there are many potential benefits is using the information service provided over the Internet, there are also many problems and issues requiring the knowledge and skills of information professionals, as well as the consumer. One of the most basic of these is a need by the consumer who would use the information provided to developed techniques and establishes criteria for the evaluation of Internet information sources.

The development of such criteria for the evaluation of Internet information sources is potentially useful for both the consumers and Web marketers alike. Arguably, Ambre, Guard, Perweiler, Renner and Rippen (1997) assert that it will educate the consumer and will provide a much-needed tool to assess the quality of information on the Internet. Educating Web marketers on the criteria that identifies quality information will improve their ability to provide quality information on the Internet. In order to devise appropriate evaluation criteria, several authors have presented a set of existing criteria for evaluating the information on the Internet (Stoker and Cooke, 1994; Cook, McNab & Anagnostelis, 1996; Anagnostelis & Cox, 1996; Grassian, 1997; Kirk, 1997; Smith, 1997). The evaluation of Internet information indicates that many

consumers rely on various evaluative criteria for information sources. The important evaluative criteria that impacts on consumer's information searches via the Internet are the credibility, currency, accuracy, objectivity, fairness, coverage, comprehensiveness, authority, expertise and trustworthiness of information.

#### **2.3.4.1 Credibility**

The literature suggests that credibility and quality are the premier criterion for evaluating Internet information (Ambre, Guard, Perveiler, Renner and Rippen, 1997; Anagnostelis & Cox, 1996; Stoker & Cooke, 1997). Credibility is defined by Merriam Webster's Collegiate Dictionary, 10<sup>th</sup> Edition, as "the quality or power of inspiring belief," and to be credible as defined as "offering reasonable grounds for being believed." To a great extent, the problems associated with distinguishing credible from less credible or even false information relate to the problem of accurately evaluating the source. Stoker and Cooke (1994) assert that an Internet site should display the institutions or organizations name a logo as well as the name and the title of the authors.

In a study of the evaluation of network information sources, Stoker and Cooke (1994) found that there is no simple method for objectifying the credibility of Internet information sources. The researchers argued that the characteristics of a credible source follow from some logical or common sense rules. They assert that the trusted authorities in a society are usually identified, and information that comes from or can be attributed to a trusted authority is credible. For example, Stoker and Cooke (1994) taking the view of assessing the quality of health information on the Internet demonstrated that the medical advice provided by physicians relating to an illness on

the Internet is credible unless proven otherwise. Also, individual health care providers and organized groups of health care providers are clearly sources of authoritative medical information. Stoker and Cooke (1994) also demonstrated that large hospitals, large group practices, government health agencies, and other entities that bring together medically knowledgeable professionals have aggregate credibility.

Evidence of credibility is also presented on the organizational Web sites or postings of information taken from books or journals (Harris, 1991). Harris (1997) in a study examining the evaluation of information sources on the Internet argued that a highly credible source is one which is print based form as well as available on the Internet. This notion is supported by Anagnostelis & Cox (1996), which argue that a highly credible source is more effective than a less credible source when an author's qualifications or credentials are disclosed.

#### 2.3.4.2 Currency

Currency in a Web site can be defined as keeping up to date with the present state of knowledge (Cook, McNab & Anagnostelis, 1996). In theory, the Internet has the potential to provide the most current information possible. This means that users would benefit greatly from the immediate access to bulletin boards, electronic mail and news groups with their particular specialisation, providing current awareness of information as it happens (Stoker & Cooke 1995).

However, currency is expected on the Web site of a credible source, may fall short. Anagnostelis & Cox (1996), argued that not all information is up to date, and there is no guaranteed that the information provider of that particular Web site has taken the trouble to establish its currency, and frequently updating the information on a regular

or ad hoc basis. This notion is supported by Grassian (1997), which points out that out-of-date announcements and superseded data are so often retained beyond their useful lifetime. The researchers argued that identifying the data information on the Web site was created or last update may provide valuable indicators that a site continues to be maintained.

The literature suggests that the currency of information on the Internet could be ascertained by citing the date of the original document and the date of content posting (Makulowich, 1997; Anagnostelis & Cox, 1996; Cook, McNab & Anagnostelis, 1996; Ambre, Guard, Perveiler, Renner & Rippen, 1997). Though the date of posting does not demonstrate that the information provided is correct or current, it does provide an indicator of currency.

The consideration of factors such as automatic date stamping can also ascertain the currency of information on the Internet. According to Stoker & Cooke (1994) automatic date stamping are able assess the timeliness or currency of the information on the Web sites by examining the data of the file. Stoker & Cooke (1994) argued that with date-stamping it is possible for the consumer to select material over the Internet according to the date of its creation, only in situation where the information provider has chosen to make this information available.

### 2.3.4.3 Accuracy

The accuracy, or scientific validity, of information on the Internet is the most obvious criterion for the quality of content. Accuracy in a Web site can be defined as information that is exact, precise or correct (Oxford, 1988).

In their study on the evaluation of network information sources, Stoker & Cooke (1995) found that much of the information currently exchanged via the Internet has obvious advantages in terms of accuracy of the information than equivalent printed sources. However, Stoker & Cooke (1996) contend that there is a tendency for researchers only to use the Internet for informal or semi-formal communication, relying upon traditional means such as the journal article for their final statement on a given subject. This is because information disseminated by means of the Internet is not awarded the same degree of credibility or status by the scientific community.

In order for information disseminated over the Internet to gain acceptance it is necessary to establish review procedures to verify the accuracy and determine the credibility of results. Stoker & Cooke (1996) demonstrate that a means of establishing the accuracy of information on the Internet would be to examine a text for typing errors or inconsistencies in the use of abbreviations or citation of sources. In addition, Stoker & Cooke (1995) attempted to determine the accuracy of Web information, asserting that consumers should always be highly sceptical of claims of "amazing results", known only to the purveyor. Likewise, the researchers elicit that consumers should be wary of basic ideas, widely accepted principals or policies are attacked.

Given the nature of the methods to establish accuracy over the information on the Internet, these are perhaps a useful measure to consider.

#### 2.3.4.4 Objectivity

The question of bias and objectivity on the Web sources is one, which has concerned consumers for some time. Bias in a Web site can be defined as a predisposition, prejudice or influence towards a particular theory or idea (Oxford, 1988).

The literature suggests that biases can exist in many forms on the Internet (Safford 1996; Anagnostelis & Cox, 1996; Cook, McNab & Anagnostelis, 1996; Ambre, Guard, Perveiler, Renner & Rippen, 1997). It can be financially motivated, or it can be the result of a personal intellectual investment or slant towards a particular idea or theory.

In a study on the evaluation of information on the Internet, Harris (1997) contends that even the most well-qualified and prestigious individual are susceptible to this limitation. Harris (1997) elicited that while the Web surfer is increasingly well educated and curious, he or she is unlikely to have the scientific background to critically evaluate the bias information on the Internet.

Many famous Internet sources are now regarded as being very biased. According to Stoker & Cooke (1994) a great concern is towards the white, Anglo-Saxon, and middle class males at the expense of other groups. The reason is that network usage has been available to members of the academic, government, and business

communities, with access to the requisite computing equipment and a knowledge of the English language (Anagnostelis & Cox, 1996). These factors lend suspicion to the perpetuation of such bias.

Using TCP/IP to connect to the Internet has the potential to broaden the information bias as more countries and groups of users gain access, and allowing greater participation or discussion by users, can thereby tend to lessen the effects of such bias on the Internet (Stoker & Cooke, 1994). Other writers such as Cook, McNab & Anagnostelis (1996) suggested that requiring the use of a universally accepted language and by default, can prevent biases of information on the Internet.

Cook, McNab & Anagnostelis (1996) assert that the English language seems to be assuming that role. However, it would seem that the issue of bias appears to be difficult to establish criteria to judge this issue.

#### **2.3.4.5 Fairness**

The literature suggests that the issue of fairness consists of offering a balanced, reasoned argument, not selected or slanted (Harris 1997; Cook, McNab & Anagnostelis, 1996; Ambre, Guard, Perveiler, Renner & Rippen, 1997). Fairness of a Web site is defined as ideas or claims made by the information source are presented in an equitable manner (Oxford, 1988).

Similarly, this notion is supported by Stoker and Cooke (1994), which assert that information on the Internet presented must be appropriate to its intended audience in terms of style and complexity of language and the ideas expressed.

The issue of fairness regarding information on the Internet will be to some degree determined by the means of the responsibility of the information provider (Harris 1997). Rader, Bilie, & Gary (1990) argued that a good information provider would have to possess a calm, reasoned tone, presenting material thoughtfully and without attempting to cause emotional distress for the consumer. Therefore, the user interface is of crucial importance in determining the fairness of information on the Internet.

In their study on evaluation of information on the Internet, Stoker & Cooke (1996), argued that to ascertain fairness of information over the Internet, sources of information and reporting errors should be disclosed. Also, the disclaimer of the information should also clearly define the relationship, in terms of the scope of responsibility and control, between the original Web site content and links to other sites.

#### **2.3.4.6 Coverage**

The literature suggests that there exists a problem for consumers to know what exactly an Internet source aims to cover and what are the limitations, which may have been imposed at the outset (Cook, McNab & Anagnostelis, 1996; Harris 1997; Stoker and Cooke, 1995). Defined on the Web site as the area or amount of information covered (Oxford, 1988) this same techniques described above would therefore need to be applied.

Coverage of information in the context of a distributed international network such as the Internet is a difficult criterion to establish. Stoker & Cooke (1994) assert that there is a large degree of overlap between various sources, and frequently the same

file may be available from a number of different sites. Since most of the users are not paying for the information they receive, arguably this is less of an important issue. However, blindly searching the Internet can be extremely time consuming and is therefore expensive. Given the nature of this problem, consumers may have to identify the sites and sources of information where the most comprehensive and accurate information is likely to be available.

The means of establishing the coverage of information on the Internet is to check any references made or other sources of information cited, through the Internet links. In their study on the criteria for assessing the quality of health information on the Internet, Ambre, Guard, Perveiler, Renner & Rippen, (1997) demonstrated that Internet links could provide consumers connections to other internal pages or external sites. The researchers argued that links help conserve Web access time and point to the consumer to additional, valuable resources within minimum effort. In addition, a great coverage of information could be located and identified in a similar as print journals, where the name appears at the reference of the end page.

#### **2.3.4.7 Comprehensiveness**

The literature suggests that completeness is important to the quality of Internet information (Ambre, Guard, Perveiler, Renner & Rippen, 1997; Cook, McNab & Anagnostelis, 1996; Stoker & Cooke, 1994). Completeness in a Web site is defined as information in its entire context (Oxford, 1988).

In their study on the criteria for assessing the quality of health information the Internet, Ambre, Guard, Perveiler, Renner & Rippen, (1997) argued that comprehensive information on the Internet should be presented, not a one-sided view with critical information missing. Also, the researchers assert that pertinent facts and negative results about the subject not be omitted. Taken in the context of health information on the Internet, the researchers suggest that claims for a particular type of therapy or drug should be substantiated. If the author or source of the information does not have all the facts to present, this should be noted.

This notion is supported by Stoker and Cooke (1994) who argues that information presented on the Internet should be complete, with a balanced presentation on all sides of an issue. Comparatively, the researchers assert that a comprehensive information on the Internet should be thorough, valid, reliable and include references to other reputable sources, preferably peer-reviewed journal articles, and or authoritative texts. Similarly, Bennett, Wilkinson & Oliver (1996), also takes the stand that the dates of information creation and posting should always be included. The researchers contend that these dates are good indicators of the timeliness and validity of the information on the Internet.

#### **2.3.4.8 Authority**

The literature indicates that are problems of authority on the information over the Internet (Stoker & Cooke, 1996; Ambre, Guard, Perveiler, Renner and Rippen, 1997; Cook, McNab & Anagnostelis, 1996). Harris (1997) argued that the information provided over the Internet is often of an unknown pedigree and its accuracy or

reliability may be questionable. Furthermore, the researcher assert that information posted on the Internet does not go through the same rigorous review procedures as information which has passed through formal publishing channels.

Similarly, Cook, McNab & Anagnostelis, (1996) also takes the stand that most of the information on the Internet has not undergone any form of peer review, editing or refereeing. The researcher assert that information item may be added to the Internet directly by their originators, or else they may be posted to bulletin boards or electronic discussion groups by others. Therefore, it may be difficult to determine the originating institution or individual for an information item. Hence, the Internet has been criticised as having the potential for misuse through the dissemination of inaccurate or undesirable information material.

In their study examining the quality of information of the Internet, Anagnostelis & Cox (1996) found that the information on the Internet may also have been compiled to 'test the water' before authors commit themselves in some more permanent form. This is a legitimate use of the facilities of the Internet, but it is a problem for the consumer receiving or using this information second hand. It is therefore essential to determine intellectual responsibility for any information source, as well as to know from where or by whom it is being disseminated.

It has been suggested that an evaluation of the authority of the source of Internet information requires that the source disclose its qualifications or credentials and relevant personal or financial associations (Anagnostelis & Cox, 1996). Stoker and Cooke (1994) suggest that to ascertain authority of information on the Internet that an

author's information be recognised from the name of their organisation, preferably by a funding body or an institution. In addition, the researcher assert that an author's resource can be judged on the basis of reputable source, which has been reviewed extensively or by a linkage within a recognised institution. Both ascertained to provide valuable support of information for the consumer.

The literature suggests that consumers could consider questioning the authority of information on the Internet (Cook, McNab & Anagnostelis, 1996; Stoker & Cooke, 1995; Bloggs, 1998). Harris (1997) found that the first question is to discover whether an individual or an institution has taken clear and unambiguous responsibility for the compilation of the work. It so, what is known of the status, qualifications or reputation of those concerned? Similarly, if the material has been disseminated by means of a bulletin board or discussion group, has it first been moderated or otherwise refereed?

Further questions would determine whether the information source is regarded by peers as being authoritative in its area (Cook, McNab & Anagnostelis, 1996). For example, a newsgroup, which is widely read and receives contributions from many sources, may be regarded as being more reliable than another newsgroup, which could be less helpful to a consumer. This may be some indication of their authority.

#### 2.3.4.9 Expertise

The question of expertise on the Web sources is one, which has concerned consumers for some time. Expertise in a Web site can be defined as the 'extent to which a communicator is perceived to be a source of valid assertions' (Bloggs, 1998). Harris (1997) asserts that expertise is the information provider showing some evidence of being knowledgeable, reliable and truthful.

The literature suggests that an expert source in an Internet environment is effective when it is written or issued by an authoritative source such as the federal government or a reliable organization (Stoker & Cooke, 1994; Anagnostelis & Cox, 1996; Bloggs, 1998). This can be accepted at face value as having validity. This notion is supported by Harris (1997), which argued that information on the Internet is effective if it is evaluated by experts, reviewers, and or subject specialist as part of collection development.

Anagnostelis and Cox (1996) demonstrated that expertise in an information on the Internet can be judged from the name of a recognised organisation such as funding body, which is publishing information about itself or offering an information service. Comparatively, the author providing the information in their capacity as employee of such as an institution is considered to have expert source.

Similarly, Ormondroyd, Engle and Cosgrave (1996) also takes the stand that an expertise information source is one that highlights the author's educational background, past writings and or experience on the Internet. Such credentials within an author will carry weight to the expertise criteria.

### 2.3.5 Trustworthiness

The literature suggests that trustworthiness is important to the quality of Internet information (Stoker & Cooke, 1994; Cook, McNab & Anagnostelis, 1996; Ambre, Guard, Perveiler, Renner & Rippen, 1997). Pagell (1995) defines trustworthiness as the "consumer's confidence in the source for providing honest and objective information".

Maignan and Lukas (1997) found that the information on the Internet is very untrustworthy. The researchers argued that consumers often wondered about the reliability of the information posted on the Internet and did not know whether the whole range of information available provided was trustworthy at all. Jurek (1997) also take the stand that the information on the Internet would be considered untrustworthy, as it does not provide a complete, objective and accurate form of information.

There exist previous studies documenting the trustworthiness criteria in an Internet environment. In a study on consumers' evaluations of external information sources in pre-purchase search, Jarvis (1998) found that the trustworthy criteria were judged significantly more for Consumer Reports and friends or family, but not with the Web site, which was considered 'not trustworthy at all' by consumers searching for external information.

In a different study by Hammond, McWilliam & Diaz (1998), the researchers found difference in attitudes with user's level of Internet experience. The researchers explored the differences between Novice and Experienced Web users and their appreciation of the Web's entertainment and informational value. Overall, the researchers found that Novice and Experienced users perceived the informational value on the Internet as not very reliable and or trustworthy. Hammond, McWilliam & Diaz (1998), argued that consumers perceived that there is a lack of trustworthy information found on the Web. Also, the researchers found that Novice users in particular, mistrust the informational value of the Internet over the study significantly than to experienced users. Given that the information on the Internet is often perceived as a valuable information source, the evaluative criteria 'trustworthiness' still remains to be emphasised.

## **2.4 Conclusion**

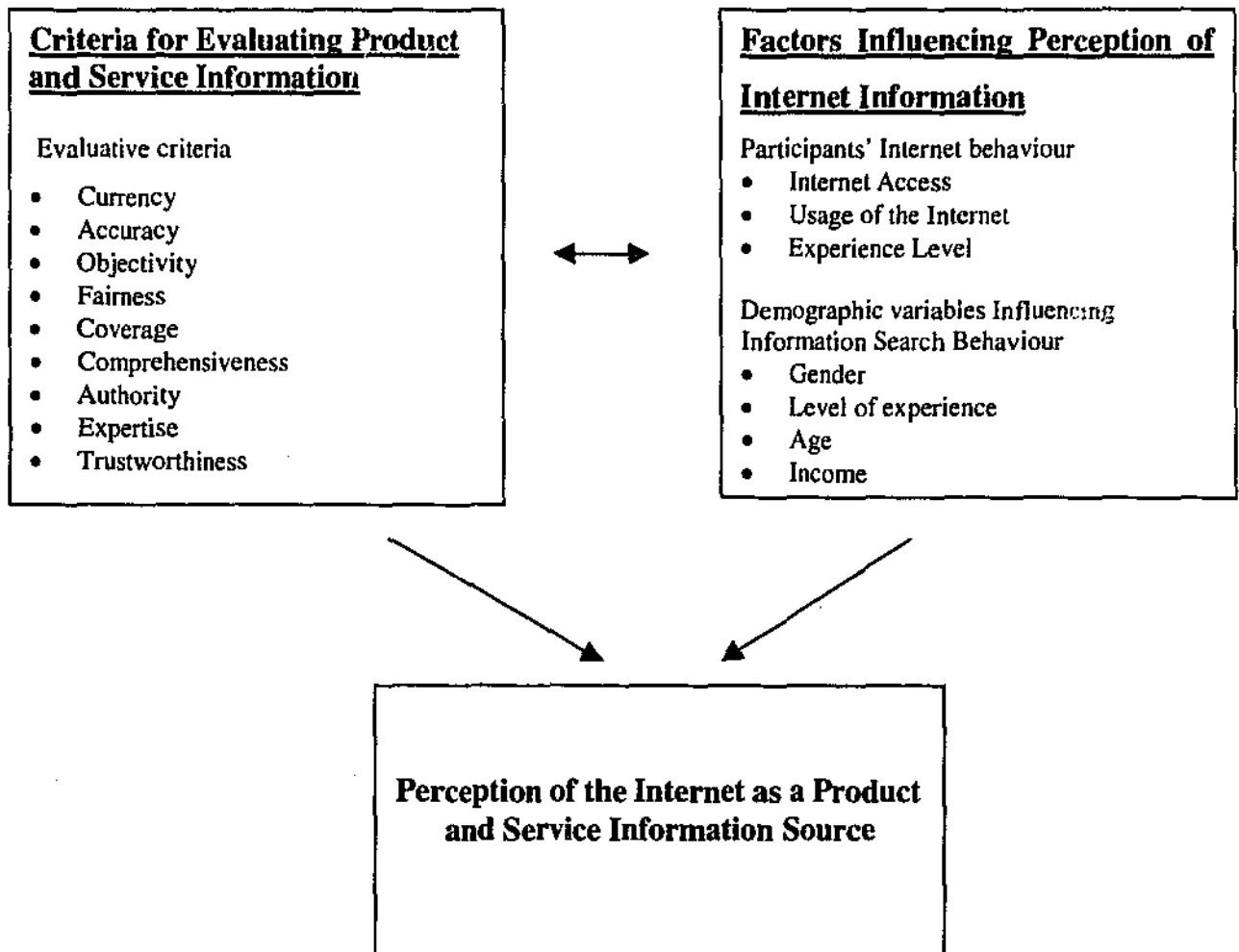
This chapter outlined relevant and previous research, which focused on the characteristics of the Internet user. Significant research was discussed on perception such as that which examines perception theories in the context of the information on the Internet. This area covered suggests that perception play a significant role in the decisions that are made by consumers regarding the Internet as a product and service information source. Little research has been conducted in the area of consumer perception towards the Internet as a product and service information source. The research is important because differences in perception may impact on the choices consumers make when using the information on the Internet for information retrieval and making purchase decisions.

Identifying differences in perception will also provide Web marketers a sound understanding of consumer perception towards information on the Internet and the factors that may influence their perception. Factors that may influence consumer perception towards the information on the Internet include gender, age, level of Internet experience and income.

Additionally, research that has implications for this study was the behaviour of consumers in relation to gathering information on the Internet. This helped to explain the student's perception. Research of this nature may illuminate the reasons and effects of perception of the consumers towards the information on the Internet. The variables influencing consumer's information search behaviour included the currency, accuracy, objectivity, fairness, coverage, comprehensiveness, authority, expertise and trustworthiness. These intervening variables of concern were found to affect consumer's information search behaviour on the Internet and that of traditional mediums.

The relationship of factors influencing consumer's perception and that of information search behaviours on the Internet may be represented by the following diagram.

## Consumer's Perception of the Internet as a Product and Service Information

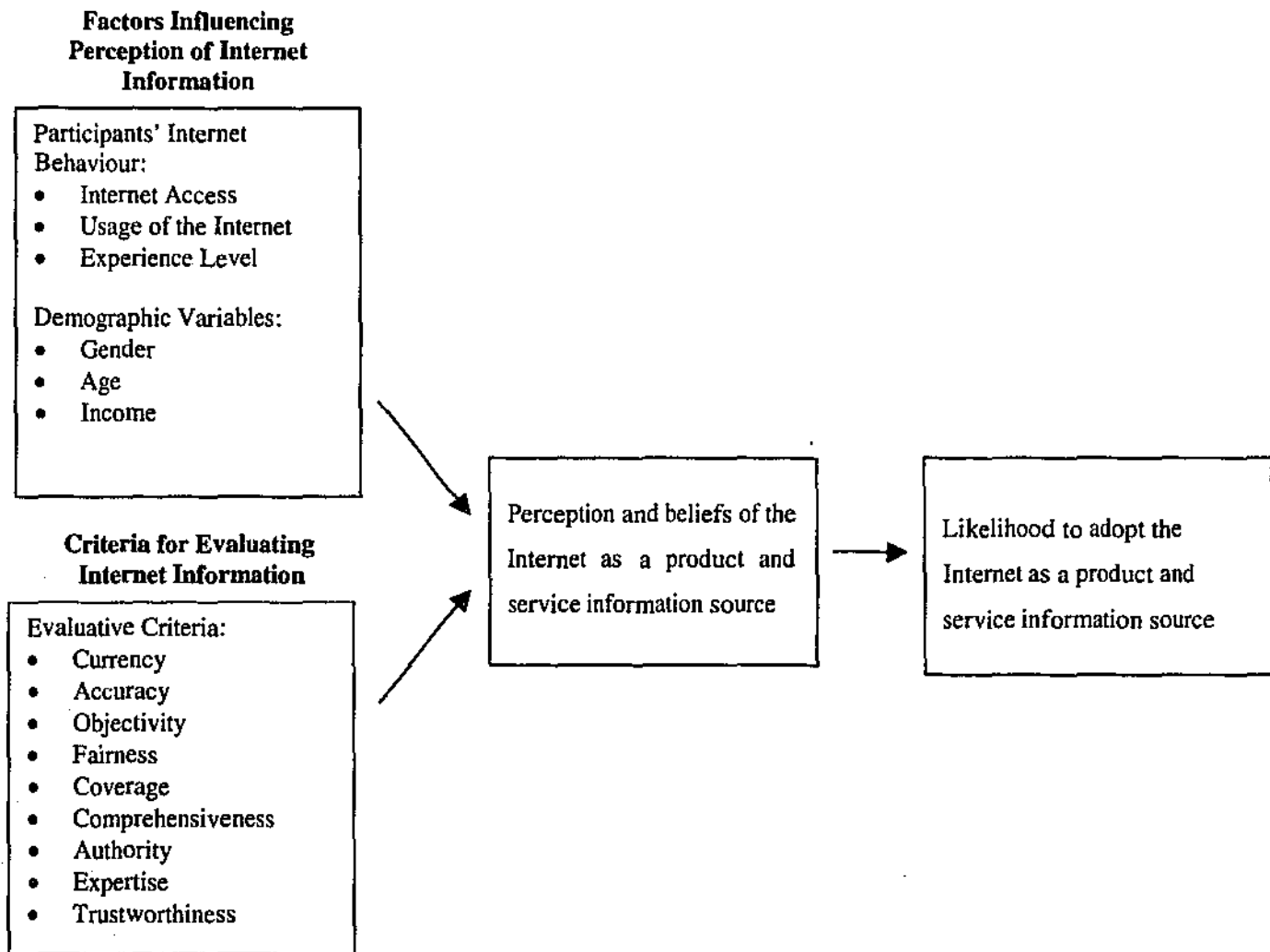


While this framework is only developed to measure consumer perception towards the Internet as a product and service information source, it can provide many benefits to the research process, in that it is useful for understanding the differences in perception between the consumers.

## Chapter 3

# Model and Conceptual Framework

A conceptual framework is useful for explaining, either graphically or in a narrative form, the major dimensions to be studied. The developmental process involves identifying the primary research variables, labelling each existing between the variables. Consequently, the development of a conceptual framework assists in focusing and bounding the research. The conceptual framework developed for the present study is detailed in Figure 1. The framework draws on two main areas to investigate consumer perception towards the Internet as a product and service information source. The first area investigates the kinds of perception consumers have with respect to the factors that may influence their perception. The second area examines the behavioural factors of consumers. Issues raised have included the variables influencing information search behaviour, which is the main focus of this study.

**Figure 1****Proposed Model of Consumer's Perception of the Internet as a Product and Service Information**

The first area identifies the perceptual factors influencing consumer's perception. It highlights the importance of the factors influencing consumer's perception towards the Internet as a product and service information source. Factors that may influence consumer's perception include the gender, level of Internet experience, age and income.

Identifying differences in consumer's perception is an important component of this research and has important implications on the choices consumers make when using the information on the Internet for information retrieval and making purchase decisions.

The second area identifies the behavioural factors influencing consumers. This area revolves around the evaluative criteria variables influencing consumer's information search behaviour. The evaluative criterion includes the *currency, accuracy, objectivity, fairness, coverage, comprehensiveness, authority, expertise* and *trustworthiness*. Anecdotal comments from specialists in the field of the Internet have argued about the lack of evaluative criteria held by Web marketers in charge of providing information on the Internet. Several of these studies investigated the criteria variables for evaluating information on the Internet. These issues are found to be significant when marketers on the Internet hold responsibility for the information they provide to consumers. Therefore, the criteria for evaluating information on the Internet hold significance for consumers.

A likelihood to use the Internet as a product and service information source will appear as a key result of consumer's perception towards the information on the Internet.

In conclusion, the conceptual framework highlights the importance of establishing perception and behaviours in order to determine consumer's perception of the Internet as a product and service information source.

## **Chapter 4**

# **Methodology**

### **4.0 Introduction**

This chapter describes the research design of the study. Following a discussion about the design of the research and choice of samples used in the research, the resultant quantitative study is described. The research instrument, data collection and sampling procedures as well as the techniques used to analyse the data collected in the second stage of this study are outlined. Justification for the research design is discussed throughout the chapter. The last section of Chapter 3 discusses the model and conceptual framework of the study.

### **4.1 Research Design**

An exploratory research design will be used for this research to gain a rich understanding of consumer perceptions towards the Internet as a product and service information source. This design is appropriate to discover the general nature of the problem and the variables that relate to it (Burns & Bush, 1993). This exploratory research design is used for the following purposes:

1. To diagnose a situation
2. To screen alternatives
3. To discover new ideas

As this area of research is largely unexplored, the exploratory research design offers a high degree of flexibility (Churchill, 1996). While there is a noticeable gap in the literature about consumer perceptions towards product and service information on the Internet, this research attempts to shed some light on the nature and uses of the Internet as an information source. Specifically, the investigation will explore the perceptions of the Internet as a product and service information source.

## **4.2 Research Sample**

The sample for this study is a convenience sample comprise primarily of 300 university students from Edith Cowan University in Western Australia. For the purpose of this study, participants had to be studying at the university, whether full-time or part-time.

The 300 university students was chosen from the Business Faculty at Edith Cowan University taking Accounting, Marketing, Management, and Information Systems, and in their first year, second year and third year. The sample comprise mainly of second and third year Business faculty students. The reason is that they have more experience on the Internet and have at least been exposed to the Internet in their first year of study. Also, the students would have had time to familiarise themselves with the Internet as well become accustomed to the Internet facilities at the university.

With the assistance of the lecturers of each of the classes that was surveyed, all 300 questionnaires were completed, a 100 percent response rate.

#### **4.2.1 Use of Student Sample**

Student samples have been widely used in research. Traditionally, the use of student samples stem from convenience and cost considerations (Morgan, 1979; Cunningham, Anderson & Murphy, 1974). The use of student samples in the study was similarly motivated. Due to cost considerations, other methods employed by researchers on the Internet were feasible. Furthermore, the practice of using student samples is surrounded with controversy regarding its external validity (Zikmund, 1994; Morgan, 1979; Vinson, 1978; Cunningham, Anderson & Murphy, 1974). Other writers (Enis, Cox & Stafford, 1972; Enis, Cox, & Stafford, 1972) argue that research testing the ability of student to function as surrogates have mixed results. However, these studies have compared to businessmen (Morgan, 1979) and housewives (Cunningham, Anderson & Murphy, 1974; Enis, Cox and Stafford, 1972), considered to be typical consumers. In many cases, it is questionable whether the student surrogates are similar to the population under research due to high literacy, alertness and rationality characteristic of the university students (Zikmund, 1994; Vinson, 1978). Some researchers concede that in certain cases a student sample may be appropriate if the context is taken into consideration (Enis, Cox & Stafford, 1972; Khera & Benson, 1970).

Several factors make the use of students in this study appropriate. In the case of this study, exploratory in nature, makes it flexible with respect to the methods for gaining insight into consumer perceptions towards the Internet as a product and service information source. Flexibility lies in its convenience, time and cost constraint, for which student samples were utilised. Secondly, of the Internet population, a large proportion of users are students (Fram & Grady 1995, Zenith 1995). Miller (1996) argued that Internet users are largely young, educated and either in or going into their professional fields. The characteristics of the university students in the study appear to parallel to the rest of the Internet community. Thus, the student samples in this study are not, as such, functioning as surrogates for the Internet population. In addition, it is in universities where that students are often introduced and exposed to the Internet, where there is easy and free access to Internet facilities. As such, perceptions towards the Internet will be formed. Furthermore, government intervention to promote the Internet into the educational curricula has provided the students further with Internet facilities. Governments have actively promoted the Internet and have introduced the Internet into their educational systems ("Innovate Australia", 1995; Tripathi, 1996).

From another perspective, students on the Internet can be viewed as consumer markets. There is now growing recognition that the student market is an attractive and viable market, and largely untapped. The pilot study and literature search revealed that Australian students consumers, have part time jobs to support themselves and also receive study allowance (AUSTUDY) from the government. Besides having disposable income, Mohr (1995) argues that students are active consumers who are "open to experiment new product and services". The potential of the student market takes on a further dimension in terms of their purchase needs upon graduation.

Though this research may have limitations in terms of the generalisation of the findings to the larger population, this does not pose a threat to the potential contribution of this research. Considering the large number of students on the Internet and their propensity to act more favourably toward the Internet, there is a positive outlook for marketers on the Internet targeting students through the Internet. While the Internet demographics offer a viable market for Web marketers, it is useful to ascertain the perceptions of students toward the Internet as a product and service information source.

### **4.3 The Pilot Study**

#### **4.3.1 Introduction**

The purpose of the pilot study was to test the research instruments, and to gain an indication of the time that would be required for the phases of the main study. It was not to test the hypothesis, but rather to expose unforeseen problems, and to get an idea of timing and flow of the questionnaires.

The necessity of the pilot study to the process of the development of an accurate instrument can be seen from the need to generate an appropriate questionnaire, trial the questionnaire, analyse the results, and refine or modify the questionnaire in preparation for the major study.

The pilot study comprised ten university students studying at Edith Cowan University. Of these, there were five males and five female students, studying full-time or part-time. The students were selected because they had several similarities with other universities. The main bases for this choice include: comparability of university population, likeness of socio-economic status and commonality of the student level of experience.

Convenience sampling was conducted by the researcher. Consistent with recommendations by other researchers (Greenbaum, 1993; Hayes & Tatham, 1989), the students in the pilot were kept homogeneous. The students remained unknown by name, ability or any other factors other than year level in which the students were engaged. The number of students selected in the pilot study was ten students.

#### **4.3.2 Procedures**

Students who were using the universities Internet facilities at a particular time were approached and sought for their participation. These people in turn helped to locate others in the university computer laboratories. Student's anonymity was guaranteed. The questionnaire of the pilot study was administered to the students at the time they were using the Internet facilities.

The data were collected and analysed. The completed questionnaires were then categorised and sorted to determine the success of the questionnaire instrument in terms of student readability and accurate student completion of the questionnaire.

Questionnaires, which were not fully completed or where students had indicated they were unsure of the question or the method by which to answer the question, were highlighted.

Refinements to the draft questionnaire were made after considering student responses from the pilot study to simplify and clarify questions of ambiguity or confusion. A more streamlined format was adopted to allow for less complicated data analysis. The purpose of this was to ensure design of the questionnaire for the main study was clear and unambiguous.

## **4.4 The Main Study**

### **4.4.1 Introduction**

A quantitative approach was adopted in the second stage of this exploratory study on consumer perceptions towards the Internet as a product and service information source. The main study comprised 300 students from the Edith Cowan University. The students were determined on two grounds. First, selection of these students provided a relatively large population. Second, the students were in different majors of their degree.

There was a 100 percent rate of response by participants in each form of the questionnaires for the main study. This result may be explained by the personal approach taken in the delivery of questionnaires and attempts made by the researcher to deal with considerations of confidentiality, privacy and anonymity.

#### **4.4.2 Procedures**

The research procedure resembled that of the pilot study except the questionnaires were administered during classes to the 300 Business Faculty students. The researcher had to prepare the questionnaires and speak with some lecturers for approval to do the survey. Therefore, an appointment time was made in which the researcher personally delivered the questionnaires and answered any queries during classes. The questionnaire was administered during classes with the permission of the lecturer concerned.

The establishment of a positive rapport between the researcher and participants was considered vital to a study of this type as students were being asked to share their thoughts, plans, and perceptions with the researcher. The willingness and honesty of participants was considered vital to the study. Issues of confidentiality were addressed by participants in a signed agreement. Participants were then asked to complete the questionnaire within the time given and returned it to the researcher at the end of the session.

The data collection occurred across a two-week period. Two weeks were allowed for the researcher to deliver and collect the questionnaire. The questionnaire completed was the principal data collection technique used for the major study. The major study resulted from the initial work completed in the pilot study and the instrument used was derived from the outcomes of that study. The student responses elicited from the major study will form part of the Chapter – Findings of the study.

## 4.5 Research Instrument

The quantitative exploratory research method involves soliciting information from individuals. The number of variables studied is quite large, therefore a questionnaire was considered to be the most appropriate and viable data collection instrument. The questionnaire is a widely used method for obtaining information in various researches and is used for a variety of purposes, including obtaining facts, ascertaining individual's perception, and discovering reasons for these beliefs. The questionnaire was used in this study to obtain information concerning how consumers perceived the Internet as a product and service information source.

Questionnaire administration rather than online survey was utilised in this study because participant anonymity can be maintained. Secondly, participants can be identified easily. With a lecturer present, participants cannot be deterred from completing the questionnaire.

In contrast to the research instrument of the questionnaire, the measures for this study was drawn from the existing theory of attitude literatures and were modified to give direct context to the study. Previous researchers such as Loyd & Gressard (1984); Dambrot, Watkins-Malek, Silling, Marshall & Garver (1985); Collis (1985); Nickell & Pinto (1986); Mackie & Cooper (1985); have all used attitude measurements in their line of research.

#### 4.5.1 Likert's Summated Scale

The measures for this study used were the Likert method of summated ratings, measuring perceptions held by students. The measuring instrument taken in the form of a five-point scale was used in this study. Participants were required to indicate their degree of agreement or disagreement with each statement by marking the response that best described their feeling toward the statement.

The questionnaire scale was structured so that students who have positive perceptions towards the information on the Internet would score highly, using the five-point Scale of agreement, regardless of whether the item was written in the positive or negative mode. The five-point Likert scale comprised the following responses:

Strongly Agree

Agree

No strong Opinion or Neutral

Disagree

Strongly Disagree

For items written in the positive mode, the 'strongly agree' response would yield a score of five, the 'strongly disagree' response would yield a score of one. For items written in the negative mode, the scoring structure of responses was reversed so that a 'strongly agree' response would yield a score of one, and the 'strongly disagree' response, a score of five.

A five-point scale was used in the research instrument so that more intensity of feeling would be reflected as participants could express a full range of perceptions toward each statement. Five point Likert scales were also employed in studies (Loyd & Gressard, 1984; Mackie & Cooper, 1985) from which some statements were used in this study.

The Likert's Summated scale was chosen in this study because it is the best scale to measure attitudes or perceptions. The Likert approach is also simple to use, not requiring a judgement group and making no mention of any independence of attitude values of groups.

#### **4.5.2 Semantic Differential Scale**

Osgood, Suci and Tannenbaum (1957) developed their Semantic Differential scale and claimed that it could measure meaning by measuring the emotional factor, which individuals attach to an attitude object. The Semantic Differential consists of a series of opposite adjectives such as good-bad, fair-unfair, hot-cold. Each of pair of adjectives is separated by seven intervals. Participants are asked along a continuum between the adjectives their attitude towards a statement or object lies. Emotional response would be evoked. Therefore, the Differential scaling technique in this study was used with respondents required to indicate their level of Internet experience on a series of opposite adjectives such as No experience to Very Experienced. The adjective pairs are separated by five intervals. Interestingly, the responses could lend themselves to tabulation and statistical analysis.

## **4.6 Questionnaire Content**

The final questionnaire was divided into two main parts. The first part dealt with the participants' Internet behaviour, and has fifteen items. The second part addressed participants' perceptions towards the Internet as a product and service information source. It contains seventeen perception items and was determined according to the list of groups of information considered to be of importance. The final is comprised of the demographic data of participants.

The first part and second part are in that order because it has been suggested that demographic data should be placed in the beginning or at the end of the questionnaire (Zikmund, 1994; Davis & Consenza, 1988). These questions may have the possible effect of deterring participants from answering the rest of the questions if they are placed at the middle of the questionnaire. In order to get participants involved in the questioning process, information regarding the participants' Internet behaviour was asked at the beginning, because they are simple and general in nature. Once participants are involved, they are more inclined to answer the more specific or difficult questions.

### **4.6.1 Internet Behaviour**

The first part of the questionnaire dealt with participants' Internet behaviour. The questions used were adapted from previous studies including Loyd & Gressard (1984) Dambrot, Watkins-Malek, Silling, Marshall & Garver (1985), Collis (1985), Nickell & Pinto (1986) and Mackie & Cooper (1985).

The questions were divided into four sections. The first section reviews participants' Internet access and behaviour. Under this section, it examines whether participants had use the Internet previously, where they access the Internet and the frequency of access to the Internet. The intention of this section was to gauge the importance of participant's Internet access behaviour.

The second section examines participant's Internet usage and behaviour. The current use of the Internet and the years spent on the Internet is addressed. In addition, the hours of Internet use is also examined in this second section of the questionnaire. Assessing the participants' use of the Internet was considered vital to a comprehensive understanding of the types of the product and service information searched on the Internet.

The third section addresses participants' level of Internet experience. Semantic differential scaling technique were utilised with participants required to indicate their level of Web experience on a series of opposite adjectives such as No Experience to Very Experienced. The adjective pairs are separated by five intervals. The intention is to gauge the importance of participant's skill level and understand how it can influence their information search behaviour via the Internet.

The fourth section of the questionnaire addresses the information search behaviours of the participants' on the Internet. This section has seven items, which includes the types of product and service information sought, frequency for searching this product and service information category, the search services utilised, and the likelihood of searching for these product and service information in the next twelve months.

In addition, the section also considers online purchase of products and services, as well as the evaluative criteria used to search for the products and services, before purchases. The questions were designed to encourage a range of responses, which would reveal participant's information search behaviour via the Internet. In total, fifteen groups of items were used to measure participants' behaviour on the Internet.

#### 4.6.2 Perception's of the Internet Information

The second part of the questionnaire dealt with the participants' perception towards the Internet as a product and service information source. The participants were instructed to indicate a perception to each statement on an odd number, forced choice Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). A "no opinion" or "neutral" option was also given for those participants who had no opinion on the given statement. This was indicated by a "3" at the middle of the scale.

Amongst the scales used to measure perceptions towards the Internet as a product and service information source were statements concerning the currency, and accuracy of information. Statements relating to the *depth and detail*, *wide coverage* and *unbiased* product and service information were included. Participants were also asked about the *consistency*, *fair and balanced* nature of product and service information via the Internet. In addition, the participants were asked about the *authority*, *credibility*, *trustworthiness*, and *dependability* of information providers. Besides statements pertaining to the *authority*, *credibility*, *trustworthiness*, and *dependability*, statements about the *honesty and truthful*, *reliability* and *relevancy* of product and service information were included in the questionnaire.

The second part of the questionnaire also contained statements about the information providers on the Internet. The participants would take in regards to the *qualification*, *knowledgeable* and *expertise* of the information providers on the Internet. In total, seventeen perception statements were used to measure consumer perceptions towards the Internet as a product and service information source. The perception statements were of great importance to this particular study, for no existing questionnaire or previous studies could be found which addressed the perception questions, so the researcher had to design the perception statements for this study.

In addition to the perception scales, demographic information such as gender, age, nationality, ethnic background, education level, faculty, year of study, majors undertaken, occupation and income level were collected.

The questionnaire uses both nominal and ordinal measurement scales. Nominal scales are used for demographic data and information on the five sections of the first part to the questionnaire. The main questions on perception measures use category-numeric scale, which is ordinal.

Most of the questions in the questionnaire are close-ended questions because answers are easier to code and require less time to analyse. With 300 questionnaires administered to participants, closed-ended questions as a method of data collection provide standardised data. Appendix A contains a list of the statements used in the final questionnaire.

### 4.6.3 Reliability and Validity

The researcher considered measures to enhance the validity and reliability of the study. To ensure content validity of the instrument, it was shown to a lecturer from Edith Cowan University with expertise in marketing. The lecturer confirmed that the measuring instrument appeared to measure what it purported to measure. Further, the questionnaire had been pretested in the form of pilot testing, which yielded useful suggestions and criticisms with respect to wording and content of the measuring instrument. These suggestions were taken into consideration in the writing of the final draft of the questionnaire.

With construct validity, it is used to investigate whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured (Cronbach & Meehl, 1995). This study utilized a measuring instrument designed to measure participant's perceptions towards the Internet as a product and service information source. Because of the exploratory nature of the research, it is difficult to assess construct validity. As Carmines and Zeller (1979) observe "construct validation ideally requires a pattern of consistent findings involving different researchers using different theoretical structures across a number of different studies". It has been commented in the literature that there is little research done in the area of consumer perceptions towards the information via the Internet. Further, the lack of research in Australia on the same subject also restricts the ability of establishing construct validation. Taking in consideration the little research done on the perception on information via the Internet, it would seem appropriate to accept that the high reliability of the data collected could be used as initial evidence of construct validity.

The researcher also considered measures to increase reliability. This can be established through the Cronbach-Alpha technique (Davis & Consenza, 1988). Cronbach Alpha is a measure of internal consistency and can be "considered a unique estimate of the expected correlation of one test with an alternative form containing the same number of items (Carmines & Zeller, 1979). In addition, alpha provides a conservative estimate of a measuring instrument's reliability (Zeller & Carmines, 1979). Table 4.1 shows the Cronbach's Alpha value for the dimensions of the perception items.

**Table 4.1 Internal Consistency Data for the Dimensions of Perception Items**

<b>Factor</b>	<b>Item Alpha</b>	<b>Standardised Number of Items</b>
Quality of information Factor 1	0.9059	11
Authority information Factor 2	0.8938	3
Scope of information Factor 3	0.6683	3

As can be seen, the reliability figures (Cronbach Alpha) for the three subscales or dimensions of the perception items were 0.6683, 0.8938, and 0.9059, respectively, the internal reliability co-efficient alpha level is 0.901. This indicates that most of the alpha coefficients exceeded 0.5, and therefore deemed a reliable or an acceptable measure of reliability.

## 4.7 Sampling and Data Collection Procedures

Students at Edith Cowan University were administered questionnaires during classes with the permission of the lecturer concerned. This represents an ideal way to receive response from the students and at the same time they will qualify as users of the Internet. Though Churchill (1996) caution that student sample Internet users may not be representative of the population since socio-economic status, age, experience, and educational level have similar characteristics and trends, however, this is not the case for Internet users in this study. The Internet users in this study should exhibit different age, income level, experience, and educational capabilities.

The sampling and data collection procedures employed in this study is a very crucial stage of the research. Based upon the sample university students, convenience sampling was chosen. This non-probability sampling technique was employed because it obtains units or people who are most conveniently available.

Researchers generally use convenience samples to obtain a large number of completed questionnaires quickly and economically (Zikmund 1994). As in this case, the convenience sample was used to derive a more representative student population frame.

Questionnaires were administered to students using convenience sampling where a researcher will be present. Instructions regarding the purpose and procedures of the questionnaire were verbally supplied to the students. Students were not instructed not to write their name on the questionnaire, thus assuring anonymity. The questionnaire was completed individually in a relaxed setting, without time restriction. Students

were encouraged to consider each question carefully and to respond truthfully. The design of the questionnaire was such that it would enable determination of student's perceptions towards the Internet as a product and service information source. This data would permit a comparison to be made between the perceptions of the sexes.

Three factors motivated the decision to use questionnaire administration. Firstly, the respondent anonymity can be obtained with the questionnaire, where student identification (ie. name and telephone number) is kept confidential and secured. Secondly, the technology allowed the questionnaire responses to be keyed into the computer program and the information will be checked with the questionnaire responses to ensure no errors had been made during the data entry process. Finally, questionnaire administration approach is advantageous in that data collection reduces the time of waiting and the cost of sending is of no significance.

Once the process of gathering information from the students is completed, the data were converted into a format that answers the purpose of this study. There are two stages of processing the data: editing and encoding (Zikmund, 1994). The editing process consists of checking whether the participants have completed all the statements of all the questionnaires that have been collected from students. Before transferring to a computer, the data were coded. The coding process involved entering character symbols to a computer corresponding to the outcomes of the data, which leads to further discussion in Chapter 5 and Chapter 6 of this study. The response categories were given a series of 0, 1, 2, 3, 4, and 5 corresponding to strongly disagree and strongly agree.

## **4.8 Methods and Techniques of Analysis**

Following editing and coding, the data from the questionnaires was analysed using the Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975). Three main analytical techniques were used: Factor Analysis, Discriminant Analysis, and Cluster Analysis.

### **4.8.1 Factor Analysis**

Prior to conducting the Discriminant Analysis, the data is subjected to factor analysis. Factor analysis is concerned with the identification of an underlying structure of inter relationships among a number of variables (Hair, Anderson, Tatham & Black 1995). Factor analysis is used to combine the results of several perception items, which measures similar dimension so that they are represented by a single factor. Besides reducing data, the Factor Analytical approach was used to reduce multicollinearity with the data prior to subjecting the data to Discriminant Analysis. The absence of multicollinearity and adequate ratio of sample size to the number of variables is important for Discriminant Analysis to function optimally (Hair, Anderson, Tatham & Black, 1995; Tabachnick & Fidell, 1989). The reduced number of dimensions of consumer perceptions towards the information on the Internet also results in the easier interpretation of the Discriminant Analysis.

Principal Component Analysis with Varimax rotation was used to analyse the data in this study (Stewart, 1981). Multiple decisions criteria were employed in deciding the number of factors to be extracted. Both the scree plots and the Eigenvalues were examined. Principal Component Analysis was conducted for the one dimension: perceptions towards Internet information.

The resulting three factors were interpreted and labelled with respect to the phenomena they identified. Analysis was conducted on the student groups. As the composition of the factors was very similar, the results from the Principal Component Analysis conducted on the overall data set was used.

Using the SPSS software, the Alpha Reliability Coefficient was then calculated to test the internal consistency of the factors derived in the principal component analysis. Reliability is the degree to which the measures are free from error and yield consistent results (Peter, 1979). Reliability can be examined in terms of internal consistency of the questionnaire responses. Through Cronbach's Coefficient Alpha technique, the test for internal consistency can be made, where the mean reliability coefficient estimates for all possible ways of splitting a set of items in half are computed (Cronbach & Meehl, 1984). Items loading most heavily on each factor were used to assess the reliability of the three factors, thus confirming the stability of the principal components model.

Based on the Factor Analysis, summated scales were then calculated. The variables that loaded highly on each factor were totalled and the average was used as a surrogate variable for further analysis in the Discriminant Analysis. The Summated

scale was used instead of the factor scores as the relative items loadings for each factor extracted in the principal analysis differed between the student participants. Summated scales were also used because factor scores are error prone indicators of the underlying factors as the scores are based on correlations with all the variables on the factor. Hair, Anderson, Tatham & Black (1995) assert that factors are only approximation of the factors and thus, summated scales best represent the basic nature of the factors.

#### **4.8.2 Cluster Analysis**

Cluster Analysis is a multivariate data analysis procedure whose primary purpose is to group objects based on the characteristics they possess (Hair, Anderson & Tatham, 1995). Cluster Analysis classifies objects so that each object is very similar to others in the cluster with respect to some predetermined selection criterion.

Cluster analysis was used in the study to reduce the information from an entire population of students to information about specific, smaller subgroups. The objectives of the Cluster Analysis procedure in this study, was to explore the similarity and differences between the groups.

Two different methods of obtaining clusters, Kmeans and Agglomerative Hierarchical Tree clustering were used and their results were compared. Several cluster analyses runs were performed using the resultant factor scores from the Principal Component Analysis as input variables, connected with the clustering algorithms.

Four runs were selected as the basis for determining the perceptions' of participants towards the Internet as a product and service information source. Using the output of these cluster analysis runs, the cases were divided into clusters and the variables (gender, level of Internet experience, age and income) that had the most effect on the formation of these clusters were identified. A profile of the clusters for participants' perception of the Internet information was produced. The profile analysis focuses on describing not what directly determines the clusters but the characteristics that differ significantly across the clusters and those that could not predict membership in a particular perception cluster.

#### **4.8.3 Discriminant Analysis**

Discriminant Analysis was used to address group differences within the current study. It was performed to determine if the student groups differed with respect to the factors identified in the Principal Component Analysis. The main objective of Discriminant analysis was to determine if there was a statistical difference between the overall perceptions held by participants.

Hair, Anderson, Tatham & Black (1995) assert that Discriminant Analysis is useful in identifying the variables with the greatest differences between the groups and evaluate the usefulness of individual variables in helping to discriminate between the group.

Discriminant Analysis was performed for the one dimension in the study. The analyses performed include the perception toward the product and service information on the Internet. Following the derivation of the Discriminant function, its

classification accuracy was assessed. This provided a meaningful, practical differentiation between the student groups (Churchill, 1996). Only a large sample size can be performed with the Discriminant function. Though, the sample sizes used were unequal, the results of the Discriminant Analysis were checked by comparing the classification accuracy to a maximum chance assignment and optimum prediction. The maximum chance of correctly classifying an object would be the percentage of the larger group in the total sample. Since the groups were of unequal sizes, the proportional chance criterion was employed. The formula used is:

$$C_{pro} = p^2 + (1 - p)^2$$

The Press Q statistic was also used as an additional measure of predictive validity. The Press Q statistic measures the classificatory power of the Discriminant function as compared to chance models (Hair, Anderson, Tatham & Black, 1995). The Chi-Squared distribution determines the critical value. The formula is as follows:

$$\text{Press Q} = \frac{[N - (n * k)]^2}{N(k - 1)}$$

Therefore, both the classification accuracy and predictive validity will be useful in assessing the ability of the Discriminant function to discriminant between the groups. Both were used to determine whether to accept or reject the research hypothesis that consumer's perceptions towards the Internet as a product and service information source differ among the student groups.

## 4.9 Limitations to the Research

Certain limitations applied to the study. The first limitation concerns the issue of sample size. The population sample was taken from one university and therefore, the results cannot be generalised to other students in other Australian universities. Ideally, more universities would have been desirable as the results would have been indicative of the perceptions of students in Western Australia universities.

The second limitation addressed honesty of participants to report their actual perceptions within the study. Honesty cannot be guaranteed as participants may be slanting their views to comply with what they understood are part of the university policy. In addition, participants may not respond to the items truthfully and give untrue or modified answers to avoid embarrassment, appears intelligent and conceal personal information.

Thirdly, the response bias can occur when participants tend to answer in a certain direction. Students may deliberately give false answers to conceal personal information. Two common response errors found in questionnaires are the acquiescence bias and social desirability bias. One tends to agree with all questions and the other gain to create a favourable impression or prestige and appear in a different social role respectively.

The fourth limitation addressed the scope of the questionnaire. The questionnaire used to record the data from participants were not standard, reflecting the lack of research done in the area of consumer perceptions toward the Internet as a product and service information source. This made it difficult to establish validity, though consistent reliability does provide some evidence of construct validity

The fifth issue concern the issue of control of the questionnaire. Once questionnaires were distributed, the researcher had little or no control over what the participants did with them. Questions may be misinterpreted, not answered, or the questionnaire forms may not have been returned.

The sixth limitation addresses the research instrument. Because typically questionnaires typically possess a reasonable degree of structure, flexibility of the technique was somewhat restricted. It was therefore quite difficult to investigate the in-depth issue of participant's perceptions. The inclusion of open-ended questions did however permit in-depth investigation to a satisfactory degree. However, this technique was not practical for this study given the larger sample sizes and the distribution of the subject groups.

## **4.10 Ethical Considerations**

Following approval from the Committee for the conduct of Ethical Research at Edith Cowan University, participants were forwarded a covering letter on each of the questionnaires.

Subjects were informed of the research by an accompanying letter assuring them of total confidentiality and their right to choose not to participate at any time. The questionnaire was voluntary, and consent was implied with the completion and return of the questionnaire.

To ensure and maintain confidentiality, the coding system used was only known to the researcher and all data was securely stored. Following the completion of the research, all data sheets and questionnaire forms will be destroyed. Records, which are required to be preserved for a minimum of five (5) years, will be stored on computer disk and be in the possession of the researcher.

## **Chapter 5**

### **Findings**

#### **The Perception of the Participants' of the Internet as an Information Source**

##### **5.0 Introduction**

This chapter presents the participants' perception about the Internet as an information source. The chapter is divided into five sections. The first section presents the demographic profile of the participants. The second section presents the descriptive statistics for the perception of participants of the Internet as a product and service information source. Principal Component Analysis was also performed on the perception items to explore the underlying dimensions of participants' perception towards the Internet as an information source. Its results are presented in the third section. The fourth section of this chapter consists of the Cluster Analysis. Cluster Analysis was used to gain a deeper understanding of the segments and also to categorise participants into groups with similar patterns. Discriminant Analysis is the final section of this chapter. Discriminant Analysis was employed to determine if there was a statistical difference between the overall perceptions held by participants. These results are presented in the section of this Chapter.

5.1 The Participants' Demographic Profile

This section describes the demographic information of the participants. It comprises each participant's gender, age, nationality, ethnic group, highest educational level obtained, year of study, the majors undertaken, the occupation currently held, and the overall income distribution. The information has also been compared with current census data on the general population of Edith Cowan University (Edith Cowan University, 1999).

5.1.1 The Age and Gender of the Participants

The participants' age is summarised in Table 5.1. As can be seen from Table 5.1, a large majority of participants are generally in the age group of 25 years and below (63%), reflecting the younger age range of Internet users. The higher proportion of younger student users closely match that found in previous study of Internet users (Georgie Tech Research Corporation, 1998; ABS, 1998). The findings, however, did not match the total population of that at Edith Cowan University. According to current census data, the age range of below 30 (71.9%), were bigger in the Edith Cowan university general population. In all studies, the age range of Internet users are quite young.

Table 5.1 The Age and Gender of the Participants

Age (Years)	f	%	Gender	f	%
Under 25 years	189	63	Male	150	50
26 – 36 years	76	25.3	Female	150	50
37 years and above	28	9.3			

With respect to the gender of participants, the sample is balanced when examining make up of numbers based on gender. The sample consists of 50% males and 50% females. This is unexpected as there is a bias towards female in the gender population of Edith Cowan University students (Edith Cowan University, 1999). This may be just due to the slight predominance of males in the classes as a result of the subject matter.

### **5.1.2 Country of Origin and Ethnic Group of the Participants**

A large majority of participants considered their cultural background to be Australian (56.7%). Other participants considered their cultural background to be from Malaysia (12%), Indonesia (9%) and Hong Kong (4%). The remainder cultural backgrounds were from Thailand (2%), and from England, Scotland and or Ireland (3%). Those who listed themselves as 'others' included Sweden, Borneo, Brunei, USA, and Yugoslavia (4.7%). This finding compares similarly to the general population of Edith Cowan university students (Edith Cowan University, 1999). A detailed profile of the participants from these cultural background is shown in Table 5.2.

**Table 5.2 The Country of Origin and Ethnic Groups of the Participants**

Country of Origin	f	%	Ethnic group	f	%
Australia	170	56.7	Australian	114	38
Malaysia	36	12	Asian	106	35.3
Indonesia	27	9.0	European	24	8.0
Hong Kong	12	4.0	British/English/Scottish	11	3.7
Thailand	6	2.0	Others	6	2.0
Singapore	5	1.7			
China	5	1.7			
Vietnam	4	1.3			
India	5	1.7			
England/Scotland/Ireland	9	3.0			
Netherlands	2	0.7			
New Zealand	2	0.7			
Others	14	4.7			

In terms of Ethnic origin, a majority of the participants indicated that they are either of Australian (38%) or Asian ethnic origin (35.3%). Those who listed themselves as Australian included Anglo Saxon, Caucasian and those of Asian ethnic origin comprised mainly of Chinese, Vietnamese, Malay, Thailand, Japanese and Indonesian. Of the European ethnic origin (8%), it consisted mainly of Croatian, German, Greek, Roman, Dutch and Swedish. A small number of participants reported themselves as American, African, Pakeha, Uganda and Latino. This comprised of the 'others' category and make up 2.3 percent of the ethnic group population.

### 5.1.3 The Majors Undertaken and Year of Study

A large majority of participants are in the Accounting majors (40%). The second group of majors undertaken by participants is Marketing (32.3%). Management (9%) were the third largest category major undertaken by participants. The least majors undertaken were Human Resource Management (3%), Information Systems (2.67%) and Finance (1.33%). Surprisingly, the 'other' category majors make up 8.67% of the participants. The majors undertaken by participants are shown in Table 5.3.

**Table 5.3 The Major of Study and Year of Study**

Major of Study	f	%	Year of Study	f	%
Accounting	120	40	First Year	17	5.7
Marketing	97	32.3	Second Year	107	35.7
Management	27	9.0	Third Year	152	50.7
Human Resource Management	9	3.0	Fourth Year	6	2.0
Information Systems	8	2.67	Postgraduate (e.g. MBA)	15	5.0
Finance	4	1.33			
Others	26	8.67			

In terms of the year of study, a large majority of participants were in their Third year (50.7%) or Second year (35.7%). This is expected as the study was intended to aim for second and third year students. The results are shown in Table 5.3.

### 5.1.4 The Employment and Income Distribution

A large majority of participants indicated that they are studying full-time (43.9%). Only a minority are studying part-time (15.5%). This compares to the general population of Edith Cowan University, where the current census indicates that a large

majority of students are studying full-time (55.4%), and only a minority are studying part-time (25.7%). Only 3.6 percent indicated that they are unemployed. This is insignificant inasmuch as most students generally have part time jobs to support themselves and also receive study allowance (AUSTUDY) from the government. The employment status of participants is shown in Table 5.4.

**Table 5.4 The Employment Status and Income Distribution**

Employment Status	f	%	Income (A\$)	f	%
Full-time employee	74	14.7	<20,000	121	40.3
Part-time employee	82	16.3	20,000 – 30,000	26	8.7
Full-time student	221	43.9	30,000 - 40,000	26	8.7
Part-time student	78	15.5	> 40,000	38	12.7
Employed (i.e. casual)	30	6.0	I don't know	31	10.3
Unemployed	18	3.6	I would rather not say	53	17.7

With respect to the income distribution, a large majority of participants were below the \$20,000 income level mark (40.3%). Only a small number of participants had an income level of more than \$40,000 (12.7%). This is expected since the sample comprised mainly of students, who are not in a professional occupation yet and depend on study allowance (AUSTUDY) from the government for their income. The results are shown in Table 5.4.

## 5.2 Results of Descriptive Statistics

### 5.2.1 Participants' Perception Towards the Internet as a Product and Service Information Source

The descriptive statistics show that there are significant differences in consumer perceptions towards the Internet as a product and service information source. A detailed profile for items measuring perceptions towards the Internet information is shown in Table 5.5.

**Table 5.5: Results of Descriptive Statistics**  
**Participants' Perceptions towards the Internet as a Product and Service Information Source**

Perceptions	Mean	Standard Deviation
Wide coverage of product and service information	3.98	.8094
Current and up-to-date product and service information	3.89	.7615
Relevant product and service information	3.53	.7901
Depth and detailed product and service information	3.51	.8239
Knowledgeable authors (information providers)	3.37	.8419
Accurate product and service information	3.35	.7814
Expert authors (information providers)	3.26	.8204
Qualified authors (information providers)	3.23	.8589
Authoritative product and service information	3.17	.7936
Reliable product and service information	3.15	.8699
Dependable product and service information	3.10	.8597
Credible product and service information	3.10	.8865
Consistent product and service information	3.04	.8147
Fair and balanced product and service information	3.01	.7992
Trustworthy product and service information	2.96	.8720
Honest and truthful product and service information	2.94	.8416
Unbiased product and service information	2.73	.8905

Participants were found to hold a range of perceptions towards the product and service information on the Internet. Table 5.5 shows the means and standard deviations for the statements, which explored the perceptions, did reveal interesting differences.

### ***Wide coverage, Currency, Relevancy, and Depth of Information***

The findings in this study suggest that participants have highly positive perceptions on the *wide coverage, currency, relevancy, and depth* of product and service information on the Internet.

Participants believe that the Internet provides a *wide coverage* of product and service information. This is expected since the Internet has the potential to provide a vast array of product and service information such as technology, recreation as well as entertainment activities (Teo, Lim and Lai, 1997). Stoker and Cooke (1994) in their study on evaluating the information on the Internet suggest that there are a large number of Websites on education information, leisure information, travel-related information, shopping related and hobbies related information Websites.

Participants' positive perception of the *wide coverage* of product and service information on the Internet is something that marketers should certainly bear in mind in designing their Websites. Web marketers (information providers) should ensure Internet users' expectations about the *wide coverage* of information are fulfilled. Besides information on their Websites, marketers may also want to design more effective links on their Websites. The increasing number of links may contribute to

the wide coverage of information because links are connections to other internal pages or to external sites. Links help users conserve Web access time and point to the user to additional valuable resources with minimum effort.

The participants also believe that the Internet has the potential to provide the most *current* information possible. Websites have the potential to offer current product and service information (Bruce, 1999). Stoker and Cooke (1994) argued that users benefit greatly from the immediate access to electronic mail, newsgroups and bulletin boards, providing current awareness of information as it happens. Teo, Lim and Lai (1997) assert that there are a large number of information providers' of websites frequently updating the information on a regular or ad hoc basis. Take for instance the Australian Stock Exchange (ASX), which frequently updates its stock prices on a daily basis. It is encouraging to note that, based on the research, the perceptions on the *currency* of product and service information on the Internet are highly positive and marketers must update the information on their Websites regularly.

In addition to the *currency* of information, participants also believe that the Internet could provide *relevant, depth and detailed* product and service information. In terms of *relevancy* of information, the finding is expected as the Internet medium is interactive. Surfers click on to access what they are interested in thereby enhancing *relevancy*. Researchers have argued that information on the Internet is presented appropriately to its intended audience (Bruce, 1999; Stoker & Cooke, 1994). These researchers assert that information available on the Internet is written at a level the general public can understand, and still reflect principals of evidence based, including sound research and expert opinion.

Teo, Lim and Lai (1997) also take the stand that the information on the Internet could be self-selected by users from any websites to the context of their requirements.

In terms of *depth and detailed* product and service information on the Internet, participants also have very positive perceptions that the Internet provide comprehensive information. In fact, the Internet medium surpasses that of many traditional medium in terms of providing *depth and detail*. Teo, Lim and Lai (1997) argued that information on the Internet is very comprehensive and include references to other reputable sources, of peer-reviewed journal articles, and or authoritative texts.

### ***Knowledgeable, Qualified, and Expert Information Providers***

The findings in this study also suggests that participants have fairly positive perceptions on the *accuracy* of product and service information on the Internet because of the perceived credentials of the information providers as *knowledgeable* (3.37), *qualified* (3.23), and *experts* (3.26).

The participants believe that the Web authors (information providers) are very *knowledgeable, qualified, and experts* in their provision of product and service information on the Internet. This is very surprising as there are prolific publishers on the Internet and there is no editorial control over the materials they place on the Internet. Cook, McNab and Anagnostelis (1996) argued that anyone could publish any information over the Internet with no indication of their credentials.

Stoker and Cooke (1994) also take the stand that a large number of Web sites do not often contain the authors' educational background, past writings and or experience. The researchers assert that the Web author's credentials are often not displayed on Websites.

Since participants have positive perceptions on the credentials of Web authors (information providers) on the Internet, Web marketers could reinforce this by an indication of 'a seal of approval' of information on the WebPages. Participants are more likely to understand a 'seal of approval' for an information provider that has undergone peer review process. A solid evidence of the information provider's credentials will be ascertained.

Participants in the study also have moderate perceptions on the "*accuracy*" (3.35) of product and service information on the Internet. This is likely to be a culmination of the positive perceptions participants have of the information providers as being *knowledgeable, expert and qualified*.

### ***Trustworthiness, Honesty, and Unbiasness of the Information***

The findings in this study also suggest that participants have quite low positive perceptions on the *trustworthiness* (2.96), *honesty* (2.94), and *unbiasness* (2.73) of product and service information.

Participants are sceptical about the honesty, truthfulness, and trustworthiness of the product and service information disseminated over the Internet. Perhaps this is similar to the perception of advertising messages on traditional media. The audience knows

that the advertiser is there to sell a product or service. Hence a certain scepticism is perhaps expected. However, with the Internet it may be a more significant problem. A great deal of information posted on the Web do not have editorial review and external referees to ensure high calibre of materials published. Thus information can be spread over the Internet by anyone without regard to validity. This may be a critical credibility issue for Internet publishers.

This has important implications for Web marketers. To increase the perception that their Websites are trustworthy, Web marketers should incorporate measures taken to ensure the honesty of the information content and the process applied to it. To encourage trustworthiness, a long-term relationship marketing approach gains importance. Apart from joining commercial mailing lists, Web marketers could also disclose announcements or documents made available to consumers at a particular site on the Internet. However, the most effective is sending information through e-mail, which involves direct communications with Internet users and serves to build relationships with consumers.

The participants also have low positive perceptions on the *unbiasness* (2.73) of product and service information on the Internet. Many participants perceived the information to be of biased nature and had unfavourable perceptions about it. This is similar to Stoker and Cooke's (1994) findings where they found that many information sources on the Internet to be very biased. The researchers argued that the potential the Internet has in broadening its information as more countries and groups of users gain access will thereby increases its biasness.

It would seem that this is an issue, which must be addressed, but at present appears to be difficult to establish criteria to judge the issue.

### **5.3 Results of Principal Component Analysis**

Through the Principal Component Analysis, the seventeen perception items were grouped into three factors. The three Principal Component Analysis accompanied by Varimax Rotation resulted in clean factor structures that were interpretable and represented various dimensions of consumer perceptions towards the Internet as a product and service information source.

#### **5.3.1 The Dimensions of the Participants' Perception of the Internet as a Product and Service Information Source**

Various test indicated that Principal Component Analysis of items relating to perception to the Internet information were appropriate. The items had an overall KMO (Kaiser Meyer-Olkin measure of sampling adequacy) statistic of 0.901. In addition, an inspection of the correlation matrix showed a substantial number of correlations greater than 0.3.

The Principal Components Analysis produced three factors with an Eigen value over 1. The scree plot (Appendix B; Figure 2) also supported the extraction of three factors. In total, 60.57 percent of the variance within the data was explained by the three factors. The details of the Principal Component Analysis with Varimax Rotation may be found in Table 5.6.

**Table 5.6 Results of Principal Component Analysis**  
**The Dimensions of the Participants' Perceptions**

<b>Perceptions</b>	<b>Factor Loadings</b>	<b>Communality</b>
<b>FACTOR 1: (eigenvalue: 7.459)</b>	<b>Pct of Variance:</b>	<b>(43.876)</b>
<i>Fair and Balanced</i> product and service information	0.755	0.604
<i>Consistent</i> product and service information	0.754	0.584
<i>Trustworthy</i> product and service information	0.752	0.683
<i>Credible</i> product and service information	0.722	0.639
<i>Unbiased</i> product and service information	0.707	0.521
<i>Honest and Truthful</i> product and service information	0.671	0.635
<i>Accurate</i> product and service information	0.580	0.525
<i>Reliable</i> product and service information	0.571	0.557
<i>Dependable</i> product and service information	0.567	0.507
<i>Authoritative</i> product and service information	0.549	0.395
<i>Relevant</i> product and service information	0.502	0.546
<b>FACTOR 2: (eigenvalue: 1.484)</b>	<b>Pct of Variance:</b>	<b>(8.731)</b>
<i>Knowledgeable</i> Authors (information providers)	0.852	0.797
<i>Expert</i> Authors (information providers)	0.841	0.791
<i>Qualified</i> Authors (information providers)	0.829	0.783
<b>FACTOR 3: (eigenvalue: 1.354)</b>	<b>Pct of Variance:</b>	<b>(7.963)</b>
<i>Wide coverage</i> of product and service information	0.841	0.734
<i>Depth and detailed</i> product and service information	0.747	0.619
<i>Current and up-to-date</i> product and service information	0.526	0.377

The rotated factors may be interpreted as follows:

Factor 1	Quality of information
Factor 2	Authority of information
Factor 3	Scope of information

**Factor 1** consists of items reflecting the *quality of Internet information*. It contains the items *fair and balanced, consistent, trustworthy, credible, unbiased, honest and truthful, accurate, reliable, dependable, authoritative and relevant* product and service information. They do not measure the personal authority of information providers like the *knowledgeable and expertise* of authors, rather the *quality* of the information on the Internet. Because all of these items are quality-oriented, this factor can be named *Quality of information*. This factor explains the 43.876 percent of total variance.

**Factor 2** comprised of items relating to the information providers (*authority of information*) on the Internet and explains 8.371 percent of the total variance. It contains the three items: *knowledgeable authors, expert authors and qualified authors*. The Web author's knowledge, expertise and qualifications are crucial for their presentation of information on the Internet. Hence the factor can be named as the *authority of information*.

**Factor 3** consists of items reflecting the *scope of information*. It contains the last three items: *wide coverage, depth and detailed, current and up-to-date* information. All three items in this factor relate to the broad coverage and currency of information

on the Internet and explains 7.963 percent of the total variance. They do not, however, measure the *quality* effects of information like *accuracy*, *credibility*, or *trustworthiness*, rather the characteristics of information that has *depth and detail*, has *great coverage* and is *current* and or is *up-to-date*. Hence the factor can be named as the *scope of information*.

### 5.3.2 Results of Reliability Tests

Cronbach's Alpha coefficient was used to test the reliability of the factors derived through the principal component analysis. The Alpha reliability coefficient for Factor 1 and Factor 2 of the dimension, of the participant's perceptions were notable at 0.9059, and 0.8938, indicating a high internal reliability for the scale. A summary of the reliability statistics is presented in Table 5.7.

The Factor 3 with the lowest Alpha coefficient of 0.6683 is comprised of only three items. The Alpha coefficient indicates a low level of reliability, suggesting that the factor were interpretable and appeared to have construct validity.

Another indication of internal reliability is provided by the principal components analysis on each dimension conducted separately for the participant samples, which resulted in the extraction of similar factors. Thus, the Alpha reliability coefficients were deemed acceptable and subsequent analysis were conducted using the original factors extracted in the Principal Components Analysis.

**Table 5.7 Results of Reliability Tests**  
**Cronbach's Alpha Correlation Coefficient**

Factor	Standardised Item Alpha	Number of Items
Quality of information Factor 1	0.9059	11
Authority information Factor 2	0.8938	3
Scope of information Factor 3	0.6683	3

## **5.4 Results of Cluster Analysis**

Through the K-means and Agglomerative Hierarchical clustering technique, participants' perception of the Internet as a product and service information source was divided into groups, maximising between groups variance and minimising within group variability over preselected perception items. Cluster Analysis was conducted to explore the similarity and differences between the groups.

### **5.4.1 Profile of Participant's Perceptions of the Internet as a Product and Service Information Source**

The resultant factor scores were used as inputs for Cluster Analysis. A four-cluster solution was considered as most appropriate for the data as a sudden large jump was noticed in the size of the difference of the coefficients between two adjacent steps of clusters (Three and Two). The profile of these four clusters of participants' perceptions of the information on the Internet is presented in Table 5.8.

**Table 5.8 Results of Cluster Analysis**  
**Summary Profile of Participant's Perceptions of the Internet**

	Cluster 1 N = 93	Cluster 2 N = 115	Cluster 3 N = 43	Cluster 4 N = 48
Factor 1 – Quality of information	0.39	- 0.72	1.34	- 0.27
Factor 2 – Authority of information	- 0.61	0.63	0.775	- 1.0
Factor 3 – Scope of information	- 0.79	0.173	0.22	0.91

As can be seen from Table 5.8, it shows the entire database of participants in each category the clusters have significantly different mean values on each variable. It should be noted that positive values of a factor score reflect favourable perceptions. In contrast, the negative values represents less favourable perceptions from participants.

Thus, in interpreting and ultimately labelling the clusters, the focus of the four cluster variables and their respective group means will be considered. Interpretation of the means of the clusters was found to have statistically significant differences on the resultant factors.

**Highly Specific Information Seekers.** It can be seen from Table 5.8 that participants in Cluster One mainly focuses their attention, on the *quality* of information only. There are 93 (31%) members in this cluster. This group perceived the Internet information as *high quality* and is keen to believe it is so.

This cluster have positive perceptions on the *quality of information* on the Internet only and believe that information via the Internet is presented *fairly, consistently, trustworthy, credible, unbiased, honestly, accurately, reliable, dependable, authoritative and relevant*.

This cluster usually knows the quality of these product and service information before they search for information on the Internet. Therefore, they are likely to have the skills and knowledge to evaluate the quality of information on the Internet. Also, as the name indicates, this cluster comprises of specific information seekers, searching for highly specific quality information only.

This has important implications for Web marketers with WebPages. Websites aimed at this group must reflect high quality of because this group has the knowledge and skills to judge quality of information on the Websites.

***Disillusioned Information Seekers.*** Cluster Two is characterised by the highest responses among the four clusters. While this group has positive attitudes towards *scope of information*, they feel negatively about the *quality of information*. Thus, they are ***Disillusioned Information Seekers***. This cluster contains 115 (38.5%) members.

Members in this cluster believe that information on the Internet has *wide coverage, depth, and is current or up-to-date*. Furthermore, they believe that the credentials of the Web authors (information providers) as being *knowledgeable, qualified* and having the *expertise*. This is very interesting due to the fact that this group resemble that of a typical student user. The reputation of Web authors and scope of information

provided on the Internet are crucial for student's academic purposes. As such, this group uses the Web to gather information for research or assignments. Indicated in Table 5.8, the participants showed patterns of positive perceptions on the *authority and scope of information* but negative evaluations on the *quality of information*.

***Undirected Information Seeker.*** Participants within Cluster Three focused mainly on the *quality, authority and scope of information*. There are 43 (14.4%) members in this cluster. Groups within this cluster have positive perceptions on the *quality, authority and scope of information*. This is not surprising as they could be interpreted as "browsers" seeking information from the Internet with no specific purpose or objective and thus termed *Undirected information seekers*. The results are shown in Table 5.8.

Being browsers on the Internet, this cluster navigate through an information space looking for items of interest. The *quality, authority and scope of information* are not greatly influential in their information gathering decisions. This may be a reflection that they do not have the necessary skills or experience to judge the information, and are still exploring the opportunities the Web presents owing to the vast amount of product and service information. Since, this group are browsers on the Internet, they may be very pessimistic about the information dimensions and believe that the Internet is an effective information medium for gathering product and service information on the Internet. This is perhaps the main reason why it had contributed to the positive perceptions held by the participants towards these three information types within this cluster.

***Sceptical Information Seekers.*** Cluster Four has 48 (16.1%) members. It is the most interesting in terms of the participant's perception towards the information on the Internet. This cluster have positive perceptions on the *scope of information* only, holding positive perceptions on the *wide coverage, depth, and currency* of product and service information on the Internet. *Quality and authority of information* are less favoured by this cluster and are not influential in their information gathering decisions. This may be a reflection of their limited experience on the Internet, which led this group to believe that the Internet is an effective medium for providing tremendous amount of *wide coverage, current, depth and detail information* only. This cluster, however, do not believe that the Internet has 'good' quality information nor good Web authors on the Internet. This perhaps explains the reason why the Sceptical information seekers only have high positive perceptions towards the scope of information.

Following Table 5.8, a final four-cluster solution on the basis of all the cases was then developed. The four clusters are illustrated in Table 5.9.

**Table 5.9 Results of Cluster Analysis**  
**Profile of Participant's Perceptions on the Internet**

Perceptions	Overall <sup>a</sup> N = 299	Cluster 1 N = 93	Cluster 2 N = 115	Cluster 3 N = 43	Cluster 4 N = 48	F <sup>b</sup>	Scheffe's Results <sup>c</sup>
Current & up-to-date	3.89	3.66	3.83	4.26	4.15	8.87	4>1; 3,1,2
Accurate	3.35	3.22	3.23	4.14	3.19	20.91	3>1,2,3
Depth & detailed	3.51	3.06	3.51	4.00	3.90	21.43	4,3>2>1
Wide coverage	3.98	3.30	4.22	4.16	4.56	51.20	4>2,3>1
Unbiased	2.73	2.80	2.36	3.84	2.50	42.63	3>1,2,4; 1,2
Consistent	3.04	3.15	2.69	4.05	2.77	45.53	3>1>2,4
Fair & balanced	3.01	3.11	2.70	3.88	2.75	32.96	3>1>2,4
Authoritative	3.17	3.18	2.97	3.95	2.92	22.00	3>1>2,4
Credible	3.10	3.11	2.78	4.14	2.90	33.91	3>1>1,2
Trustworthy	2.96	2.98	2.67	4.02	2.69	36.96	3>1>2,4; 1>2
Dependable	3.10	2.96	4.02	2.83	3.09	24.99	3>1>2,4
Honest & truthful	2.94	2.81	2.78	4.00	2.56	39.65	3>1>2,4
Reliable	3.15	2.99	3.08	4.09	2.75	27.65	3>1>2,4
Relevant	3.53	3.12	3.69	4.17	3.34	24.08	3>4,2,1; 2>1
Qualified authors	3.23	2.76	3.53	4.14	2.56	65.55	3>2>1,4
Knowledgeable authors	3.37	2.93	3.73	4.26	2.58	81.88	3>2>1>4
Expert authors	3.26	2.90	3.53	4.14	2.48	69.02	3>2>1>4

a: Five-point scale with 5 strongly agree and 1 strongly disagree

b: All F values are statistically significant at 0.001 levels.

c: Only those significant at least at 0.05 levels are listed.

Overall, the findings here reveal that there are differences in perceptions held by participants about the dimensions of these information types. Generally, of the four clusters, members in Cluster Two exhibit positive perceptions towards the *authority and scope of information*, which represented the *Disillusioned Information Seekers*,

while Cluster Three displayed positive perceptions towards all the information on the Internet. This cluster group hold the strongest believe that the Internet has *quality, scope, and authority of information* and is thus represented as *Undirected Information Seekers*.

With the remaining clusters, Cluster One, focused on the *quality of information* only. Represented as *Highly Specific Information seekers*, this cluster groups have positive perceptions towards the *quality of information* only. Cluster Four, *Sceptical Information Seekers*, also have positive perceptions but only towards the *scope of information*. The members in this cluster believe that the Internet is an effective medium for providing *wide coverage, depth and detail*, and *current* product and service information.

From this analytical procedure, one would suggests that participants have quite different views about the three underlying dimensions and that the differences of perceptions confirms most of the evaluative criteria of Internet information sources described by extant literature (Stoker & Cooke, 1994; Bruce, 1999).

## 5.5 Results of Discriminant Analysis

The Discriminant Analysis was employed to identify those variables of participants that best distinguish them in relation to their perceptions of the information on the Internet. Its main objective was to help identify the variables with the greatest differences between the participants and evaluate the usefulness of individual variables in helping to discriminate between the participants.

The three factors extracted in the Principal Component Analysis (*perceptions on quality, authority and scope of information*) were used as the independent variables to test for the demographic differences. As mentioned previously, the factors extracted in the Principal Component Analysis were used as the independent variables and the variables of *gender, level of Internet experience, age* and *income* as dependent variables.

The results from the factors extracted in the Principal Component Analysis were checked for the principal assumption underlying discriminant analysis. This involves the formation of variate or discriminant function (normality, linearity, and multicollinearity) and the estimation of the discriminant function (equal variance/covariance matrices). An examination of the independent variables for normality, linearity, and multicollinearity were performed. The results indicate that the assumptions are met at acceptable levels. For the assumption of equal covariance or dispersion matrices is also addressed. The results indicate that there are significance differences in the covariance matrices between the two groups.

Furthermore, the sensitivity of the test factors other than just covariance differences makes this an acceptable level. No additional remedies are needed before estimation of the discriminant function can be performed.

After determining the principal assumption underlying Discriminant Analysis, a step-wise approach was to follow. Due to the exploratory nature of this study, the objective of this procedure was used to determine which variables are most efficient in discriminating between the participants.

The step-wise procedure is also used for estimating the discriminant function, for its level of significance. Mahalanobis  $D^2$  and Rao's V measures were used.

Following the procedure recommended by Hair, Anderson & Tatham (1995), the statistical significance for the two discriminant functions were checked first, both functions were insignificant at 0.05 level. This suggests that the discriminant functions were deemed not statistically significant for this study, and thus the model should be re-examined with possibly new variables.

After the significance of the discriminant functions had been identified, the assessment of the overall fit of the retained discriminant functions was determined. The assessment involves consideration of the cutting score determination, construction of classification matrices, and measures of predicative accuracy.

The study used 0.3 as a cut off for significant discriminant loadings (Tabachnick & Fidell, 1989). The participants were found not to differ significantly across the variables (ie.gender, level of Internet experience, age and income). The result suggests that the variables studied are not powerful predictors of perceptions towards the Internet as a product and service information source. In addition, the Eigen value and the canonical correlation of the discriminant function were relatively low, suggesting that the statistical significance of the discriminant function is largely due to the sample size (Hair, Anderson, & Tatham & Black, 1995; Tabachnick & Fidell, 1989).

As an additional check, the predictive validity of the discriminant function was assessed. The predictive validity of the discriminant function serves to reinforce the statistical difference between the participant's perception towards the Internet as a product and service information source. Overall, the discriminant function appeared to lack predictive validity. The percentage of correctly classified cases was only 54.36 percent. Without adjusting for the upward bias, the overall hit ratio neither met the maximum chance criterion nor the proportional chance criterion.

The Press Q statistic was also calculated, was below the critical value, also insignificant at 0.05 level. The classification accuracy is less than that expected by chance. This is a reflection of the lack of discriminatory power of the discriminant function. Therefore, **it may be concluded that the classification accuracy is not significantly better than that expected by chance and the discriminant function has no significant classificatory power.** There may be an upward bias in the overall hit rate as the same data used to assess the classification accuracy was used to derive the discriminant function. There is insufficient evidence on this study to indicate that the discriminant function provides meaningful practical differentiation (Churchill, 1983). This serves to indicate that the findings of the discriminant function of the multiple discriminant analysis were insignificant for the data.

## 5.6 Summary

This chapter has examined the demographic profile of the participants. The results indicate that participants are mainly young (i.e. under 25 years), are of Australian ethnic group and from an Australian background. The results also indicate that participants are highly educated, and have fairly low personal income.

This chapter has also examined the participants' perception towards the Internet as a product and service information source. The results indicate that there are significant differences in perceptions held by participants towards the product and service information on the Internet. Participants were found to have highly positive perceptions on the *wide coverage, current, relevant, depth and detailed of* product and service information on the Internet. Participants have fairly positive perceptions on the *accuracy* of product and service information on the Internet and the credentials of the information providers as *knowledgeable, qualified, and expert*. Participants however, have low positive perceptions on the *trustworthiness, honesty and unbiasedness of* product and service information on the Internet.

Utilising Factor Analysis, the results revealed that there are three dimensions in the perception of information on the Internet. They are the *quality of information, authority of information, and scope of information*.

Cluster Analysis and Discriminant Analysis were also conducted to explore the similarity and differences between groups. The Cluster Analysis revealed that four clusters were uncovered. Cluster One consists of the *Highly Specific Information*

*Seekers*. This group has positive perceptions on the *quality of information* only. *Disillusioned Information Seekers* make up Cluster Two. This cluster group have positive perceptions on the *scope and authority of information*. *Undirected Information Seekers* is comprised of the third cluster. This cluster has positive perceptions on all the information types on the Internet and hold strongest perception on the *quality, authority and scope of information*. The last cluster, *Sceptical Information Seekers*, have positive perceptions on the *scope of information* only.

A Multiple Discriminant Analysis was also conducted to determine if there was statistical difference between the overall perceptions held by participants. It was revealed that the statistical significance for the Discriminant function was insignificant at 0.05 levels. The Discriminant function appeared to lack predictive validity. The overall hit ratio neither met the maximum chance criterion nor the proportional chance criterion. The Press Q statistic was also below the critical value, and also insignificant at 0.05 level. Moreover, the classification accuracy is less than the expected by chance and there is a lack of discriminatory power of the discriminant function. Overall, this suggests that the participants were quite homogeneous in their perceptions towards the Internet as a product and service information source.

## **Chapter 6**

# **Findings**

### **The Participants' Internet Behaviour**

#### **6.0 Introduction**

This chapter presents the findings of the survey about the participants' behaviour on the Internet. The chapter consists of the results of descriptive statistics of responses to the Internet behaviour of participants. The chapter is divided into four main parts. The parts include: 1) Internet access and behaviour; 2) Internet use and behaviour; 3) personal skills and Internet experience of participants; 4) information search behaviour via the Internet is comprised of the final part of this chapter. The chapter concludes with a discussion of the findings of the behavioural aspect of participants' overall implications on the Internet.

#### **6.1 Results of Descriptive Statistics**

##### **6.1.1 Internet Access and Behaviour**

In this section, the participants' overall Internet access behaviour is addressed. The frequency distribution provided an analysis of participants' access to the Internet, as well as the frequency of access to the Internet. Through the Descriptive statistics, the results will shed some light on these issues.

### 6.1.1.1 Access to the Internet

Interestingly, a large number of participants, who are students, reported that they mainly access the Internet from home (50%). This is similar to the finding reported by Teo, Lim and Lai (1997) where home access received a large proportion of mentions (63.6%) as the place of Internet access. Please refer to Table 6.1

**Table 6.1 Results of Descriptive Statistics**  
**Access to the Internet**

Internet Access	f	%
From Home	150	50
From an Educational Institution (eg. University)	91	30.3
From Work	50	16.7
From a Friend's home	7	2.3
From a Public Library	1	0.3
From a Cybercafe	1	0.3
From other places	NA	NA

Surprisingly, access to the Internet from an Educational institution such as a university (30.3%) was only the second most important area of Internet access. This is similar to the finding reported by the Australian Bureau of Statistics (1998) where university Internet access receive a large proportion of mentions (26%).

Access to the Internet from work (16.7%) was the third most reported place of Internet access. This is a big contrast to the Australian Bureau of Statistics (1998) where only 31 percent of users mentioned work as the place of Internet access. Two

reasons may explain this. One is that participants may have all the software and hardware they needed to connect to the Internet at work. Thus, it is strategically important for the company to provide services to their employees. The permanent connection to the Internet Service Providers by organization may be another reason contributing to this, because the organizations usually have a connection to the Internet. The Internet Service Providers provides fast connection than the average home and allow greater access to the Internet for employees.

The least reported place of Internet access is from a public library (0.3%) and a Cybercafe (0.3%). This is similar to the finding reported by the Australian Bureau of Statistics (1998) where public terminal access (i.e. public library) only got a small proportion of mentions (6%) as the place of Internet access. This is probably not surprising as many problems arise in accessing public terminal locations.

The main problem is often placed at equipment failure and technical access difficulties (Applebee, Bruce, Clayton, Pascoe & Sharpe, 1998). It has always been a major problem for Internet users and stems to interrupt participants' access to the Internet.

#### **6.1.1.2 The Frequency of Internet Access**

81.7 percent of participants reported that they access the Internet on a daily basis (46.0%) or a weekly basis (35.7%). This indicates regular access to the Internet by the participants. Please refer to Table 6.2.

**Table 6.2 Results of Descriptive Statistics**  
**Frequency of Internet Access**

Internet Access Frequency	f	%
Everyday	138	46
Every Week	107	35.7
Every Two Weeks	23	7.7
Every Month	13	4.3
Less Than Once a Month	18	6.0

This is a big contrast to the finding reported by the Australian Bureau of Statistics (1998) where only 29 percent of persons had frequently accessed the Internet. This is probably not surprising as participants are accessing the educational sites, making use of online information and search engines, both as part of their study. Therefore, it is a fact that many participants in the University would be more inclined to expect fairly high frequency of Internet access. Another reason could be that the cost of the technology required to gain access to the Internet has dropped dramatically, putting participants within the reach of most of the information sites.

Only a small number of participants reported accessing the Internet on a monthly basis (4.3%). Interestingly, this is the lowest percentage reported. Two reasons may be this. One is that participants are not accustomed to the idea of accessing the Internet to obtain information pertaining to their study. They may still acquire most of their information from traditional sources such as journals, and feel that the information may be available for free from other sources. The lack of Internet experience of participants may be another reason contributing to this, because there are a number of skills required by Internet users to effectively access and harness the Internet as a serious research tool.

## **6.1.2 Internet Use and Behaviour**

Through the Descriptive statistics, the participants' Internet use and behaviour is addressed. The frequency distribution provided an understanding of participants' current use of the Internet, as well as the years they had spent on the Internet. The frequency distribution also highlighted the number of hours per week participants spent on the Internet. The results of participants' Internet use and behaviour is discussed in this section.

### **6.1.2.1 Main Use of the Internet**

A large majority of participants reported to use the Internet to obtain information pertaining to education (75%). This is perhaps expected since the sample consists of university students whereby they use the Internet for their study purposes. Since the Internet is used mainly to access information, it is not surprising that there are a large number of websites relating to educational information. The results are shown in Table 6.3.

**Table 6.3 Results of Descriptive Statistics**  
**Use of the Internet**

Main Use of the Internet	f	%
Find information for education	226	75.3
E-mail overseas friends	177	59.0
E-mail local friends	177	59.0
Find information for leisure or entertainment	151	50.3
Find information on a company	116	38.7
Find information on products	98	32.7
Find information for others	55	18.3
Apply for jobs online	32	10.7
Obtain free sample	25	8.3
Purchase products online	16	5.3
Others	36	12.0

Teo, Lim and Lai (1997) argued that the Internet may revolutionise education. The researchers assert that some universities and schools in Australia teach their students how to make use of the Internet to obtain information for their various research projects. Other universities have placed teaching materials on the WWW for students to explore and download. Edith Cowan University for instance, have placed a repository of course syllabus and materials that requires its students to retrieve information from its home page. Academics at the university indicated that they used the Internet access to make course materials available online for students as part of education provision. Therefore, this is not surprising that an overwhelming amount of participants use the Internet relating to educational purposes.

E-mailing came in second in importance as the main use of the Internet reported by participants. The results indicate that the Internet is used primarily to communicate with friends locally and those overseas (59% for both respectively). This is not

surprising as e-mailing provides students with a cheap, fast and convenient way to keep in touch with friends and their significant others. For the other 41 percent of participants, communications via e-mailing are carried out to a lesser extent. One possible reason for this is that participants may not have e-mail addresses. Therefore, it is less than expected that e-mail appear to be used extensively by students of second and third year level.

Using the Internet to obtain information pertaining to leisure and entertainment (50.3%) came in third as the main use of the Internet reported by participants. This is probably not surprising for students may have more time or value leisure activities more than working people who may be too busy with their work to have time to engage in a search for leisure information. As such, many Websites have leisure information including travel-related and hobbies related sites, as well as entertainment information for users to gain access to, and of that does not seem adequate, some companies send the leisure information to the user's e-mail addresses. It seems that this trend towards increased use is reflective of a similar trend in academic institutions Australia-wide.

A noteworthy finding is that only 5.3 percent of participants are currently confident in purchasing products on the Internet. This is despite the fact that many companies would be more inclined to expect fairly high growth of consumers shopping online (Ernst & Young, 1999; Fram & Grady, 1995). This is similar to the finding reported by the Australian Bureau of Statistics (1998) where online purchase only got a small proportion of mentions (9%) of purchasing on the Internet. Currently, the security issues and the limited ability of companies to deal with online purchase appear to

have contributed to its low ranking. Moreover, customers often have fears of complicated purchase process involving such things as Cybercash. Companies are too often unwilling and/or unable to invest to address these online purchase issues.

#### **6.1.2.2 Years on the Internet**

A large majority of participants (67%) indicated that they have been on the Internet for 1 to 3 years. This is similar to the finding reported by Pitkow and Kehoe (1997) where years on the Internet received a large proportion of mentions (62%) by Internet users. This is probably not surprising as participants have been on the Internet albeit by the nature of the Business degree undertaken. Edith Cowan University for instance, hold a 3 years Bachelor degree in Australia. The results are shown in Table 6.4.

**Table 6.4      Results of Descriptive Statistics**  
**Years on the Internet**

<b>Years on the Internet</b>	<b>f</b>	<b>%</b>
Less than 6 months	20	6.7
6 to 12 months	41	13.7
1 to 3 years	201	67.0
4 to 6 years	31	10.3
7 years or more	6	2.0

Interestingly, one out of five participants reported to have been on the Internet for less than 12 months (20.4%). This indicates that there are still many users just coming online. One plausible reason could be that participants may not have the experience in using the Internet, and may have attitudes of aversion or suspicion towards the new technology. However, there is a shift more towards more experienced users with at least one year of experience on the Internet.

12.3 percent of the participants are very experienced and have more than four years of experience on the Internet.

**6.1.2.3 Hours of Internet Use**

65.3 percent of participants reported spending less than seven hours per week on the Internet. So, a high proportion of the participants are still fairly light users of the Internet. The results are shown in Table 6.5.

**Table 6.5      Results of Descriptive Statistics**  
**Hours of Internet Use**

Hours of Internet Use (Hrs/Wk)	f	%
Less than 1 hour	53	17.7
2 – 4 hours	88	29.3
5 – 7 hours	47	15.7
8 – 10 hours	43	14.3
11 – 13 hours	5	1.7
Greater than 14 hours	52	17.3

Generally, participants are inclined to spend a maximum of four hours per week on the Internet because of the demands of the course of their study. The increasing number of experienced student users may be another reason contributing to this, because they can find the information Website efficiently, in a lesser of time, than the inexperienced users.

34.7 percent of the participants reported spending more than eight hours per week on the Internet. Interestingly, 17.3 percent of participants even spend more than 14 hours per week on Internet. This indicates that we have some real enthusiasts of the Internet.

### 6.1.3 The Personal Skills and Internet Experience of Participants

Through the descriptive statistics, the participants' Internet skills are addressed. The frequency distribution provided an analysis to participants' level of Internet experience and their implications with the online activities across all skill levels.

#### 6.1.3.1 Level of Internet Experience

A large majority of participants (41.7%) classified their Internet skills as having '*some experience*'. This is perhaps expected since participants have used the Internet in their second and third years of their Bachelor's degree. Therefore, it is not surprising that an overwhelming number of students have responded favourably about having *some experience* in using the Internet. The results are shown in Table 6.6.

**Table 6.6**      **Results of Descriptive Statistics**  
**The Level of Internet Experience**

Level of Internet Experience	f	%
No Experience	1	0.3
Limited Experience	42	14.0
Some Experience	125	41.7
Quite Experienced	91	30.3
Very Experienced	22	7.3

Over one third (30.3%) of the participants classified their Internet skills as *quite experienced*. The second largest group of participants with Internet experience. Two reasons may explain this. First, for a user to have some experience in using the Internet, it is perhaps tantamount that users must have some appropriate training, because they use the Internet for their study purposes.

The second reason is that participants have become quite experienced in their skills in the course they are studying.

A small number of participants classified their Internet skills as having *limited experience* (14%). One possible reason could be that participants may have not taken an Internet course and is expected to have fairly low experience in using the Internet. The Edith Cowan University for instance, offers an Internet course unit that teaches its students to explore and learn about the Internet.

Surprisingly, only a small number of participants (7.3%) classified themselves as *very experienced* in using the Internet. This is an interesting finding. Despite the fact that many students at the university would be more inclined to have training skills in the course they are studying, only 7.3% considered themselves *very experienced*. The results indicate that the Internet is still relatively new to Internet users in Australia, unlike the US, where users are more familiar with using the Internet (Teo, Lim & Lai, 1997).

Only a small number of participants (0.3%) reported their level of Internet skills as '*not experienced*'. This is very surprising, given the fact that a significant number of participants surveyed have regarded themselves as having the enabling skills to use the Internet. Two reasons may explain this. One is the lack of appropriate training or skills. Thus, it is strategically important for the university to provide Internet courses to their students. The fears of using the Internet may be another reason contributing to this, because the Internet is relatively a new medium.

### 6.1.3.2 Online Activities and Level of Internet Skills

A total of 93.7 percent of the participants reported they have Internet skills on the common activities of the Internet. Based on past literature review (GVU 10<sup>th</sup> WWW User Survey, 1998; Pitkow & Kehoe, 1997; Hammond, McWilliam, & Diaz, 1998; Geissler & Zinkhan, 1998; Reltev, 1991) six common online activities were listed in the questionnaire. Participants were asked to rate on a scale of 1 (No experience at all) to 5 (Very experienced). The results are shown in Table 6.7.

**Table 6.7      Results of Descriptive Statistics**  
**Online Activities and Level of Internet Skills**

Online Activity	Mean	Std. Dev.	Rank
Using Search Engines (eg Alta Vista, Excite )	3.67	1.09	1
Printing from the Web page	3.53	1.09	2
Book marking from Web sites	3.09	1.44	3
Downloading Software from the Web	2.94	1.28	4
Creating a Web page	1.89	1.19	5
Promoting a Web page	1.65	1.05	6

*Using search engines* was considered as the most important skill that participants have. This is similar to the findings reported by Pitkow and Kehoe (1997) where a large proportion of mentions of search engines used are Yahoo (93.4%), Alta Vista (81.4%), and InfoSeek (70.2%). Three reasons may explain the importance of using search engines. First, search engines are a free shareware, available to anyone on the Internet. The Web search engines are always available via the Internet for students to use and download when searching for information. Therefore, it is expected students will perform well in using search engines. The second reason is that search engines use an automatic method, which regularly scans the Internet for information. Search

engines allow students to connect to a number of different information sites and submit a brief summary of what information and so on is available on their sites. It also provides details of which category the site should be listed under and makes it easier for students to obtain the information conveniently and efficiently.

The third reason is that the design of the search engines, with images, sounds clips, and animations, provides students the best and fun way to find information from the Internet. The familiar search engines and directories such as Yahoo, Lycos and InfoSeek contain graphic images, which can help the student discover particular sites dedicated to providing free and cheap access to information.

*Printing from the Web page* is ranked second in importance as the level of skills that participants have on the Internet and ranked lower than the *use of search engines*. Surprisingly, it appears that the skill of printing from the Web page is less significant, despite the fact that it was more inclined to expect fairly high responses from participants. However, there is not this is not the case. The relationship is explained by simple logic that it is more likely for an academic to become expert at printing from the Web page when that activity already becomes part of the computing skills use in the course they are studying. Moreover, such simple online activity is so insignificant that this have some bearing on the perception that the students has of the usefulness of printing from the Web page. Therefore, this online activity may be identified as being an area where it has less impact in assisting with that student's study requirements.

*Bookmarking from Web sites* is ranked third for participants' online experience. This is not surprising as there are millions and millions of web pages available, and without bookmarking, users could spend hours searching for the appropriate information. Thus, it is strategically important for the students to have the skills to perform this online activity. Given that students are able to bookmark Web sites, it seems likely that they find the activity moderately difficult than the activity of printing from a Web page. A lesser number regarded themselves as having the enabling skills to carry out this activity.

*Promoting a Web site* is rated very low in terms of importance as an online skill. Considered last in importance, several reasons account for its low ranking. Arguably, several researchers assert that a series of measures is needed to promote a Web site (Ellsworth & Ellsworth, 1997; Choi, Stahl & Whinston, 1997; Khandpur & Wevers, 1998). Measures included are announcing the Web site to ISP's Members Site List, posting to Newsgroups, consider press releases, e-mail to VIPs, notify special Interest Groups. In addition, promoting a Web site also includes informing everyone with whom you communicate, publicise the Web site in the form of Business Communications, and provide a reciprocal link to all Web sites. These measures may contribute to negative Web page promotion. However, rare is the student, which has the skills, the essential software, experience, training, time and the costs to promote a Web page successfully. Therefore, it is clear that students who considered themselves as having no Internet skills or experience would not able to promote a Web site. It seems likely that this trend towards low level of online experience such as Web site promotion is reflective of a similar trend in academic institutions Australia-wide.

### **6.1.4 Information Search Behaviour via the Internet**

In this section, the participants' information search behaviour via the Internet is addressed. The frequency distribution provided an analysis into the types of product and service information participants would search for on the Internet.

The likelihood to search for the next twelve months and online purchase of products and services is also highlighted. The evaluative criteria for product and service purchases are also addressed by the frequency distribution. The Descriptive statistics presents the overall information search behaviour of participants on the Internet.

#### **6.1.4.1 Categorisation of Product and Service Information on the Internet**

A total of 86.3 percent of the participants have reported that they would search for product and service information on the Internet. Based on past literature review (Klein, 1998) fourteen common types of product and service information were listed in the questionnaire. The results are shown in Table 6.8.

**Table 6.8 Results of Descriptive Statistics**  
**Product and Service Information Category**

Product and Service Information Category	f	%
Magazines/Newspapers	122	40.7
Computer Related Products or Services	104	34.7
Music CDs/Tapes/Albums	104	34.7
Video/Movies	90	30.0
Travel Arrangements	88	29.3
Banking/Financial Services	79	26.3
Investment Related Information	63	21.0
Books	58	19.3
Autos/Motorcycle	51	17.0
Clothing/Shoes	47	15.7
Concerts/Plays	39	13.0
Recreational Equipment	35	11.7
Legal Services	11	3.67
Others	31	10.3

The use of the Internet for gathering purchase-related material and making actual purchases has increased significantly in the past year (Pitkow & Kehoe, 1997). The findings indicate that the most popular items bought and information gathered on the Internet is magazines and newspapers (40.7%), computer related products and services (34.7%), and music CDs, tapes and albums (34.7%). This is probably not surprising for these are *search goods*, which have distinctive characteristics. The significant characteristics of search goods are that participants have adequate knowledge of the particular product wanted before going out to purchase it and the product is purchased with minimum effort. Normally, participants chose to gather information on these search goods because they need not to undertake extensive information search and or to compare price and quality. It is not worth the extra time

and effort required. Whilst these are search goods, the items are gathered less because of participants inability to obtain the most valuable product information prior to use and will rely more heavily on product experience, of their own or others.

The moderately sought product and service information category over the Internet are concerts and plays (13%) and recreational equipment (11.7%). This is expected since these are *experience goods*, which are either too difficult or too costly to sample prior to purchase. Participants chose these goods because the best they can do with experience good is to collect all the information about product specifications to evaluate the product. Furthermore, participants want to experience the goods to obtain benefits and can only really determined after trying the service. Therefore, in this case, the search may involve participants actually trying out the product in the form of a demo or shareware versions of free initial trials on the Internet.

The less sought product and service information category over the Internet is the legal services (3.67%). This is probably not surprising as these are *credence goods*, which participants cannot verify the service even after use. Furthermore, participants may not be willing to expend special time and effort in purchasing these items. For *credence goods*, it is not easy to guarantee maximum value to the participants. Moreover, these items do not have physical form structure that can be physically consumed. What is being consumed is the service by the information and the use to which the service is put. Therefore, this is perhaps the reason that participants gather to a lesser degree on *credence goods*.

### 6.1.4.2 Frequency of Internet Use to Search for Product and Service Information

47.3 percent of participants reported that they would *sometimes, frequently, and always*, use the Internet to seek for product and service information. This is lower than that reported in Pitkow and Kehoe's findings (1997) which reported that approximately 70 percent of Internet users claim that this was the case. The results are shown in Table 6.9.

**Table 6.9 Results of Descriptive Statistics**  
**Frequency of Internet Use to Search for Product and Service Information**

Frequency of Internet Use	f	%
Never	7	2.3
Rarely	58	19.3
Occasionally	55	18.3
Sometimes	93	31.0
Frequently	40	13.3
Always	9	3.0
Not Applicable	38	12.7

Three reasons may explain this. First, it is tantamount to say the Internet may be the leading technological innovation that provides a low cost vehicle for sending, receiving, and storing massive quantities of information. Furthermore, the Internet can receive and deliver words, pictures, audio, video, animation and software. The second reason is the low cost of access. The Websites can be accessed for a reasonably low cost, in comparison to other media costs. The third reason is that the Internet allows various types of one-way as well as two-way communications to reach

the site visitors. This communication may also contribute to positive use of the Internet as an information retrieval tool.

Interestingly, participants indicated that they would *never*, *rarely*, and or *occasionally* (39.9%) use the Internet to search for product and service information. This is similar to the finding reported by Pitkow and Kehoe's (1997) where the frequency of using the Internet to search for product and service information only got a small proportion of mentions (21%).

Two reasons may explain this. One is that the terms and conditions on how the collected information is going to be used are not clearly specified on the Internet. Participants may have felt very strongly that revealing the requested information is not worth being able to access the site. Thus, while the foremost problem of terms and conditions users can be easily rectified, the latter problem of collecting and accessing a site of information is not straightforward. The increasing problems of speed may another reason contributing to this, because more and more WebPages are heavily laden with images, animations, scripts, and programs, all of which take extra time to download.

#### **6.1.4.3 The Likelihood to Search for the Next Twelve Months**

A large majority of participants reported that they are *very likely* and *likely* (68%) to carry out more searching in the next twelve months over the Internet. A significant number of participants have indicated that this was the case. The results are shown in Table 6.10.

**Table 6.10 Results of Descriptive Statistics****The Likelihood to Search in the next Twelve Months**

Rating	f	%
Very Likely	111	37
Likely	93	31
Neither Likely nor Unlikely	29	9.7
Unlikely	12	4.0
Very Unlikely	13	4.3
Not Applicable	40	13.3

This is not surprising for the findings indicate that the Internet may be increasing in popularity and is still commonly regarded as the most important product and service information by the participants. This finding is of particular interest, as it indicates that participants are describing their use of the Internet as a valuable product and service information source. Teo, Lim and Lai (1997) argued that the categories of information available on the Internet are so exhaustive to keep up with. The researchers assert that there are a large number of information on the Internet pertaining to advances to technology, recreational and entertainment activities.

The second largest category of participants reported that they *neither likely nor unlikely* (9.7%) likelihood to search for product and service information in the next twelve months. The reasons could be that these participants comprise the "information have-nots" in an information society and therefore are not accustomed to searching information on the Internet. Information searching activities may be still relatively new to students in Australia, unlike America, where they are familiar with searching for product and service information on the Internet. Participants in this category may still revert to retrieval of information from traditional sources such as journal, and newspapers.

A study by the Georgie Tech Research, 1998) reported that Web users receive most of their information from traditional sources, led by newspapers (63%) and television networks (58%). Online sources were rated third (53%) and were not as important as the traditional information sources.

Surprisingly, participants reported that they were *unlikely* and *very unlikely* (8.3%) search for product and service information in the next twelve months on the Internet. This is perhaps expected since there are problems with the Internet information. The three most commonly cited reasons for not searching information over the Internet are: not trusting the information, problems of information retrieval and not all information are free. There is an obvious risk associated with the information on the Internet. Jarvis (1998) in her findings have reported that information on the Internet is not always reliable and trustworthy. Therefore, participants in this category know that the sheer volume of information on the Internet is useless and inaccurate.

Another commonly experienced problem on the Internet is the speed of information retrieval. Most students often leave the Web site while searching for product information simply because the site is too slow. Furthermore, some information on the Internet is not free. Generally, some authors, editors and publishers on the Web expend considerable effort and money to make this information readily available, and they seek recompense for their effort. As such, they are generally not disposed to providing freely available to all via the Internet. For this reason there will always be some information, which will not be able to find via the Internet, as least, not without some price.

#### **6.1.4.4 Internet Use to Purchase Products and Services**

A large majority of participants reported to have not conducted any purchasing (72%) of products and/or services on the Internet. This is similar to the finding reported by the National Computer Board, cited in Teo, Lim and Lai (1997), where online purchase only receive a small proportion of mentions (80%) on purchasing activities on the Internet. Currently, credit card issues and the revealing of personal information over the Internet appear to have contributed to this. Furthermore, online purchase is still relatively new to students in Australia, unlike America, where consumers are more familiar with catalogue shopping. Generally, students are not accustomed to the idea of not being able to physically touch and feel products before buying them, which is the case when purchasing activities are conducted over the Internet (Teo, Lim & Lai, 1997).

#### **6.1.4.5 Criteria for Product and Service Purchases**

As a starting point, the ranks of perceived importance of the seven evaluative criteria were listed and studied in this study, based on the literature (Jarvis, 1998; Stoker & Cooke, 1994). Table 6.11 lists these seven evaluative criteria and their ranks according to their perceived importance for product and service purchases.

## 6.11 Results of Descriptive Statistics

### Criterion for Expensive and Inexpensive Product and Service Purchase

Expensive items			Inexpensive items	
Criteria	Mean	Rank	Mean	Rank
Trustworthiness	442	1	357	1
Expertise	388	2	224	4
Accuracy	229	3	275	3
Comprehensiveness	148	5	172	5
Currency (up-to-date)	193	4	292	2
Authority	114	6	129	6
Unbiased	79	7	102	7

#### 6.1.4.5.1 Criterion for Expensive Product and Service Purchases

As can be seen from Table 6.11, the three most important evaluative criteria were:

1. Trustworthiness
2. Expertise
3. Accuracy

*Trustworthiness* was one widely used and important criterion to evaluate expensive products and services before a purchase is made. *The results showed that the trustworthiness criteria was not only ranked as the top criteria in terms of the mean score, but also had also similar results to the inexpensive product and service purchase items.* This is a very significant finding. Therefore, there was a convergence among the participants on these criteria. **The *trustworthiness* issue had been considered to be important evaluative criteria for product and service information on the Internet.** Yet, based on findings highlighted in Chapter 5 of this thesis, participants are sceptical about the trustworthiness of Internet information.

*Expertise* came in second in terms of importance. Participants in the study indicated that they were more likely to actually carry out their intention to purchase if they felt that the source was an expert. It has been highlighted in previous studies that marketers have used a variety of techniques to convey source expertise such as using sales personnel trained in product line, recruiting sales representatives with specialised technical background in many fields, and using celebrity endorsers (Belch & Belch, 1998). However, in an Internet environment, source expertise is very different. It has been suggested in the literature that expertise of information on the Internet could be judged from an organization's recognised name such as a funding body, which is publishing information about itself (Stoker & Cooke, 1994; Cook, McNab & Anagnostelis, 1996). Expertise in an information source on the Internet could also be conveyed when an authoritative source such as the federal government publishes or issues the information. In addition, an author's credentials could increase participants' perception that Web marketers convey source expertise. It has been suggested that an author's credentials are most effective because of their knowledge, experience, and expertise in a particular product or service.

The *accuracy* criteria were ranked as third. The findings indicate that the criteria had similar results to the inexpensive product and service purchases. To achieve accuracy, it is necessary to understand accuracy of information on the Internet. Arguably, for an expensive product and service purchase, participants will likely to carry out their intention to purchase if they felt that the source was accurate.

Accuracy on the Internet could appropriately be judged if the content is based on evidence and its verification. It has been suggested in previous studies that the validity of information is evident when a Website is free from typing errors and inconsistencies of abbreviations (Stoker & Cooke, 1994; Ambre, Guard, Perveiler, Renner & Rippen, 1997). Moreover, the information is explained and the underlying data led to the conclusions presented. This may be the reason to explain why accuracy was ranked high by the participants.

Whilst the *accuracy* criteria were ranked as high, the *unbiased* criteria were ranked relatively low by the participants. This was expected. The issue of objectivity or bias has been an issue for marketers on the Internet. The literature suggests that this issue of bias is a difficult criterion to judge as many Internet sources are now regarded as being very biased (Stoker & Cooke, 1994; Cook, McNab & Anagnostelis, 1996). The reason is due to the large access to the Web by members of the business communities, academics and governments, which have contributed significantly to bias on the Internet (Stoker & Cooke, 1994). This may be the reason to explain why the bias criteria were ranked low by the participants.

#### **6.1.4.5.2 Criterion for Inexpensive Product and Service Purchases**

There were three most important criteria for the inexpensive product and service purchases. Overall, their importance was ranked as high. *Trustworthiness* and *accuracy* were ranked as first and third out of the seven evaluative criteria. This had similar results to the expensive product and service items.

*Currency* was ranked as second, and had different criteria to the expensive product and service items. These were expected and can be explained by following reasons. The literature indicates that the Internet has the potential to provide the most current information possible (Cook, McNab & Anagnostelis, 1996; Stoker & Cooke, 1995; Anagnostelis & Cox, 1996; Grassian, 1997). It has been suggested that a significant number of Web pages display the date of published information, the date of content posting and the timeliness of the information.

In addition, the Web sites have links to other Web pages from the home page, which will connect to the site and link up to current and up-to-date information. This may be the reason why these criteria were ranked relatively high by the participants.

## **6.2 Summary**

This chapter has examined the participants' Internet behaviour. In terms of Internet access and behaviour, the findings indicate that participants access the Internet mainly from home and from their University. A large majority of participants access the Internet on a very regular basis.

With respect to the Internet use and behaviour of participants, the findings indicate that the most common activities conducted on the Internet are finding information pertaining to education, leisure and entertainment, and e-mailing local and overseas friends. The least activity conducted on the Internet is making online purchases.

In terms of the number of years spent on the Internet, the findings indicate that participants use the Internet extensively from 1 to 3 years. The least number to have been on the Internet is more than seven years. The findings in the study also indicate that a large majority of participants reported to have spent 2 to 4 hours per week on the Internet. The least number spent using the Internet is 11 to 13 hours per week.

As for the Internet skills, the findings indicate that participants classified their Internet skills as having 'some experience' or as 'Intermediate' users. With respect to the online activities and the level of Internet skills, participants indicate that the common activities are using search engines and printing from the Web page. The least common online activity is promoting a Web page.

This chapter has also examined the information search behaviour via the Internet. The findings indicate that the common product and service information category sought are the search goods, which includes magazines and newspapers, computer-related products or services, music CDs, tapes and albums. The least product and service information category gathered on the Internet are the credence goods, which includes the legal services.

In terms of the frequency of Internet use to search for product and service information, participants indicate that they 'sometimes' use the Internet to seek for product and service information. The findings also indicate that participants would sometimes, frequently and always search for product and service information on the Internet.

With the likelihood to searching for the next twelve months, the findings indicate that participants are very likely and likely to carry out more searching in the next twelve months.

With respect to the evaluative criteria for product and service purchases, the findings indicate that the three most important criteria for expensive product and service purchases are the trustworthiness, expertise and accuracy. For the inexpensive product and service purchases, they comprised of the trustworthiness, currency and accuracy evaluative criteria.

## **Chapter 7**

# **Conclusions, Implications and Future Research**

### **7.0 Introduction**

This chapter contains four sections. Following a summary of the study, the findings presented in the previous chapter are discussed. The research questions pertaining to this study are addressed. In particular, the managerial implications of these findings on the Internet as a product and service information source are examined. The study's contribution to marketing literature is discussed in the third section. The chapter concludes with a discussion on the limitations in the study and recommendations for future research.

### **7.1 Summary of the Study**

Motivated by a lack of comprehensive research into consumer perceptions towards the Internet and its information, this study examines consumer perception of the Internet as a product and service information source. There are three general aims in this study. The first aim is to determine the participants' perceptions towards the Internet as a product and service information source.

The second aim is to understand the underlying dimensions of perceptions of information on the Internet. The third aim is to investigate the variables (i.e. gender, level of Internet experience, age and income) affecting consumer perceptions towards the Internet as an information source.

A self-administered questionnaire was employed to capture the perceptions of 300 Business Faculty students at the Edith Cowan University. The analysis of the data involved Descriptive statistics, as well as Multivariate techniques such as Factor Analysis, Cluster Analysis and Discriminant Analysis.

Through Descriptive statistics, it was revealed that there were interesting differences in consumer perceptions of the Internet as a product and service information source. The findings suggest that consumers have positive perceptions on the *wide coverage, current, relevant, and depth* of product and service information on the Internet. Participants have fairly moderate positive perceptions on the accuracy of product and service information on the Internet and the credentials of the information providers as being *knowledgeable, qualified* and having the *expertise*. Participants, however, have weak, less positive perceptions on the *trustworthiness, honesty and unbiasedness* of product and service information on the Internet.

Using Factor Analysis, it was revealed that there are three dimensions in the perceptions of information on the Internet. They are the *quality, authority* and *scope* of information.

The Cluster Analysis, which explored the similarity and differences between groups, resulted in four distinct clusters. These comprised of the *Highly Specific Information Seekers*, which have positive perceptions on the quality of information only. The *Disillusioned Information Seekers* have negative perceptions on the quality of information on the Internet. The *Undirected Information Seekers* have positive perceptions on the *quality, authority* and *scope* of information. The *Sceptical Information Seekers* have positive perceptions on the *scope* information only, but negative on both the *quality and authority* of information.

The Discriminant Analysis, which seeks to identify the variables that best differentiates the participants' perception of the information on the Internet, resulted in a lack of discriminatory power of the discriminant function. All this indicated that the Discriminant Analysis was statistically insignificant for the data. The findings in this study contain managerial implications, which is discussed in the next section.

## 7.2 Discussion

The following discussion seeks to address the ways in which Internet marketers may communicate effectively with consumers and improve participants' perceptions of the Internet as a product and service information source. In addition, strategies that Internet marketers may use to encourage participants' Internet behaviour are examined. Lastly, the implications of the research as well as the limitations and suggestions for further study are considered.

### 7.2.1 Discussion on the Perception of the Participants about the Internet as an Information Source

The findings in this study indicate that there are interesting differences in consumer perceptions towards the Internet as a product and service information source. Participants have highly positive perceptions on the *wide coverage, currency, relevant, and depth* of product and service information on the Internet. Furthermore, participants also have moderately positive perceptions on the credentials of information providers as *knowledgeable qualified and expert*. However, the findings indicate that participants have weak perceptions on the *trustworthiness, honesty, and unbiasedness* of product and service information on the Internet.

The findings on the perception of Internet information suggest that in order to gain positive support for their Internet communication efforts, marketers have to reinforce the Internet inherent characteristics of *scope, depth, currency, and relevancy* of their product and service information. The Internet is information-driven (*infocentric*), therefore the *scope and depth* of information provided by marketers is important to gain positive consumer perceptions and attitudes towards the information. Additionally, one of the unique advantages of the Internet is its ability to provide *current, up-to-date* information. So, marketers should ensure that resources are made available to keep the information on their Website *current* (Teo, Lim & Lai, 1997). As to *relevancy* of the information, marketers should try to make it easy for consumers to self-select the information that appeals to them and, if possible, customise content to make it relevant to regular visitors.

The consumer perception of the information providers is encouraging. Information providers are felt to be *knowledgeable, qualified, and expert* and hence provide *accurate* information on the Internet. Marketers would do well to be ensured that personnel entrusted to do content publishing on their corporate sites exude total credibility via their expertise.

What is worrying is that the consumers' perception of the information on the Internet is weak and less positive on *trustworthy, truthful and unbiased*. Yet, the research found that this is the most important criterion for evaluating product and service on the Internet, whether it is for expensive or inexpensive products or services.

To ensure trustworthiness and truthfulness of information on the Internet, marketers should consider a relationship-marketing approach. Measures may include creating warm relationships with the prospects by use of personalised e-mail, and personalised welcome messages on the Web pages. Furthermore, Internet marketers can encourage consumers to subscribe to mailing lists to enable them to send consumers information via e-mail. Rather than send unsolicited advertising to generate sales, communications should also be tailored according to individual consumers (Ellsworth & Ellsworth, 1995). Internet marketers can also mitigate the problem of *untrustworthiness and untruthfulness* of the information on the Internet by ensuring that their Web pages disclose author's qualifications and credentials.

To reassure *unbiasness* of product and service information on the Internet, Internet marketers should also consider citing the original source of information on the Web pages. The Internet marketers should have credentials of the author (s) or the source be clearly shown. An author's affiliation with a sponsor or the author's personal viewpoint or opinions should also be noted on the Web page to indicate possible bias or lack of objectivity. Moreover, the user will always be sceptical of information posted by an anonymous source.

### 7.2.2 Dimensions Underlying Perception of Internet Information

An interesting finding in this study was that using Factor Analysis, it was revealed that there are three important dimensions in the perception of information on the Internet. They are the *quality*, *authority* and *scope of information*.

***Quality of information.*** It contains the items *fair* and *balanced*, *consistent*, *trustworthy*, *credible*, *unbiased*, *honest* and *truthful*, *accurate*, *reliable*, *dependable*, *authoritative* and *relevant* product and service information.

***Authority of information.*** It contains the three items: *knowledgeable authors*, *expert authors* and *qualified authors*. The Web author's knowledge, expertise and qualifications are crucial for their presentation of information on the Internet.

**Scope of information.** It contains the last three items: *wide coverage, depth* and *detailed, current and up-to-date* information.

The findings reveal the marketers' effort must be centered on trying to tailor their Internet product and service communications to improve on three crucial areas, namely, *quality, authority and scope of information*. The items that contribute to each of the dimensions are listed above.

### **7.2.3 Ranking of Evaluative Criteria for Product and Service Purchases**

An interesting finding in this study was that *trustworthiness* and *accuracy* of information are two very important criteria for judging the information on the Internet, regardless of whether the purchase is for an expensive or inexpensive product. The *trustworthiness* criteria is ranked the highest. The importance of trustworthiness criteria has been highlighted in other studies (Jarvis, 1998; Stoker & Cooke, 1994; Bruce, 1999).

The trustworthiness criteria need to be enhanced on the Internet, because as results have indicated, it is considered as the most important criteria. It has been suggested that a long-term relationship marketing approach gains importance. A relationship marketing serves to build consumer's trust in Internet marketers (Ernst & Young, 1999; Strangelove, 1995; Bruce, 1999; Rawn, 1994).

The findings in the study also serve to reiterate the importance of the criteria *accuracy*. This requires the information on the Web marketer's Website to be error free.

#### **7.2.4 Segmentation of the Consumers Based on their Perceptions**

Cluster Analysis was used to explore the differences and similarities in groups. The results of the Cluster analysis uncovered four main profiles of information seekers on the Internet:

- ***Highly Specific Information Seekers*** have positive perceptions on the *quality of information*. They appear to know how to locate quality information on the Internet and believe that the product and service information on the Internet is presented in a *fair and balanced, is consistent, is trustworthy, credible, unbiased, honest, accurate, reliable, dependable, authoritative and relevant*.
- ***Disillusioned Information Seekers*** have negative perceptions on the quality of information on the Internet.
- ***Undirected Information Seekers*** are mainly 'browsers' seeking information with no specific purpose or objective. *Undirected Information Seekers* have positive perceptions towards all three information dimensions
- ***Sceptical Information Seekers*** have negative perceptions on both *the quality and authority* of information.

Marketers have to be reminded that the information seekers on the Internet are varied and do not all fall into a homogeneous group. So it is essential to be able to research and find out the nature of the prospects that are seeking online information on their products and services. Are they sceptical? Disillusion? Do they just want to search for specific information? Or are they just browsing? Website design strategies would differ greatly depending on the kinds of visitors the Website is targeted to attract.

## **7.2.5 Discussion of the Participants' Internet Behaviour**

### **7.2.5.1 Internet Access and Behaviour**

The rapidly declining cost of computers and Internet access has had an impact on the high rate of *home access* of the Internet. Though students have free Internet access via the university, 50% of the participants mainly accessed the Internet via home. Home and work are common places for accessing the Internet (ABS, 1998; Teo, Lim & Lai, 1997; Hoffman & Novak, 1996; Georgie Tech Research, 1998; Ernst & Young, 1999).

81.7 percent of participants reported that they access the Internet on a daily basis (46.0%) or a weekly basis (35.7%). This increasingly regular access of the Internet is also evident in other surveys (Georgie Tech Research, 1998; ABS, 1998; Ernst & Young, 1999). A possible explanation for this regular access of the Internet is that people are finding more and more to do on the Internet, be it for entertainment, communication, or serious work.

### 7.2.5.2 Internet Use and Behaviour

Consumers are likely to use the Internet for a variety of reasons. Based on the participants' responses, the Internet is useful for serious information search (like education materials), communication (especially via e-mail), entertainment, and obtaining product or company information. However, online product purchase is extremely low.

Despite being categorised as the "Net Generation" by the popular media, as high as one in five of these young consumers are recent users of the Internet (i.e. less than 12 months). So marketers have to be cautious about introducing systems or technology that is far too sophisticated, even for young consumers. As it is such a young medium, only a small proportion of the consumers have been on the Internet for many years or consider themselves highly experienced on the Internet.

### 7.2.5.3 Personal Skills and Internet Experience

The Internet is still relatively new to Australian students, unlike the U.S., where the users are more accustomed to using the Internet (Teo, Lim & Lai, 1997). More participants classified their level of Internet experience as having *limited* or *some experience* rather than *quite experienced* or *very experienced*. They are also fairly light users of the Internet, clocking less than seven hours per week.

Further findings in the study also suggest that participants were able to perform common online activities such as *using search engines*.

#### **7.2.5.4 Information Search Behaviour via the Internet**

It is encouraging to note that a total of 86.3 percent of the participants have reported that they do search for product and service information on the Internet. The findings in this study indicate that the most popular product and service category for information gathering on the Internet are the magazines or newspapers, computer related products or services, and music CDs, tapes and albums.

The findings in this study also suggest that it may be fruitful for Internet marketers to employ an approach where the objective is to increase the frequency of participants to use the Internet to search for product and service information. While participants were found to *sometimes* use the Internet for searching product and service information, the findings suggest that consumer may not be accustomed to using the Internet frequently for searching product and service information.

That is likely to change very rapidly. 68.0 percent participants said they were *likely* or *very likely* to search for product and service information over the next twelve via the Internet. A possible explanation for this could be that consumers see the Internet as a valuable source of product and service information. This indicates that the Internet is very likely to become an important information source and marketers need to move fast to use this as a marketing communications medium.

The findings suggest that it is important for Internet marketers to encourage electronic transactions via the Internet. Very few of the young consumers have purchased products online. Strategies need to be in place to motivate participants to shop electronically via the Internet. The risks that participants perceive in Internet shopping must be addressed. Previous studies found that concerns about credit card security and about divulging personal information over the Internet greatly hinder consumer's willingness to purchase over the Internet. A Master Card study (cited in Gallagher, 1996) similarly concluded that in order for Internet commerce to take off, the World Wide Web must first be marketed as a safe and effective means for purchasing.

### **7.3 Implications of the Research**

There are implications arising from this study. This study contributes to literature relating to marketing on the Internet in several ways.

It addresses the lack of comprehensive research into consumer perceptions towards the Internet as a product and service information source. This study has contributed to the understanding of perceptions of young Australian consumers toward product and service information on the Internet. Such an understanding has managerial implications for Internet marketers in the designing of effective marketing strategies on the Internet (Rosner, 1996; Mohr, 1995).

In addition, the understanding of perceptions has important implications for Web content and design. The Website can be improved by making the information current, easily accessible and educational. This has important implications of attracting and retaining customers (Ernst & Young, 1999).

The findings of this study also have important implications for the designing and evaluation of Web sites. Web site designers such as Internet service providers can use the perception items for setting up their Web sites. Therefore, they can use Websites to display information and make information available to users who use the Internet as an information retrieval medium. A consideration of the content of information on the Internet can be designed so that the users' important information objectives are met.

Another contribution of this study to the existing literature is the use of multivariate data analysis techniques such as factor, discriminant and cluster analysis. The lack of multivariate statistical techniques has been identified with the perceptions of research on the Internet (Bruce, 1999). From the review of the literature relating to the Internet, multivariate techniques have yet to be employed. This study clearly shows the usefulness of applying multivariate techniques to the complex nature perceptions towards the information via the Internet.

The findings of this study hold significant implications for university administrators. There is an opportunity for training courses within the universities for the lecturers to focus on raising the awareness of the benefits that the Internet can provide as a valuable information source and to increase the use of the Internet as an additional educational resource.

The conceptual framework, as described in Chapter 3, used in this study may contribute further to the development of a model that may be used to measure consumer perceptions towards the Internet as a product and service information source.

#### **7.4 Limitations and Suggestions for Further Research**

Given this research is exploratory and a lack of empirical studies in this area, further research is needed for a better understanding of consumer perceptions towards the Internet as a product and service information source. Several suggestions may be made with regard to the limitations and areas for future research.

Methodologically, there are a number of limitations. First, there is a concern in the sampling. The sample chosen included in the survey was not randomly selected. Rather, a convenient sample of the Business faculty students in the university was taken. The survey data is based, therefore, on the results of Business faculty students only and may not be representative of young Australians or university students. In other words, the sample chosen could not be generalised to all consumers' perceptions towards the Internet as an information source.

Therefore, precautions should be taken in generalising the findings of this study. Future research is necessary in order that more reliable generalisation can be made.

A further limitation in this study was that the analysis involves simple tabulation and presentation of results. For the scope of this research, however, the survey method is adequate and although direct cause-effect may not be able to be clearly established, where one event is invariably followed by another, it may be inferred. In this case, future research should consider using an experimental method to determine what influences the differences in perceptions of the students towards the information on the Internet.

The use of discriminant analysis for comparison of perceptions does not take into consideration the relative importance of the various other dimensions on consumers' overall perceptions towards the Internet as a product and service information source. Future research should employ other analytical methods to test the proposed conceptual model and investigate the theoretical relationships suggested in the literature.

Since this is one of the few studies in marketing literature that has examined the perceptions of consumers towards the information via the Internet, future research in marketing should consider employing cross-cultural studies. This involves the comparison of consumer perceptions in two or more countries.

The literature suggests that consumers' level of Web experience impact their perceptions towards the information via the Internet (Pitkow & Kehoe, 1997). However, the effects of Web experience were not evident in this study. Most of the participants are still light users with just moderately experienced with the Internet. As the Internet usage becomes more prevalent and the level of experience increases more substantially, the influence of experiences on perceptions towards the information via the Internet may be more pronounced. Future research can enhance the insight into consumer perceptions with the inclusion of Web experience as a contingent variable.

This is also a cross-sectional analysis of a phenomenon that is changing rapidly. A longitudinal analysis may reveal how the evolution of experience impacts perceptions of consumers towards the information via the Internet.

## **7.5 Conclusion**

Notwithstanding the limitations identified, this study has provided further extension to the research work in the area of consumer perceptions towards the Internet as a product and service information source. Significantly, the study highlighted some implications for marketers who are (or will be) using the Internet to disseminate product and service information on the Internet. Based on the study, this means of communicating product and service information cannot be ignored especially for the new generation of Internet users.

## References

Ambre, J., Guard, R., Perveiler, F.M., Renner, J., & Rippen, H. (1997). Assessing the quality of information on the Internet. [Online].

Available: <http://www.mitrectek.com/hitit/showcase/documents/criteria.html>.

Anagnostelis, H., & Cox, J. (1996). *Web wisdom: how to evaluate and information quality on the Web*. Lawrence Erlbaum Associates, Inc: New York.

Andrich, D. (1982). Using latent trait measurement to analyse attitudinal data: A synthesis of viewpoints. In D. Spearitt (Ed), *The Improvement of Measurement in Education and Psychology* (pp. 89-126). Melbourne: The Australian Council for Educational Research.

Applebee, A., Bruce, H. Clayton, P., Pascoe, C., & Sharpe, E. (1998). *Academics online: A nationwide quantitative study of Australian academic use of the Internet*. Australia: Auslib Press.

Applebee, A., Clayton, P., Pascoe, C. (1996). Internet and the academic: use and non-use. Bruce, A. C. T.: *Centre for Communication Policy Research*, Faculty of Communication, University of Canberra, 1996 (Research Series, 4).

APT Strategies (1998). Demographic of Internet Users. [Online].

Available: <http://www.apststrategies.com>. Accessed-28-2000.

Arms, T. (1990). Evaluating information sources. [Online].

Available: <http://www.Library.unr.edu/~ragains/eval.html>.

Australian Bureau of Statistics (1998). Household Use of Information Technology (Catalogue No. 8146.0). Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics (1999). Business use of Information Technology (Catalogue No. 8129.0). Canberra: Australian Bureau of Statistics.

Bartol, K.M., Martin, D.C., Tein, M.H., & Matthews, G.W. (1995). *Management: a pacific rim focus*. McGraw-Hill Company: New York.

Bednall, S., & Kanuk, W. (1997). *Consumer Behaviour*. Australia: Prentice Hall.

Belch, G.E., & Belch, M.A. (1998). *Advertising and Promotion: an integrated marketing communication perspective (4<sup>th</sup> International ed.)*. Boston: Irwin/McGraw Hill Companies.

Bennett, L., Wilkinson, G., & Oliver, K. (1996). The development and validation of instruments to assess the quality of Internet information: a progress report. [Online]. Available: <http://www.itech1.coe.uga.edu/Faculty/gwilkinson/webeval.html>.

Bethon, P., Pitt, L.F., Watson, R.T. (1996). The World Wide Web as an advertising medium: toward an understanding of conversion efficiency, *Journal of Advertising Research*, 36 (1), 43 – 54.

Bloggs, A. (1998). Selection and evaluation of electronic resources. *Information Services and Use*, 12, pp. 135 – 40.

Booker, E. (1995, February 20). Web users cruising for Infor, not purchases. *Computerworld*, 29 (8), 6.

Bournellis, C. (1995, November). Internet '95'. *Internet World*, pp. 47 – 52.

Boyce, R. (1998, Feb). Exploring the web CPM myth. *Advertising Age*, 69 (5), pp. 17-19A.

Brandt, D.S. (1996, May). Evaluating information on the Internet. *Computers in Libraries*, 16 (5), pp. 44 – 47.

Bridges, A., & Thede, A. (1996). Selection criteria for Internet resource. *College and Research Libraries News*, 56 (February), pp. 92 – 93.

Briggs, R., & Hollis, N. (1997). Advertising on the Web: is there response before click-through?, *Journal of Advertising Research*, 37 (2), pp. 33-45.

Brightman, J. (1995, August). Mystery guests. *American Demographics*, 17 (8), pp. 14 – 16.

Bruce, H. (1999). Perceptions of the Internet: what people think when they search the Internet for information, *Internet Research: Electronic Networking Applications and Policy*, 9 (3), pp. 187 – 199.

Bruner, II, G.C. (1997). Cybermarketing: essentials for success, *Journal of marketing*, 61 (1), pp. 112 – 113.

Burns, A.C., & Bush, R.F. (1998). *Marketing research*, 2<sup>nd</sup> ed. New Jersey: Prentice-Hall.

Carmines, E.G., Zeller, R.A. (1979). *Reliability and validity assessment*. Beverly Hills: Sage Publications.

Cassel, D. (1995). Selection and evaluating of electronic resources. *Information Services and Use*, 11, pp. 117 – 136.

Caywood, C. (1997). Library selection criteria for WWW resources. [Online].  
Available: <http://www6.pilot.infi.net/carolyn/criteria.html>.

Choi, S.Y., Stahl, D.O., & Whinston, A.B. (1997). *The economics of electronic commerce: the essential economics of doing business in the electronic marketplace*. USA: Macmillan Technical Publishing.

Churchill, G.A. (1996). *Marketing Research – Methodological Foundations*, (5<sup>th</sup> ed.). USA: The Dryden Press.

Cleland, K. (1995, April 3). Web lacks transactions, but influences decisions. *Advertising Age*, 66 (14), 26.

Cohen, E.E. (1997). *Accountant's guide to the Internet*. New York: Wiley & Sons.

Collins, B. (February, 1996). Beyond cruising: reviewing. *Library Journal*, pp. 122 – 124.

Collis, B. (1985). Psychological implications of sex differences in attitudes towards computers: Results of a survey. *International Journal of Women's Studies*, 8 (3), pp. 207 – 213.

Cook, A., & McNab, A., & Anagnostelis, B. (1996). The good, the bad and the ugly: Internet review sites. Originally published in *Online Information 96: the Proceedings of the 20<sup>th</sup> International Online Information Meeting*, London, 3 – 5 December 1996: 33 – 40. [Online].  
Available: <http://www.omni.ac.uk/agec/iolim96.html>.

Cook, D., Allison, R., & Anagnostelis, H. (1996). The Internet as a reference and research tool: a model for educators. *Reference Librarian*, 41/42, pp. 231.

Cronbach, L.J., & Meehl, P.E. (1995). Construct validity in psychological tests. *Psychological Bulletin*, 52, pp. 281-302.

Cross, R. (1994, October). Internet: the missing marketing medium found. *Direct Marketing*, 57 (6), 222 – 23.

Cunningham, W.H., Anderson, T.W., & Murphy, J.H. (1974). Are students real people? *Journal of Business*, 47 (3), pp. 399 – 409.

CyberAtlas. (1996). The Internet Research Guide. [Online].  
Available: <http://www.cyberatlas.com>

Dambrot, F., Watkins-Maleck, M., Silling, S., Marshall, R., & Garver, J. (1985). Correlates of sex differences in attitudes toward and involvement with computers. *Journal of Vocational Behaviour*, 27, pp. 71 – 86.

Davis, D., & Consenza, R.M. (1988). *Business research for decision-making* (2<sup>nd</sup> ed.). Boston: PWS-Kent.

Dickman, S. (1995, February). Catching customers on the Web. *Inc. Technology*, 17 (4), 56 – 60.

Dinsdale, A. (1995). Introduction to electronic commerce; issues, concerns and the future. [Online] Available: <http://www.netrex.com/business/commerce.html>.

Ducoffe, R.H. (1996). Advertising value and advertising on the Web, *Journal of Advertising Research*, 36 (5), 21 – 34.

E.Marketer. (2000). Demographics of Internet Users. [Online].

Available: <http://www.com/estats.com>

Edith Cowan University. (1999). *Statistics Book*. Western Australia: Edith Cowan University.

Ellsworth, J.H., & Ellsworth, M.V. (1995). *Marketing on the Internet*. New York: John Wiley and Sons, Inc.

Enis, B.M., Cox, K.K., & Stafford, J.E. (1972). Student's as subjects in Consumer Behaviour experiments. *Journal of Marketing Research*, February, pp, 72 – 74.

Ernst & Young (1999). The Internet Shopping Study. *National Retail Federation*. [Online].

Available: <http://www.ey.net/internet/shopping/online/effectiveness/ss.asp.html>.

Fenton, S. (1998). Information quality: is the truth out there? [Online].

Available: <http://www.is.umc/~font/310/05-January-1998>.

Find/SVP. (1996). The American Internet user survey. [Online].

Available: <http://www.etrq.findsvp.com/features/newint.html>.

Find/SVP. (1998). The Internet user survey. [Online].

Available: <http://www.etrq.findsvp.com/features/newint.html>.

Fischer, S., & Pulos, S. (1983). Educational implications of adolescent's attitudes towards computers and video games. Proceedings of EdCompCon. Institute of Electrical and Electronics Engineers.

Ford, G., Smith, D.B., & Swasy, J.L. (1988). An empirical test of the search, experience and credence attributes framework, in *Advances in Consumer Research*, 15, Michael J. Houston, Ed., Association for Consumer Research, Provo, UT. 1988, pp. 239 – 243.

Fram, E., & Grady, D.E. (1995, October). Internet buyers: will surfers become buyers? *Direct Marketing*, 58 (6), 63 – 65.

Gallagher, L. (1996). Mastercard study tracks on-line purchases. *Sporting Goods Business*, [Electronic Database] April, vol.29, no.4, p.10, Available: ERL, File: ABI/INFORM with full text, Accession number: 1198722.

Geissler, R., & Zinhkan, T. (1998). The differences between experienced and novice users on the web. *Advances in Consumer Research*, 25, pp. 180- 190.

Georgie Tech Research Corporation (1995). *GVU's 10<sup>th</sup> WWW user survey*. [Online] Available: [http://www.ccgatech.edu/gvu/user\\_surveys/survey-10-1995](http://www.ccgatech.edu/gvu/user_surveys/survey-10-1995).

Grassian, E. (1997). Thinking critically about World Wide Web resources. [Online]. Available: <http://www.library.ucla.edu/libraries/college/instruct/critical.html>.

Greenbaum, T.L. (1993). *The handbook for focus group research (rev. ed.)*. New York: Maxwell Macmillian Internations.

Greenbaum, T.L. (1993). *The handbook for focus group research (rev. ed.)*. New York: Maxwell MacMillan International.

Gupta, S. (1995). Consumer survey of WWW users. [Online] Available: <http://www.Umich.edu/~sgupta/hermes.html>.

- Hahn, S.E. (1997). Internet: let the user beware. *Reference Series*, 25 (2), pp. 7 –13.
- Hair, J.A., Anderson, R.E., Tatham, R.C., & Black, W.C. (1995). *Multivariate Data Analysis (4<sup>th</sup> ed.)*. USA: Prentice – Hall.
- Hammond, K., McWilliam, G., & Diaz, A.N. (1998). Fun and work on the Web: differences in attitudes between novices and experienced Users. *Advances in Consumer Research*, 25, pp, 372 – 378.
- Harris, R. (1991). Evaluating Internet Research Sources. [Online]  
Available: [http://www.sccu.edu/faculty/R\\_Harris/evalu8it.htm](http://www.sccu.edu/faculty/R_Harris/evalu8it.htm).
- Harris, R. (1997). Bridging the quality gap. [Online]  
Available: [http://www.sccu.edu/faculty/R\\_Harris/evalu8it.htm](http://www.sccu.edu/faculty/R_Harris/evalu8it.htm).
- Hayes, T.J., & Tatham, C.B. (1989). *Focus group Interview: A reader (2<sup>nd</sup> ed.)*. Chicago: American Marketing Association.
- Hermes. (1996). Fourth Hermes Internet survey. [Online].  
Available:<http://www-personal.umich.edu/~sgupta/hermes/survey3.html>.
- Hickman, A., & Levin, C. (1996), Internet crowd diversifies, *PC Magazine*, 8 October.
- Hoffman, D.L., Novak, T. P (1996). A new marketing paradigm for Electronic Commerce. Paper submitted for the Special Issue on Electronic Commerce for the Information Society. [Online].  
Available:<http://www.2000.ogsm.vanderbilt.edu/novak/new.marketing.paradigm.html>
- Hoffman, D.L., Novak, T.P., & Chatterjee, P. (1996). Commercial Scenerios for the Web: Opportunities & challenges, *Journal of Computer-Mediated Communications*, [Online] Special Issues on Electronic Commerce, 1 (3).

Houston, E., Sewell, D., & Schatz, S. (1998). End-user searching behaviour in information retrieval: a longitudinal study. *Journal of the American Society for Information Science*, 48 (3), pp. 218 – 234.

Innovate Australia: Information and Communications Services and Technologies (1995). [Online] Available: <http://www.dist.gov.au/events/itt.html>.

*Innovate Australia: information and communications services and technologies* (1995). [Online]. Available: <http://www.dist.gov.au.events/itt.html>.

Janal, D.S. (1998). *Online marketing handbook: how to promote, advertise, and sell your products and service on the Internet*. New York: John Wiley & Sons, Inc.

Jarvis, C.B. (1998). An exploratory Investigation of Consumer's evaluations of external information sources in prepurchase search. *Advances in Consumer Research*, 25, pp, 446 – 452.

Jurek, R.J. (1997, April). Don't be fooled again. *Internet World*, 8 (4), pp. 47 – 50.

Khandpur, N (J)., & Wevers, J. (1998). *Sales force automation using Web technologies*. New York: John Wiley & Sons.

Khera. I.P., & Benson, J.D. (1970). Are students really poor substitutes for businessmen in behavioural research? *Journal of Marketing Research*, 7 (November), pp. 529 – 532.

Kirk, E.E. (1997). Evaluating information found on the Internet. [Online]. Available: <http://www.milton.mse.jhu.edu:8001/research/education/net.html>.

Klein, L.R. (1998). Dimensions of Consumer Information Seeking Behaviour. *Interactive Media*, (May). pp. 196 – 203.

Ladner, H., & Tillman, C. (1993). Testing the surf: criteria for evaluating Internet information resources. *The Public-Access Computer Systems Review*, pp. 128 – 130.

Lanier, R., & Wilkinson, K. (1992). Evaluating Internet based information. [Online]. Available: <http://www.Lme.mankatp.msus.edu/class/629.cred.html>.

Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, No. 140.

Loyd, B.H., & Gressard, C.P. (1984). The effects of sex, age, and computer experience on computer attitudes, *AEDS Journal*, 18, pp. 67 – 77.

Mackie, C., & Cooper, C. (1985). The computer attitude scale. *Computers in Human Behaviour*, 8 (2), pp. 36- 40.

Maignan, S., & Lukas, B.A. (1997). The nature and social uses of the Internet: a qualitative investigation. *The Journal of Consumer Affairs*, 31 (2), pp.347 – 380.

Marchioni, G. (1995). *Information seeking in electronic environments*. New York: Cambridge University Press.

Markulowich, J. (1996, Feb). Quality control on the Internet. *Database*, pp. 93 – 94.

Marloff, J. (1995, July). The virtual corporation. *Internet World*, pp. 46 – 50.

McKeown, P.G., & Watson, R.T. (1997). *Metamorphosis: A Guide to the World Wide Web and Electronic Commerce (Version 2.0)*. New York: John Wiley and Sons Inc.

*Merriam Webster's Collegiate Dictionary, 10<sup>th</sup> Edition* (1998). Merriam Publishing Company: New York.

Messmer, M. (1998). Are users safe doing business on the' net? *Network World*, 12 (5), pp. 1 – 8.

Miller, C. (1995, Oct 23). Internet campaigns joins traditional ways to reach students, *Marketing News*, 29 (2), pp. 1 – 2.

Millers, E. (1996). *In the shadow of the baby boom*. New York: EPM Communications Inc.

Mohr, E.B. (1995, January) College students as current customers. *Direct Marketing*, 57 (9), pp, 16.

Morgan, F.W. (1979). Students in marketing research: surrogates vs role players. *Journal of the Academy of Marketing Sciences*, Summer, pp, 225 – 264.

Murray, S. (1996). The value of student evaluation of a Web site. *Research strategies*, 16 (1), pp. 79-84.

Nelson, E., & Cooper, C. (1991). Attitudes to computers. *Computers in Human Behaviour*, 21, pp. 340 – 345.

Ng, G (1998). Level of Internet experience. [Online].  
Available: [http://www.his\\_com/~ng/Webexperience.html](http://www.his_com/~ng/Webexperience.html). Accessed-19-1999.

Nickel, G.S., & Pinto, J.N. (1986). The computer attitude scale. *Computers in Human Behaviour*, 2, pp, 301 – 306.

Nie, N.H., Hull. C.H., Jenkins, J.G. Steinbrenner, K., & Bent, D.H. (1975). *Statistical package for the social sciences* (2<sup>nd</sup> ed.). New York: McGraw-Hill Inc.

Nielsen (1996). Commercenet/Nielsen Internet demographic survey. [Online].  
Available: [http://www/commerce.net/information/surveys/exec\\_sum.html](http://www/commerce.net/information/surveys/exec_sum.html).

Nielsen (1997). Commercenet/Nielsen Internet demographic survey. [Online].  
Available: [http://www/commerce.net/information/surveys/exec\\_sum.html](http://www/commerce.net/information/surveys/exec_sum.html).

Nielsen (1998). Commercenet/Nielsen Internet user demographic survey. [Online]. Available: [http://www.commerce.net/information/surveys/exec\\_sum.html](http://www.commerce.net/information/surveys/exec_sum.html).

NUA (2000). Internet Surveys. [Online]. Available: <http://www.nua.ie/surveys/how-many-online/world.html>. Accessed-27-2000.

O'Connell, G. (1995, March). A new pitch. *Internet World*, 54 – 55

O'Reilly/Trish (1996). Defining the Internet opportunity. [Online]. Available: [http://www. O'Reilly & Associates /Trish Information Services.com](http://www.O'Reilly&Associates/TrishInformationServices.com).

Oliver, G., Wilkinson, T., & Bennett, W. (1997). Challenges for Web information providers. *Computer-mediated Communication Magazine*, 1 (6), pp. 1.

Onkvisit, S., & Shaw, J.J. (1994). *Consumer Behaviour: strategy and analysis*. New York: MacMillian College Publishing Company.

Ormondroyd, J., Engle, M., & Cosgrave, T. (1995). *How to critically analyse information sources*. Cornell University Library: New York. [Online].

Ormondroyd, J., Engle, M., & Cosgrave, T. (1996). *Selection criteria for Internet resources*. [Online]. Available: <http://www.urisref.library.cornell.edu/skill26.html>.

Osgood, C.E., Suci, G.J., & Tannenbaum, P.H. (1975). *The measurement of meaning*. Urbana: University of Illinios Press.

Oxford. (1988). *The Australian Pocket Oxford Dictionary*, 2<sup>nd</sup> ed. Oxford University Press: Melbourne.

Page, M., & Martine, K. (1994, Summer). Teaching the Internet: challenges and opportunities. *Research strategies*, 12 (3), pp. 157 – 167.

Pagell, R.A. (1995, July/August). Quality and the Internet: an open letter. *Online*, pp. 7 – 9.

Peter, J.P. (1979). Reliability: A review of psychometric basics and recent marketing practices. *Journal of Marketing Research*, XVI (February). pp, 6 –17.

Piontek, S., & Garlock, K. (1997). Creating a World Wide Web resource collection. *Collection Building*, 14 (3), pp. 12-18.

Pitkow, J.E., & Kehoe, C.M. (1997). Federal Trade Commission Public Workshop on Consumer Information Privacy. *Consumer Privacy*. [Online].  
Available: [http://www.gvu.gatech.edu/user\\_surveys](http://www.gvu.gatech.edu/user_surveys)

Rader, H., Billie, R., & Gary, T. (1990). *Evaluating information: a basic checklist*. Chicago:ALA.

Rawn, S. (1994). The business of the Internet: An introduction to the Internet for commerce organizations, [Online]  
Available: <http://www.std.com/people/rawn/business.html>.

Reda, S. (1995). Interactive shopping: will consumers catch up with technology? *Stores (Electronic Database)* vol.77. no.3, pp. 20 –24, Available: ERL, File ABI/INFORM with full text, Accession Number: 991965.

Retig, J. (1996). Putting the squeeze on the information firehose. The neteditors and netreviewers. [Online].  
Available:<http://www.swem.wm.edu/firehose.html>.

Retlev, U. (1991). What does the user look from an online host? *Online Review*, 15 (3/4), pp, 193 – 205.

Rosner, H. (1996, April 15). Trapping students in the Web. *Brandweek*, 37 (16), pp, 50 – 52.

Safford, B.R. (1996, December). What do we teach about the world wide web? *School Monthly Media Checklist Monthly*, 13 (4), pp. 44 – 46.

Schiffman, B., & Kanuk, W. (1997). *Consumer Behaviour*. Australia: Prentice Hall.

Schultz, D. (1994). Will the information highway be filled with cyberJunk and roadkill. *Journal of Direct Marketing*, 8 (3), 4 – 6.

Skov, A. (1995, August/September). Separating the wheat from the chaff, Internet quality. *Database*, pp. 38 – 40.

Smith, A.G. (1997). “Testing the surf: criteria for evaluating Internet information Resources.” *The Public Access Computer Systems Review*, 8 (3).

SRI (1997). SRI International Internet survey.

Starr, S.S. (1994). Evaluating physical science reference sources on the Internet. *Reference Librarian*, nos. 41/42, pp. 261 – 273

.

Stewart, D.W. (1981). The application and misapplications of Factor Analysis in Marketing Research. *Journal of Marketing Research*, XVIII (February), pp. 51 – 62.

Stoker, D., & Cooke, A. (1994). Evaluation of networked information sources, in Ahmed, H. Helal & Joachim, W.W (eds.), *Information Superhighway: the role of librarians, information scientists and intermediaries: Proceedings of the 17<sup>th</sup> International Essen Symposium 24<sup>th</sup> – 27<sup>th</sup> October 1994*, Essen: Universitätsbibliothek Essen, 1995. pp.287- 312. [Online].

Available: <http://www.omni.ac.uk/agec.essen.html>. Accessed 18-1999.

Stoker, D., & Cooke, A. (1996). Evaluating information sources: how I tell if this book or article is any good? [Online].

Available: <http://www.omni.ac.uk/agec.essen.html>. Accessed 18-1999.

Swenson, C.A. (1988). How to sell to a segmented market. *Journal of Business Strategy*, 9 (1), pp. 18 – 22.

Tabachnick, B.G., & Fidell, C.S. (1989). *Using multivariate statistics* (2<sup>nd</sup> ed.). USA: Haper & Row.

Tapscott, D. (1998). *Growing up digital: the rise of the Net generation*. New York: McGraw-Hill.

Taylor, C.P. (1999, November). But there's a cache: web surfers are getting harder to measure. *Mediaweek*, 17 (7), IQ46.

Temple, L., & Lips, H.M. (1989). Gender differences and similarities in attitudes toward computers. *Computers in Human Behaviour*, 5, pp. 215-226.

Teo, T.S.H., Lim, V.K.G., & Lim, R.Y. (1997). Users and uses of the Internet: The case of Singapore. *International Journal of Information Management*, Vol.17 (5), pp. 325 – 336.

Thurstone, L.L. (1928). Attitudes can be measure. *American Journal of Sociology*, 33, pp. 529 – 554.

Tillman, H. (1998). Evaluating quality on the net. [Online].  
Available: <http://www.tiac.net/users/hope/findqual.html>.

Tripathi, S. (1996, July). Wired, but not wild. *Asia Inc.*, pp. 88.

VALS Survey (1997). The VALS Segment Profiles [Online].  
Available: <http://www.future.sri.com/vals.segs.html>.

Vinson, D.E., & Lundstrom, W.J. (1978). The use of students as experimental subjects in marketing research. *Journal of the Academy of Marketing Sciences*, Winter, pp. 114- 125.

Walters, C.G., & Bergiel, B.J. (1989). *Consumer behaviour: a decision-making approach*. Cincinnati: South-Western Publishing Co.

Washburn, B. (1995, May). The problem with advertising. *Internet World*. pp. 32 – 33.

Whitely, Jr, B.E. (1996). Gender differences in computer-related attitudes and behaviour: a meta-analysis. *Computers in Human Behaviour*, 12, pp. 2-21.

Wilder, G., Mackie, D., & Cooper, J. (1985). Gender and computers. Two surveys of computer related attitudes, *Sex Roles*, 13 (3/4), pp. 215 – 228.

Wilkinson, G. (1997). Evaluating the Internet information sources: consolidated listing of evaluation criteria and quality indicators. [Online].

Available: <http://www.itech1.coe.uga.edu/Faculty/Gwillkinson/webeval.html>.

Wilkinson, M., & Bennett, A. (1997, August/September). Separating the wheat from the chaff: Internet quality, *Database*, pp. 38 – 40.

Wingfield, N. (1995, June 12). Survey shows low interest in Internet shopping. *Infoworld*, 17 (24), 38.

Wunderman, L. (1984). Interactive communications, the dream and the reality. *Journal of Direct Marketing*, 8 (3), 74 – 77.

Zenith Media (1995, Dec 8) Internet Watch. *Marketing Week*, 16.

Zikmund, W.G. (1994). *Business research methods*. Forth Worth: Dryden Press.

## **Appendix A**

### **The Research Instrument**

**This appendix contains:**

- (i) Copy of Cover Letter to Participants at the Edith Cowan University**
- (ii) Copy of the questionnaire sent to Edith Cowan University students**



# EDITH COWAN UNIVERSITY

PERTH WESTERN AUSTRALIA

Dear Respondent

I am a Postgraduate Student at Edith Cowan University. I am conducting research examining Consumer Evaluation of the Internet as product and service information source. If you could take a few minutes of your time to fill out the questionnaire, it would be appreciated.

Participation is voluntary and you can pull out at any time without prejudice. Your participation has nothing to do with formal or informal assessment in your university courses.

Your name is required so that the research can be validated. However, the research results will be published without the names of respondents and no respondent will be able to be identified by any person besides myself.

The information collected will be kept **CONFIDENTIAL**. Neither respondents nor responses will be identified individually without permission. The data collected will be pooled and used to help consumers make an informed decision about seeking products and services information via the Internet.

Thank you for cooperation and participation. It is much appreciated.

Your consent to complete the questionnaire is given on the conditions mentioned above.

Please return the completed questionnaire as you leave.

Kevin Nguy  
Churchlands Campus  
Pearson Street  
Churchlands 6018  
May 1999

STUDENT NAME .....

DATE .....

SIGNATURE .....

## Section I : Access to the Internet

Q1. Have you **ever** used the Internet? Please **TICK ONE**.

- ☐ Yes (Continue with Question 2).  
☐ No (Please go to Section IV, Question 9).

Q2. **Where** do you mainly access the Internet?  
 Please **TICK ONE** answer.

- ☐ From work  
☐ From home  
☐ From a public library  
☐ From educational institution (eg Uni)  
☐ From a friend's home  
☐ From a Cybercafe  
☐ From other places \_\_\_\_\_  
 (Please specify)

Q3. How **frequently** do you access the Internet from the chosen place? Please **TICK ONE** answer. **Almost.....**

- ☐ Everyday  
☐ Every week  
☐ Every two weeks  
☐ Every month  
☐ Less than once a month  
☐ Never (Please go to Section IV, Question 9).

## Section II : Internet Usage

Q4. Overall, what is your **MAIN** use of the Internet? Please **TICK ALL** the appropriate categories.

- |  |  |
|--|--|
| <input type="checkbox"/> Find information for education                | <input type="checkbox"/> Find information for others |
| <input type="checkbox"/> E-mail overseas friends                       | <input type="checkbox"/> Obtain free samples         |
| <input type="checkbox"/> E-mail local friends                          | <input type="checkbox"/> Apply for jobs online       |
| <input type="checkbox"/> Find information on a company                 | <input type="checkbox"/> Purchase products online    |
| <input type="checkbox"/> Find information for leisure or entertainment | <input type="checkbox"/> Others _____                |
| <input type="checkbox"/> Find information on products                  | (Please specify)                                     |

Q5. **How long** have you been using the Internet?  
 Please **TICK ONE** answer.

- ☐ Less than 6 months  
☐ 6 to 12 months  
☐ 1 to 3 years  
☐ 4 to 6 years  
☐ 7 years or more

Q6. Typically, how many **hours per week** do you spend on the Internet? Please indicate your number of hours per week.

\_\_\_\_\_ (hrs. per week).

## Section III : Internet Experience

Q7. What is your **level of Internet experience**? Estimate the level of skills on a 5-point scale by **CIRCLING ONE** appropriate number (where 1 = No Experience and 5 = Very Experienced).

No Experience	Limited Experience	Some Experience	Quite Experienced	Very Experienced
1	2	3	4	5

Q8. Please indicate your **level of experience** in each of the following areas. Please **CIRCLE** the appropriate answer (where 1 = No Experience and 5 = Very Experienced).

	No Exp	Limited Exp	Some Exp	Quite Exp	Very Exp
1. Printing from the Web page	1	2	3	4	5
2. Downloading software from the Web	1	2	3	4	5
3. Bookmarking from Web sites	1	2	3	4	5
4. Using search engines (eg. Alta Vista, Excite, etc)	1	2	3	4	5
5. Creating a web	1	2	3	4	5
6. Promoting a web page	1	2	3	4	5

## Section IV : Information Search via the Internet

Q9. Have you **ever** used the Internet to seek product or service information? Please **TICK ONE**.

- ☐ Yes (Go to Question 10)
- ☐ No (If **NO**, please indicate the following reasons for **not seeking** product or service information on the Internet? Then go to Section V on the next page.)
- 
- 

Q10. What **types of** product or service information would you seek on the Internet? Please **TICK ALL** the appropriate categories.

- |  |  |
|--|--|
| <input type="checkbox"/> Computer Related Products or Services<br><input type="checkbox"/> Music CDs/Tapes/Albums<br><input type="checkbox"/> Video/Movies<br><input type="checkbox"/> Travel Arrangements<br><input type="checkbox"/> Books<br><input type="checkbox"/> Magazines/newspapers<br><input type="checkbox"/> Autos/Motorcycle | <input type="checkbox"/> Legal Services<br><input type="checkbox"/> Investment Related Information<br><input type="checkbox"/> Recreational Equipment(eg. Skis,bikes)<br><input type="checkbox"/> Concerts/Plays<br><input type="checkbox"/> Banking/Financial services<br><input type="checkbox"/> Clothing/Shoes<br><input type="checkbox"/> Others _____<br><div style="text-align: center;">(Please specify)</div> |
|--|--|

Q11. **How often** do you search for product or service information on the Internet? Please **TICK ONE**.

- |  |  |
|--|--|
| <input type="checkbox"/> Never<br><input type="checkbox"/> Rarely<br><input type="checkbox"/> Occasionally | <input type="checkbox"/> Sometimes<br><input type="checkbox"/> Frequently<br><input type="checkbox"/> Always |
|--|--|

Q12. What **search methods** do you use to seek product or service information on the Internet? Please **TICK ALL** the appropriate categories.

- |  |  |
|--|--|
| <input type="checkbox"/> Search engines (eg. Excite).<br><input type="checkbox"/> Hyperlink pages (eg. WWW sites)<br><input type="checkbox"/> Electronic mail<br><input type="checkbox"/> Newsgroups<br><input type="checkbox"/> Mailing lists | <input type="checkbox"/> Chat, IRC<br><input type="checkbox"/> Advertising<br><input type="checkbox"/> Word of mouth<br><input type="checkbox"/> Others _____<br><div style="text-align: center;">(Please specify)</div> |
|--|--|

Q13. What is the **likelihood** that you will be doing **more searching** in the next twelve months? Please **CIRCLE ONE** appropriate number (where 1 = Very Likely and 5 = Very Unlikely).

Very Likely	Likely	Neither Likely Nor Unlikely	Unlikely	Very Unlikely
1	2	3	4	5

Q14. Have you ever used the Internet to **purchase** products or services online? Please **TICK ONE**.

- ☐ Yes ☐ No

Q15. Imagine you are making a decision to buy a product or service, any information source you would choose to consult to help you make that decision would have to be: (**Rank the top three criteria** in order of importance 1 = Most important)

For a very expensive product or service. (Please rank.)	For a very inexpensive product or service. (Please rank.)
_____ Expertise	_____ Expertise
_____ Trustworthiness	_____ Trustworthiness
_____ Comprehensiveness	_____ Comprehensiveness
_____ Authority	_____ Authority
_____ Accuracy	_____ Accuracy
_____ Currency (up-to-date)	_____ Currency (up-to-date)
_____ Unbiased	_____ Unbiased

## Section V : Attitudes towards the Internet as a Product and Service Information Source

These are statements describes how you might feel about the Internet as a product and service information source. Using the scale from above, please indicate your agreement or disagreement by **CIRCLING ONE** answer only for each statement. (where 1 = Strongly Disagree and 5 = Strongly Agree).

Product and service information on the Internet ...	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. ... is current and up-to-date	1	2	3	4	5
2. ... is accurate	1	2	3	4	5
3. ... has a lot of depth and detail	1	2	3	4	5
4. ... has wide coverage	1	2	3	4	5
5. ... is unbiased.	1	2	3	4	5
6. ... is consistent	1	2	3	4	5
7. ... is presented in a fair and balanced manner	1	2	3	4	5
8. ... is authoritative	1	2	3	4	5
9. ... is credible	1	2	3	4	5
10. ... is trustworthy.	1	2	3	4	5
11. ... is dependable (for making decisions)	1	2	3	4	5
12. ... is honest and truthful	1	2	3	4	5
13. ... is reliable	1	2	3	4	5
14. ... is relevant	1	2	3	4	5
15. ... has qualified authors (information providers)	1	2	3	4	5
16. ... has knowledgeable authors (information providers)	1	2	3	4	5
17. ... has expert authors (information providers)	1	2	3	4	5

## Demographic Information

Q1. Are you: ☐ Male or ☐ Female

Q2. What **ethnic group** do you consider yourself to be a member of?

\_\_\_\_\_

Q3. Which **country** have you lived in most of your life?

\_\_\_\_\_

Q4. What is your **current age**? Please indicate \_\_\_\_\_.

Q5. What is your **educational background**? Please indicate the **highest level completed**. Please **TICK ONE**.

- ☐ Secondary Education
  - ☐ Completed High School (eg. Yr. 12)
  - ☐ Trade certificate/ TAFE
  - ☐ University Education – Certificate
  - ☐ University Education – Bachelor's
  - ☐ Others \_\_\_\_\_.
- (Please specify)

Q6. Which **YEAR OF STUDY** are you currently in? Please indicate \_\_\_\_\_.

Q7. What **MAJOR(S)** are you currently undertaking? Please indicate \_\_\_\_\_.

Q8. Which of the following categories best describe your **employment status**? Please **TICK ALL that** apply.

- ☐ Full-time employee
  - ☐ Part-time employee
  - ☐ Full-time student
  - ☐ Part-time student
  - ☐ Employed (ie casual)
  - ☐ Unemployed
  - ☐ Others \_\_\_\_\_.
- (Please specify)

Q9. Which of the following best describes your **approximate personal income** level? (please include Austudy, allowances, etc). Please **TICK ONE** answer.

- ☐ Under \$20,000
- ☐ Between \$20,000 and \$30,000
- ☐ Between \$30,000 and \$40,000
- ☐ Over \$40,000
- ☐ I don't know
- ☐ I would rather not say

Thank you so much for your time!

## **Appendix B**

**This appendix contains:**

- (i) Factor Scree Plot of The Dimensions of the Participant's Perceptions Towards the Internet as a Product and Service Information Source.**

**Factor Scree Plot of the Dimensions of the Participant’s Perceptions Towards the Internet as a Product and Service Information Source**

